Volume Title: A Critique of the United States Income and Product Accounts

Volume Author/Editor:

Volume Publisher: Princeton University Press

Volume ISBN: 0-870-14178-3

Volume URL: http://www.nber.org/books/unkn58-1

Publication Date: 1958

Chapter Title: The Conceptual Basis of the Accounts: A Re-examination

Chapter Author: George Jaszi

Chapter URL: http://www.nber.org/chapters/c0549

Chapter pages in book: (p. 13 - 148)

The Conceptual Basis of the Accounts

A Re-examination

GEORGE JASZI

OFFICE OF BUSINESS ECONOMICS, DEPARTMENT OF COMMERCE

Contents of Mr. Jaszi's Paper

The Conceptual Basis of the Accounts

GEORGE JASZI

Introduction

It has been almost fifteen years since work was started on the conceptual framework in which the official United States national income statistics are presented; eight years since this framework crystallized in the 1947 edition of the *National Income Supplement;* and four years since it was fully discussed for the first time, in the 1951 edition. Apart from very minor modifications, there have been no definitional changes since 1947.

With respect to statistical methodology the development has been similar, except for the fact that the *National Income Supplement, 1954*,[1] embodied a comprehensive revision of the previous estimates, stemming from the incorporation of postwar census data and other statistical information that had become available since 1947. While not involving basic changes in sources or methods, the 1954 revisions have thrown some new light on the reliability of the estimates.

Over these years an enormous amount of conceptual and methodological work has been done in national income and allied fields all over the world. In the light of this work and also of the experience accumulated by the National Income Division (NID) in constructing and using the tools it provides, the time is opportune for a reappraisal of the conceptual framework and statistical foundations of the official estimates, and for some discussion of the broad course that future work might take. The present paper deals with the conceptual aspects, although the dividing line between what is conceptual and what is statistical is not always clear.

The present paper expresses my personal views, and is not an official statement. This is more than a routine disclaimer. As will become apparent, I have attempted to cover a large number of issues, concentrating on the difficult and the controversial. I assume that I shall be

NOTE: The views expressed are those of the author, and not necessarily those of the Office of Business Economics. This paper has benefited greatly from comments received from Edward F. Denison and Charles F. Schwartz prior to its presentation to the Income and Wealth Conference in November 1955; and from a detailed review by Harlow D. Osborne at a later stage. Needless to say, these critics do not subscribe to all the views expressed in the paper.

[1] *National Income Supplement, 1954, Survey of Current Business,* Dept. of Commerce.

proved wrong on some of them at least, and shall change my views accordingly. This is done better in a private than in an official capacity. Also, while I have tried to write responsibly, I have not given as much weight to administrative considerations as I should were I writing officially. Finally, the Office of Business Economics is fortunate in having on its staff several persons who have competent and independent views on the range of subjects covered in this paper. I am generally in close harmony with them and have benefited greatly from their thoughts. But complete agreement is not possible in our field: this is another reason why the discussion that follows should be taken strictly as the expression of my personal opinions.

PLAN OF PAPER

To be complete, a paper of this type should include a proposal for a specific set of national accounts, as well as supporting tables. The present paper does not contain such a proposal because I have not worked out some of the detailed changes I think are desirable. This lack may, however, afford some compensating advantages. Thus, our attention will not be diverted from certain theoretical issues that are better clarified by broad discussion than by working out the problems of detailed tabular presentation.

My first topic is accounting design. I restate the meaning of the accounting approach and review the general structure of the accounts which provide a framework for the statistics. Next I fill in the detail of this general scheme, discussing the major problems involved in the definition of total output and of the income and product flows.

I have had to set aside some important definitional and classificational problems,[2] and to omit systematic consideration of presentational problems such as the arrangement of the items in the accounts, terminology, and the degree of detail to be shown in the summary accounts as distinguished from the supporting tables. Finally, I do not deal with the organization of these tables themselves.

I have found it useful to comment in footnotes or in the Appendix on certain contributions to national income literature which deal with points deserving more elaboration than could be provided in the text, or which were addressed directly to our work and therefore

[2] One such problem which holds considerable interest but which did not fit into the framework of this paper, the treatment of government enterprises and related transactions, is examined in the Appendix, Note 1, in the light of proposals made by the Organization for European Economic Cooperation (OEEC) in *A Standardized System of National Accounts* (Paris, 1952), and by Lenore Frane and Lawrence R. Klein in "The Estimation of Disposable Income by Distributive Shares" (*Review of Economics and Statistics,* November 1953).

seemed to call for a response. It will be noted that these comments tend to be concerned primarily with points of disagreement. This is quite unavoidable, I suppose, since there would be no purpose in dwelling on the wide range of subjects on which there is agreement. But in a way it is unfortunate, since it tends to create the impression of much more disharmony than actually exists.

The same is true with respect to my comments on the other papers in this volume, which I received after my own was largely complete. Accordingly, lest an exaggerated impression of discord emerge, I should like to say that I regard the degree of basic agreement as rather satisfactory. Apart from a few suggestions which strike me as sports, I find that the chief and perhaps the only really serious point of theoretical disagreement between myself and our critics concerns the treatment of the so-called intermediate services of the government. On this subject I remain unreconstructed. I do not believe that there are any such services in the sense in which they are thought to exist. It would be a great satisfaction to me either to convince or to be convinced on this matter; in the meantime I shall keep rereading Hans Christian Andersen's story, "The Emperor's New Clothes."

SUMMARY OF MAJOR POINTS

1. In reviewing the aims of national income measurement I recognize some cleavage between normative uses and uses in the study of economic behavior. However, I do not think that two separate systems can be constructed; a somewhat uneasy compromise seems to be the continued prospect.

2. I restate what I consider to be the essence of the accounting approach to national income statistics. I reaffirm its usefulness, although I see some possible ill effects.

3. In the course of a review of the principles of accounting design, I point to some problems that arise in the sectoring of the economy.

4. Instead of the six-account system in the form of which the United States annual national income statistics are now presented, I would prefer a simpler five-account system, consisting of a gross product account, a personal account, a government account, an external account, and a saving-investment account. This is essentially the system which now underlies the presentation of the quarterly data. The present business account, as well as the household, government, and rest of the world income and product subtotals which are now inserted into the corresponding current accounts, could no longer be identified in the five-account system.

The desirability of balance sheet accounts is assumed throughout the paper. The problems to which their construction gives rise are not discussed, however, except to the extent that they are identical with those arising in connection with saving-investment accounts.

5. Mapping out, by reference to the summary accounting scheme, the areas of the economy on which we should obtain further information, I consider the deconsolidation—complete or partial—of the gross product account along various lines; of the personal account according to major types of family or personal institution (farm and nonfarm entrepreneurial families, other families, and nonprofit institutions, pension funds, etc.) and according to size of income; and of the saving-investment account along detailed sector lines. Regional information, which was the topic of a recent Income and Wealth Conference, is not discussed.

6. A general deflation of the entire set of accounts seems to me a will-o'-the-wisp. Further progress is envisaged along the lines of an industrial breakdown of constant-dollar gross national product; and, with considerably more serious qualifications, in the direction of the measurement of factor inputs. I acknowledge the utility of *ad hoc* deflations of components of the income flow that cannot be deflated in principle.

7. Reviewing the rationale of the factor cost concept, I reaffirm its usefulness for studies of resource allocation.

8. I favor the exclusion of consumer interest from the measures of national output.

9. Inability to provide fully satisfactory income share breakdowns stems, in my opinion, from the lack of an adequate theory of income distribution. Little basic progress can be expected as long as this situation prevails; but certain further statistical analyses of the income shares are suggested as possibly helpful.

10. Examining the rationale of imputations, I find them necessary auxiliary constructions, both in normative and behavioral analysis. The usefulness of detailed information permitting the segregation of monetary and imputed items is recognized.

11. Very tentatively, I submit for discussion the elements of a possible alternative to the present imputation for commercial banks and similar financial intermediaries.

12. An examination of the duplication controversy suggests that its

major practical lesson for future work is the necessity of a functional classification of government expenditures.

13. The advisability of measuring government (and consumer) capital formation is considered. For reasonably early implementation, I favor the segregation of government acquisitions of various types of durable assets. I take a positive view of further work on the depreciation of government capital and the measurement of government-owned capital stock. The calculation of net imputed rates of returns on these items I regard as an exercise of more doubtful usefulness.

14. Facing the difficulties inherent in the present "net" definition of gross capital formation which excludes parts, repairs, and maintenance, I suggest that on grounds of both logic and practical usefulness we should consider the possible advantages of a grosser concept which would include these items.

15. I am sympathetic to the revaluation of depreciation charges in terms of current prices, as well as the substitution of an accelerated formula for depreciation in place of the present formula. However, given the crucial importance of the item, it is more than understandable that one hesitates to introduce these changes into the official statistics as long as so many unresolved issues relating to proper treatment and interpretation persist. It would be highly desirable to have a consensus of professional opinion on these issues before changes are introduced.

16. I propose that another attempt be made to grapple with the problem of measuring capital gains and losses.

17. Certain difficulties in the present treatment of depletion are pointed out.

18. The introduction of a new category of international transfer payments would, I believe, be desirable. Other possible changes in the treatment of international items I regard as of minor importance.

The Aims of National Income Measurement

DIVERSE USE OF DATA

National income statistics are tools. Before we appraise the present usefulness of these tools and decide how they can be improved, it is necessary to formulate the major purposes for which they are to be employed. The existing uses of national income statistics provide a basis for such a formulation. It would be possible, of course, to disregard some or all of these uses and to advance alternative ones. This

would be entirely legitimate if one considered the existing uses inappropriate. By and large, I myself have no quarrel with them, and therefore do not adopt this approach.

If all major existing uses are taken into account, however, it seems difficult to find a common denominator. National income statistics are employed, mostly in academic circles, to appraise the performance of economic systems in providing goods and services and in distributing them among various population groups; and to investigate the laws of behavior of the economic system, both in the short run and over longer periods. They are used, primarily by the government, as tools of broad economic policy to direct—in varying manners and degrees ranging from monetary policy to direct resource allocation—the general course of economic events. And they are used, in the main by the business community but also by other transactors, to make advantageous adaptations when the pattern of general economic developments must be taken for granted. It seems difficult at first sight to reduce to a common denominator the needs of the scholar who in his ivory tower ponders the distribution of income, and those of the financial analyst who in his busy city office is concerned with the prices of bonds and stocks.

ECONOMIC APPRAISAL AND ECONOMIC BEHAVIOR

But this is not the real source of the difficulty. Both the scholar and the financial analyst, as well as all other users of national income statistics, are interested in essentially the same information about the economic system, although the information will have to be differentially adapted in less basic respects to the varying degrees of concern with specified aspects of the economy, as well as to the varying preferences for alternative forms of presentation. The real cleavage in the uses of national income statistics is at once simpler and more basic. It is not due to differences between the interests characteristic of theoreticians and those typical of policy makers or of "economic men," and so forth. Rather, it stems from the fact that any of these individuals may be interested in two types of economic analysis: one, the objective appraisal of economic results—for want of a better term we may call this normative analysis; two, the study of economic behavior. These two basic uses often call for different types of information.

An example will make the distinction clear. The scholar who is interested in quantifying changes in the nation's investment will be dissatisfied with accounting valuations of depreciation, because of their deficiencies as measures of capital consumption in an economic sense. Yet the same scholar, in studying the determinants of investment, will

accept these accounting values if he thinks that they underlie the motivations of businessmen. Similarly, the financial analyst may wish to have a substitute for the accounting measure of depreciation if he examines the statement of a corporation in order to obtain a view of the real state of its capital stock. But he may be quite satisfied with the accounting measure when he wants to assess the market reaction to the profit position of the corporation, if he thinks that this reaction is based on the accounting charge. Similar examples might be cited for any category of users of national income statistics, and with respect to a wide range of items besides depreciation.

I consider both of the objectives legitimate, and it seems to me foolish to think of discarding either one of them in the construction of national income statistics. On the other hand, I do not believe that the requirements specific to either one have become, or ever will become, articulated enough to permit the construction of two separate sets of national income statistics around them. In practice, both purposes will have to be accommodated by the provision of detailed breakdowns, alternative variants, and—last but not least—a healthy measure of compromise.[3]

THE ACCOUNTING APPROACH

Main Significance

The major idea underlying the reconstruction of the official national income statistics in the *National Income Supplement, 1947,* was to provide, in addition to the measures of national output, a comprehensive national economic accounting system, and to present the former in the framework of the latter.

In view of the extensive discussion of the past years, it is probably not necessary to attempt a detailed explanation of the accounting approach. However, the following broad characterization of what I mean by it may prevent misunderstanding. I think that the essence of the accounting approach involves, first, the division of the economy into groups of transactors and the depiction of the economic process in terms of their transactions. In my opinion, a picture of this type, to be most meaningful, will probably have to be organized around the con-

[3] Ingvar Ohlsson (*On National Accounting,* Stockholm, Konjunkturinstutet, 1953, pp. 25 ff.) distinguishes four purposes of national accounting: statements of results, income behavior analysis, structure analysis, and national budgeting. It does not seem to me that his enumeration is comprehensive or exclusive. It omits many important uses—for instance, the use of the data by business enterprises in the formulation of their policies. And it does not give an exclusive list of the types of knowledge desired—for instance structure analysis, national budgeting, and income behavior analysis all require a knowledge of consumer behavior.

cept of production, although it will include much more than the transactions directly relevant to its measurement. Also, I think that it will call for some distinction between current and capital transactions. Finally, it appears to me that in drawing up the picture of the economy we shall find it useful to emphasize the fact that in some sense the incomings and outgoings of each transactor must be equal. These points I believe to be the essence of the accounting approach. Whether they are embodied in a set of accounts containing debits and credits, in equations, in matrixes, in sources-and-uses-of-funds tables, or in any other intelligible device, I consider a matter of secondary importance. Even though this sounds paradoxical, I certainly do not consider a set of T-accounts as of the essence of the accounting approach.

The remainder of this paper will deal with the many difficult and controversial problems that are involved in the execution of the twofold aim of depicting output as well as the structure of the economy. In the present section, I shall attempt a broad evaluation. I believe that the testimony of experience, both in the United States and abroad, is in clear-cut and unanimous support of the advantages of the accounting approach; and I do not think that it would be an exaggeration to claim that, in Schumpeter's language, it constituted a new vision which has widened significantly the horizon of national income measurement.

The basic advantage of the accounting approach lies in the fact that a national accounting system, designed with awareness of the needs of economic analysis, will throw a powerful light on the economic process and structure. It will do so by showing how component flows or stocks, or combinations of them, are definitionally related to one another, and by promoting a study of the empirical relationships among these flows and stocks. The accounts thus provide an effective meeting ground for economic theory and statistical fact.

I think that past discussion and experience have demonstrated that the study of economic behavior calls for a comprehensive accounting system showing the economy in terms of an interrelated network of flows and stocks. It is somewhat less apparent that normative analysis calls for a similar approach. Certainly the extant accounting systems, including the United States system, are more immediately relevant for behavioral than normative analysis. For example, the magnitudes are stated in terms of current values rather than in real terms.[4] A little

[4] To cite another example, normative analysis would suggest a complete allocation of the fruits of production to ultimate beneficiaries, such as was undertaken by Tibor Barna in *The Redistribution of Incomes through Public Finance in 1937* (London, Oxford University Press, 1945). Conventional national accounts provide only the raw material for investigations of this type.

reflection will show that the extent to which the available accounts partake of the character of raw materials that have to be processed further before they begin to throw light on the problems at hand, is much greater from the standpoint of normative analysis than from the standpoint of behavioral analysis.

But while the relation of the accounting approach to normative analysis requires further clarification, it would certainly not be possible to maintain that the accounting approach can be dispensed with in an appraisal of economic results. It is possible, of course, that further crystallization of normative analysis will result in changes in design so basic as to amount to a supersession of the present accounting approach. But if we were now to drop this approach and return to measuring only aggregate output and its components, we should lose some of the factual ingredients essential to normative analysis in its present stage of development.

Supplementary Advantages

It may be worthwhile to restate also some of the supplementary advantages of the accounting approach which accrue to national income technicians themselves. While it does not throw light on any basic controversial problems associated with the definition of the output totals—any definition of output is compatible with the accounting approach—the approach has furthered the improvement of such definitions by bringing out clearly matters of consistency that are involved in the formulation of equivalent measures of national output in terms of alternative income and product flows. This advantage has been manifest in connection with the treatment of government transactions in the definition of output totals. It has perhaps been more striking in the treatment of the transactions of financial intermediaries, nonprofit institutions, and other atypical forms of organization; these, although rivaling the government in the complexity of the problems created by their presence, tended to receive less systematic attention in the construction of output totals because of their lesser quantitative importance in the economy.

The accounting approach has also made it easier to live with moot definitional questions. Prior to its adoption, decisions involving the definitions of output totals sometimes meant that the record of certain flows was lost from national income statistics. With the accounting approach, a record of these flows is preserved, whether or not they are included in the measures of total output. Government interest payments are a case in point.

From the statistical standpoint also the accounting approach has

been fruitful. It has enabled us to estimate as residuals components of the income and product flow relating to which sufficient direct statistical information was not available; and when such information was available, it has permitted crosschecking. Needless to say, these opportunities were open to, and sometimes utilized by, persons working outside the framework of an explicit accounting system. In the future, the development of money flow and input-output statistics will make such techniques even more powerful.

More broadly, the accounting approach is useful in the formulation of programs of statistical data collection. The over-all framework it provides promotes the consistency of statistical surveys and reveals areas of duplication as well as lack of coverage.

Dangers

There are, of course, hazards as well as advantages in the accounting approach. On the theoretical level, it has given rise to sterile discussion of refinements of accounting design. Such excesses should be guarded against, but they are virtually unavoidable given the pendular character of human thought. On the statistical level, I believe that the danger is largely potential, and there is every hope that actual damage will not be done. The accounting approach might foster misplaced emphasis on the systematic statistical elaboration of the accounting structure for its own sake, without regard to the intrinsic importance of the information gained. Instead of concentrating on the components of the accounts that are essential for analysis, one may be tempted to envisage every statistical project as involving the estimation of a complete set of accounts for a group of transactors and the relationship of these accounts to all the other accounts of the system. Such an orientation would vastly complicate the tasks of statistical investigation and would produce a great deal of information which is of no real use.[5]

Output Measurement and Economic Accounting

Some have deplored the accounting approach on the ground that it has led to a neglect of significant problems pertaining to the measurement of the output totals. There is little positive evidence that this has been the case. It appears to me, for instance, that during the last decade discussion of the issues involved in the definition of the output totals, to which the advocates of the accounting approach have contributed materially, has been much more searching and intelligent than earlier discussion of these problems.

[5] The accounting approach is discussed further in my comment on the papers of Kenneth D. Ross and of T. C. Schelling.

While I consider the establishment of national economic accounting systems a highly important objective, I disagree with those who think that it makes the measurement of output totals unnecessary or obsolete, or that there is a basic conflict between the two objectives which must be resolved in favor of the former. These contentions have never, to my mind, been convincingly stated. As already indicated, I believe that production and its basic division into consumption and investment are the fundamental concepts which serve as the organizing principles for the construction of economic accounting systems, and I cannot see what, in their absence, could be put in their place. It seems incumbent upon those who hold contrary views to demonstrate that an economically significant picture of the economic process and structure can be composed that is not organized, explicitly or implicitly, around the concept of total output and its basic breakdowns.[6]

Accounting Design

PLAN OF REVIEW

The present United States accounting system, one of the first of its kind, was established almost a decade ago by persons, including myself, whose particular forte was not accounting presentation. Since then much theoretical work has been done on the subject of accounting design and much practical experience has been accumulated. Accordingly a review of this whole subject seems timely.

For this review, I have concentrated on the results and problems that have emerged in connection with the analysis of the economies of "free," "industrialized" countries. Those that have suggested themselves in connection with "planned" or "underdeveloped" economies I have not analyzed systematically, although I am aware of some of them. Moreover, I have confined myself largely to the literature written in English. This is a more serious limitation, because interesting work done in non-English-speaking countries—in the Scandinavian area, for instance—has been omitted from my review except to the extent that it was reported in translation.

My review of the literature did not suggest that a basic redesign of the United States accounts is needed. Some minor streamlining seems to be called for, as will be explained later, but I believe that, broadly speaking, we can advance further in our work without extensive prior

[6] For comments on some pronouncements by Klein in "National Income and Product of the United States" (*American Economic Review,* March 1953) and Julius Margolis in "National Economic Accounting: Reorientation Needed" (*Review of Economics and Statistics,* November 1952) on the relation between output measurement and economic accounting, see the Appendix, Note 2.

demolitions. In view of this I was not sure whether I should take the readers of this paper through the main stages of my review. I decided the question positively because, even though the development of the principles of accounting design has led to a good deal of sterile formalism, it has provided also a certain discipline which is a healthy antidote to the more intuitive manner in which the United States accounts were constructed in 1947.

To avoid misunderstanding, the reader should keep in mind that the following pages of this paper will be addressed to a selective review of accounting principles. Many of my remarks will not be immediately relevant to the United States figures. In developing in the following pages the outline of an accounting structure that is more detailed than the present summary United States accounts, I have no intention whatsoever of proposing that in the future this more detailed system should be published. I present it mainly because it contributes to an understanding of the logic underlying the present summary United States accounts, and because it clarifies and rectifies certain problems in their interpretation. The actual changes in the present United States accounts which I would favor are relatively minor. These are itemized later; and my proposals are followed by some comments as to the direction in which the summary accounts should be elaborated in statistical practice.

THE DESIGN OF ACCOUNTS

The idea basic to the construction of national economic accounting systems is that they should represent some sort of consolidation of the accounts of individual transactors. We might stop for a moment to note that although this idea appears reasonable, it is by no means a self-evident requirement. Underlying it appears to be a strong interest in the study of individual status and behavior which makes it desirable to have a system which in principle can be disaggregated to reveal the ultimate economic units. For the construction of a system of this type, the concept of individual transactors must be defined; the nature and contents of their accounts must be specified; and the manner of consolidating the accounts must be set forth.

In practice a national economic accounting system would never show the accounts of each individual transactor separately, but would present them for significant groups, or "sectors." Accordingly, the first problem—that of the definition of the unit—has not been discussed as such in the literature, but has been dealt with indirectly in connection with the principles underlying sectoring, i.e. the segregation of various groups. Next in order is the question of what types of accounts should

be set up to reflect the position and the activities of the various sectors that have been distinguished. This involves determination of the broad character of the accounts and definition of the component entries. Finally, it is found convenient, in presenting summary national accounts, to supplement or to replace the sector accounts so derived by certain further consolidations of them. In the present paper these three topics will be taken up in turn, except that, as already noted, the discussion of the definition of the major flows included in the accounts will be postponed until later.

SECTORING

Purpose

The principles of sectoring have never, to my knowledge, been clearly established. Terminology is ambiguous and basic disagreements appear to exist.

The conventional formulation of sectoring principles is an example of the former. Sectors are said to be drawn up along "institutional" lines (business, households, and government) with a set of accounts established for each of them along "functional" lines (production, consumption, and investment). But this statement would read almost as well if "functional" were substituted for "institutional." After all, businesses, households, and governments have different "functions." It would be a great gain if in this difficult area we could dispense with terminology that garbs the underlying realities so loosely and if we could devise a set of terms that would provide a closer fit.

An example of the more basic disagreement which I perceive is the tendency to speak of "production sectors," "consumption sectors," and "investment sectors." This usage carries the direct implication that the economy should not be sectored into groups of transactors, such as business, household, and government, but with respect to types of transactions, such as production, consumption, and investment.

At the risk of aggravating the present obscurity, I should like to make the following comments. The main purpose of the sectoring we actually do is to facilitate the analysis of economic behavior. Therefore our aim is to group together economic transactors who behave similarly, summarizing their transactions by a comprehensive set of accounts. Most of the extant economic accounting systems do exhibit household and government operations separately, and several also show business transactions separately. I believe this is understandable only if my interpretation is accepted. Sectoring on the basis of production, consumption, and investment might perhaps lead to a different system,

but it would not be the system which we more or less have, use, and are seeking to explain.

In the light of these considerations, I do not see that any major change is called for in the broad threefold sectoring scheme among business, households, and government. It is as good an all-purpose implementation of the precept of behavioral similarity as one can expect. Needless to say, there will be marginal classification problems, and the scheme will be too aggregative for intensive economic analysis, but these are different matters.

Unincorporated Enterprise

However, the application of this scheme in the case of unincorporated enterprise gives me some discomfort. Given the present nature of unincorporated enterprise and the actual status of its accounts, undoubtedly the most realistic interpretation is to regard the owner of the unincorporated enterprise as the transactor, instead of splitting him into a business and a household transactor. If, however, the owner of the unincorporated enterprise is regarded as the unit, his accounts usually appear in two sectors: his production account, in the business sector; and his appropriation (income-expenditure) and saving-investment accounts, in the household sector. This division seems to violate the principle that all accounts of a given transactor should be in the same sector. A further corollary of this treatment is that the saving-investment account of the business system will exclude unincorporated enterprise, unless it is doctored up by artificial entries to transfer the tangible investment of unincorporated enterprise from the personal to the business sector.

It has been suggested that the remedy for this awkward situation is to regard the production account of the unincorporated enterprise as located in the household sector and to liquidate the business sector as such.[7] Such an arrangement would put all the accounts of the owner of unincorporated enterprise into the same sector and at the same time ensure the straightforward calculation of saving-investment accounts. Without wishing to take a dogmatically negative attitude toward this proposition, I should like to point to some further considerations in evaluating it. In the first place, it is no more logical to place the entire set of accounts of unincorporated enterprise in the household sector than in the business sector. Why, then, is the former preferred? The

[7] D. K. Burdett, in "Social Accounting in Relation to Economic Theory," (*Economic Journal,* December 1954) proposes this treatment and interprets the accounting scheme underlying the official British statistics as embodying this scheme of sectoring.

argument would be more convincing if this preference could be explained.

Secondly, it will be useful in this connection to consider an analogy between the problem at hand and the accounting treatment of mutual life insurance (and certain other financial intermediaries). In that instance also production appears in the business sector, whereas saving is registered in the household sector. It is true that investment by mutual life insurance carriers appears in the business sector, while investment by unincorporated enterprise does not. But this is so only by virtue of a type of doctoring which could be applied equally well to unincorporated enterprise to produce symmetrical results, if this were thought desirable. Now, even though the sectoring problem involved in the treatment of life insurance is closely analogous to that arising in the case of unincorporated enterprise, its present treatment would seem to be preferable to the transfer of the production account of these institutions to the household sector. Why, then, is a different solution indicated for unincorporated enterprise?

With these two queries I should like to leave the subject open for discussion, while recording my preference for retaining the present split of the unincorporated enterprise accounts between two sectors. I should not be surprised if some clever definition could be found which would make this vivisection of the entrepreneurial personality appear more acceptable, at least on formal grounds. The problem of the sectoring of saving-investment accounts will be given further consideration below.

International Transactions

At this stage we may refer to the vexing question whether the "rest-of-the-world" account shown in the national accounts should be interpreted as pertaining to a separate sector of the economy (additional to the domestic sectors), as, for instance, in the *National Income Supplement,* or whether it should be regarded as the international account of the domestic economy. The discussion thus far appears to support the latter interpretation. The sector concept that we employ envisages a group of transactors the entire scope of whose activities is summarized by a set of accounts. It is clear that the rest-of-the-world account does not cover all the economic activities of any group of transactors.[8]

[8] See the Appendix, Note 3, for comments on a rather unusual scheme for sectoring advanced by Richard Stone ("Functions and Criteria of a System of Social Accounting," *Income and Wealth,* Series I, Cambridge, Bowes and Bowes for International Association for Research in Income and Wealth, 1951).

The Postulate of Uniformity

In the design of sector accounts it is usually postulated that the position and activities of all sectors (and more basically of all ultimate economic units) should be depicted by a uniform set of accounts common to all of them. As far as I am aware this postulate has never been challenged, but I wonder whether it is really reasonable. It is probably linked to the consideration that some sort of uniformity is necessary if individual accounts are to be consolidated into sector accounts and sector accounts into national summary accounts. But does the requirement of consolidation call for strict uniformity? It seems to me that it does not. First, even if one limits oneself to the consolidation of like accounts, it is possible to proceed even though some sectors have types of accounts that others do not have: the consolidated accounts will simply have zero entries for the sectors not maintaining that type of account. Secondly, it is possible to think of meaningful consolidations of unlike accounts, e.g. under certain circumstances appropriation accounts may be consolidated meaningfully with production or with saving-investment accounts.[9] Viewed in this light also, the demand for complete uniformity seems to be extreme. Uniformity does, however, contribute to clarity and elegance of presentation, and is therefore a legitimate objective in the design of national accounts.

Types of Accounts

The set of uniform accounts that is usually proposed is patterned closely after the accounts normally used by corporations. These enterprises typically maintain an operating account in which operating receipts are matched with operating costs to derive operating income, and an appropriation account in which nonoperating income is added to operating income and the allocation of this aggregate among direct taxes, dividends, and undistributed earnings is shown. In addition, corporations can be thought of as maintaining a change-in-capital account which exhibits the relation of corporate saving, investment, and lending and borrowing. The last type of account is not generally shown in practice, but since, broadly speaking, it represents the change in the corporate balance sheet, it is a legitimate construct.

In the national accounting literature each of these accounts is associated with a basic economic function. Usually three such functions are recognized—production, consumption, and investment—and the three

[9] For the former case, see the section on "sector account consolidations" below.

accounts are identified with these functions in the order given. The operating account of a sector shows the production of the sector matched by the surplus arising in that sector and other charges against production; the appropriation account shows the surplus together with transfers of current income from and to other sectors, and the allocation of the balance between consumption and saving; and the saving-investment account shows the balance of saving, investment, lending and borrowing.

The transition from corporate to generalized sector accounts is clearly most strained in the case of the appropriation account. This account is not adequately characterized by identifying it with the economic function of "consumption." At a minimum a reference to the transfer of incomes seems to be called for.

To implement the notion of the accounts as depicting distinct economic functions, accordingly, attempts have been made to distinguish further economic functions, specifically the function of income distribution (or redistribution) and that of income utilization, and to substitute income distribution (or redistribution) and income utilization accounts for the appropriation account.[10] The income distribution account would show what part of the income accruing to a sector either from its own production or from other sectors was redistributed to other sectors, and what part was retained. The income utilization account would show the allocation of retained income as between consumption and saving. In practice this splitting of the appropriation account has not gained root.

Production and Appropriation Accounts

The fact that the corporate accounting structure is not indigenous to the soil of the other sectors to which it is transplanted by national income accountants is manifest also in the way in which these accounts tend to develop into sports unless they are closely watched. An example relating to the household operating (production) account may be cited. In one of the most closely reasoned versions of the national accounting system which Stone has presented,[11] he considers consumption expenditures by households as purchases of the household production account from the business production account, matched by imputed sales of the household production account to the household appropriation account. However, he gives us leave to regard certain items, for instance meals and drinks bought in restaurants, as direct purchases of the household appropriation account from the business production

[10] See Ohlsson, *op. cit.*, pp. 123 ff.
[11] Stone, *op. cit.*, p. 27.

account. I cannot see any advantage in so burdening the accounts with dummy transactions, and the distinction between household purchases and outside purchases by household members strikes me as artificial.

Another significant point in the construction of the accounts is the definition of the surplus that is transferred from the operating to the appropriation account. In corporate accounting there is little ambiguity in this respect: the item transferred is operating profits after all expenses chargeable to sales have been deducted. National accountants tend, however, to define this surplus more broadly. In extreme cases, they take it to equal gross output minus purchases from other sectors (i.e. gross value added, or net value plus depreciation plus indirect taxes). But most typically what is transferred is a net value added total, with indirect taxes and depreciation left as charges in the operating account.

I am not entirely certain what prompts this broadening of the surplus concept. Perhaps it originated in a desire to segregate basic flows of income, which were to be left in the operating account, from types of flows (such as dividends and undistributed profits) which are better regarded as allocations of a basic total (profits). Under closer scrutiny, it became difficult to establish any specific form of income as basic; hence the observed broadening of the surplus concept and transfer of information on income types from the debit side of the operating account to the debit side of the appropriation account.[12]

Whatever its cause or causes, the tendency must, in my opinion, be reversed. It seems to me that nothing is gained by the transfer, and much is lost: it leads to the disappearance of all information on income types when the sector accounts are consolidated into summary national accounts. Information on income types cancels out in the consolidation of the appropriation accounts, since this information always appears both as a credit and as a debit entry.

These tendencies in the treatment of the income flows are symptomatic of a general uncertainty as to what information is really useful on this subject. Whereas on the product side the basic categories of consumption and investment provide us with a framework of classifica-

[12] H. P. Brown in "Some Aspects of Social Accounting—Interest and Banks," (*Economic Record,* August 1949, pp. 5 ff.) appears to wish to distinguish basic income shares from those that represent merely distribution of surplus when he recommends that surplus be defined gross of interest payments (but net of wages) and that interest payments be regarded as distributions of surplus. His discussion of the legal and institutional factors that influence the division of total surplus between interest and profits is quite impressive, but he does not note the extent to which similar factors determine the proportion of total value added going to wages. I suspect that the broadening of the surplus concept to include more and more elements of cost represents the logical extension of Brown's line of thinking.

tion, there is no similar guide on the income side. Gone is the simple and majestic system of Ricardo, to whom it appeared obvious that the distributive shares should be classified into the wages of labor, the profits of stock, and the rent of land; and gone is the system of Marx, to whom the classification into wages and surplus value seemed equally meaningful. Both systems were characterized by clear-cut theories of distribution; moreover, these theories were tightly integrated with theories of economic growth (in Ricardo) and of growth and fluctuation (in Marx.) Current economic thinking, by contrast, is embarrassingly devoid of any viable generalizations with respect to income distribution and must improvise when this matter affects the theories of economic fluctuation and growth. Thus, economic theory does not provide the national accountant with any guide as to what is important in this field. In the absence of such a focus, it is unlikely that a really satisfactory classification of income flows, which would command general agreement, will be found.

Saving-Investment Accounts

In the establishment of saving-investment accounts a major difficulty is encountered in the case of unincorporated business, as suggested above. Given the present structure of unincorporated enterprise it is impossible to distinguish systematically between the assets and liabilities attributable to the business as distinct from those attributable to its owner in his household capacity. Accordingly, it is not possible to calculate separate saving-investment accounts for unincorporated enterprises and their owners, except by the adoption of artificial conventions. The same impasse is reached when the problem is approached via income transactions; here it takes the form of an inability to obtain a realistic breakdown of unincorporated enterprise profits into business saving and entrepreneurial withdrawals.

The usual procedure is to submit to the realities of the situation and treat the saving and investment of the unincorporated enterprise and its owners as an indivisible whole. Moreover, in all instances in which this is done, and the group of entrepreneurial families cannot be segregated, their saving-investment is shown in the household saving-investment account. This means that the sector saving-investment account ostensibly labeled "business" excludes unincorporated enterprise. (The symmetrical alternative of including the total saving and investment of entrepreneurial families in the business saving-investment account, and of defining the household saving-investment account as excluding the saving and investment of entrepreneurial families, seems never to have been considered.)

To my mind the present solution is the best one. It should be supplemented as soon as feasible by a segregation of the saving-investment account of entrepreneurial families from the saving-investment account of other households.

As has already appeared, it would be neater if a realistic distinction could be made between the enterprise and its owner, and two separate saving-investment accounts established. It is not impossible that accounting practices will develop in a way to permit such a distinction in the future. Tendencies in the bookkeeping of partnerships and large sole proprietorships point in this direction. If actual business practices should afford a reasonable basis to make the distinction in the national accounts, I think that we should avail ourselves of this opportunity without looking the gift horse too closely in the mouth. In particular we should not argue that the accounting distinction, even if it exists, has no economic significance because of the intimate ties between decision making and ownership. Such ties exist also in closely held corporations, and yet we gratefully accept the accounting distinctions lest we get into greater trouble.

In the absence of reasonably adequate accounting data, I am not in favor of attempting a split of unincorporated enterprise. Such a split has been attempted in two ways. First, a line has been drawn between business and personal assets and liabilities (or between business saving and entrepreneurial withdrawals) arbitrarily or on the basis of tenuous analogies with employees or with small corporations. I see little merit in such procedures since they cannot claim relevance from an economic standpoint and are not based on actual accounting practice.

Secondly, a selective split has been made by the simple device of moving the tangible investment of unincorporated enterprise from the household to the business saving-investment account, and inserting a fictitious transaction in the debit side of the former account and the credit side of the latter to balance the accounts. According to this treatment unincorporated enterprise is still incapable of saving independently of its owner, but its investment is now registered as business investment. I cannot see that anything is gained by this manipulation. (I must note, however, that it is similar to the procedure now usually adopted for mutual life insurance and certain other financial intermediaries in the national accounts. The treatment of these intermediaries also creates problems in the sectoring of saving-investment accounts. It will probably be useful to study them simultaneously before final decisions are made in this field.)

Aside from the sectoring problems that have been reviewed, there are important issues relating to the definition of the items to be in-

cluded in saving-investment accounts. Some of these are considered below, under the heading of capital formation.[13]

International Transactions

The treatment of international transactions does not seem to fit in at all neatly with the broad conception of the national accounts as consolidations of the standard accounts of individual units. It is true that these transactions will be included in the accounts of the domestic units or sectors that are identified, but they will be registered only once, so that a balanced statement of flows for the economy will not result as it does in the case of domestic transactions.[14]

Two approaches to the treatment of international transactions seem to be open; but neither can restore the simple elegance of the original conception of the accounting scheme. According to one view, international transactions necessitate the elaboration of the set of accounts, rather than a change in sectoring. The transactions of the domestic sectors with the rest of the world are to be registered in external accounts. The other approach is to regard the rest of the world as a new sector, additional to the domestic sectors already distinguished, and to register the transactions of this sector in terms of the standard set of accounts.

The first, or external-account approach, has in turn two variants. One endeavors to preserve the view of the national accounts as consolidations of individual and sector accounts. This variant involves external accounts for each domestic sector (in principle for each ultimate domestic economic unit) to show its transactions with the rest of the world. It seems to me particularly artificial to think of such external accounts as part of the daily outfit of each domestic transactor. In the second variant, elegance is sacrificed at this stage and the external account is treated as a catchall for whatever transactions of domestic transactors are not matched in another domestic account.

I prefer the external-account approach, in this simpler variant, rather than the international-sector approach. As I have already stated, it seems to be in line with the philosophy of sectoring; and it results in consolidated national accounts that make more sense. To take a

[13] The issues involved in establishing a category of capital transfers are discussed in the Appendix, Note 4, in the light of the OEEC and United Nations proposals to this effect.

[14] In addition, international transactions of domestic units will be merged with their other transactions so as to preclude the identification of international transactions as such. This merging, however, is no peculiarity of international transactions, and the problem which it creates is related to the general issue of obtaining articulation in the national accounts discussed below.

simple example, assume that the production of an economy consists of exports and that there are no imports. In this case the consolidated appropriation account of the economy would show the national surplus allocated to saving if the external-account approach is adopted and to exports if the international-sector scheme is used. In the former view, the consolidated saving and investment account would show saving matched by lending to abroad; in the latter view, there would be various saving entries that would offset at zero. It seems to me that the result produced by the external-account approach is superior in both cases.

One consideration appears to favor the international-sector view: it permits a neater construction of a "national" (in contrast to a "geographic" or a "domestic") output total. An international production account can be established which will permit entries corresponding to the values of net factor income flows and the surpluses matching these values; and this international account can be consolidated with the production accounts of the domestic sectors to yield measures of "national" output, i.e. measures in which factor income derived from abroad is regarded as part of total production. Since on balance I incline toward the "domestic" or "geographic" concepts in which international factor income flows are not so regarded,[15] this argument in favor of the international-sector approach does not carry much weight with me.

The Contents of the Accounts

The next topic in a systematic discussion of accounting design would be the classification of transactions to be included in the various accounts. There are many references to this subject in the literature, but I have not found them very helpful, for two fundamental reasons. First, I am not impressed by the consistency or significance of the schemes that have been developed. Secondly, any classification suggested on the basis of general principles—e.g. the common analysis into transactions involving goods and services, transfers, and transactions in financial assets—always falls considerably short of the detail that is admittedly required even in the most summary presentation of meaningful national accounts; nor are the general principles helpful guides in determining the detail that is necessary.[16] *De facto,* even the most elegant practitioners of accounting formalism leave the classification

[15] See my discussion of international transactions below.

[16] Discussions relating to the classification of transactions are scattered throughout the literature (for a convenient source, which will permit the reader to check my evaluation of the present status of the subject, see Ohlsson, *op. cit.*).

of transactions to the jurisdiction of pragmatic common sense. I shall accept this cue. Later in this paper, when I take up the problems involved in the definition of the major flows, I shall do so without pretense of being guided by rules that have been developed in the course of formalizing the design of the accounts. Now I shall pass directly to the last step, namely the consolidation of the sector accounts into more summary accounts. To do this it will be useful to refer to Table 1, a graphic summary of the sector scheme that has been derived thus far.

Table 1

Schematic Representation of National Accounting System

SECTOR ACCOUNTS			CONSOLIDATED NATIONAL ACCOUNTS
Business	*Households*	*Government*	
Production	Production	Production	Production
Appropriation	Appropriation	Appropriation	Appropriation
Saving-investment	Saving-investment	Saving-investment	Saving-investment
			External

Schematic Representation of Basic Accounting Scheme

The first three columns of the table indicate the three broad sectors which we have distinguished in the economy and the three accounts we have outlined for each of them. The fourth column shows the corresponding consolidated national accounts. In view of our discussion which indicated that international transactions are best handled through an external account applicable to the nation as a whole, such an external account is also included in this column. This basic scheme helps to introduce a certain orderliness into our approach to national accounting problems, as will be seen clearly when we come to relate to it the summary national accounts that are usually published.

Articulation

The sector scheme, it should be pointed out, is not automatically an articulated system in the sense that every transaction appearing in it can be identified twice, once as a debit and once as a credit. Thus one of the most frequently mentioned characteristics of national accounting systems, which is often loosely explained as the result of double-entry bookkeeping, does not really stem from the consolidation of accounts that are based upon the double-entry method. All that

double-entry bookkeeping implies is that each transaction is registered twice in the books of a given transactor. For instance, a current purchase is matched by a reduction in cash. But this has nothing to do with double-entry as it is often used with reference to national accounting, namely that the purchase of one transactor is identified also as the sale of another.

Although not postulated universally, articulation is a useful feature of national accounting systems, both from the heuristic point of view and from that of practical analysis. On the other hand, this feature has a disadvantage: information of little intrinsic interest may receive undue emphasis, merely because it is needed to make the system articulate. For instance, wages of foreign border workers may be exhibited separately, but not those of manufacturing employees.

In explaining in a theoretical manner the design of accounting systems, such imbalance can hardly be avoided and has no serious ill-effects. However, if the empty boxes of the accounts are to be filled, articulation may require wasteful and laborious statistical calculations. This inherent danger is an important reason for keeping simple the summary accounting systems—derived, as explained below, by further consolidations—that are actually to be quantified.

SECTOR ACCOUNT CONSOLIDATIONS

The division of the economy into sectors and the establishment of a set of accounts for each of them do not constitute the last step in the design of national accounting systems, even though a complete system does emerge at this stage. Two further steps are usually taken. First, national summaries of sector accounts are constructed. Secondly, other consolidations are made for purposes of summary presentation. The wide scope of the second operation can be seen with reference to Table 1. Any combination of the various accounts shown in this table could be consolidated. It goes without saying that only a few of these possible consolidations would be meaningful.

Simple Consolidation

The simplest type of consolidation appears in the right-hand column of Table 1. A summary for the nation is there constructed in terms of consolidated (1) production, (2) appropriation, (3) saving-investment, and (4) external accounts. The first of these will show the consolidated production of the system (sales and inventory change), matched by the charges against this production—depreciation, indirect business taxes, and the various categories of income (if my proposal for

the avoidance of a broad surplus concept prevails).[17] The consolidated appropriation account will show the various categories of income generated in domestic production, income from abroad, and indirect business taxes; and the allocation of this aggregate between consumption (including government purchases) and saving. The consolidated saving-investment account will show depreciation and saving matched by investment and foreign lending (or borrowing), and the external account will show the balance of imports, exports, income flows, and foreign borrowing (or lending). All these accounts are generally familiar, with the exception of the consolidated appropriation account, which is not usually presented.

Before we discuss the summary systems that are actually presented, it is worthwhile to comment on two special features of the comprehensive system shown in Table 1. This system contains a set of summary national accounts which are redundant in the sense that the sector accounts (together with the external account) form a complete system. Conversely, the sector accounts can be said to be redundant, because the summary accounts (together with the external account) also form a self-contained system. But I do not consider this situation unsatisfactory, and I draw the conclusion that an objection sometimes leveled against the United States system—that it contains a national income and product account and a business account which are mutually redundant in the same sense—is ill founded. I do not consider the business account a very useful condensation of transactions, as I shall explain later, but I would not object to it on the score of redundancy.

Another feature of the simple consolidation of sector accounts which deserves attention is that, unlike the sector scheme, it is fully articulated. This is due to the fact that inter-sector transactions, articulation of which does not follow automatically from the principles of double-entry accounting, have been canceled out and only intra-sector transactions among accounts, articulation of which does follow from those principles, remain.

Usual Summaries

The simple consolidation of sector accounts which we have just discussed is rarely shown. A more usual scheme of summary presentation is indicated in Table 1 by the double lines that are drawn around the single accounts or combinations of them. There are five such configurations, corresponding to five accounts. As can be seen, the summary scheme is exhaustive and nonduplicating, because the whole area has

[17] I am slurring over certain netting problems stemming mainly from international transactions.

been parceled out, and parceled out with no overlapping. The first account in the system—the national income and product account—is a consolidation of the sector production accounts and business appropriation account, as indicated by the double lines surrounding these. The credit items in the business appropriation account that are received from outside the business sector are transferred to its debit side with appropriate change of sign; so that the consolidation, including this account, yields the same net total as the simple consolidation of production accounts shown in the right-hand column of the table.

The second account that is shown is the appropriation account of households—the household income and expenditure account. The third is the appropriation account of government—the government receipt and expenditure account. Fourth, there is a consolidated saving-investment account for the nation. And, finally, there is an external account.

It may be asked why this abbreviated system, or some version of it, is usually presented instead of the more elaborate underlying system shown in Table 1. The abbreviated system may be regarded simply as reflecting what can be done on the basis of available statistical information. Its single most outstanding characteristic is the consolidation of saving-investment accounts; these are very difficult to estimate on a sector basis.

In addition, however, it may be said that the distinctions of the detailed scheme that are maintained in the more summary one (i.e. among production, appropriation, and saving-investment accounts, the household appropriation account, the government appropriation account, and the external account) are more important than what has been lost (sector production accounts, business appropriation account, national appropriation account, sector saving-investment accounts). Thus the summary accounts reflect the efficient allocation of scarce statistical resources among alternative uses.

Even if the more detailed scheme were statistically practical, this line of thought might be pursued to argue that the summary presentation would recommend itself on the ground that it shows the most strategic information with greatest simplicity.[18]

[18] In "The Feasibility of a Standard Comprehensive System of Social Accounts" (*Problems in the International Comparison of Economic Accounts,* Studies in Income and Wealth, Volume Twenty, Princeton University Press for National Bureau of Economic Research, 1957), Morris A. Copeland has suggested an accounting structure which de-emphasizes saving-investment relationships and brings lending-borrowing relationships closer to the focus of attention. Broadly speaking, his system forgoes the calculation of capital formation, depreciation, and net saving for the private noncorporate sector of the economy and substitutes lending-borrowing entries instead. Data deficiencies are a major reason for proposing this change (the resultant system is designed to be applicable to "underdeveloped" economies). But

A further argument in favor of limiting the summary presentation to the five-account system is that it will secure flexibility in the introduction of additional information. This it does in two ways. First, the additional information can be brought in gradually as developed, without constant reconstruction of the accounting presentation. Secondly, additional bodies of information can be introduced without their having to be articulated with each other. This is of great importance from the standpoint of simplifying the task of statistical research and avoiding the presentation of unnecessary detail.

Thus it seems to me that the practical considerations strongly recommend the five-account summary. However, it seems to me significant from a theoretical standpoint that this summary, unlike the more detailed scheme that underlies it, cannot be presented as based on general principles of accounting design. In the explanation of the five-account summary, principles will take us only part of the way; for the rest we shall have to rely on highly pragmatic considerations.

A limitation of the summary presentation is that it weakens the capacity of the national accounts to show actual flows among various transactors. For instance, in the more elaborate scheme wage payments by government to households appear explicitly (though if the system is drawn up neatly these payments are shadowed by dummy transactions, i.e. an imputed value of government production equal to the wages in the government production account and an imputed purchase of that production by the government appropriation account). In the five-account summary the government will appear to be purchasing from the consolidated production account and that account will be paying out wages to households; every indication that there was a direct transaction between households and government will be lost.

Two further features of the accounting structure under discussion should be noted. These pertain to the underlying scheme as well as to the consolidations. In the first place, the structure has a market valuation "bias"—it yields components and totals at market prices, but does not directly provide factor cost measurements of product flows.

Copeland may in addition think that the shift in emphasis is indicated on analytical grounds as well.

I would disagree with the latter proposition. The notions of consumption, saving, and investment are useful and should not needlessly be jettisoned. Indeed, if there is a conflict between saving-investment information and borrowing-lending information because summary accounting systems cannot accommodate both at the same time, I believe that saving-investment information should take precedence—at least in a country like the United States—and borrowing-lending information should be introduced by way of an elaboration of the accounts (see also my comments on the accounting structure proposed in Copeland's paper in this volume).

Secondly, it does not yield industry information. For practical analysis the industry distribution of output is first-line information. The fact that the summary accounts, which presumably should contain all such information, cannot be made to yield it must be put down as a curious deficiency, and one rarely noted in discussions of the usefulness and limitations of these accounts.

Reform of United States Summary Accounts

The five-account system is, broadly speaking, the accounting scheme that underlies the quarterly data of the United States Department of Commerce,[19] and I should favor its adoption for the annual figures as well. As compared with the present system it involves the following major changes: the business account is dropped, and so are the corresponding income and product subtotals which are now included in the personal, government, and rest-of-the-world accounts.

I am advocating this simplification in the belief that the information that is lost as a consequence is not particularly important. Business output, as distinguished from national output, is a total that is not required for summary purposes. For more detailed analysis, on the other hand, it is likely to be too global. Its elimination from the summary accounts would constitute a significant simplification also because it would obviate the necessity for calculating and exhibiting several items in which there is no intrinsic interest, but which must now be shown to articulate the system. Items in which there is independent interest but which would be lost as a consequence of the proposed simplification would, of course, continue to be shown in the supporting tables.

As one of the progenitors of the business account, I should perhaps say a few words in appreciation of it. It has gained its prominence in the present summary United States accounting structure largely because of its usefulness as a pedagogical aid, in the broad sense of this term. In the construction of the United States accounts the concept has been helpful because it has tended to bring into focus the close affinity between business accounting categories and the concepts of national output measurement. And for similar reasons it has been useful in explaining our categories to the public. Looking back, I can now see that there is some danger in making too much of this affinity, but I continue to believe that it must be grasped firmly before it is partially abandoned. Any discussion of national income concepts that is not

[19] The quarterly figures are not presented in the form of accounts, but these—neglecting minor points of difference—are the accounts that can be derived from them.

grounded on an understanding of this basic tie is in acute danger of proceeding in a vacuum.

A MAP FOR EXPLORATION

The schematic representation of Table 1 provides a convenient framework for discussing further exploration of various parts of the economy there shown—without specific reference to the precise nature of the definitional equipment that is to be used. The latter subject will be taken up in the next section. Lest misunderstanding arise, the following points should be noted. First, the projects listed do not include all those I believe are desirable; others are more conveniently presented in connection with the discussion of output concepts in the next section. Secondly, as will be seen, the list consists of items requiring widely different resources, although I have tried not to include any item that is too far out of practical reach to be made part of a realistic long-run statistical goal. Thirdly, I do not specify to what extent the projects cited can be made an integral part of our accounting system in the sense that they can be regarded as comprehensive deconsolidations of the more summary accounts. Wide differences exist in this respect. For instance, the sector saving-investment project that will be listed can be envisaged fruitfully as such a deconsolidation; in contrast, the work on the size distribution of income is not likely to progress far in this direction in the foreseeable future. As a general precept, we should avoid planning statistical investigation for the sake of obtaining complete account deconsolidations without regard to the intrinsic interest of the information produced. Rather, while keeping in mind always the logical framework of the accounts, we should concentrate on obtaining information on items that really matter.

Current Dollar Information

The consolidated production account should be broken down to show flows among industries. This would throw light on the cost-price structure of the economy and also provide the means for establishing a closer tie between the national accounts and input-output data. Needless to say, other breakdowns of the production account—for example, by size or by legal form of organization—would be of interest. However, in such matters as these one cannot be very specific, since so much depends on the availability of data and the complications involved in allocating limited statistical resources among alternative uses.

In connection with the personal account, work should be done to distinguish the transactions of certain major groups. Households of farm and of nonfarm entrepreneurs, and other households, and quasi-

individuals of various types would be the most important groups to distinguish.[20] The large body of non-entrepreneurial families would need further analysis by type, but information on the income size structure of this group might perhaps fill the major gap.

Further work should be done on breakdowns of personal account items by income size. Cross-classifications by economic group and income size should be developed to the extent that this is possible.

The saving-investment account should be deconsolidated to integrate financial information with national income and product data. Despite contrary opinions occasionally voiced by experts in money-flow analysis,[21] I regard the deconsolidation of the saving-investment account as a perfectly adequate vehicle for achieving this result.

I would establish component saving-investment accounts for the following: (1) nonfinancial corporations; (2) financial intermediaries, with a subclassification to distinguish banking from other financial intermediaries; (3) persons (including unincorporated enterprises) subclassified by quasi-persons and families and ultimately by types of families, if possible; (4) government, with a subclassification to separate federal from state and local; (5) international transactions. Needless to say, this is only a sketch of the scheme, and undoubtedly many problems of classification would arise in carrying it out. But I do not see any basic flaw in the broad outline of the design; nor do I see why it could not bring about a desirable integration of financial and national income and product information.

It is true that some integration of the two sets of data has been achieved within the accounting framework developed by Copeland and his successors at the Board of Governors of the Federal Reserve System. This type of integration tends, however, to dissolve the coherent picture of the economy in terms of income and product flows that is provided by national income data. I believe that such a summary of the economy, centered on output and its distribution, is about the most significant that one can provide; and that financial flows, even though important, are of secondary interest. I deplore the submersion of the national income and product categories into the money-flow. What I would prefer is an arrangement whereby the income and product framework would continue to stand out and financial data would be brought in only in supplementary form.

[20] The statistical difficulties inherent in such a project are emphasized in my comments on the papers by Morris Cohen and Martin R. Gainsbrugh, by Copeland, and by Raymond W. Goldsmith, in this volume.

[21] See Copeland's criticism (*op. cit.*) of the UN system (*A System of National Accounts and Supporting Tables,* Studies in Methods 2, United Nations, 1953), and my comments appended thereto.

Real Magnitudes

The previous discussion has been in terms of current-value measurements. It is convenient at this stage to state what appear to me to be the prospects for deflating the national accounts.

My treatment of deflation below is somewhat superficial. In particular, I do not deal systematically with problems of the present procedure—such as quality change and the question whether one should try to go beyond the deflation of purchases to arrive at a closer measurement of the services these purchases are designed to provide. Both of these subjects are touched upon tangentially, however—the former in connection with the measurement of capital formation, and the latter in connection with the final product of government. Two ranges of inquiry related to deflation are left out of account altogether. First, there is no reference to the specific problems that arise when current dollar data are inappropriate even for analyses that do not involve time comparisons. Secondly, there is no mention of the work that is being done on real comparisons by establishing standards of equivalence on the basis of consumer behavior rather than by comparing quantities or deflated values.

We have at present a useful measure of the real gross national product at market prices. It would be quite feasible, by broad components at least, to calculate a measure of output at factor cost. But I doubt whether in practice much would be gained thereby: for the United States the factor cost weighting pattern is so similar to the market price pattern that the two aggregates would behave very similarly.

Of much greater importance would be a breakdown of the presently available total by industry. A direct deflation of the gross product (value added) originating in an industry is not feasible. But this magnitude can be envisaged as the difference between the sales and inventory change of the industry and its purchases from other industries. These product flows are deflatable, and in this way the major conceptual difficulty is removed. Although the statistical difficulties remain so formidable that it appears doubtful whether complete measures of real output can be calculated on this basis in the near future, work along these lines should be encouraged. There are indications that in certain industries output defined properly, net of inter-business purchases and therefore part of a meaningful total, moves very differently from the conventional measures which do not allow for changes in the industry ratios of sales (plus inventory change) to purchases.

I am much less hopeful about our ability to crystallize another concept which is sometimes regarded as the aim of deflation—namely a

measure of the volume of the input of factor services. In the case of deflation of outputs we can, in the majority of cases, see our target tolerably clearly: the physical units behind the current dollar figures. For the deflation of factor input no similarly workable notion of the quantity of factor input exists. To give an extreme illustration, which admittedly minimizes the difficulties of deflating output and maximizes those of deflating factor input, consider the differential difficulty of visualizing the units that stand behind (1) current dollar series on bread production and (2) current dollar series on profit-type incomes.[22]

I am not sure whether what I have just said constitutes an explanation of why a useful deflation of factor input is difficult to provide, or whether I have merely restated the problem. Would not a genuine explanation have to show how it has come about that we have failed to evolve a notion of factor input sufficiently concrete for statistical measurement, although we utilize the general notion of factor input constantly in economic thought?

In spite of these difficulties I believe that further work on obtaining measures of factor input should be done. But the procedure that appears to me most promising would not really involve intensive utilization of the national income figures or of their breakdowns. The labor factor can be represented by employment or man-hours; the property factors by series on the depreciation or net stocks of capital. But economic theory does not specify the exact measures that are required in this connection, and we must advance gradually, guided and restrained by clear-cut analytical purposes.

With respect to the deflation of flows that cannot be expressed in terms of outputs or regarded as factor inputs—e.g. transfer payments, taxes, saving—I see little prospect of a general solution. In these cases a notion of physical quantity even as vague as the one available for factor input is lacking. Undoubtedly, procedures roughly appropriate for specific purposes may be found. In studies of disposable income and consumption, for instance, something may be gained by deflating both magnitudes by the cost of living. But such procedures are not wholly satisfactory even *ad hoc,* and certainly general rules for deflation cannot be inferred from them.

A systematic deflation of the accounting system as a whole is sometimes proposed.[23] There are two variants to this proposal. The first

[22] In this connection, Klein's suggestion (*op. cit.,* p. 130) that net rents be deflated by indexes of gross rents seems to me like proposing to deflate the profits of steel manufacturers by the price of steel, those of ice cream manufacturers by the price of ice cream, and so forth.

[23] For example by Klein (*ibid.,* p. 131).

involves the application of specific price indexes to the various components of the income and product flow; the second would deflate all the elements in the accounts by a single price index. Apart from the theoretical problem of measuring factor inputs, two types of difficulties stand in the way of the former suggestion. In the first place, there may be cases in which it is possible to think of all elements of the accounts as quantities. If that is so, there is no reason why the deflated magnitudes should conform to the accounting identities that are satisfied by the current dollar magnitudes. For instance, assume that owing to improved weather conditions output goes up while input of factor services remains unchanged. If the deflated production account is to total to the volume of output on its credit side and to the volume of factor input on its debit side, it will no longer exhibit the equality of debits and credits which is required of an accounting system.

Secondly, there may be cases where we are willing to express certain components as the residuals of independently deflated items, but where this cannot be done. Assume, for instance, the following simple complete model: an economy produces $100 billion which it sells to the government, and $50 billion for capital formation; the government, in addition to purchasing from producers, pays $30 billion in transfer payments and collects $20 billion in taxes from households, dissaving $110 billion. Households receive the $150 billion profits, generated in production, and transfers of $30 billion. Their expenditures consist of taxes of $20 billion, with $160 billion saved. Capital formation of $50 billion equals government saving of minus $110 billion and personal saving of $160 billion. Now suppose that we abstract from the difficulties mentioned earlier by assuming that deflated profits equal deflated sales to government plus deflated capital formation. If the reader will work through the example, he will see that we still could not derive the saving components of the accounts as a residual of deflatable components.

The second variant of the proposal for systematic deflation of the accounts can easily be implemented, but does not seem to me to result in useful analytical tools. As far as cross-section views of the economy are concerned, deflation of all elements of the accounts by a common price index would not add to the information provided by the current dollar estimates, since relative proportions would not be changed. As regards the time comparisons of components, I should consider deflation by specific indexes superior to that by a general price index in all instances.

A special problem relating to the deflation of exports and imports may be mentioned, since it has to do with the problem of deflating non-

product items which has just been discussed. At present, exports and imports are deflated separately in the gross national product, in conformity with the general principle that each component of the product flow should be divided by the specific price index applicable to it. This criterion rules out a valid alternative method of deflating the export and import items. This alternative is designed to show changes in the real income of the country resulting from shifts in the ratio of import to export prices. Such shifts would not affect the present measure of the constant-dollar gross national product. The alternative procedure would be, I take it, to deflate exports by the price of imports rather than by their own price.

For some purposes this alternative measure of constant-dollar gross national product might be more significant than the present measure; at the same time, however, it would necessarily partake of the arbitrariness of the *ad hoc* deflation of the "undeflatable" components of the accounts. For what we would be deflating in effect is the saving of the nation that takes the form of lending abroad, and there is no uniquely correct way of deflating such an item.[24]

Output Seen as Income

THE TWO ASPECTS OF OUTPUT

Corresponding to the fact that output is reflected both in flows of products and in flows of income, two major branches of theoretical discussion relating to the proper definition of national output have developed in the literature. Attempts to sharpen and deepen the definition of output as an aggregate of income flows have revolved mainly around the definition of the factor cost concept. A searching examination of output as the sum of product values has led to a discussion of the proper definitions of consumption and capital formation. I believe that the two groups of issues, centering respectively on factor cost and on product values, can be discussed separately from each other.

This proposition by no means commands universal assent. There are those who believe that a proper definition of output is impossible on the basis of an analysis of income flows, and that it can be obtained only by reference to the final product concept. Broadly speaking, they would adjust the income measure of output to make it equal to the total obtained by the final product approach. Then there are those who hold that it is not possible to construct a measure of final product

[24] For a comment on Walter S. Salant's views on the deflation of international items, see the Appendix, Note 5. For further discussion of some aspects of deflation, see my comments on John W. Kendrick's paper in this volume.

without an analysis of income flows. For instance, the proper treatment of the government component of final product is seen to depend on the sources of government financing.[25] In my view of the matter it is not necessary or useful to cross the middle bar of the national T-account in this manner. I shall not argue this point at the present time, but hope that its reasonableness will emerge in the course of the subsequent discussion, which deals with the two sides in turn.

The sequence of this discussion remains somewhat arbitrary, of course. For example, it would be possible to discuss imputations in connection with income. But it was considered preferable to deal with them in connection with final product, since some of the problems involved seemed related to those that emerge in defining the government component of final product. Similarly, it would be possible to review the definition of transfers in connection with final product, but it seemed better to do so in connection with the other items that are specifically related to factor cost.

THE CONCEPT OF FACTOR COST

The Need for the Concept

Underlying the definition of national income as the sum of factor costs is a conception of it as a tool for answering questions relating to the allocation of productive resources among various uses—for instance, among industries. We realize that for several reasons—notably imperfection of competition and lack of equilibrium—recorded income transactions are but imperfectly adapted to serve as building blocks for such a measure. But national income data are the only accessible comprehensive data that will lend themselves to this use, and they will be so used when the need arises, despite their imperfections.[26] Accordingly, the definition of national income in the United States accounts and in those of most other countries is shaped by the desire to

[25] The first view is widely held by those who advocate the elimination of so-called intermediate government services from gross national product by the specific identification method. A clear account of it can be found, for instance, in Simon Kuznets, "National Income: A New Version," (*Review of Economics and Statistics,* August 1948). Kuznets' earlier treatment of government is an example of the second view, which, however, has many other variants.

[26] In *Soviet National Income and Product in 1937* (Columbia University Press, 1953), Abram Bergson severely castigates the concept of national income at factor cost because of the well-known imperfections it has as a measure of resource use. He employs it, however, as a tool for gauging the distribution of resources in the Soviet economy (see my review of this excellent book in the *American Economic Review,* March 1954, in which I note the present schizophrenic attitude to the national income concept).

make this concept as good a tool as possible for the analysis of resource distribution. Decisions to include or exclude specific items from the aggregate are made from this point of view.

The major items that create problems here are government transfer payments, government interest, taxes, and subsidies.

Transfer Payments

There is little disagreement as to the propriety of excluding transfer payments from the national income. The broad common sense of the proposition that these payments do not reflect the use of factor services, or the incurrence of factor cost, is usually accepted without question.

One would almost wish that this were not the case. To arrive at a useful definition, the lack of *quid pro quo,* which is the general notion behind these income flows, has to be restricted to refer to the current period; difficulties of distinguishing between genuine work and useless effort must be glossed over; and decisions must be made on tenuous grounds as to whether certain payments to individuals who do perform genuine services are actually made in return for these services.[27]

The admittedly useful exclusion of transfer payments from national income thus stems in part from pragmatic distinctions, in default of principles applicable in detail. An adequate realization of this fact might suggest to those who question the treatment of other government items (mainly taxes) in national income on the basis of rather exacting standards that it is not really proper and fruitful to introduce such standards into discussions of this type.

Government Interest

Exclusion of government interest payments from the national income also meets with a considerable measure of agreement, although dissent is somewhat more frequent in this case. Again the decision is a matter of common sense: since in practice there is no determinate relation between government interest payments and the use of government property, there is no realistic ground for including these payments as an approximation to the services rendered by government property.

It is true, of course, that with only moderate ingenuity one could define a factor of production, such as lending or abstinence, as standing behind government interest. The concept of factor of production

[27] For an illustration of the nature of concept formation in this area, see my comment on Ross's paper.

is vague in economic theory, and anyone is free to define it as suits him best. But all these interpretations of government interest as a factor payment are highly artificial; such interest would be excluded regardless of them in any realistic analysis of resource use.[28]

Essentially the same argument applies to interest paid by consumers. For this reason I should prefer that this item be treated in the same way as government interest rather than to have it included, as at present, in total factor cost. An alternative might be to regard consumer interest as a kind of service charge. I do not favor this solution, because it tends to undermine the foundations of our general treatment of interest. It may be noted also that, if consumer interest were regarded as a service charge, our present treatment of it as income originating in the household sector would be faulty; given the service charge interpretation, it should be income originating in financial business.

It has often been asked why business interest payments should not be classified as transfers by the same reasoning. If lending is disqualified as a factor of production vis-a-vis the government, it must be so disqualified also in relation to business. Further, it is true of business as well as of government that there is no one-to-one relationship between interest payments and the use of tangible property.

Although this argument possesses a certain formal logic, it ignores an important practical difference between the two cases. The classification of government (and consumer) interest as a transfer affects the total of factor cost and the allocation of combined factor cost to any given use. The treatment of business interest as a transfer would merely result in a compensating change in the definition of profits; it would not affect aggregate factor cost or its allocation to any given use.

Moreover, classification of business interest as a transfer would not

[28] Klein (*op. cit.*, pp. 122-123) seems to favor the inclusion of "productive" government interest payments and the exclusion of "unproductive" ones. He says that "In this country state and local debt has not been directly used for war finance and should be included in national income. Federal government interest payments on nonwar debt could also serve as a rough indicator of services yielded by government capital." He does not mention the ambiguities of the productivity concept I discuss in the section on "government capital formation."

Moreover, his suggestion for the United States does not take cognizance either of the extent to which state and local capital formation has been financed from current revenues (see, for example, Harlow D. Osborne and John A. Gorman, "Private and Public Debt in 1953," *Survey of Current Business,* October 1954) or of the extent to which federal nonwar borrowing represents the aftermath of deficit financing during the great depression.

As Klein says, his suggestions are in accord with present Canadian practice. The Canadians are dissatisfied with this treatment and are planning to discard it.

See also my comments on the Cohen-Gainsbrugh and Ross papers in this volume.

materially improve the usefulness of the income breakdowns for analyzing separately the returns to the real resources that may be thought of as contributing to output. On the negative side, it would invite a distinction between basic incomes, and flows that constitute merely redistributions of such incomes, for which I do not see justification on any other grounds. Moreover, from the standpoint of accounting design, it would threaten to set into motion the disappearance of income information from the consolidated accounts.[29] For all these reasons I am not in favor of extending to interest originating in the business system the logic applied to government interest, even though the present solution is somewhat eclectic.[30]

Taxes and Subsidies

The inclusion of personal taxes in factor cost is rarely questioned. Given the purpose of the factor cost concept as stated above, these taxes must be included if they are not shifted. In spite of an occasional dissent, there would seem to be general agreement that this assumption is realistic—and certainly more realistic than the alternative assumption that personal taxes are shifted to a substantial extent. It appears unnecessary, therefore, to decide what the proper treatment of these taxes would be if they were shifted by the payers.

The situation is somewhat different with respect to taxes on corporation profits. The inclusion of these taxes in factor cost is clearly justified if we believe that, broadly speaking, they are not shifted. Even though I recognize that this is a very controversial point, I still think that the weight both of theory and of empirical evidence favors this belief.[31]

If corporate taxes were shifted to a substantial extent, it would be necessary to analyze the mechanism by which this was accomplished. If the shifting occurred as a result of changes in supply and demand within the framework of marginal preference and productivity theory, corporate income and profits taxes would in my opinion still be properly included in the factor cost total. A real problem would arise, however, if shifting occurred otherwise than through the supply and demand adjustment process envisaged by existing theory. It is not possible to say what treatment of these taxes would then be proper,

[29] See the section on "production and appropriation accounts" above.

[30] For a further discussion of this point with reference to the writing of Earl R. Rolph, see the Appendix, Note 6.

[31] See Richard B. Goode, *The Corporation Income Tax,* Wiley, 1951, Chap. 4, and Edward F. Denison, "Income Types and The Size Distribution," *American Economic Review,* May 1954, pp. 262-263.

since we have no model of functional income relationships alternative to that envisaged by marginal productivity theory.

The shifting of social security taxes is a matter about which little is actually known. It would seem reasonable to include such taxes in factor cost, however, on the ground that they are a direct cost of employing labor, and are presumably taken into account in the market when the contribution of labor to output is equated to the cost of obtaining it.

In general, indirect business taxes do not represent the cost of distinct productive resources; nor does the counting of some other income gross of these taxes improve such income as a measure of resource use, since these taxes tend to be reflected very incompletely if at all in relative incomes. Any attempt to isolate the portions of particular taxes which are so reflected involves one in a mass of arbitrary decisions not only on the statistical level but even on that of theory. It is preferable, therefore, to exclude indirect business taxes as a class from the measurement of factor costs,[32] and exceptions should be made only when the specific analytical purposes indicate clearly what adjustment is required.

To my mind, the homely example of the tobacco manufacturing industry gives us the essence of the case. In this industry national income as now defined amounts to about $\$1/2$ billion, more or less equally divided between labor and property income. Excise taxes upon this industry amount to about $\$1\,1/2$ billion. It seems obvious that if we are interested in the allocation of productive resources, we are dealing here with a $\$1/2$ billion rather than a $2 billion industry; and also that the relative contributions of labor and property to the output of this industry are better approximated if we think of the relative magnitudes of employee compensation and property incomes as presently measured, than if we were to add to either one the amount of the excise tax. Nor is it likely that an attempt at detailed analysis of the incidence and shifting of this tax would result in conclusions permitting any real improvement in these measures.

The present inclusion of subsidies in the factor cost aggregate is based on the highly conventional argument that these subsidies are payments necessary to elicit factor services. I would not wish to defend this treatment too strongly. However, I do not think that it is worse

[32] The factor cost concept is not affected by the theoretically attractive proposal of U. K. Hicks in "The Terminology of Tax Analysis" (*Economic Journal,* March 1946) to reclassify as indirect business taxes (and consumption) certain taxes (now classified as personal taxes) that are directly related to specific items of current consumption.

than to exclude them all, and I doubt the practical possibility of arriving at a better solution via a detailed analysis of various types of subsidies.[33]

The National Income Total

To sum up, I hold that we are in need of a tool for analyzing resource allocation on a broad over-all basis, and that the factor cost concept is the best we can develop for that purpose. I might note, however, some personal preference for the national product whenever it is desired to trace changes in output, particularly in a summary or popular fashion. Even though it can be established that for certain purposes an index of total output at factor cost is theoretically preferable to the market price measure, this point has little real weight, since in actuality output totals are used effectively only as broad indicators of economic activity and in such use fine theoretical distinctions are of no consequence.

In practice a market price measure of total output is more convenient, because it can be broken down into product as well as income components. A factor cost measure cannot be broken down into detailed product components without frequent recourse to quasi-arbitrary assumptions and a prohibitive amount of statistical work. Moreover, it is much easier to integrate a market price measure of output into a simple and coherent set of national accounts. Finally, market price measures reflect actual market behavior, and accordingly are more useful than factor cost concepts for most major purposes for which national product statistics are used.

INCOME BREAKDOWNS

An Institutional Classification

I have noted the uneasy status of present income breakdowns, and have attributed it to the unsatisfactory state of the theory of income distribution. I do not believe that a generally acceptable classification for national income purposes will be developed in the absence of a theoretical guide; the remarks which follow should be read in the light of this basic comment.

The present classification of income flows has its origin in the actual cost structure of business enterprise, and its merit and usefulness de-

[33] For comments on the treatment of the factor cost concept in previously published writings by Raymond T. Bowman and Richard A. Easterlin, James W. Kuhn, and Rolph, see the Appendix, Note 6. See also my comments on the papers of Bowman and Easterlin, Everett E. Hagen and Edward C. Budd, and Ross, in this volume.

rive from this fact. Further improvements should be made in the direction of showing this cost structure more explicitly. A breakdown of the wage-salary total into wages and salaries should be attempted to the extent that it is meaningful. It would also be advantageous to trace interest flows on a gross basis more explicitly than we do now, distinguishing the major flows of interest among the various legal forms. In this manner all the necessary data would be provided for rearrangement to show alternative breakdowns of the interest-profit complex, such as operating profits gross and net of interest payments. The current procedure is to define profits as including receipts of interest, and to net interest receipts against payments to avoid duplication in the total. While this is not a bad solution for summary purposes, it makes a detailed study of the cost structure difficult.

The Agents of Production

One of the weaknesses of the present income breakdown is that it does not conform to a classification of factors of production such as one might envisage in economic theory. For many purposes it would be convenient to study changes in the structure of the economy in terms of an income breakdown based on the concept of *output* as produced by labor, man-made plant and equipment, and land. We do not now have such a breakdown. Employee compensation can be associated approximately with the labor factor. But entrepreneurial and rental income also contains an unspecified, but probably substantial, share of labor income, so that a complete measure of labor income is not available. For the same reason corporate profits and interest, though one might be willing to regard them as returns to property factors, are only a partial measure of such returns: unspecified amounts of property income are merged with labor incomes in entrepreneurial profits and rents. Finally, the available data do not afford even a partial clue as to the division of property incomes between man-made capital and land.

Efforts have sometimes been made to separate the labor and property elements in the mixed incomes on the basis of statistical assumption—to establish either the labor share by reference to the level of employee compensation or the property share by reference to data pertaining to corporate business. These two approaches may yield widely different results, and even variants of the same approach are apt to suggest divergent conclusions. Moreover, the theoretical framework for this type of calculation is not very satisfactory. I am not sanguine as to the outcome of attempts to work out for their own sake the statistical implications of an inadequately formulated economic theory. But I do believe that analyses of mixed incomes may be fruitful when they are

prompted and guided by the clear requirements of specific economic problems.

As for attempts to analyze property incomes in order to distinguish the rents of land, for instance, from other returns, or pure property returns from returns to risk and entrepreneurship, I am utterly skeptical of their value. This area is statistically so barren and enveloped in so thick a conceptual fog that its effective cultivation seems impossible.[34]

Output Seen as Final Product: Consumption

THE OPERATIONAL DEFINITION OF FINAL PRODUCT

National output as the sum of final products can best be characterized from an operational standpoint as the sum of purchases not charged to current expense by business. There is no doubt in my mind on this point. A first approximation of investment as it is usually measured can be obtained by summing the business purchases not so expensed; and what we commonly mean by consumption, broadly defined, can be equated roughly to the remainder of the final product.

To be sure, this operational rule is not profound in the sense of expressing the ultimate goals of measurement.[35] But it is valuable and important because it tells us in a clear, frank, and unadorned manner what we actually do when we measure the bulk of the national product. To use a colloquial expression, recognition of the rule helps to keep our feet on the ground.

Lest there be misunderstanding I hasten to qualify. In the first place, the rule must be construed to cover transactions of types to which accounting rules are applicable, even though in practice the transactors do not apply them. The transactions of small business enterprises that do not maintain adequate books are a case in point.

Secondly, we are not satisfied in all instances with the final product total that would result from the unmodified application of the rule, or with the consumption-investment classification to which it would lead. In the attempt to improve the measure of total output and its breakdown, we make what are in effect important modifications in the rule —although the dividing line between "modifying" the rule and "construing" it (in the sense of the preceding paragraph) is not always clear. The issues that arise in connection with actual or proposed modifica-

[34] For a comment on a proposal for an industrial allocation of rental income alternative to the present one, contained in the UN system and other international systems and also advocated in the Bowman and Easterlin paper in this volume, see the Appendix, Note 7.

[35] See my reply to Easterlin's comments for a discussion of these goals.

tions of the rule can be discussed separately under the headings of consumption and investment, and I shall take them up in turn.

The above qualifications relating to the rule are, in my opinion, important and valid. The following one is not. It has been said that the rule is empty and question-begging because two of its terms, "business enterprise" and "charging to current expense," have not been defined. Aggregates of widely different size and composition are obtained, it is argued, depending on how these terms are defined. The present Commerce total follows from one set of definitions, but if government were defined as business enterprise and the elements of the budget statement were transformed into a profit and loss account, the rule would yield the version of final output which Kuznets formerly advocated but has now discarded. Yet another radically different version of final product would result if households were defined as business enterprises and their consumption regarded as production expense.

It seems to me that these possibilities do not invalidate the statement that the rule is operational. After all, there is a large measure of agreement as to what a business enterprise actually is and what is meant by charging to current expense. All definition has to start with some background of agreement, which one does not question—otherwise infinite regression would ensue—and I do not see why one should not rely on such a "common sense" in this instance to formulate a definition of national product that is closer to actual practice than are most definitions of similar generality.

IMPUTATION AND "DUPLICATION"

Two major topics must be discussed under the heading of consumption:

1. There is the practice of imputation—i.e. the tradition, well-established in national output measurement, of recognizing as consumption certain items other than those admitted by the rule. Conversely, there has traditionally been a question as to how items purchased by individual employees for occupational use should be viewed in measuring consumption.

2. More recently, there have emerged various proposals for excluding from final product certain categories of government services; and these proposals have been broadened to apply to certain types of private consumption as well. I refer to the duplication controversy in all its shades.

Topics 1 and 2 have some interconnections.

THE COMMON SENSE OF IMPUTATION

In estimating the personal consumption component of the national product we do not confine ourselves to actual consumer purchases in all instances. In addition we include several items of imputed consumption—products, such as food, clothing, and shelter, furnished directly to employees; food and fuel which farm entrepreneurs produce for their own use; the services which owner-occupants obtain from their houses; and finally the services which are rendered without explicit charge by financial intermediaries. What is the rationale of this practice, and why is it useful? I shall first try to give simple answers to these questions, and then shall turn to some residual problems of a more subtle kind relating to the definition of imputation.

As to the rationale, I should like to suggest at the outset that it is not possible to formulate a definition of consumption, superseding the operational definition already cited, that would either explain the actual imputation practice in the sense that all imputations that are made would follow from that definition and no imputations that are not at present made would be called for by it; or, alternatively, that would suggest a reformed imputation procedure that would conform to these requirements.

I think that there is agreement on the point that such definitions do not now exist. But my contention is a more sweeping one—namely that they cannot be invented. A statement of this type cannot be proved, but in the present case a strong presumption can be established. I refer to the impressive record of failure to rationalize the existing imputation procedure or to develop a reformed one that would pass the test. Good and clever men have striven toward these goals since the dawn of national income measurement, and the fact that they have not attained them suggests the conclusion that they have been pursuing a will-o'-the-wisp.[36]

[36] A. C. Pigou's classical reference to what "can be brought directly or indirectly into relation with the measuring rod of money" (*The Economics of Welfare,* 4th ed., London, Macmillan, 1948, p. 11) is of limited help since what can be brought into relation with it depends, broadly speaking, on what we choose to bring into relation with it. It should be noted that Pigou recognizes this.

A more recent general definition appeared in a paper by Irving B. Kravis in *Problems in the International Comparison of Economic Accounts* (p. 349). (No specific criticism is intended; see also my comments on the Hagen-Budd and Ross papers.) Kravis suggests that two rules will serve to define economic activities: "(1) *The rule of remunerated activities:* The rendering of consumers' services to others in exchange for a *quid pro quo* is economic activity. (2) *The rule of sensitivity to rewards:* Within households, activities on which time spent would diminish in response to higher rewards for remunerated activities outside the household are economic. . . ." More tentatively, he offers a third rule, the "*commodity rule:* All

Even though imputations cannot be made to flow from a clear-cut rule,[37] they are an auxiliary construction of national income measurement which adds greatly to its usefulness. They may be compared to additions made to a house to adapt it to the particular needs of family living. These often destroy architectural unity, so that it is no longer possible to characterize the ground plan by a simple reference to the general plan to which all houses of this particular style conform. It becomes necessary to explain that the playroom was added because the children needed it, and that it was made an awkward shape in order to preserve the old oak tree beside the house which no one in the family was willing to have cut down; that the rather ugly looking second-story addition was made because in the particular year in which the extra room was needed funds were lacking for the more expensive alternative of extending and finishing the basement; and so on. Ex-

---

activities that result in a tangible product that satisfies a human want are economic activities."

The rule of remunerated activities would classify as an economic activity a man's playing of tennis with his inexpert wife in return for her baby sitting later in the evening so that he can go out to have a drink of beer. Kravis himself notes the presence of this sort of defect in the principle.

The rule of sensitivity to reward seems to extend the measurement of output to cover the output of factors that would only enter the market if greater monetary incentives were offered. However difficult to quantify, this extension may well be useful in taking account of productive resources that would become available for market production under given remunerational incentives. But it does not provide a solution for the central problem with which economists have been concerned under the heading of imputation. For standard-of-living and welfare comparisons it may be as unsatisfactory to rely on potential market output as on actual market output. Finally, the commodity rule would classify as an economic activity the construction of sand castles on the beach.

[37] In order to make clear the arbitrary nature of imputations, we went out of our way in the *National Income Supplement, 1954,* to spell out the tenuous character of some of the arguments upon which decisions in this field must be based. For instance, we mentioned that no value is imputed to lodging furnished free of charge to domestic servants because it is felt that the latter do not generally regard these lodgings as an addition to income. In reviewing our work, Klein (*op. cit.,* p. 118) finds such rationalizations "painful" and is of the opinion that they "could have been left unsaid. The important thing is that we be provided with a clear statement of the calculations made. In some cases decisions are admittedly based on long-standing traditions in the field of national income measurement. With these there should be no quarrel as long as the position is openly stated."

I agree that some of the rationalizations are painful, but we thought an honest and informative account of the conceptual foundations of national income statistics necessary. A clear awareness of the problems raised by imputations is essential to the understanding of many of the central theoretical issues of output measurement.

I do not understand what Klein means when he writes that he only wants a clear statement of what we do, and that there should be no quarrel with our following tradition provided the position is openly stated. To my mind, it is important to know why one does something, and not merely what one does; and I believe that tradition, too, should be subject to the scrutiny of reason.

planations of this sort are not elegant; they may even uncover instances of bad judgment. But the extensions themselves were made in response to genuine needs and have probably added to the comfortableness and usefulness of the house.[38]

Each of the current imputations has been adopted on the ground that it adds to the usefulness of the data in economic analysis. As a general proposition, I am inclined to think that imputations improve the statistics both in their normative and in their behavioral use.[39] This is not at all to deny that monetary items may have different effects from imputed items, and that detailed analysis is served by the most clear-cut possible segregation of the two types of items in the national accounts.[40]

However, one should not over-argue the case in favor of any specific set of imputations since the wisdom of making them must be judged primarily in terms of concrete problems of economic analysis. There will always be legitimate disagreement as to particular imputations that are now made, and as to whether new imputations should be added.[41] On the latter point, I might enter a caution: it is advisable to exercise restraint and to add imputations only if their need is strongly felt. The problems involved in the valuation of imputed items are large. More important, perhaps, it is reckless to navigate too far into an uncharted sea whose only shore is the one from which we have decided to cast loose.

OCCUPATIONAL EXPENSE

The points to be noted in connection with occupational expense, as conventionally understood, are as follows. First, it is subject to the same basic indeterminacy as the imputation process. Secondly, the deductions that are actually made for such expense in national accounting are negligible. The reason for this is probably that most occupational expenses are not incurred solely for the purpose of earning an income but are so closely analogous to other consumer purchases from a motivational standpoint that their exclusion would hamper analyses of economic status and behavior. As a matter of fact, the

[38] See also my comments on the discussion of imputations in the Bowman and Easterlin paper.

[39] In this connection, see my comment on the Cohen and Gainsbrugh paper.

[40] Some of our critics are not aware of the extent to which such a segregation can be made on the basis of our published data. For example, Klein (*op. cit.*, p. 120), in discussing the feasibility of reclassifying the activities associated with home ownership, asserts that "Property taxes on owner-occupied residences cannot, without additional tabulations, be shifted to personal from business taxes." They can be (see Table 39, line 13, of the *National Income Supplement, 1954*).

[41] See, for example, my discussion of the banking imputation below.

shoe of the national income estimator pinches the other foot: many production-connected outlays by business affect the welfare of workers, but are now excluded from national output. I am referring not merely to items that are already on the borderline of conventional imputation, such as free recreational and medical services, but to the entire flow of expenses that establish the conditions of work broadly defined, including sanitary arrangements, safety devices, heating and illumination, etc. It seems to me that to lay bare the stream of these expenditures, especially over substantial periods of time, would add a highly revealing dimension to national output measurement.

DEFINITIONAL PROBLEMS OF IMPUTATION

Market and Nonmarket Imputations?

Having covered what I regard as the commonsense of imputation, I should like to note two theoretical problems that seem to emerge if one presses the logical analysis. I am not sure of their significance, but discussion of them may possibly help to clarify the subject.

In the first place, the general statement that imputations go beyond production as recorded by the market economy does not make clear that two types of departure seem to be involved. In some imputations the boundaries of what is considered the area of economic activity are modified. An imputation for the services rendered by housewives would be a clear-cut example of this type of departure. In other imputations such a modification of the boundaries does not seem to be involved; here the effect is rather to value production that occurs within the conventional area of economic activity differently from its cash valuation in the market. An example of this type of imputation is wages received in kind by employees.

It would appear that the banking imputation in the national accounts partakes of the nature of the second type of imputation. By no stretch of imagination could it be said that it entails an extension of the area of economic activity beyond its conventional limits. The farm and rental imputations appear to represent considerably less clear-cut cases. Are we really widening the area of economic activity beyond its conventional limits by counting as production activities that conventionally would not be so regarded; or are we merely modifying the market valuation of activities conventionally regarded as production?

Definition of Imputation

The second point to which I should like to draw attention as possibly worth further study is the increasingly ambiguous manner in

which the term "imputation" is being used. We seem to be applying the term to very heterogeneous phenomena.

To start with the simplest case, all of us would agree that the accounting for wages and salaries furnished in kind is a clear-cut case of imputation. Similarly, there would be general agreement that the accounting for the home consumption of farmers and for the services rendered by owner-occupied houses represent instances of imputation. We can go one step further and say that the accounting for the services rendered by banks and similar financial intermediaries appears also to constitute an imputation.

But the interpretation of the related treatment of life insurance is not so simple. It is possible to regard this treatment also as a type of imputation, as for instance in the *National Income Supplement, 1954*. But it is equally possible—and in some ways more straightforward—to regard mutual life insurance companies as associations of individuals. With this interpretation the same output totals are obtained, but no imputation seems to be involved.

Let us proceed to the *cash* wages of domestics. This is clearly a monetary transaction, and there seems to be no compelling reason for regarding it as an instance of imputation. But it has been considered by national accountants to involve an imputation of consumption, on the ground that in terms of the formal construction of the national accounts the wage and salary transaction has to be accompanied by a shadow transaction, namely an imputed transaction in services. The production account of households is debited with wages and the appropriation account is credited with them; this is the cash transaction. The production account is credited with the value of the services rendered by households, and this item is debited to the appropriation account; this is the imputed transaction.

Similar comments apply to the wages of the employees of nonprofit institutions and of the government, and indeed to the entire nonprofit institution and government component of the national product. In the case of the goverment, for instance, its purchases are debited to its production account and credited to the business production and/or household appropriation accounts; this is the cash transaction. The value of government services is credited to the government production account and debited to the government appropriation account; this is the imputed transaction.

Force-account construction has also been considered as an instance of imputation, for example, by Copeland.[42] If his qualifying phrase, "for which no accounting records of capital expenditures are main-

[42] See the paper cited in note 18 above.

tained," is taken into consideration the question arises as to how much weight should we give to it? If it is given sufficient weight, the conclusion is suggested that anything included in national income and product for which no accounting records are actually kept represents "imputation." Surely we do not want to go that far. But if the qualifying phrase is disregarded, should not, by analogy, inventory change and depreciation also be subsumed under the general heading of imputation, on the ground that they do not reflect explicit monetary transactions either?

It seems to me that there is a need to distinguish between the imputations listed in the first paragraph of my enumeration (i.e. wage and salary imputation, the two profit imputations and perhaps the banking imputation) and all the rest. But I am unable to state the distinction in general terms.

THE BANKING IMPUTATION

The proper treatment of commercial banks in the measurement of national output has been the subject of perennial controversy, and it seems to me unlikely that a really satisfactory solution will ever be found. All the solutions advanced so far have one feature in common: they rest on basic assumptions which, far from being axiomatic, have a definite air of unreality about them. For instance, one approach (shared by the National Income Division) derives from the assumption that all interest disbursed by industry represents pure interest income; another approach starts with the assumption that all such interest paid to banks represents a service charge. Unless basic assumptions which are less artificial can be found—and I see no indication of progress in this respect—a truly satisfactory solution cannot be reached. For no matter how successfully we solidify the superstructure of reasoning, we cannot compensate for the shakiness of its foundations.

The following sketch of an alternative treatment of banking should be read in the context of the foregoing remarks. I do not claim to have hit on a more realistic assumption upon which to build a superstructure, but I think I have rather developed somewhat more consistently the assumptions underlying our present treatment. I am not entirely sure of my argument, but I think that it may contain the elements of a treatment which will be better in several respects.

As noted in the *National Income Supplement, 1954,* it would be desirable to improve the imputation made for banking and similar financial institutions. To my mind its major shortcomings are (1) its complexity; (2) the tenuousness of the lines of reasoning by which we allocate all banking services among the depositors (neglecting services

to borrowers) in proportion to the volume of deposits (neglecting turnover); and (3) a conceptual inconsistency, which I discuss immediately below.

The elimination of this inconsistency would result in a procedure which is considerably simpler than the one we now follow. As far as the current dollar estimates are concerned, moreover, it would obviate resort to the type of tenuous reasoning just referred to. Such reasoning could not be avoided, however, in the measurement of real output.

Final and Intermediate Output

The banking imputation is advanced on the ground that it is necessary in order to provide an adequate measure of banking output, of total output, and of its distribution by industries. The present procedure raises total output only when banking services are considered to be rendered to individuals. When they are thought of as being rendered to industry, it results only in a redistribution of total output from industry to banks. I shall argue that a proper measurement of banking output should raise total output in all instances.

I shall work with an example which, to begin with, will serve as a brief exposition of the present imputation procedure. Suppose that within an economy industry turns out consumption goods worth 100, that it pays 70 in wages and earns 30 in profits. These profits are received by banks, which pay out 21 in wages and earn 9 in profits. Individuals receive 9 in profits (from banks) and 91 in wages, and purchase the output of consumption goods worth 100.

INDUSTRY

Wages	70	Sales	100
Profit	30		

BANKS

Wages	21	Profit	30
Profit	9		

PERSONS

Purchases	100	Wages	91
		Profit	9

In the absence of imputation the national output statement would be as follows:

NATIONAL OUTPUT

By Income Share		*By Industry*		*By Type of Product*	
Wages	91	Industry	100	Sales of industry	100
Property income	9	Banks	0		
Total	100	Total	100	Total	100

It will be noted that income originating in banking appears as zero because of the usual procedure of netting out property income received. (The zero consists of wages of 21 and property income of minus 21.) This result is unsatisfactory because it understates the contribution of banks, which provide banking services free of explicit charge by paying for them out of factor earnings which they receive as intermediaries from industry. Accordingly an imputation is made. Banks are construed (1) to distribute the factor earnings they receive, and (2) to charge for the banking services they provide.

Since both these earnings and services are viewed as accruing to depositors, the accounts of the depositors are affected by corresponding credit and debit entries. However, the results of the imputations differ according to whether the deposits are held by persons or by industry.

In the former case the debit of imputed property income and the credit of imputed service charges to banks are matched by a credit of imputed property income and a debit of imputed service charges to persons. The account of industry is not affected. Property income originating in banking, and hence total property income, national income originating in banking, and total national income are raised (by 30).

INDUSTRY

Wages	70	Sales	100
Profit	30		

BANKS

Wages	21	Profit	30
Profit	9	Imputed service charge	30
Imputed property income	30		

PERSONS

Purchases	100	Wages	91
Imputed service charge	30	Profit	9
		Imputed property income	30

NATIONAL OUTPUT

By Income Share		*By Industry*		*By Type of Product*	
Wages	91	Industry	100	Sales of industry	100
Property income	39	Banks	30	Imputed service charges	30
Total	130	Total	130	Total	130

If, however, the imputed transactions are between banks and industry, the results are different. With bank services rendered exclusively to industry, banking is credited with imputed service charges and debited with imputed property income as before, but the offsetting

entries are made in the account of industry, which is credited with imputed property income and debited with imputed service charges. In this case the account of persons is not affected. As a consequence, property income and national income originating in banking are raised as in the first instance, but the increases are now offset by equal reductions of property income and national income originating in industry.

INDUSTRY

Wages	70	Sales	100
Profit	30	Imputed property income	30
Imputed service charge	30		

BANKS

Wages	21	Profit	30
Profit	9	Imputed service charge	30
Imputed property income	30		

PERSONS

Purchases	100	Wages	91
		Profit	9

NATIONAL OUTPUT

By Income Share		*By Industry*		*By Type of Product*	
Wages	91	Industry	70	Sales of industry	100
Property income	9	Banks	30		
Total	100	Total	100	Total	100

In comparing the cases in which the two imputations have been carried through, one finds, of course, that they are identical with respect to the amount and distribution of wage income. But they differ with respect to total property income and property income originating in industry. Each is lower by 30 in the situation in which the banking services are assumed to be rendered to industry.

Making the assumption that the two situations differ only as to the recipient of the banking service (consumers in the first case, industry in the second), but that each producing segment (industry and banks) employs the same amount of labor and capital in both cases, I find it disturbing that property income and its industrial origin should be different in the two cases. It seems to me that they should be the same.

If this view were accepted, it might still be objected that I have erred in assuming that the monetary values (before imputation) would be the same in both situations. It might be thought that the measures of property income and its distribution—including imputations—would become identical, and hence satisfy my requirements, if this

initial assumption had not been made. I think this assumption is the only simple and reasonable one within the context of the ideas that underlie the concept of factor cost, but I shall not argue the point. Instead I shall invite the reader to test for himself whether it is possible to devise any reasonable alternative monetary valuation (before imputation) such that, after the imputation is carried out according to the present procedures, identical amounts and industrial distributions of property income will result for the two situations. I believe he will find that this cannot be done.

If one answer is correct for both situations, as we have postulated, then which answer is the more reasonable? I suggest that it is the "consumer" case which we have treated properly, within the framework of our basic assumptions, and that in the "industry" case the imputation has gone awry. The basic rationale of the current procedure is that industry pays out pure factor income and that banks use this income to buy goods and services. Paying for goods and services in this manner, banks do not resell them in the market and hence, according to the conventional methods of calculating income originating, register spurious losses equaling the value of these goods and services. Consequently the value of total output is understated by an amount equal to the value of goods and services bought by banks. But if this is the result when only monetary transactions are taken into account, then what is always necessary is to raise the value of output by the total value of the goods and services bought by banks. This is done in the consumer imputation case. Because the imputation in the industry case does not do so, it gives the wrong answer.

The following example may illuminate this point, which to me is the essence of the argument. Suppose that industry produces 100 worth of output, and that it pays persons wages of 70 and property income of 30. The property income of 30 is used to hire direct labor services, which give rise to interpersonal wage payments of 30. The combined wage payments of 100 are used to buy the output of industry. Obviously the value of total output can be obtained by adding the incomes paid out by industry and the payments for factor services made by the recipients of profits; or, alternatively, by adding sales of industry and the value of the factor services purchased directly by the profit recipients. According to both methods the result is 130. It would be patently wrong to net the receipt of property income against the payment for labor services and thus to conclude that output is only 100.

Next, assume that the property income previously paid to individuals is now paid to banks and that the banks hire the labor which was previously hired by the individual recipients of property income.

Combined wages are used to purchase the output of industry, as before. I see no reason to change the previous manner of calculating output. The total factor cost of output consists of the labor and property incomes paid out by industry and of the labor income paid out directly by the recipients of this property income (in this instance by banks). Total output in terms of product flows should again consist of the sales of industry and of the value of the labor services directly paid for out of property income. It seems to me that this is the correct procedure whether banks "render" services to consumers or to industry. If we assume that property income generated by industry is factor cost, the destination of output is irrelevant to our selection of the components of the income flow whose aggregation will give us a measure of total factor cost. The essence of the situation is that the netting of property income against wage payments made directly out of that property income yields wrong answers.

It is perhaps more difficult to make peace with this argument on the product side of the account, where it results in a listing for banks which covers not only banking services rendered to consumers but also those rendered to industry. The latter may be thought to represent intermediate rather than final products. But this is not really so. Their listing is necessary to obtain a proper valuation of total final product. The fact that they are listed separately instead of as part of the product which they help to produce is analogous to the separate listing of government services that are beneficial to business, and can be defended on the same ground.[43]

Valuation of Banking Services

In the previous discussion I have not addressed myself explicitly to the problem of how banking services should be valued. My examples were based on the present procedure of valuing them at the cost incurred by banks plus their profit, which is the same as valuing them at property income received minus interest paid by banks.

An alternative would be to value them at cost to banks, exclusive of bank profits. I am in favor of continuing the present procedure, though I must confess to some sympathy for those who would value banking services at cost exclusive of profit. Under the current procedure an increase in government interest paid to banks, which is carefully prevented from increasing the monetary output totals, nevertheless raises the output totals via the banking imputation, because it automatically results in an increase in the value of banking services.

[43] See the section on "duplication" below.

Now logically there is nothing wrong with this. The rise in the value of output reflects not government interest, which has been excluded, but an increase in the value of banking services. If this increase represents a price rather than a quantity increase, it will disappear when the figures are corrected for price change. However, since no appropriate price index for banking services is readily available, I can sympathize with those who would cut the Gordian knot by valuing such services at cost exclusive of profit.[44]

"DUPLICATION"

The Government Controversy

While problems connected with imputation and occupational expense remained minor though chronic irritants to national income thought, a second branch of the final-product discussion blossomed forth luxuriantly. I refer to the famous controversy about the intermediate output of government. Unfortunately, this discussion did not profit from the lessons, suggested by experience with imputation, as to the nature of the difficulties encountered when one departs from the operational definition of consumption. Without probing into the concept of consumption, the critics took more or less for granted that in general we were successful in including in our measure of private consumption whatever we "enjoy," somehow defined. But they held that in measuring the services provided by government we fell short of this standard of achievement by counting also services which are not enjoyed. Thus we included services that are not enjoyed per se but are merely instrumental in producing services that are enjoyed—we counted government services to business. Again, we included services that are not enjoyed but constitute a necessary evil (for example, military services). This involved "duplication," the argument ran, in the sense that services were counted in final product that had no direct independent utility to consumers and affected their welfare only indirectly by facilitating other production already listed in final output. A search was on for a list consisting only of those government services that were final, and from which the intermediate services of government had been excluded.

No specific references to the literature on the government contro-

[44] The treatment of banking sketched here is similar to that proposed by Brown (*op. cit.*) except that he would value banking services at cost. However, the line of reasoning by which he arrives at his conclusion is different. See the Appendix, Note 8 relative to alternative proposals for the treatment of banking, including one by Richard E. Speagle and Leo Silverman, and also my comments on the Bowman and Easterlin paper.

versy are needed here. While most of the commentators have embraced the view that duplication exists, they have differed widely among themselves as to the precise nature and scope of the phenomenon and what exactly can and should be done about it. Changes in the position taken by individual participants have been drastic and frequent. Reasoning and conclusions have been vague and obscure, and no genuine consensus has been reached even among those who are united by the loose bond of asserting the existence of duplication. Altogether this seems one of the most difficult subjects of national income theory.

My colleagues at the National Income Division and I have given a full exposition of our views on the government controversy both in the *National Income Supplement, 1954,* and in an article in the *Review of Economics and Statistics.*[45] This exposition is couched, quite properly, in a discussion of our conception of the whole final product. While I have little to add to the basic argument as already set forth, a restatement of certain aspects of it may serve to promote fruitful discussion. I shall try to avoid broad expressions of our "philosophy," since in the past such an approach has not served to reduce the area of disagreement. Rather I shall concentrate on propositions which, to my mind, can be discussed more concretely.

A Diagnosis of "Duplication"

In the course of the controversy over the treatment of government, a discovery was made which is important if it can be validated, though as yet it is not generally accepted. What emerged was that the problem, first noticed in connection with government services, was not confined to them. For every type of government "intermediate product" that was isolated a close analogue, now included in our measures of private consumption, could be found.[46] The inclusion of "necessary evils" in government services was paralleled by the inclusion of necessary evils in private consumption. Expenditures for burglar alarms, watchdogs, and bodyguards appeared to have the same role in private consumption that defense expenditures played in government services. Analogues to other types of intermediate services could also be found. For

[45] Milton Gilbert, George Jaszi, Edward F. Denison, and Charles F. Schwartz, "Objectives of National Income Measurement: A Reply to Professor Kuznets," *Review of Economics and Statistics,* August 1948.

[46] Careful reading of Kuznets' writing indicates that he was aware of the generality of the duplication phenomenon both in his earlier and in his later contributions to the subject, although he has not emphasized the point consistently (see the Appendix, Note 9). I attempted to establish the generality of the duplication phenomenon in my doctoral dissertation, "The Measurement of National Income and Product with Special Reference to Government Transactions," Harvard University, 1946, typescript.

instance, if a consumer bought oranges f.o.b. Florida and paid the Railway Express Agency to have them shipped to his home, the services of the Agency, which are listed separately in private consumption, appeared to be exactly similar, in their relation to consumer satisfaction, to government services provided to the business system: the former, like the latter, facilitate the flow of production from business to consumers.

So generalized, the phenomenon of "duplication" can be seen to stem from the fact that the ultimate satisfactions we regard as the end of economic activity cannot be measured directly. All we can measure are commodities and services. These, despite their appellation of "final" product, are really only inputs that we combine to produce ultimate satisfactions. To pass by inference from these inputs to the satisfactions they provide is to run the risk of slips whose origin has been attributed incorrectly to "duplication." At least three major sources of error in such inferences should be noted.

In the first place, an inference from changes in inputs to changes in satisfactions will break down if requirements, needs, wants, tastes—I am searching for a broad term—change. For instance, suppose defense production increases but the power of the potential enemy rises *pari passu*. Other things being equal, the population is no better off than before, but national product measured inclusive of defense expenditures would be larger. This is the sort of ground on which it has been argued that the inclusion of defense expenditures in national output constitutes duplication. By analogy, in the private sphere there may occur a rise in medical expenditures which merely offsets an increased danger of infectious disease. Other things remaining the same, the population is no better off than before, but again the national product as currently defined would rise.

The second major source of error in assuming covariation between inputs and satisfactions is technological change. For instance, assume that the government provides free transportation to business and that the efficiency of the transportation system decreases. To fix our thought, assume that the art of building bridges comes to be forgotten and that as a consequence a larger mileage of transportation services has to be provided to carry a given volume of business products as existing bridges wear out. Let the government then step up its free transportation services in order to maintain the flow of business products to consumers. Other things being equal, the population is no better off after these events than before, but national product, including transportation services provided by government to business, would be larger. This type of case has been cited as evidence that the inclusion of government

services to business in the national product constitutes duplication. By analogy, if the transportation system is private and its efficiency decreases while its services are stepped up to maintain the flow of business products, consumers, other things being equal, will not be better off than before. Yet national product will increase if consumers happen to pay directly for the transportation services and purchase the other business products f.o.b.

Let us consider now a third source of error, additional to changes in tastes and technical conditions. Purely institutional shifts may likewise invalidate inferences from changes in inputs to changes in satisfactions. As explained below, this source of error verges on the statistical, but it should be mentioned since it is prominent in the duplication discussion. For instance, if government takes over the provision of a service that was previously an element of business cost, the welfare of the population will remain unchanged, other things being equal. Yet, given certain assumptions about deflation procedures, real gross national product will show an increase if the government services are included in the total. Cases of this type have also been cited as evidence of duplication. To draw an analogy to this case from the private sphere one would proceed by assuming an institutional shift that leads to direct payments by consumers for items previously constituting elements of business cost.

The error involved in this instance verges on the "statistical" because the argument postulates deflation procedures not refined enough to allow for the change in the product contributed by the business enterprise operating in the initial situation (this product includes transportation services in one period and not in the other). While this postulate may be realistic, it does put the example into a somewhat different category from those discussed earlier.

The Conventional Remedy

How does the proposal to exclude from government expenditures certain items which constitute "duplication" appear in the light of the foregoing diagnosis?

For one thing, it appears lopsided in that a remedy is offered for the government case only. Analogous expenditures by private consumers should be considered as well, unless specific reasons can be given to justify dissimilar treatment.

Secondly, the exclusion of certain items—whether from government purchases or from private consumption—would not remedy the defects of interpretation that have been noted. A knowledge of all items now listed in the national product is required if we are to draw the

soundest inferences possible from inputs to satisfactions. Even though the listing of certain input items may lead us to erroneous conclusions in some instances, a knowledge of these items is essential.

Take for instance the case of technological change. If coal purchases increase because heating systems become less efficient, an inference from input to satisfaction may well go astray. However, omission of coal purchases would be the remedy only if we assume that their increase has precisely offset the change in efficiency. Clearly this sort of assumption is unrealistic. Moreover, if efficiency is unchanged, larger coal purchases will indicate that a more comfortable temperature is provided, and should be taken into account in inferring changes in satisfactions. In short, the applicability of the national product to this type of analysis would not be improved by excluding coal purchases.

I believe that the items we list in the national product are of such a nature that, although they may occasionally confuse our inferences from inputs to satisfactions, they are necessary in making effective inferences. This is so even in the most favorable case I can construct in support of the other side of the argument. Take the case in which one element of input is such a good index of the services provided by a combination of inputs that we can use changes in this input alone as indicators without taking into account the movement of the other cooperating inputs. The danger of wrong inferences stemming from movements shown by the latter can be avoided. Consider the orange transportation example, with transportation service per orange changing only for technological reasons. In this case the number of oranges bought f.o.b. might be regarded as an adequate index of ultimate satisfaction, and movements in the cooperating input (transportation) might be disregarded in the analysis.

However, simple exclusion of "irrelevant" inputs is not the procedure that is really indicated even in this case. For although we may not be interested in the movements of these inputs per se, we do need to know their level, because we must take it into account in order to give proper weight to changes in the "indicator" inputs. For example, changes in the number of oranges f.o.b. will have to be weighted by expenditures for these oranges plus the expenditures for the associated transportation.

Quite apart from the matter of weights, there is another reason why exclusion is not the answer. In the example, we have casually assumed an objective distinction between "indicator" and "irrelevant" inputs. I do not believe that this distinction can be made with certainty in any actual case. The difficulty is that we do not really have a clear idea of what constitutes a final satisfaction, in terms of its content as related

to the various physical characteristics of observed inputs. For instance, we have taken the number of oranges to be a close index of final satisfaction, on the assumption of a one-to-one correspondence between the latter and the obvious physical traits that characterize oranges. But perhaps this is an oversimplification. Perhaps we should be thinking in terms of some interpretation of consumer motives which would call for a different evaluation of the various inputs as indicators of final satisfaction. To cite the handiest example, the magnitude of the transportation charges would be quite relevant if the satisfaction were a composite one in which conspicuous consumption was involved.[47]

It seems to me that these matters of input analysis do not really concern the current dollar totals but are more properly regarded as part of the problem of obtaining correct figures of real output. They have a close counterpart in the well-known difficulty of taking adequate account of quality change. In the present case we are struggling with a situation in which changes in inputs that are irrelevant to satisfaction tend to become incorporated in national output measurement. In the case of quality change we often confront the opposite danger that changes in inputs which are relevant to satisfaction will not be incorporated. For instance, our deflated consumer expenditures do not, by and large, make allowance for better packaging and prompter delivery of consumer goods. It would seem that the more items the consumer buys separately, the greater is the former source of error and the smaller the latter. Vice versa, the more complex the bundle that is acquired in a single transaction, the less is the risk that changes in "irrelevant" inputs will be reflected and the greater the danger that changes in "relevant" inputs will not.

So much for the problem of using output measures to interpret consumer satisfactions in the presence of technological change. As for

[47] The difficulty of deciding what grouping of products is most relevant for welfare analysis is well illustrated by "The Story of Prince Ahmed and Peribanou" (*The Arabian Nights,* Grosset and Dunlap, 1946). In this story Prince Houssain acquires a carpet such that whosoever sits on it may be transported in an instant whithersoever he desires to be. Prince Ahmed acquires an apple which cures all sick persons of the most mortal diseases; and this merely by the patient's smelling it. Prince Ali acquires an ivory tube such that on gazing through it one can behold whatever one desires to see, no matter how far distant it may be.

Looking through the tube they see that Princess Nourounihar is on her death bed in a distant land. By means of the carpet they are transported to her in an instant. A sniff at the apple restores her to perfect health.

Under routine circumstances, the three products should be listed separately in national output, and a change in the number of any of them could be taken as evidence of a change in consumer welfare. But if the healing of far-off princesses suddenly taken sick is the object, the three items must be regarded as an indivisible bundle, useful only when available in fixed proportions.

the problem of so using these measures when consumer needs change, my diagnosis is similar: the omission of selected components of national product is not a remedy. Although superficially such omission might seem to solve the problem posed by situations in which needs have changed, this is not really so, because omission would give the right answer only on the highly restrictive (and unverifiable) assumption that expenditures change exactly to the extent necessary to compensate for the change in needs. In the more general case in which such correspondence is not assumed, omission would not serve as a remedy.

It would also lead to error in cases in which needs are unchanged. For instance, if the risk of enemy attack is the same in two periods, the population will be better off if it improves defenses by spending more on them. Similarly, if the risk of contagious diseases is the same in two situations, we shall be better off if we spend more on preventive medicine. Omission of defense or medical expenditures from national product under these circumstances would be misleading.

In summary, we are confronted here with the well-known impossibility of using output measures as a basis of inferences as to changes in consumer satisfaction between two periods of differing needs. But it would be entirely wrong to consider this a defect of the output measures; to do so would be to ask more of such measures than we can reasonably expect.

Classification of Government Expenditures

The difficulties that have emerged in the guise, as is were, of the duplication problem are chronic ailments for which no general remedy seems to me possible in the framework of national output measurement,[48] although I do not want to exclude dogmatically the possibility that at least some of the problems could be solved if we adopted a radically different approach. (Attempts at real comparisons via the establishment of standards of equivalence on the basis of consumer behavior may illustrate the latter possibility.)

However, certain partial remedies or palliatives are available. In particular, a detailed classification of government expenditures by type of government service rendered would help us avoid as a practical matter the traps that cannot be dismantled in theory. If we know, for instance, that in a certain period an increase in national output has taken the form of defense expenditures, we shall be able to avoid gross

[48] Richard Stone, in "The Construction of Price and Quantity Index Numbers in National Accounting" (Cambridge, June 1952, processed, pp. 32 ff.), supports this view.

misinterpretation of the figures even though we cannot construct a meaningful measure of total output net of "necessary evil." Similarly, if we know that an increase in government expenditures has taken the form of aids to business in one period and that of public education in another, we shall be able to discriminate intelligently between the broad happenings, even though we have no measure of output net of "government services to business."

Thus the practical lesson I derive from the government controversy is that a functional classification of government services within the national accounting framework is essential.

Summary

One would be naive to expect that the duplication controversy will subside. It will probably continue its complex and confusing course for many years. I believe that the subject matter might be clarified if participants took a stand on the major propositions I have advanced:

First, "duplication" is not a unique attribute of government purchases, but affects private consumption as well. Asymmetrical treatment of government and consumer purchases would require explicit justifications.

Secondly, what is usually labeled "duplication" is really a manifestation of the broad fact that one cannot draw simple inferences from changes in output to changes in consumer satisfaction if there are concurrent shifts in needs, technological conditions, or institutions.

Thirdly, even though (for these and other reasons) output measures cannot provide a quick and simple answer to the very difficult problem of assessing changes in economic welfare, they are absolutely essential for such analysis. Their usefulness in this connection will be promoted by the provision of maximum information on expenditure flows, rather than by the attempt to find an automatic gadget, as it were, in the form of a total comprised of a selection of these flows.[49]

Output Seen as Final Product: Capital Formation

THE MAJOR PROBLEMS

The prototype of capital formation is the addition by business to its stocks of tangible reproducible assets. A systematic discussion of

[49] I have commented in the Appendix, Note 9, on the views of duplication published prior to this Conference by Colm, Kuznets, and Bowman and Easterlin. See also my comments on the Bowman and Easterlin, Hagen and Budd, and Kendrick papers in this connection.

capital formation would have to answer the following questions. First, is the restriction of the concept to tangibles and reproducible items proper, or should it be extended to cover intangibles and exhaustible natural resources as well? Secondly, is the restriction to business appropriate, or should capital formation by government and consumers be recognized? Thirdly, what is the best definition of gross capital formation? Fourthly, what is the proper allowance for capital consumption? In this paper I shall deal mainly with the major issues under the second, third, and fourth headings.

GOVERNMENT CAPITAL FORMATION

Durability versus Productivity Definition

In view of the definitional and statistical difficulties that beset an extension of the concept of capital formation beyond the business sphere, it is understandable that one hesitates to take the step. But since investment in fixed plant and equipment carried out under government auspices is so important, it seems clear to me that some information on government capital formation must be provided. The practical question is how far we can go toward a systematic accounting for it.

Little need be said about government inventories in the present context. The problems here are largely statistical, and it is easy to think of a reporting program that would furnish the required data. With respect to fixed asset formation the situation is more difficult, involving theoretical as well as statistical problems.

In defining gross fixed capital formation of government the first question we must answer is whether it should cover all acquisitions of durable items by the government or only of durable items that are deemed to be "productive" in some sense. I am in favor of including all durable items, since I cannot see a clear criterion for distinguishing between "productive" and "unproductive" facilities. For instance, it would seem illogical to me to exclude recreational facilities acquired by the government, on the ground that they are unproductive; the same facilities acquired by business enterprise would be regarded as productive. Needless to say, my preference for the broader criterion is quite compatible with a classification of government capital formation that distinguishes major types according to their different economic functions. For example, investment in industrial plant should be distinguished from investment in swimming pools.

This initial choice would settle many of the problems involved in the measurement of government capital formation, but some thorny

ones would remain, particularly in connnection with durables acquired by the military establishment. But despite these difficulties I believe that conventions can be developed for measuring government gross capital formation in a way that would add significantly to our knowledge of the economy.

Depreciation

Systematic accounting for government capital formation would, however, call for two additional steps: the calculation of capital consumption allowances on government owned capital, and the calculation of a net imputed rate of return.[50] These two steps would be much harder to take.

With respect to government depreciation, direct information is almost entirely lacking, and there is a dearth of reliable indirect information (such as time series on capital formation and relevant depreciation rates) from which synthetic estimates might be derived. This paucity of current information could, of course, be remedied to a large extent by the collection of additional data; and it is possible that some of the historical gaps might be filled in retrospect by statistical research. However, in the case of depreciation rates we are not dealing merely with ordinary gaps of statistical reporting. In some instances the conceptual difficulties encountered in measuring depreciation are particularly serious. Nevertheless, I see definite merit in statistical research aimed at the measurement of depreciation on government capital, and of stocks of such capital.

Rate of Return

I am much more skeptical about the next step, the imputation of a net rate of return on government property. A major aim of imputa-

[50] The following changes in the present summary accounts would result. In the government account, purchases would be reduced by the amount of capital formation and increased by the amounts of depreciation and imputed net return. Receipts would be increased by the amount of imputed net return. Surplus would be increased by the amount of gross capital formation and decreased by the amount of depreciation.

In the saving-investment account, gross investment would be increased by the amount of government capital formation. Depreciation would be increased by the amount of government depreciation, and government surplus by the difference between government capital formation and depreciation.

In the gross product account, government purchases (current) would be decreased by the amount of government capital formation and increased by the amount of net imputed return and depreciation. Capital formation would be increased by the amount of government capital formation. Imputed property income would be increased by the net imputed return on government property, and depreciation by the amount of government depreciation.

tions is to provide coverage of nonmarket activities comparable to that given similar activities that take monetary form. The imputation for the services rendered by owner-occupied houses, for instance, provides uniform treatment of all housing services whether or not these are reflected in monetary returns. Imputation can be made to serve this purpose effectively here because of the institutional fact that rental housing is widespread: via an analogy to it one can impute a realistic gross rent on owner-occupied housing of comparable type. There are many difficulties involved even in this imputation; but a question in terms of which a market analogy can be established—What would this house fetch if its owner chose to rent it instead of living in it?—makes sense and permits a reasonable answer from the available data. The imputation serves to recognize a genuine element of comparability between the nonmarket and market spheres in respect of this activity.

Imputation for certain types of property used by government could follow similar procedures. For instance, it might be possible to impute a gross rental to government office buildings by analogy to private office rentals, and to estimate a net rental return by deducting expenses, including depreciation, actually incurred by government.

But for some of the most important types of government property —for example, schemes of regional development, such as the TVA— this procedure is not open. The question as to what gross annual returns these properties would have in the market cannot be associated sufficiently with actual market events to be answered realistically. For some other property types, the market analogies that do exist—toll roads for the road system, for instance—are so restricted that in any answer based upon them the tail would necessarily be wagging the dog.

In the absence of a market analogy it is often proposed that imputation should be carried out by the application of some fixed rate of return to estimated capital values. If such a procedure is adopted, however, very little will have been done to improve comparability with the services of fixed capital used in the business sector. The services of business fixed capital are reflected by property incomes, including a variable profit-type return, which would not be genuinely comparable with the fixed rate of return imputed in the government sector.

Moreover, the task of establishing proper capital values and interest rates applicable to them involves major difficulties not only in bridging statistical gaps but also in setting acceptable conventions, which would be required in large numbers for calculations of this type. If these additional difficulties are taken into account, much of the attractiveness of the proposed imputation is, in my opinion, lost. I doubt

whether the inclusion of an imputed rate of return on these types of government property would advance matters further, or indeed as far, as a purely verbal explanation that the series does not include a measure of the services rendered by government capital.

Along an alternative line, it might be argued that the aim of imputation should not be the achievement of comparability with measures of the actual rates of return prevailing in other sectors of the economy, but that we should seek directly to establish rates of return which would measure the true marginal productivity of capital and would be a guide to rational resource allocation. This approach is intriguing, but so nebulous that I shall not explore its difficulties.

Influence on Policy

Before the case for the measurement of government capital formation is finally assessed, it should be noted that such measurement might be regarded as inadvisable from the standpoint of public policy formation. This is so for two partly interrelated reasons. First, it will inevitably tend to foster the view that expenditures for government capital formation are more "productive" than other types of public outlay, and obscure the fact that expenditures for health, education, and the like may be far more important in raising national productivity than disbursements for tangible items. Secondly, it will encourage a habit of thought which associates deficits with, and limits them to, expenditures for tangible assets.

I agree with those who deplore these mental habits, and share the apprehension that increased statistical emphasis on government capital formation will foster them. However, rational economic policy does call in many connections for a distinction between expenditures for durable and nondurable items; this being the case, I do not think that possible misuse of the information should deter us from procuring it.

Recommendations

I favor the preparation of data on government expenditures for durable items, and the incorporation of such data into the national accounts. I also believe that work on the calculation of the depreciation and stock of government capital should be encouraged. As regards the calculation of a net imputed rate of return on government property, my attitude is more negative.

CONSUMER CAPITAL FORMATION

In the classification of consumption, problems arise which are exactly analogous to those we have just discussed in connection with government, except that the available information is somewhat more

adequate. We already have data on gross consumer purchases of items that might be considered fixed capital; and existing studies of depreciation rates are more readily applicable than in the government case. My views on the measurement of government capital formation extend to the consumer sector as well.[51]

GROSSNESS OF CAPITAL FORMATION

Complete Units versus Parts, Repairs, and Maintenance

It has often been noted that the magnitude of gross capital formation varies inversely with the definition of durability that is adopted. However, this does not seem to be a quantitatively important factor within the durability range usually considered in formulating such definitions. For instance, our investigations have shown that, given our present knowledge of expected lifetimes, a one-year durability criterion gives much the same results as a three-year criterion.[52]

Much more important in its influence on the magnitude of gross capital formation is the treatment of expenditures on parts, repair, and maintenance. In the United States estimates only new "complete" items are included. We exclude parts, repair, and maintenance. This yields estimates of gross capital formation that are much lower than they would be if the latter types of expenditure were covered as well. In view of the practical significance of the distinction, it is important to examine the basis upon which it is made.

Such examination shows that the distinction is based solely on established accounting practice. No other operational criterion is avail-

[51] On these issues, see also my comments on the Hagen and Budd, and Ross papers.

[52] This ambiguity in the definition of gross capital formation has often been cited as one of the main reasons for preferring the net concept, which is generally thought to be free of such ambiguity. If net capital formation is conceived of as the sum of net capital formation in items of a specified degree of durability, its magnitude will depend on the durability definition adopted, in exactly the same way as does the magnitude of gross capital formation. But let capital formation be defined—as in principle it should be—as the change from the start of one period to the start of the next in the depreciated value of all goods on hand. Its magnitude is then no longer dependent on any particular definition of durability.

By analogy, one might try to define gross capital formation as the sum of the net total plus capital consumption. The ambiguity enters via the latter phrase: the magnitude becomes indeterminate, because it depends on the number of intermediate products recognized as separate goods. If from among all these goods we can segregate as capital goods those capable of multiple (i.e. repeated) use, the definition of gross capital formation becomes unambiguous. But determinancy in the gross concept can be achieved only by restricting the coverage of the gross treatment and handling some categories of tangible wealth on a net basis. Single-use goods must be kept apart and accounted for via the change in their inventories; the gross concept cannot be extended to them.

able. Hence it is reasonable to turn to the accounting literature for further light on the matter. Our findings here, however, are disturbing. For it appears from this literature that, although the distinction is made in practice, accountants have despaired of finding a sound basis for it. In principle, all expenditures on plant and equipment should be broken down in detail and capitalized separately, to the extent that they have different life cycles. For instance, there is no logical reason why a car should be regarded as a complete unit. A car is the sum of a motor, tires, a paint job, and so on. All these items should be capitalized separately if their life cycles differ, and there is no stopping point in this process of itemization except that imposed by considerations of convenience and economy.

Accounting theory on capitalization thus offers no conceptual distinction as between complete units on the one hand, and parts, repair, and maintenance on the other, but calls in principle for broadening the usual definition of capital formation to include the latter elements. The prevailing accounting designation of items as "complete" is entirely pragmatic: any item large enough or distinctive enough in periodicity to justify the bookkeeping expense of capitalizing it is considered complete.[53]

The question arises whether we can distinguish complete units on the basis of some criterion economically more significant. The test that comes to mind is whether an item can give a service which is "independent" in some sense. Thus, a car complete with motor, tires, etc., is capable of providing transportation service, whereas a tire cannot provide a useful service by itself. At first sight this common sense distinction is appealing. But further thought shows that it cannot be applied systematically. Many items that we now count as complete units serve their basic purpose only when used jointly with other items in a production process—e.g., a van is useful only when attached to a tractor; power generating equipment is useful only if it is associated with other equipment that it can drive. None of these items performs an independently useful service any more than do the wheels or the tires of a car. I do not see how we can effectively distinguish complete units from parts, repair, and maintenance on the basis of independence of service.[54]

This conclusion seems to reinforce the suggestion implicit in accounting theory, that we should abandon our restricted concept of

[53] See, for instance, Perry Mason, *Principles of Public-Utility Depreciation,* 1937, p. 22, and W. A. Paton and A. C. Littleton, *An Introduction to Corporate Accounting Standards,* 1940, p. 84, both published by the American Accounting Association, and *Accountants' Handbook,* W. A. Paton, editor, 3rd ed., Ronald, 1943, pp. 659 ff.

[54] There is an analogy here to the "duplication" problem discussed above.

capital formation, in the hope that a broader notion—embracing some portion at least of the expenditure for parts, repair, and maintenance —will be less ambiguous. I cannot deal at all systematically here with the theoretical problems involved in establishing such a broadened definition. In general, it seems to me that the main difficulty will be to stop short of formulations that would capitalize various outlays which in a common sense view are clearly of a current nature.

For instance, it seems sensible to treat lubricating costs as current operating expenditures but to treat a paint job as a capital expenditure. But what is the basis for the distinction? We might argue that lubrication is a cost that has to be incurred in each accounting period if production is to go on; whereas expenditures for paint jobs do not have to be made in each period. But are we sure that the distinction so put will stand examination? The scale of operations of a firm may be so large as to require paint jobs in each accounting period, just as regularly as lubrication. But perhaps this anomaly is only superficial and the distinction can be maintained if we stipulate that regularity and irregularity be defined with reference to specific operations rather than classes of operations. For instance, even though paint jobs of the same type have to be performed in each accounting period, the identical job is not repeated.

Perhaps we need not insist on lack of regularity as a distinctive feature of capital expenditures. Instead we might emphasize the fact that they add to the stock of services that can be used up in the future. For example, the services of a specific paint job do not all accrue in the period in which the job is done; they carry over to future periods. This is so whether or not paint jobs have to be done regularly in each accounting period. But this formulation, too, threatens to result in difficulties. The lubricating job also adds to the store of services that can be used in the future, for if it were not performed the equipment would be ruined. Perhaps the distinction between current and capital expenditures could be put in terms of expenditures which suffice at most to maintain productive capacity during the current period—although they may *ipso facto* be a necessary condition of future production—versus outlays which will affect future-period capacity even if they are not repeated in the future period.

Usefulness of Alternative Measures

Whatever is the proper answer to these questions of definitional logic, it is obvious that one can in practice prepare "grosser" and "netter" estimates of gross capital formation. Which sort is more useful?

Three important uses come to mind. In the first place, the estimates of capital formation should give us information for analyzing changes in national wealth. Expenditures for parts, repair, and maintenance, on the one hand, and for the acquisition of new assets, on the other, are to a considerable extent alternatives. Only if a "gross" gross total is confronted with charges for depreciation and normal maintenance, can we obtain a complete picture of changes in our capital stock.

Secondly, statements of gross capital formation are often desired because of the clues they provide as to the amount of resources available for shifting to alternative uses. There are many limitations to this type of analysis, since what we are really looking for is the minimum amount of capital formation necessary to maintain productive capacity in the short run. Now there is no reason to believe that the entire amount of gross capital formation can be dispensed with before this minimum is touched, although we can be reasonably sure that the amount so dispensable is larger than the amount of net capital formation. Detailed analysis will be needed to determine the divertible amount of gross capital formation. But since expenditures for parts, repair, and maintenance will also include divertible amounts, it will be useful to include these in the total gross amount which is taken as the starting point of the detailed analysis.

A third criterion is provided by the use of the data in studying economic behavior. It is likely that the items in question are subject to characteristic patterns of fluctuation, certainly in the short run, which should be studied together with the movement of the netter series on gross capital formation. Thus a grosser definition is indicated on this score also. It is true, of course, that even with a netter definition the behavior of expenditures for parts, repair, and maintenance could be traced: it would be reflected in profits. But it is always more difficult to conduct analysis in terms of net amounts that combine the effects of the disparate movements of positive and negative items.

In summary, there does not seem to be a comfortable distinction between complete units on the one hand, and parts, repair, and maintenance on the other; this situation strengthens the case for the study of a grosser definition of gross capital formation. It will be necessary to explore the possibility of formulating clearer distinctions which would be appropriate to a broadened concept. As regards the usefulness of the data, the grosser definition seems to recommend itself.[55]

[55] The treatment of parts, repair, and maintenance was discussed at the Third Conference of the International Association for Research in Income and Wealth (1953) in a session on the "Estimation of Items in the Capital Account."

In connection with this discussion we should take note of the item, "capital outlays charged to current expense," which appears in the United States accounts. It consists of small units of "complete" equipment, such as tools, containers, etc., which are habitually charged to current expense by business but which are capitalized, and offset in capital consumption allowances, in the national accounts. The logical presupposition for this procedure is that there exists a distinction between "complete" items and "parts," since the business practice of charging the latter to current expense is accepted.

CAPITAL CONSUMPTION

Inadequacy of Business Accounting Depreciation

The proper measurement of capital consumption and net capital formation is one of the most difficult aspects of economic theory. As I read and think about the subject, it appears to me that many of the underlying theoretical issues remain unsolved, and that consequently the exact significance as well as the limitations of any empirical measure that can be constructed will be in doubt. It would ease my mind if at least some of these issues were clarified before the basis of measuring capital consumption allowances in the official United States national income statistics is changed.

Both because business accounting provides much of the conceptual background and statistical information for the measurement of depreciation, and because the problems that arise when one attempts to depart from this information are so thorny, there is a strong tendency in national income measurement to utilize business accounting records as far as possible. Areas not covered by actual business accounts are dealt with by methods that are patterned according to the practices of business. With some inconsistencies that reflect the accidents of historical growth (mainly the treatment of farm depreciation), this is the practice underlying the United States estimates.

But the acceptance of business accounting methods has become an increasingly dubious practice. Extreme changes in the price level have made the interpretation of the data difficult. Changes in tax laws and administration lead to changes in business practice which make the time series noncomparable for many of the purposes for which one wants to use them. These developments, as well as a great deal of reflection by both accountants and economists, have put the subject of depreciation into the limelight of theoretical and practical interest.

About the only theoretical defense of a continued reliance on business accounting practice is that it is relevant for studies of eco-

nomic behavior. This is an important argument, but it loses some of its force when such factors are taken into account as the increasing skepticism of the business community itself as to the validity of the prevailing methods of depreciation accounting; the absence of a clear-cut awareness of depreciation in large sectors of the economy for which depreciation charges have to be estimated (mainly farmers and home-owners); and the changing impact of tax laws and administration, which often have retroactive effects. However, it is not necessary to come to a final evaluation of the relevance of the accounting measure to business behavior. This measure could continue to be carried in the accounts, along with any new measure we might wish to introduce, by the adoption of a "depreciation valuation adjustment" analogous to the present "inventory valuation adjustment."

Accordingly, it seems clear to me that we should try not to lean much longer on the crutch of actual accounting depreciation. We should supplement it by a new measure—which, incidentally, may prove to be superior from the viewpoint of business as well.

Valuation: Practical Recommendations

I shall organize my comments under two headings: valuation and timing. Under the first heading the main question is whether we should value depreciation quotas in original cost or in current prices.

I believe that from the standpoint of economic analysis a valuation in terms of current prices is more relevant than one in terms of original cost. It affords a better basis for analysis of the flows and stocks of goods and services; and it is not my impression that it would serve less well in the analysis of financial flows and stocks. It is possible to revalue depreciation charges on a fairly solid basis if one outstanding feature of this revaluation is clearly understood. Owing to the well-known inability of price (or volume) indexes to reflect quality change, depreciation will be overstated as a measure of what must be set aside to maintain capital, defined as a store of future services; and net capital formation and stocks—the difference between gross capital formation and the revalued depreciation charges—will, when deflated, not show the improvement in the quality of plant and equipment that occurs in a progressive economy.

I recognize that there are grave objections to a measure of this sort. Used without an understanding of its characteristics, it might give rise to wrong evaluations and actions. Nevertheless, once its characteristics are recognized, it is a measure that is relatively easy to interpret at least on a common sense level. If net capital formation and stocks are measured as differences between current-dollar gross capital

formation and original cost depreciation, in contrast, a conglomerate results that cannot be interpreted at all. This is so because the influence of the price-change factor (apart from quality change) is not known and hence not even the direction of the bias can be stated.

At this level of interpretation, the status of capital formation and stock measures based upon revalued depreciation charges is, to my mind, somewhat similar to that of constant-dollar product measures. Experience shows that these measures are eminently useful in giving us a better view of the quantities underlying the value figures, even though we cannot deal systematically with quality change and hence cannot give a precise theoretical meaning to our results. In interpreting the constant-dollar gross national product, we must keep the quality-change muddle in mind. It constitutes a limitation of the figures in many applications and may indeed make them useless in some.

Measuring Quality Change

As soon as we probe more deeply into the precise significance of revalued capital formation measures, however, the perplexing problems to which I have referred make their appearance. The issue, broadly speaking, is whether the neglect of quality change is a regrettable deficiency which might conceivably be so serious as to destroy the practical usefulness of the measure; or whether the neglect is proper in the sense that it gives us a measure which is a good approximation to a concept of analytical interest.

The first approach harks back to the definition of income as the amount that we can consume in one period without being worse off in the next, and to a correlative concept of plant and equipment capacity. If this approach is adopted, the omission of quality change from the measure of net capital formation is clearly a serious defect.

While basically more conventional than the alternative I shall sketch next, this frame of reference has led to proposals which are rather revolutionary. For instance, it has been suggested that depreciation charges be confined to the measurement of effective physical wear and tear; charges reflecting obsolescence should be omitted to help compensate for the fact that actual measures of gross capital formation cannot show the quality improvement due to the technical change that results in obsolescence.[56]

[56] I think that this is the view of Richard Ruggles, although I am not sure (see his "Concepts, Sources, and Methods of United States National Income Accounts," *Econometrica,* July 1952). Ruggles is also the originator of the idea that net capital formation might best be approximated by gross capital formation, given our present knowledge.

But this proposal cannot be implemented, since it is not possible to segregate wear-and-tear depreciation from obsolescence depreciation. In the search for a practical alternative, it has even been suggested that true net capital formation might be better approximated by our present gross series than by one net of revalued depreciation, given the insensitiveness of the two latter measures to quality change. Suppose that both quoted prices and the dollar rate of gross capital formation are constant. And suppose, moreover, that all depreciation charges, which are also constant, reflect obsolescence rather than technical wear and tear. In measuring "true" net income in this case, it would be proper to omit depreciation charges altogether: gross capital formation being viewed as increment to capacity to produce future income, the understatement of it which stems from omission of quality improvement must be larger than the depreciation charge. Even so, the resulting measure would remain an understatement because it would not show the rise of income. These assumptions regarding quality change and obsolescence are extreme, but they can be modified to allow for the reflection of some quality change in the empirical measures, as well as for the presence of some bona fide wear-and-tear depreciation in the real world. If the modifications necessary to approximate actual conditions are not too large, the proposition that gross capital formation is the best measure of net capital formation available to us may still hold.[57]

Now let us consider the second approach, which leads to the belief that the attainable measure of revalued net capital formation closely approximates something we are really interested in. Its proponents note that it is unrealistic to assume the possibility of ever measuring quality change effectively, and point out correctly that it is unhealthy to have so wide a gulf between what is considered the theoretical ideal and what actually can be achieved. The impediments due to lack of statistical information are not the essence of their argument. Their basic contention is rather that the concepts of income and capacity to produce income are too vague or too abstract to describe usefully the essential features of the real world.

On the positive side, they say that the empirical measure of revalued net capital formation (and stocks) is a close approximation to the concept of capital that is best adapted to the analysis of capital inputs, inventions (labor saving, neutral, and capital saving), and productivity. In the absence of price change—or when converted into constant dollars—it shows two stocks of capital as equivalent in volume if their costs of production are the same under the conditions of the

[57] See note 56.

base period; this is the definition required for the analytical purposes listed.[58]

In rebuttal, the adherents of the conventional approach might stress three points. First, they might express some discomfort at the proposition to deal with a component of national output (capital formation) on the basis of criteria that are derived from considering it as a species of input. Is this not the entering wedge for excluding capital formation from output altogether, and of reverting to the Fisher concept of income as consumption? In particular, they might point to the fact that within the framework of the present estimates a given item would be treated differently depending upon whether it is purchased by consumers or by business. For example, in the case of a passenger car bought by a consumer, adjustment for quality change would presumably continue to be a theoretical desideratum. But if the same car were acquired by business, or if consumer durables were reclassified as capital goods, the same adjustment would represent a misguided effort.

Secondly, they might point out that even though the concepts underlying the conventional definition of income are admittedly weak and that little genuine use has been made of them, the same might be said of the concepts underlying the definition of capital inputs and the use to which these have been put. This will suggest itself very forcefully to anyone who has perused, for instance, the literature on the classification of inventions. Perhaps it is even premature to assert that the analysis of capital inputs can be conducted only on the basis of measures that exclude quality change.

Thirdly, they might question whether neglecting quality change as we do in empirical measurement is really equivalent to excluding it in the sense envisaged by economic theory—namely so as to measure capital in terms of cost.[59]

[58] Joan Robinson, in "The Classification of Inventions" (reprinted in *Readings in the Theory of Income Distribution,* William Fellner and B. F. Haley, editors, Blackiston, 1946, p. 176, note 3), says that "For our present purpose capital must be conceived in physical terms, that is as a stock of capital goods, and it is most conveniently measured *in terms of cost units*" (my italics). The essential point in this connection is in the implication that the analysis is best served by a measure of capital which excludes quality change. A similar statement can be found in a later essay, "Notes on the Economics of Technical Progress" (in her *The Rate of Interest,* London, Macmillan, 1952, p. 38 ff).

[59] The most closely reasoned discussion I have seen of the measurement of quality change in capital formation is that by Edward F. Denison in "Quality Change, Capital Consumption, and Net Capital Formation," *Problems of Capital Formation: Concepts, Measurement, and Controlling Factors* (Studies in Income and Wealth, Volume Nineteen, Princeton University Press for National Bureau of Economic Research, 1957). Denison believes that it is impossible to measure the quality change

Allocation

With respect to the allocation of capital consumption charges over the service life of a unit of equipment, there are two distinct problems: the determination of the correct service life and the allocation of the total charge over this service life. I have no comment on the first problem except that it is very difficult to determine the average length of actual service lives. The only comprehensive data we have are the service lives suggested by the Internal Revenue Service in its Bulletin F; and there is literally no way of judging whether these lives are reasonable approximations to actual conditions or far off the mark. This gap in our knowledge is another reason why we feel uncomfortable in making a major change in our procedures for calculating depreciation. It is true that the revalued estimates would be no worse than the present estimates in this respect—but is it not understandable that one hesitates to make a flashy change in the appearance of a single package item if there is a strong risk that one of the major ingredients remains seriously defective?

I believe that the pattern of allocation for depreciation should measure the manner in which services stored up in the equipment are used up over its service life. A strong body of evidence indicates that this flow is a diminishing one over successive units of time, because of deterioration in the quality of services rendered and the increase in repair and maintenance cost, and also because of the progressive incidence of obsolescence. While it is not possible to say on the basis of the existing evidence precisely what formula should be used, it seems ob-

---

of capital; that a concept excluding quality change, based upon equivalence in terms of cost rather than productivity, is meaningful for economic analysis; and that the measure that we can construct in practice is a good approximation to this concept.

I concur in his first proposition. I am inclined to assent to the second, although I should like to think further about the subject. With respect to the third point, I should like to see it supported by a more detailed examination of the practices by which information on products of changed quality, products that go out of existence, and products that are newly introduced is incorporated into the price indexes. It is my impression that the effect of these practices is very difficult to assess.

Specifically, over the wide area where quality change is simply neglected, there is no necessary relationship between the cost measure envisaged by Denison and the outcome of the empirical calculations. I am not sure to what extent his purpose is served when a price index is established by linking the prices of two different products in an overlap period. In the case of major changes in specifications where there is no overlap and equivalence is established via cost comparison, a closer correspondence between Denison's concept and actual practice is apparent. As Denison recognizes, even this case may occasion a divergence of the actual from the theoretical measure; I should like to see the insignificance of such divergences established more firmly.

vious that the straight-line formula results in too slow a write off and that a formula that would charge off a larger-than-proportionate part of depreciation in the earlier part of the service life of the equipment would be preferable.[60]

There is an additional theoretical point which has often been discussed, but to my mind the results have been inconclusive. It is often suggested that the time-pattern in which the services stored in the equipment are used up should not be employed directly to determine the allocation of depreciation charges; but that this pattern should first be modified by applying a discount factor. This would result in a slower write-off than would a pattern based directly on the use of stored-up services.

We can illustrate this by means of an example. Assume for simplicity that a certain piece of equipment yields equal services in each year of its useful lifetime. If a discount factor is not introduced, equal annual depreciation charges would be indicated. If a discount factor is applied, however, annual depreciation charges will rise during the lifetime of the equipment: the using up of equal quotas of stored-up services each year is partly offset by the growth in value of the remaining services—the decline in the time-discount applicable to them —as the time of their actual use draws nearer. The offsets are larger in the early life of the equipment when the store of maturing services is relatively larger than later on when much of the store of services has already been consumed.

These two alternative formulas present something of a dilemma. Employment of the unmodified service use pattern for the allocation of depreciation charges would seem to result in a correct measure of the annual net output of the equipment. For instance, in the hypothetical straight-line case the net output of the equipment would appear to be constant throughout. The discount method would, on the contrary, indicate that the net output of the equipment was declining—surely the wrong result.

If rates of return on depreciated investment are to be calculated, however, it is the discount method that gives the more reasonable result. It indicates a constant percentage rate of return on the depreciated value of the equipment over its entire lifetime, whereas an allocation of depreciation quotas based directly on service use would show increased rates of return.[61]

[60] George Terborgh has dramatized the practical importance of the allocation problem in *Realistic Depreciation Policy,* Machinery and Allied Products Institute, 1954.

[61] In his review of the *National Income Supplement, 1954* (*op. cit.,* p. 121),

FRINGE AREAS

Margins

There remain certain fringe problems of capital formation and consumption of which I should like to take note. These concern margins arising in the transfer of secondhand assets, capital gains and losses, physical destruction, and discovery. I have the uneasy feeling that a broader initial view of changes in asset values might have made possible a more integrated discussion of all these problems, for obviously there are marked interrelationships. For instance, obsolescence and capital loss have boundaries that are in part contiguous. But I have not found the key to such an integration; and the brief discussion of these fringe phenomena which follows is therefore compartmentalized arbitrarily.

Margins arise in the transfer of both secondhand tangible assets and financial assets. The treatment of these margins raises some genuine problems which are discussed immediately below. In addition, the transfers themselves create difficulties because most national accounting systems lack sector saving-investment accounts, which are the proper medium for recording them. In these systems, transfers of financial assets simply cancel out without giving rise to complications, but transactions in secondhand tangible assets cannot always be ignored with such neat results, because they are closely related to components of the current product flow. For instance, transfers of secondhand assets among sectors are generally not recorded, but reported depreciation charges reflect these transactions. This anomaly gives rise to makeshift procedures of varying degrees of awkwardness. It is not possible to straighten out these procedures neatly within the procrustean bed of a system that does not include sector saving-investment accounts. On the other hand, they would straighten themselves out almost automatically if such accounts were provided.

In contrast, the problems encountered in connection with the margins generated in the transfer of existing assets are genuine in the sense that they are not due to shortcuts in accounting design. These margins

---

Klein also recommends the revaluation of depreciation charges. I am curious about his answers to the basic problems lurking behind the mechanical process of revaluation. I think he would have put our reluctance to proceed with the revaluation of depreciation charges in a fairer light if he had mentioned them. It may also be noted as somewhat surprising that so eminent a student of economic behavior as Klein goes all-out for the revaluation of depreciation charges. Inasmuch as corporations base their profit calculations on book depreciation, one might consider that this method of valuation might give better results in studies of economic behavior.

See also my comments on the Hagen and Budd, and Ross papers.

represent productive activity and give rise to income on the debit side of the gross product account. If the balance of this account is to be maintained, they must be treated either as expenditure or as expense. Neither treatment seems fully satisfactory as a general procedure, as is indicated by a review of the discussion in this field. Moreover, there are certain special problems that neither will solve. For example, it may not be proper to take the full difference between the selling price and the buying price as a measure of the margin earned in these transactions, for this difference may reflect capital gain or loss. It is extremely difficult to distinguish such gains and losses from gross margins proper.

Capital Gains and Losses

Capital gains and losses raise other difficult problems as well. In discussing them we shall find it convenient to discriminate between financial and real assets. There is little doubt that changes in the value of financial assets do not reflect production. It follows that from the standpoint of the nation as a whole they cannot reflect income, consumption, investment, or saving. On the other hand, it is equally clear that capital gains and losses are economically significant variables, and it would be important to have a record of them in the national accounts. I favor a further tackling of the theoretical and statistical problems of measuring capital gains and losses, although the inconclusiveness of intensive work done in the past in this field does not augur well for future progress.

Capital gains and losses in tangible assets present even greater theoretical difficulties, since they border on current capital formation and consumption. I have no positive conclusions to offer on this subject. But it is reassuring to note that in practice their treatment does not give rise to acute discomfort either statistically or from the standpoint of economic analysis.

Physical Destruction

The problem here is whether losses due to fire, flood, earthquakes, revolutions, or wars should be charged to current account or directly to capital account. To the extent that large irregular losses occur, there is a case for the latter procedure, but in practice it has been quite satisfactory to treat them as a form of current capital consumption.

Depletion

The treatment of the discovery and use of natural resources is a difficult subject, and one on which I have reached few satisfactory

conclusions. I continue to believe that it is impracticable to include the discovery value of these resources in gross capital formation, and that, accordingly, it would be wrong to include the using up of these resources in capital consumption: the resulting net investment figure would be misleading. To this extent I stand by the reasoning presented in the *National Income Supplement, 1954*. However, this reasoning implies a definition of production which excludes the mere discovery and using up of natural resources, and we have not applied such a definition consistently.

The following example will make these points clear. Assume that coal is discovered and sold to consumers for $100. Assume, moreover, that no labor or capital is used in the process. (This artificial assumption is made to keep the example simple, and is not essential to the argument.) Then, since the discovery of a coal deposit is not included in capital formation, the draft on it should not be included in capital consumption. If it were, a misleading figure of minus $100 for net capital formation would result. So far, so good. But according to the present procedure, the value of consumption will be $100 and net product will be $100, since there are no further offsets on the product side. On the income side this will be matched by profits of $100, since profits are measured gross of depletion. But this is an odd result, because by definition no production has occurred. The error committed here is the inclusion in consumption of the value of natural resources that have not been counted as production. A somewhat similar error would result if we included in consumer expenditures the full value of secondhand car sales, instead of the gross margin on such sales.

The reasoning so far associated with the treatment of depletion thus calls for a modification of the present procedure. But it is possible that this procedure can be defended on the basis of alternative reasoning. It might be argued that, as a practical matter, natural resources are not exhaustible; that in experience new discoveries always supervene to maintain and add to our stocks. If this assumption, to which I would want to give further thought, were made, the present treatment might be justified. In the example given, profits grossed up by the amount of depletion would represent a form of value added analogous to the rent of land.

International Transactions

INTERNATIONAL TRANSFERS

We now treat international gifts as purchases and sales, in conformity with the earlier, conventional balance of payments classification in which these items were considered payments for services. I

would favor changing our classification of international transactions by introducing a new category of international transfer payments, to accommodate both personal and governmental grants or gifts.[62]

I have opposed this change for a long time on two counts: first, that the present procedure is simpler; and, secondly, that the proposed change, in order to result in meaningful figures, would have to recognize not only cash transfers but also transfers in kind. The distinction between domestic purchases and international transfers in kind is very difficult to apply in the case of certain government transactions, such as military aid during a war. Theoretical considerations also make one hesitate to make the change, since the introduction of the concept of transfers in kind threatens to dissolve all government purchases into transfers, or subsidies in kind, to other sectors of the economy.[63]

I have changed my mind on this subject. Intergovernmental aid has become so important in the postwar period that I think we should attempt to distinguish such aid in the national accounts. A reasonable approximation would be better than to lump it with transactions in goods and services as at present. And, if the distinction is made for the government, it might just as well be made for the private sphere, even though the amounts involved here are much smaller.[64]

[62] The changes in the simple five-account structure that would result are as follows. In the gross product account personal consumption and government purchases would be reduced by the amount of such grants and gifts, and the international item would be correspondingly increased. (In the present scheme net disbursements for grants and gifts diminish this item since they are treated as service imports.) In the personal account, consumer expenditures would be reduced, and a new expenditure category of international transfers would be introduced. In the government account, current purchases would be reduced, and a new category of international transfers would be introduced. In the international account, bona fide goods and service transactions would be segregated from international transfers. The saving-investment account would not be affected, since the only international item in that account—lending abroad—would not be changed.

[63] In the past I have also argued against the segregation of a category of international transfers on the ground that it would involve working with a conventional distinction between government loans and grants that is often economically meaningless. One would by necessity have to exclude loans even though one regarded such loans as disguised grants. But this is really an argument in favor of the change. It is true that shifts between grants and pseudo loans would mar the line between international transfers and loans under the new procedure, but under the present procedure they mar the distinction between the foreign and government components of the national product, and this is probably a more substantial blemish.

[64] With regard to unilateral transfers, Klein (*op. cit.*) seems to propose that in cases of cash grants a determination should be made of the items on which the grants are ultimately expended, and that the export of these items should be classified as government purchases. But it is not generally possible or meaningful to identify specific exports with prior cash grants. At the same time, Klein approves of the establishment of a category of international transfer payments. This would seem to amount to counting a cash grant twice in government expenditures: once, when the cash transfer is made and once again when the goods are exported.

FACTOR INCOME FLOW

A second change which might be considered would affect the treatment of international factor income flows. (In this connection it is useful to remember that for the United States these flows amount to about one-third of one per cent of the national product.) Perhaps it would be better to exclude them from the basic output measure. In the usually accepted terminology, domestic—or geographic—product would be substituted for national product. I have a slight preference for the former measure, because it seems to involve a somewhat simpler notion of production, and because it is the more readily deflatable magnitude.

It is convenient to be able to think of production in terms of the value of the output of specific physical goods and services, and of the measure of this production in terms of income flows as being derivable from this value. Geographic product can readily be visualized in these terms. The product represented by international income flows, however, cannot, since it is identifiable only via the factor returns. In the case of labor earnings one can at least envisage corresponding units of input; in the case of property incomes—interest, dividends, and branch profits—which make up the bulk of international income flows, not even this degree of concreteness is possible.

EXPORTS AND IMPORTS

Finally, there is a case for showing exports and imports separately in the gross product account, since the gross flows are analytically important in themselves. The proposal raises some awkward presentational problems. To preserve a meaningful total it would probably be best to show imports as a concluding deduction entry on the credit side of the gross product account. However, this is not really a matter of substance. If the full set of accounts were published regularly, one might show only net exports in the product account but provide for the gross presentation in the international account.[65]

[65] For an analysis of Salant's views on the treatment of international transactions, see the Appendix, Note 5.

APPENDIX

Note 1: Government Enterprises and Nontaxes

UNITED STATES TREATMENT

The present treatment of government enterprises in the United States accounts is admittedly a short-cut procedure, developed because these enterprises are a minor part of total productive activity and because the structure of the accounts did not suggest a more explicit treatment. For instance, it seemed inadvisable to separate the capital formation of these enterprises when the closely allied general government capital formation had not been separated. If an explicit treatment of government enterprises is adopted in the full accounting framework developed in this paper, many of the peculiar aspects of the present procedure are eliminated, and only a few genuine issues remain.

Government enterprises must be distinguished both from private enterprises and from general government. In the United States, financial integration with the government, government ownership, and government control of day-to-day operations (as distinguished from the exercise of general regulatory powers by the government) provide satisfactory criteria which usually point in the same direction, although there are difficult borderline cases, of course. In countries where government control of business is more widespread, the situation might not be so simple.

To distinguish government enterprises from general government we specify that they must provide goods or services in return for charges that at least approximate their costs of production. This criterion is not watertight either, but it is definitely workable. Government nontax receipts not classified as government-enterprise receipts are treated like taxes, a point to consider in evaluating the reasonableness of the criterion.

Among nontaxes it is useful to distinguish cases in which the notions of "good or service" and "cost" are relatively clear from those in which they are not. In the first group we can further distinguish the following cases:

COST AND CHARGE APPROXIMATELY EQUAL. The problem is to avoid double counting. If the output is acquired once by consumers (or by

business on capital account) and once by government, it seems reasonable to count only the consumer or capital purchase as final and to set the accounts up in such a manner (using the government enterprise device) that the government purchase will not be registered as final. Similarly, if the purchase from the government is made by business and charged to current expense, it seems reasonable not to count it in output as a final (government) purchase.

COST MUCH GREATER THAN CHARGE. For some purposes it would be preferable to have nominal fees shown in close juxtaposition with similar types of consumer purchases (e.g. nominal fees for public education might be shown together with private tuition fees). But I doubt whether this treatment could be worked out to be more satisfactory than the present one, taking into consideration the entries in all the accounts.

CHARGE MUCH GREATER THAN COST. The treatment of these as government enterprise receipts, and their inclusion in private expenditures, parallels the treatment of monopoly profits and indirect business taxes, which they resemble.

CHARGE BUT NO SERVICE. When payments are made that are not at all associated with services produced as a cost (e.g. fines and gifts), their present treatment as nontaxes seems reasonable.

The real difficulties arise when the concept of "good or service" or that of "cost" loses its clarity. Ambiguity in the cost concept centers in the cost of property services. The actual profit margin cannot be taken to measure this element of the cost specified in the definition; this procedure would equate cost to receipts in every case and defeat our purpose. But it is not clear what profit should be included as "normal."

More important are the ambiguities in the concept of "service." To indicate the extreme case, it is always possible to conjure up a "service": for instance, it may be said that a penalty is paid for the "service" of not going to jail. This particular ghost can be laid by using robust common sense, but there are intermediate cases where the situation is not clear. Is the providing of passports a service within the meaning of our definition? How are drivers' licenses to be diagnosed?

For government enterprises acceptably identified as such by the criterion, the only major controversial issue of which I am aware is whether their current surplus (or loss) should be treated as part of factor cost. If a large current surplus is realized, the monopoly profit analogy points to inclusion, the indirect business tax analogy to exclusion.

I favor exclusion; this situation provides an easy opportunity to implement better the concept of factor cost.

Current losses of government enterprises often act as subsidies; this analogy indicates that these losses should be excluded from factor cost. In view of the tenuous character of the subsidy concept this argument is admittedly not forceful. However, for the same reason, I doubt whether a detailed investigation into the nature of the losses and the purposes for which they are incurred would in practice provide a basis for a more satisfactory treatment.

The various difficulties I have noted here have been recognized by other authors and alternative treatments have been suggested. Here I shall comment on certain proposals dealing more or less specifically with items which we treat as "nontaxes."

OEEC PROPOSAL

Let us consider first the treatment proposed in *A Standardised System of National Accounts* (Organization for European Cooperation, Paris, 1952). Essentially the same proposal has been carried into *A System of National Accounts and Supporting Tables* (Studies in Methods 2, United Nations, 1953) on which I collaborated. I had misgivings about the proposal then but was not able to articulate them.

The analysis starts boldly with the enunciation of a general principle, which I have italicized.

> "it is necessary to consider the allocation of expenditure between the appropriation account of households and general government. The problem arises since in numerous cases purchases are actually debited to one or other of these accounts although the other contributes wholly or partially to their finance. *In such cases the general principle adopted here is that the purchase should be entered as an expenditure of the sector which has the initiative in determining the level of that kind of expenditure.* Thus for example where there is no national health service and so the provision of medical care is mainly a matter of private initiative, a government agency may nevertheless provide free medicine to, or meet the cost of the purchase of medical supplies by, the poorer members of the community. In such a case a current transfer from government to households should be recorded and the value of the medical supplies made available should be treated as consumers' expenditure. On the other hand where a national health service is in operation and so the provision of medical care is mainly a matter of government initiative, the total expenditure on goods and services by the government under the

scheme is treated as government current expenditure and all payments by households to the government to meet, wholly or partly, the cost of specific services under the scheme are treated as transfers from households to government" (page 56).

Frankly, I have not been able to formulate this principle in operational terms. Accordingly I find it very difficult to determine the sense in which the principle is applied, as the OEEC states in the next paragraph, to the treatment of nontaxes.

"This general principle may be applied to the treatment of fees and similar charges paid by households to government. These fees and charges are here grouped together under three heads. The first comprises purchases from government, such as the purchase of catalogues and postcards from museums, which are comparable to purchases from enterprises since the decision to purchase rests with the individual and is in no circumstances required of him by the public authority. This category is included in consumers' expenditure. In most circumstances the amounts involved will be small since if any purchases of this kind become at all large it is likely that the government agency concerned will be classed as a public enterprise. The second category comprises payments made in respect of services the primary purpose of which is to serve as an instrument of government policy and which are compulsory in the only circumstances in which they are useful. Examples of such fees are those payable in respect of passports, driving tests and applications to the courts. This category of charge is treated as a transfer from households, etc. to government and does not appear in consumers' expenditure. The third category which is usually distinct from the two preceding ones comprises charges, such as motor vehicle duties, which are mainly made for revenue purposes and do not involve the provision of a service to the payer. This category of charge is treated as indirect taxation and is included in consumers' expenditure as part of the payment to productive activity which in this system is made responsible for the transfer of all indirect taxes to general government" (pages 56-57).

Let us take the three groups of cases the OEEC discusses. It seems to me that the case in which sales of catalogues and postcards are incidental to the provision of the free services of a government museum is like the case cited in the earlier quotation, in which sales of specific medical services are incidental to the operation of a free national health service. Yet the OEEC would classify the incidental expenditures at the museum as consumer purchases, and those for particular charges under

the health service as government purchases. It is not clear to me how a common principle of initiative could provide a basis for this distinction.

In disposing of the second group of cases, the OEEC stresses the compulsory nature of the purchases in question. It does not seem to me that the aspect of compulsion was clearly enunciated in the general principle as first stated, although this aspect might be read into it. In any event, the exact role of compulsion in characterizing certain expenditures as governmental is unclear. I cannot see that the requirement of a fee if one applies to a court represents a greater degree of compulsion than the requirement of an admission fee if one visits a theatre. Yet court fees are not treated as consumer expenditures in the OEEC scheme, whereas theatre admission fees presumably are so treated. Again, if the government decrees compulsory vaccination in an economy in which the provision of medical services is entirely private, this would surely not be interpreted to entail the attribution of expenditures for these services to the government sector.

Finally, with respect to the third group of cases an implementation of the general principle cannot be involved at all. The general principle deals with the classification of cases in which services are provided, but in this group of cases no service is involved.

In conclusion, it does not seem to me that the OEEC treatment of these various types of transactions follows from any clear-cut general principle of the sort specified. In practice, their treatment of nontaxes does not, however, seem to differ significantly from our own.

FRANE AND KLEIN PROPOSAL

Lenore Frane and Lawrence R. Klein discuss the classification of nontaxes and also of certain personal taxes in "The Estimation of Disposable Income by Distributive Shares" (*Review of Economics and Statistics*, November 1953). The Frane-Klein paper is mainly statistical and their remarks on the classification of personal taxes and nontaxes are brief.

It is not clear to me what principles have guided them. For instance, they continue to classify the automobile use tax and personal property taxes as personal taxes; but they reclassify automobile licenses, poll taxes, and many other items now classified as personal taxes, to bring them under the heading of consumer expenditures. They classify all nontaxes under the same heading. The only explanation given is the general one that this is more satisfactory from the standpoint of econometrics.

A reference to *A Simplified System of National Accounts* (OEEC,

National Accounts Research Unit, Cambridge, England, 1951) is cited to indicate that the present Department of Commerce methodology is not valid. But the classification suggested in that publication does not support the Frane-Klein scheme, and itself leaves much to be desired, as I have tried to show in discussing a somewhat more recent variant of the OEEC proposal. Finally, Frane and Klein suggest that all personal taxes and nontaxes reclassified as consumption should be deducted from government expenditures. But they do not discuss the disadvantages of this suggestion or consider more sophisticated solutions such as the one suggested by U. K. Hicks (see text note 32).

Note 2: Output Measurement and Economic Accounting

KLEIN'S VIEWS

In his review of the *National Income Supplement, 1951,* "National Income and Product of the United States, 1929-50" *(American Economic Review,* March 1953), Lawrence R. Klein registers his "impression that aspects of social accounting may have been retarded in development . . . by the excessive attention paid to national income totals" (page 119). As nearly as I can judge, he has not attempted to illustrate his generalization concretely. His subsequent discussion of our handling of corporate profits has really nothing to do with this point.

His review bristles, however, with derogatory references to national output totals. The essence of his position seems to be that it is not worthwhile to concern oneself with the definition of any particular total, since different totals are needed for different analytical purposes. But this logic applies with equal force to subtotals and would ultimately be destructive of all human thought, since it would forbid all grouping of individual phenomena.

In thus deprecating the significance of totals he has missed an important aspect not only of social accounting but of accounting in general. Nobody designs systems of accounts without first deciding what sorts of major aggregates are most significant. Certain events are registered by "debits" or by "credits" because of the way in which they affect predefined aggregates—assets, liabilities, and net worth in business accounting, and analogous or related aggregates in social accounting. The further classification of the events (the grouping of the entries into subtotals), also always takes into consideration their effects on the key aggregates. This is inherent in the nature of accounting, as the term is generally understood, and if we are aiming at a unified system based on accounting principles we can hardly proceed by "neglecting specific aggregates," as Klein advises (page 131).

However, I cannot escape the impression that Klein is really not interested in such a system at all. What he wants is a compilation of individual facts from which to pick and choose piecemeal—a sort of "Statistical Abstract," in which an economic-theory-based structure of its own would be irrelevant.

If one accepts his view of the National Income Division as one of the "basic data gathering organizations" (page 120) which "provide us with materials for estimating several concepts" (page 123), one can understand his annoyance with our efforts to explain why we do what we do, his wish merely to "be provided with a clear statement of the calculations made" (page 118), and his exhortation that the NID "should attach no intrinsic significance to its own definition" of disposable income (page 123) or presumably to any of the other concepts used. This point of view is of course entirely different from our own notion of our work as consisting not of the gathering of data, but rather of their systematic integration into a unified and comprehensible pattern.

MARGOLIS' VIEWS

Julius Margolis, in "National Economic Accounting: Reorientation Needed" (*Review of Economics and Statistics,* November 1952), sees a basic cleavage between the aims of measuring total output and of developing useful accounting systems. He believes that to a large extent the limitations of existing accounting systems are due to their being designed to measure output and thinks that separate systems must be set up to serve the distinct purposes. I have benefited from many perceptive observations in Margolis' article, but I do not think that he has established his case. Let us review some of his specific points.

The shifting of home-owning activities and government enterprises from the business sector to the household and government sectors could be accomplished without hampering the measurement of output. I do not believe that the present treatment had anything to do with a preoccupation with the measurement of output.

Margolis asks for information on the accounts of families of entrepreneurs, on quasi-individuals (nonprofit institutions, and so forth), on interindustry relations, on financial flows, and on many other items. Much of this detailed information would be desirable. But again it could be presented without any damage to the measurement of output. Progress has been slow because of the difficulty of obtaining the requisite statistical data, not because of a preoccupation with output measurement.

Next, Margolis mentions capital gains and losses as an example of

conflict between output measurement and the development of an accounting system focused on the study of economic behavior. The exclusion of capital gains suggested by the goal of output measurement is a godsend from one point of view, because it makes it unnecessary to grapple with the conceptual and statistical problems of measuring capital gains. But if capital gains are really of sufficient importance, there is no theoretical reason why they cannot be incorporated into the accounts without damage to output measurement.

Finally, I think Margolis is rash in suggesting that from the standpoint of behavior studies imputations should be dispensed with. But in any event, imputations can be shown separately, so again there is no irreconcilable conflict between output measurement and economic accounting.

Margolis does not develop the idea of separate systems for different purposes beyond one statement (page 293). I doubt whether it would be possible to work out distinct systems for the uses he envisages. Also, I invite him to try to construct a significant accounting system that is unified by any concept other than that of output.

Note 3: Sectoring

In "Functions and Criteria of a System of Social Accounting" *(Income and Wealth,* Series I, Cambridge, International Association for Research in Income and Wealth, Bowes and Bowes, 1951), Richard Stone distinguishes a labor sector and a lending sector in addition to the enterprise, household, and government sectors. In practice, he is an advocate of the conventional threefold sectoring and has not, to my knowledge, pressed for the establishment of the labor and lending sectors. He introduces his thought as follows:

> "From a theoretical point of view however it would appear convenient for some purposes to set up a sector for each type of service which is rendered in the economic system, and for which accordingly there is a centre of economic decision. On this basis we should think of the set of accounts for enterprises, households and government administration as being concerned essentially with business services or decisions, household services or decisions and government services or decisions, and to these we should have to add further sectors for labour services or decisions and lending services or decisions. . . .
>
> "As matters stand today these last two sectors, home labour and lending services, have very little independent existence and are always thought of as consolidated elsewhere. For example, the operating account of labour service is normally thought of as consolidated with

the operating account of enterprises; the appropriation account of labour service is thought of as consolidated with the appropriation account of the households in which the labourers live; and the resting account of labour service is not set up because it is assumed that there is no expenditure involved in producing and maintaining labour services. These simplifications however are largely a matter of convenience which dictates that there are no costs in obtaining the earnings of labour, so that the whole of these earnings can be regarded as spendable income, and that there is no capital expenditure which has for its object the provision and maintenance of the capacity of individuals and the community at large to provide labour services.

"Thus we end up with five sectors: enterprises, households, government, labour, and lending, with the proviso that the last two may not be of much importance and indeed would essentially be dummies if introduced into contemporary statistical presentations . . ." (page 12).

By distinguishing the business, household, and government sectors, and establishing a set of accounts for them, we obtain a summary view of their status and transactions which permits us to analyze their economic behavior. Stone implies that the establishment of similar sectors for labor and lending might throw similar light on the motivations of those who supply labor and lending services, although the thought is put forward somewhat diffidently.

In fact it would not accomplish this result. The provision of labor services is inextricably bound up with the household, and it is not possible to set up a labor sector which would segregate from household transactions proper a particular set of transactions that throws light on the decision to supply labor services. A similar proposition holds for lending services. (However, it would be possible and useful to distinguish the transactions of households whose primary source of livelihood is wage labor. But this is an entirely different matter).

If Stone's accounts for labor services are examined, they are revealed to be dummies, as he himself says. Broadly speaking, the operating account of labor shows the value of labor production imputed at the amount of wage payments. Corresponding to this there is an imputed purchase in the business operating account. Matching the imputed sale in the labor operating account there is a "surplus" which is carried to the labor appropriation account and there matched by a debit item, wages, which is then distributed to the household appropriation account. Without throwing any direct light on the circumstances sur-

rounding the decision to supply labor, we have taken six bookkeeping entries to register the fact that businesses have made wage payments to households. An exactly similar comment applies to the "lending" sector.

It will be noted that the line Stone is exploring has not been pursued to its logical end. The establishment of a labor sector converts what would have been "surplus" attributable to the business sector into "surplus" attributable to the labor sector. Whereas the previous surplus concept was useful because it could be interpreted as a measure of value added by enterprise, it does not seem fruitful to interpret the new concept in parallel fashion by saying that the part of value added corresponding to wages and salaries originates in the labor rather than in the enterprise sector. Distinguishing a lending sector further whittles down the surplus. There is no logical reason for stopping here. If value added corresponding to wages is supplied by the labor sector and value added corresponding to interest by the lending sector, value added corresponding to profits should be supplied by an "entrepreneurial" sector, so as to complete the liquidation of the value added concept. "Surpluses" would then consistently represent various types of factor earnings and would again be capable of a clear-cut interpretation. But this is not usually done, and the value-added concept is left to survive in a mutilated form.

Note 4: Capital Transfers

Both for accounting neatness and for economic analysis, one would like to establish a separate category for transfers that are not properly regarded as sources of current income or expenditures of current income because of their irregular nature and magnitude. This was proposed both in the OEEC *A Standardised System of National Accounts* and in the UN *A System of National Accounts and Supporting Tables.*

In practice, however, serious obstacles are encountered. It is difficult, to classify specific transactions so as to implement such a distinction, particularly in dealing with individuals, governments, and other nonbusiness transactors. Also, different solutions may be suggested depending on whether we look at the transaction from the standpoint of the transferor or of the transferee, and an asymmetrical classification disturbs the convenient equality between saving and investment. Moreover, in simple systems with only one consolidated saving-investment account, recognition of capital transfers results in a disappearance of information: domestic transfers of this type would no longer be recorded in the appropriation accounts and would cancel out in the consolidation of sector saving-investment accounts.

In the following paragraphs some of the more important transactions that are candidates for designation as capital transfers will be considered.

ESTATE AND GIFT TAXES

The treatment of these items as capital transfers is particularly awkward since it is implausible to regard them as capital transfers from the standpoint of the government. These taxes can be interpreted so that they could be classified as current transactions from the standpoint of both parties. If the taxes were put on an accrual basis, annual accruals of tax liability might then be properly regarded as charges against current income. In practice it will probably not be worthwhile to make such a calculation, but actual payments might be retained in the current account as approximations to tax accruals.

CAPITAL LEVIES

For these items the argument in favor of treatment as capital transfers is much more cogent.

CAPITAL SUBSIDIES

In this instance also the capital transfer treatment is clearly indicated, despite an apparently unavoidable anomaly. If a capital good incorporating a given value of productive resources is subsidized to an identical extent in case A by a current subsidy paid to the producer of the equipment and in case B by a capital subsidy payable to its purchaser, the market value of output will be lower by the amount of the subsidy in A than in B. The factor cost will be the same in both cases.

WAR DAMAGE PAYMENTS

These transactions too would logically have to be treated as capital grants, but two variants are possible. If the value of the damage is treated as capital consumption on current account, a charge equal to the value of the damage will have to be registered in the current account of enterprises. If the destruction is not so regarded, both the damage and its compensation will be accounted for exclusively through the saving-investment accounts.

INTERNATIONAL GOVERNMENT GRANTS

Assuming that intergovernmental grants are transfers, the establishment of a general distinction between current and capital transfers would then call for the following changes in the accounts of the pay-

ing country. In the government current account, the transfers affected would be eliminated and saving increased; in the government (and consolidated) saving-investment account, government saving would be increased and international capital grants would appear. In the external account, the current transfers affected would now appear as capital grants.

In the government current account of the receiving country, the transfers affected would be eliminated and government saving reduced. In the government (and consolidated) saving-investment account, government saving would be reduced and capital grants would appear explicitly as a source of funds. In the external account, current transfers would be converted to capital grants.

Perhaps many international grants are of such a nature that, for the recipient country, it is more realistic to have them entered explicitly as sources financing the investment of the country (rather than as saving of the receiving government) and that, for the paying country it is more instructive to have these grants shown explicitly as made out of the saving of the country rather than as constituting dissaving of the domestic government (for a somewhat different rationale, see *A Standardised System of National Accounts,* p. 86). On the other hand, introduction of international capital grants would call for tenuous distinctions between current and capital grants unless all international grants were classified as capital grants (as proposed in *A System of National Accounts and Supporting Tables).*

Note 5: Treatment of International Items

Walter S. Salant, in "International Transactions in National Income Accounts" (*Review of Economics and Statistics,* November 1951), analyzes our present treatment of these transactions and makes certain suggestions for changes. The following notes detail the extent to which my recommendations agree with Salant's.

CHANGES IN THE ACCOUNTS

The presentation of exports and imports on a gross basis in the gross national product statement (rather than in their aspect as net foreign investment) would allow the construction of all the variant aggregates which Salant discusses (pages 304-305). However, none of these variants is singled out for special emphasis.

The saving and investment account as I would reconstruct it (see my discussion of international transactions in the section on "the accounts") would show domestic saving offset by domestic investment and changes in international assets and liabilities, as proposed by Salant. I

cannot judge from his discussion whether he envisages any further changes in the general design of the accounts in connection with international transactions.

DEFLATION

I am somewhat puzzled by Salant's comments on deflation. In my discussion of "real magnitudes" I propose two deflations of the foreign balance: method A, the deflation of exports by export prices and imports by import prices, and method B, the deflation of net exports by import prices.

I am not sure whether A corresponds to the first procedure which Salant outlines (page 305). I have a strong suspicion that it does, but that A has the advantage of being much simpler. Assume, for instance, that domestic consumption is 100 in each of two periods and that imports rise from 25 to 75. These are the only transactions, so national product drops from 75 to 25. Suppose that the rise in imports and drop in national product reflect solely a tripling of import prices, all volumes and domestic prices being unchanged. Method A would show deflated imports in the second period unchanged at 25. Real domestic consumption and real national product also would be unchanged.

In this situation, Salant would first calculate consumption net of the value of imports. This is an easy task in the present case—the value of consumption net of imports is 75 in the first period and 25 in the second—but would be a complex and risky statistical undertaking if not all of the imports went into consumption. Next he would calculate a special price index applicable to domestic consumption exclusive of its import contents. Since import prices have risen whereas the price level of domestic consumption gross of imports has remained stable, the price level of domestic consumption net of imports must presumably have fallen. A special index could be constructed to show this by deducting from the (unchanged) index of domestic consumption prices the (increased) index of import prices. This would yield as a residual the desired price index for domestic consumption net of imports, which would indicate a fall. The weights used in the calculation would presumably be based on the relative magnitudes of total domestic consumption and imports. The resulting deflation would then, I believe, yield exactly the same national product total as method A, which is much simpler.

Salant's method would show correct answers for total national product, identical to those of method A, even if he made errors in calculating the value of the expenditures on production net of imports and in calculating the weight necessary to obtain his "net" price indexes, as

long as these errors were consistent. But in this case, there would be (offsetting) errors in his breakdown of the real national product.

In summary, I consider Salant's first method an unnecessarily roundabout way of obtaining the same total for national product that can be obtained more simply by the present method A. His procedure would yield separate estimates of the import-corrected components of expenditures on a deflated basis, which are of analytical interest. But the hazard of errors—offsetting and therefore not easily detectable—in this extremely complex calculation should be noted.

My method B seems to be identical with that proposed by Salant in footnote 1a to page 305. In this connection I do not understand the remark that A and B can differ because of changes "in the relative importance of foreign as compared to domestic trade" even in the absence of a change in the terms of trade.

SEASONAL VARIATION

I am not sure how to interpret Salant's comment (page 305) that in seasonally adjusted gross national product "it is the seasonal variation of gross exports of goods and services that needs to be taken into account." If this implies that imports need not be adjusted seasonally, I think he is wrong. He may have in mind the calculation of a seasonal index applicable to domestic expenditures and exports net of their import content. My criticism of this procedure would be exactly the same as my criticism of his suggestion for deflating the national product. It does not really dispense with the necessity of calculating seasonals for imports. Knowledge of these seasonals is necessary in order to calculate the seasonals for expenditures net of their import contents. Here too Salant's method is a roundabout way of obtaining the present results and involves the danger of (offsetting) error. It can be justified only if there is special interest in seasonally adjusted series cleansed of their import contents.

TRANSFERS

Unlike Salant, I propose to recognize international transfers in kind as well as in cash; otherwise the figures would be less useful as a consequence of the shifts between these two ways of furnishing foreign aid. In addition there seems to be some difference between us in the manner in which we propose to account for these gifts. Salant says that "The exclusion of unilateral transfers both from government (and private) goods and services expenditure *and from United States current international debits, and their inclusion only in current international credits when the goods and services are exported, would seem to be the*

simplest treatment" (page 306, my italics). I question the italicized passage. I do not think that it is either possible or necessary to link up a gift made in period 1 with a specific batch of exports in period 2. But perhaps "their inclusion" should be interpreted as meaning the "inclusion of exports" (rather than of transfers). The procedure then implied would result in the complete exclusion of international transfers from the national accounts and the consequent misstatement of government, international, and saving-investment transactions.

Moreover, a simple solution is available. Suppose the government extends a cash gift in period 1. I would record this as a transfer in the government account (use) and in the external account (source). There would be an item of government dissaving in the government account (source) and in the saving and investment account (use). Finally, there would be an item of borrowing in the saving-investment account (source) and of lending in the external account (use).

The export transactions in the subsequent period would be quite separate. Exports would appear in the gross product account (source) and in the external account (use). To complete the model, suppose that the exports are matched by corresponding production-generated incomes that are paid out to individuals. These would appear in the gross product account (use) and in the personal account (source). Saving in the personal account (use) would be matched by saving in the saving-investment account (source), and, finally, we would have lending in the saving-investment account (use) and borrowing in the external account (source).

Note 6: Factor Cost

BOWMAN AND EASTERLIN DISCUSSION

Raymond T. Bowman and Richard A. Easterlin discussed the concept of factor cost in "An Interpretation of the Kuznets and Department of Commerce Income Concepts" (*Review of Economics and Statistics,* February 1953). My discussion of this concept has indicated the nature of my disagreement with them, but it may be useful to summarize my points with specific reference to their argument.

First, I state the argument for distinguishing between factor costs and indirect business taxes somewhat differently from the way they state it for the purpose of criticism. I find their exclusive emphasis on forward versus backward shifting incorrect. For instance, I would exclude general sales taxes from factor cost even if they were shifted backward; I would include corporation income taxes even if they were shifted forward, provided the shifting occurred within the framework

envisaged by marginal productivity theory. The essence of the approach is not to exclude taxes that are shifted forward and to include the rest but to classify taxes in such a manner as to give the best possible approximation to the productive contribution of factors of production as envisaged in economic theory—a theory admittedly unsatisfactory as a guide in this area, but the only guide we have. In fairness it should be added that the brief account of the treatment of taxes given in the *National Income Supplement, 1954,* lends itself to the type of summarization in terms of forward shifting which Bowman and Easterlin give it. I hope my current restatement is less apt to be given this oversimplified interpretation.

My basic disagreement is with the idea that the concept of factor cost cannot be formulated without reference to the concept of final product as it appears in the government controversy (see pages 49 and 50 of their article; for my comments on this controversy and on the Bowman—Easterlin contribution to it, see the discussion of "duplication" in my paper and in this Appendix, Note 9, respectively). I think that it can be, and I believe that in this respect I have behind me the entire tradition of national income measurement in English-speaking countries, except the branch that had its inception in the United States, apparently in the work of Willford I. King.

For instance, assume that there is only one factor of production, labor, and that the government finances itself from a deficit; then the total wage bill will be the factor cost of the output produced, whether we regard the government as producing "intermediate" services, "final" services, or any combination of them. The basic idea is simple: production is viewed as the result of the services of agents of production, and the total cost of these services is calculated. When nonlabor factors and taxes (and subsidies) are introduced, the problem becomes more complex because it becomes more difficult to define factor cost. But the possible existence of government intermediate output is not involved in the difficulty: this possibility was present in the simple model and did not even have to be considered in providing an unambiguous and simple measure of total factor cost.

I agree with Bowman and Easterlin that the distinction between transfers and payments for services is blurred. This detracts from the neatness of the concept of factor cost, but to throw the concept out of court on this ground would be setting standards of precision so exacting that they would tend to stop all income and product measurement. Indeed, the measure of final output Bowman and Easterlin propose involves the making of precisely the same distinctions (see this Appendix, Note 9).

They note also the well-recognized point that, because of the lack of competitive equilibrium, factor incomes cannot in fact be regarded as equivalents of the factor cost concepts which underlie them. But we need a measure of this type; we have no better measure available; and the departures from competitive equilibrium may not be so large as to make the measure useless, provided it is used with its limitations in mind.

Bowman and Easterlin point out that factor cost cannot be regarded as reflecting the value of factor services available for alternative uses, because factors may not be willing to be shifted. This too is a valid point, but to my mind it represents again a qualification of the factor cost measure rather than a basic argument against its fundamental soundness.

KUHN ON FACTOR COST

James W. Kuhn advances some basic criticism in "The Usefulness of the Factor Cost Concept in National Income Accounting" *(Review of Economics and Statistics,* February 1954). He finds our statements "filled with apologies and some apparent embarrassment for having to deal with the term in the open. . . ." (page 93) and thinks that we are "surreptitiously trying to drop the concept or change its meaning by equating the terms cost and income" (page 99). With respect to the use of the terms "factor cost," "return," and "income," I should like to say that no change, surreptitious or otherwise, in the meaning of the concept of factor cost was intended. We have always viewed these terms as interchangeable.

Kuhn's general comments are addressed simultaneously to the Kuznets and the NID concepts of factor cost. These two differ radically; I shall try to answer on behalf of the NID concepts.

Like Bowman and Easterlin, Kuhn seems to imply that our definition of factor cost somehow depends on our view of government services as final. He also thinks that "In concentrating on details and fine points . . . [we] have raised a controversy about factor cost statistics which tends to obscure and certainly is irrelevant to the larger question which suggests itself to the student of national income" (page 93).

On the contrary, we have emphasized whenever possible that the concept of factor cost stands on its own feet and has nothing to do with the finality or otherwise of government services. Kuhn himself cannot think that we have failed to make this point clear since he proceeds to quote from an article of ours in stating as the essence of the argument that a measure of resource allocation is needed and that given the present state of our knowledge factor cost is the best measure available.

In criticizing the concept of factor cost Kuhn gives away his main point when he admits that for factors other than labor he can suggest no measure of allocation other than national income at factor cost (page 99). He recommends that we develop new procedures and methods to fill this gap. We gladly take note of this general recommendation but wish to point out that he has not answered our main point that the factor cost concept is the best measure of resource allocation given the present state of knowledge. In his detailed criticisms of the concept, Kuhn draws heavily on the criticism which we have given ourselves. In particular he mentions the limitations that stem from the absence of perfect competition (page 94).

The validity and relevance of some of his other criticisms are more open to doubt. For instance, his argument that the factor cost total is meaningless and only the relation of the parts is relevant (page 94) is an argument that can be leveled also against the market price total.

Kuhn does not mention another limitation that we recognize in the factor cost measure, namely that the business cycle produces in it effects which are irrelevant to its basic purpose. In his comparative analysis of numbers engaged and factor cost data (pages 96-98), many of the critical conclusions he draws with respect to the latter are due to his having overlooked this point.

As to the labor factor, Kuhn suggests that resource distribution is better measured by the number of persons than by their incomes. Needless to say, numbers do not reflect relative skills. It is not clear to me whether he disregards this fact on the ground that all men are equal or that all men are potentially equal (see page 95).

Labor force data do give information on the numbers of unemployed not given by the factor cost statistics. This information is obviously important in planning resource allocation. But one could argue that for planning resource allocation the labor force data are also insufficient, and that one needs data relating to persons outside the labor force too. In the realm of economic statistics we are moving in a continuum, and it is easy to carry *ad absurdum* the point that given aggregates are invalid because what is excluded from them is related to what they include. A humble recognition of this situation would be more to the point than Kuhn's remark that "since the Commerce Department assumes perfect competition for its factor cost analysis, perhaps it does not envisage or recognize unemployment of labor."

Kuhn regrets that nonpecuniary occupational advantages are not systematically reflected in the factor cost data (page 95). I think that he is correct in this criticism, but I doubt that the "physical measure of

labor resources" he suggests as a substitute would be preferable on balance, taking account of the limitations to which such a measure in turn is subject.

In summary, it seems obvious that both factor cost and labor force data are relevant to the difficult problem of analyzing resource distribution. It would be unwise to discard one set in favor of the other.

ROLPH ON TRANSFERS

Some readers may feel dissatisfied with the pragmatic nature of my explanation and defense of our factor cost measure. Surely there must be a way, they may feel, to construct a useful measure without making so many seemingly *ad hoc* decisions. I think they are mistaken. This is a negative proposition impossible to prove, but study of a highly sophisticated example of the nonpragmatic approach may make clearer the nature of my skepticism and suggest its reasonableness. In "The Concept of Transfers in National Income Estimates" (*Quarterly Journal of Economics,* May 1948), Earl R. Rolph attempts to arrive at a better classification of income flows into those that are transfers and those that are not, by the systematic application of the accepted definition of transfers as "any income . . . which is not in return for current services . . ." (page 331). So defined, "transfer income . . . should include not only such items as subsidies, relief payments, pensions, gifts and similar voluntary payments, but also all interest income, dividends, and all taxes" (page 328). To my mind his specific results do not stem from his formal method, and this method bars the useful solutions available if a more purpose-oriented approach is taken.

Let us first examine his argument on interest (pages 332 ff.). His first point seems to be that interest income may be considered a transfer because (in a closed economy) all interest-bearing debt cancels out. Such canceling is irrelevant from the standpoint of Rolph's main undertaking, which was to classify interest and certain other incomes as transfers by a systematic application of the nonproductivity criterion. Nor do I see how his conclusion about interest follows from this fact. He continues with a reassertion rather than a proof of his initial proposition that interest is a transfer (see especially the first complete paragraph on page 334).

One might interpret his argument as being based on the premise that only "physical real resources" can render productive services. But this premise is neither implicit in the nonproductivity criterion nor proposed explicitly as an extension of it. Such elliptical arguing is always dangerous. It fosters an exaggerated belief in the fruitfulness of the broad generalizations concerned, and it produces conclusions whose

logical antecedents have slipped into the argument without systematic scrutiny. The danger exists even though the minor premise thus informally injected may sometimes prove defensible. I shall have more to say later about the particular minor premise which may be involved in this argument of Rolph's.

He goes on to say that "Another way of looking at the same facts is to describe transfers in the form of interest payments as arising because of the separation of the ownership and control of real resources, including human beings. If every piece of wealth and every human being were owned without encumbrances, there would be no contractual transfers" (pages 334-345).

This passage is capable of two interpretations. Either it rests again on the tacit assumption that productive services can be rendered only by "real" resources, or it means that interest income is a transfer because it would not arise if financial and legal arrangements were different. This latter argument is two-edged: it could be extended to all income shares. In a pure Robinson Crusoe economy there is only one type of income. The income shares we know, including wages and salaries, came to be differentiated only as the result of institutional factors. One certainly would not want to be pushed into the position of saying that all forms of income are transfers inasmuch as they represent arbitrary institutional distributions of the aggregate.

Rolph next turns to the arguments in favor of the treatment of interest as a nontransfer income, discussing the view "that interest is the price for the use of loanable funds or money . . ." (pages 337 ff.). He argues against this view along several lines, but, as far as I can understand his discussion, none of them is specifically related to the initial definition of a transfer.

His first line of argument (see pages 337-338) seems to end with an implication that interest income must be a transfer because an increase in it not accompanied by a change in the value of productive activity would leave national income unchanged, under accepted standards of measurement. Surely this argument, too, cuts too wide: the same proposition can be made about wages and salaries. In both cases variation not accompanied by a corresponding change in the value of economic activity will have offsetting effects on the profit residual and leave total national income unchanged.

Another argument is that interest must be a transfer because "Debtors do not have the right to refuse to pay interest to creditors on the ground that they no longer desire the 'service' provided by creditors" (page 339). But this proposition has no clear relation to the initial definition of transfer payments either. A service could be involved even

if the option to receive it or to dispense with it could not be exercised continuously. Moreover, a conceptual distinction based upon this point would not coincide at all with the distinction he actually proposes to make between interest and employee compensation: many if not most debt instruments can be liquidated at the borrower's option; and wage and salary contracts are binding upon the contractors for significant periods of time (for Rolph's struggle with the implication that wage and salary payments should be classified as transfers on these grounds see page 344).

Of all the reasons Rolph adduces for treating interest as a transfer payment, the only one that appears to me to have some basis is that interest does not represent a return to a specific type of real resource. We have noted that this criterion cannot be inferred directly from the definition of transfers he cites: there is nothing in the concept of productive service that compels one to equate factor of production with "real" resource so as to force the exclusion of lending from the list of productive factors.

One can of course waive this point for our present purpose, which is to explore the possibility of deriving a useful measure of factor cost by the systematic application of a broad general principle. But the principle Rolph relies on is inadequate to support his specific conclusions, even if we buttress this principle by accepting *ad hoc* the restricted definition of factors of production. Having stipulated that basic incomes are those that in some sense flow directly from the productive use of real resources, we find that we still cannot split the pie as he does—by classifying institutionally-differentiated flows—without making additional *ad hoc* decisions. For example, can one distinguish direct from indirect types of income without deciding arbitrarily that certain recipient institutional groups are closely enough connected with the real resources to be considered "insiders" while others are not and therefore receive income merely by transfer from the "insiders"? By the time we have finished piling up the further decisions along these lines which are required, our new conceptual foundation will be nothing to delight the spirit of William of Occam.

However the view that production and income stem from the cooperation of real resources may help in another connection. It would be useful for many purposes to have an income measure of the respective inputs of the various types of such resources. Although the outlines of this project appear conceptually vague at present, it is clear that its ends would not be materially advanced by the regrouping of existing measures of income flows, as Rolph suggests, while ignoring the much more nearly central problem posed by mixed incomes.

Rolph's proposal is in effect a halfway house on the road between this sort of analysis and the sort we now have.

Our aim in the latter is to measure incomes in the forms in which they are received, while segregating as transfers flows that might otherwise distort the factor cost total from the standpoint of the major uses to which it is put. Our treatment of interest provides an apt illustration.

We do not treat the lending represented by government interest as a factor because if we did, the behavior of our measure of total output would make it less useful for most purposes. It does not follow that this decision must be generalized and that we should treat business interest also as a transfer, unless one rates the label above the reality. As a practical matter the business case is very different from that of government. The treatment of business interest as a transfer would not affect the measure of total output (profits would be compensatingly higher), it would not facilitate the study of the allocation of total value added among industry or commodity categories (for similar reasons), and it would not materially further the analysis of the incomes attributable to the various ultimate factors of production.

The contrast in results between the purely deductive and the pragmatic approaches is particularly clear when applied to the treatment of taxes. (Rolph's statement on page 345 that we have taken the view, in the February 1946 issue of the *Survey of Current Business,* that "the yield of business taxes . . . [is] . . . equivalent to the value of instrumental services rendered by government to business" is, incidentally, a misinterpretation. I shall not comment on his discussion of these services, since it is not germane to his main theme.) He presents the arguments that underlie the distinction made in the present estimates between indirect business taxes and taxes that represent part of factor cost as follows: "indirect taxes are costs of doing business, whereas direct taxes are not; indirect taxes affect relative prices directly, whereas direct taxes do not or do so to a lesser degree; the incomes computed by subtracting indirect taxes give the returns to the 'factors of production'; and indirect taxes are shifted to consumers, whereas direct taxes are not" (page 348).

Rolph comes to the conclusion that no tax is a cost, because no service is rendered in return for the payment of it (pages 349-350). This appears to translate into the language of cost the "real" resource argument encountered in his discussion of interest. He does not bring out the point that indirect business taxes are costs in the sense that liability for them can be determined before net income is calculated for tax purposes, and that as a group they therefore tend to affect prices in a

way not characteristic of taxes on net income. This, to my mind, is the concept of cost relevant here, and it justifies the differential treatment of the two categories of taxes in forging a useful measure of factor cost.

Rolph sees no point in trying to distinguish between taxes that affect relative prices and those that do not (page 350) since many influences affect relative prices, such as changes in tastes and in factor supplies, and no one suggests that these influences should be eliminated in measuring the national income total. His formal approach again misses the central point: the income effects of changes in tastes and in factor supplies can be given a meaning in terms of resource distribution, whereas the effects of changes in indirect taxes on income counted gross of such taxes cannot.

With respect to the third (factor income) argument, he sees only the similarity between indirect and direct taxes in that income corresponding to them is not actually received by the factors of production. Accordingly, he believes us inconsistent in excluding indirect taxes from factor income while including direct taxes. But this criterion is irrelevant to the factor income concept. Our decision to count specific taxes as part of factor income depends in each case on whether the gross or the net measure seems to depict better what may be supposed to have happened to real factor inputs.

Rolph's discussion of these points brings out very clearly the disadvantage of a formal approach. His wish to lump all taxes in a general category of transfers makes it impossible for him to see the practical purpose behind the apparent inconsistency of our treatment—the desirability of forging the national income into the best possible measure of resource distribution. When the three arguments he discusses separately are regarded from this standpoint, their basic unity comes to view; the criticisms he levels against them appear largely irrelevant; and a rationale for the treatment of indirect taxes emerges, for acceptance or rejection in the light of the purpose of measurement. Rolph's own solution, to treat all taxes uniformly as transfers, is elegant, but its practical consequence is to eliminate information relating to factor cost.

Note 7: Allocation of Rents

The proposal is sometimes made to allocate all rents on land and buildings to the industries using the land and buildings rather than to the industries owning them, as in the United States estimates (see for example, *A System of National Accounts and Supporting Tables*, page 33).

Statistically, this would involve the calculation of a net rent figure for all rented property, and then the allocation of this total among industries using such property. The first step would be difficult mainly because it would require the estimation of net rental returns for all recipients of rents. In the actual data available, these net rents may be transmuted into other types of profit income and not appear explicitly as net rents at all. The allocation would be difficult because in principle it would have to take into account not only gross rents paid (on which there is reasonably adequate information) but also differences in net-gross ratios (on which there is not). We once experimented with this approach but abandoned it when it led to overwhelming statistical difficulties.

The present treatment of rents is based upon the proposition that gross rental flows represent sales and purchases of produced services, rather than a distributive share, and that the industrial distribution of the net profits (rents) corresponding to these flows must depend on the institutional arrangements actually existing in the economy. Thus net rent attributable to rental property is allocated to the lessor industry; net rent attributable to owner-operated property, to the user industry; just as the services of a consulting engineer are seen as originating in the professional services industry while those of a salaried engineer are registered in the industry which employs him.

In spite of these considerations it would be attractive from some standpoints to allocate net rents to industries using the property, irrespective of the ownership. For instance, in studies of industrial output and its distribution as functions of physical factor inputs, better results might be obtained if such an allocation were available. But such studies can be made on the basis of the present allocation by using an appropriate definition for the property factor inputs. The present classification calls for a measurement of plant and equipment owned by the industry, since the output attributable to plant and equipment rented by the industry is not included in its net output. Also, the difficulties created for analysis by the allocation of rents are by no means unique. Shifts between production by the industry itself and purchases from other industries cause similar problems in the correlation of input and output flows.

Note 8: Valuation of Banking Services

MEASUREMENT BY PAYMENTS TO PERSONS

It may be worthwhile to state the reasons for rejecting a frequently proposed alternative approach to the measurement of banking. This

alternative calls for counting interest and dividend payments to persons (and government) in measuring the contribution of individual enterprises (including banks) and industries (including banking) to the national output. The procedure seems to conform to the general definition of total national income, in which income measured is in the form in which it accrues to persons. The procedure dispenses with the necessity for imputations, and it avoids such obvious distortions as a negative income originating for banking. An important argument against the proposal is that it could not easily be implemented in statistical practice. We can estimate interest and dividend payments in each industry, but we cannot segregate the portion of these payments flowing to persons (and government).

But the basic objection to the proposal is that it destroys the usefulness of the value-added concept as a way of showing the relative importance of various industries. Such a measure of an industry's contribution to total output will show changes unrelated to any change in the magnitude of its productive operations. This can happen, for example, if the amount of interest and dividend payments to persons increases because enterprise receipts of property income have increased or because shifts have occurred in the proportion of total payments going to persons and enterprises respectively.

Needless to say, other circumstances affecting value added may prove troublesome in some interpretations of our present measures. For instance, the services of a hired economist appear as value added by the hiring industry, whereas the services of a consulting economist appear as value added by the independent professions. Similarly the net rents attributable to rented property will appear as value added by the lessor industries, but the net rents of owner-used property are part of the value added by the using industry. If we accept these apparent anomalies, why are we unwilling to put up with the havoc to the value-added concept which would be caused by the proposed banking solution? The anomaly that would result from the proposed solution is of a different nature. The problem typified by the consulting and the hired economist is a necessary feature of any industrial classification—an eminently useful classification which nobody seriously wants to discard. The problem of rents could be handled differently in principle but probably not in statistical practice, and in addition there is theoretical justification for the present procedures (see this Appendix, Note 7). In contrast, there seems to be little point in tolerating the industrial instability that would result from the proposed treatment of banking.

SPEAGLE-SILVERMAN PROPOSAL

Richard E. Speagle and Leo Silverman have revived the above proposal in "The Banking Income Dilemma" (*Review of Economics and Statistics,* May 1953). But they discuss only interest flows and do not take into account dividends received by banks. More important, they do not face the arguments just reviewed. Their article is addressed to banking only, though they suggest that the method proposed can be extended to insurance companies and other forms of financial intermediaries (page 134); I should like to know more about this extension of the method.

The Speagle-Silverman criticisms of our present procedure range from statements that it implies erroneous general conceptions—almost philosophies—of banking functions, on the one hand, to disagreements with concrete features of our procedure, on the other. I find it difficult to deal concretely with the general criticisms; it does not seem to me that Speagle and Silverman have shown that our procedure really implies the philosophies of banking which they tersely summarize (e.g. the "messenger-boy or post-office concept of banking" page 131). I shall, however, try to deal with their more specific criticisms.

They argue that our present procedure involves double counting insofar as it raises the measure of total output above the figure that would be reached in the absence of imputation, since "borrowers and nonborrowers alike foot the bill for the output of banks as a joint product of almost every purchase they make. There is very little, if any, free riding or distribution of free goods in the form of bank services anywhere" (page 131).

But this statement could be made equally well to discredit any imputation. For instance, it might be said that there are no free goods passed on to workers by establishments that provide meals to their employees because the receipts of the establishments cover the costs of the meals; yet Speagle and Silverman approve (page 134) of the conventional wage imputation.

Speagle and Silverman assert that our treatment of rental income is inconsistent with our treatment of interest income:

> "If Commerce were consistent and followed on a parallel the complicated method it has worked out for interest, rental payments would all be viewed as income originating with tenants. The real estate industry, with little income left to count its own, subsequently would be allotted an 'imputed rental product,' distributed via 'imputed rental income flows.' The 'imputed rental net sales' of the realtors at the next stage would be prorated either as inter-

mediate product among various industries or as consumer expenditures among individual tenants (households and nonprofit institutions), who would thus be spending their 'imputed rental incomes' " (page 134).

I am unable to understand their argument, perhaps because they misunderstand our rental income method. They assert (page 134) that "Rentals are viewed by Commerce as pure factor earnings when distributed to individuals." This is wrong, of course. We deduct expense.

It seems to me that two aspects of our treatment have to be distinguished in comparing the treatment of rents with that of interest.

First, there is the question of industrial allocation. Interest is treated as originating in the user industries; net rents of rented property, in the real estate industry. There is no formal inconsistency here, since the gross rent payments (unlike interest payments) made by industry are not considered factor income. The case is the same as the case of the hired versus the consulting economist noted above. (This does not rule out the possibility that a special treatment might be devised for rental income if it were desirable for other reasons, see this Appendix, Note 7. But there is no general logic that calls for such a special treatment.)

Secondly, there is the question of imputation. The banking imputation potentially raises the measure of total output. Speagle and Silverman say that this calls for a rental imputation that would do the same. But surely it is wrong to say that, in consequence of the industrial reallocation envisaged in the first sentence of the quotation, the real estate industry would be left with too little income to reflect adequately its productive contribution so that an imputation to show this contribution would have to be made (the apparent idea of the second sentence). Rather, what would happen is that the real estate industry would be partly liquidated, the output originally attributed to it being credited instead to the industries using the property. To the extent that such reallocations were made there would remain no real estate industry to impute to. To revert once more to the consulting economist case: if the decision were made to ascribe the services of consulting economists to the user industries, this would not leave a consulting-economist industry "with little income left to count its own" so that subsequently an imputation would have to be made to bring out the productive contribution of consulting economists. The consulting-economist industry would simply have been liquidated, with no further consequences to be followed up.

Speagle and Silverman question the banking imputation on the

ground that it is not in conformance with the general principles of imputation (pages 134-135). In the light of what I have said in the text about the absence of such principles the reader will understand that I cannot attach importance to an argument of this type.

They recognize that, although we exclude government interest payments from national output, these interest payments enter the output totals "through the back door," emerging as imputed banking product to the extent that this product is imputed to persons and government (they miss this latter qualification). Surprisingly, they approve of this effect, "Commerce has intuitively made a right decision" (page 135).

I cannot pass over the implication that we arrive at our conclusions without the use of our rational minds—I like to think that we utilize both reason and intuition. Our treatment is by no means inconsistent. Government interest payments remain excluded from output. What enters is the value of banking services. Moreover, if the value of these services changes when their physical volume does not, this will be indicated by proper deflation.

The authors take exception to the consequence of our imputation procedure in the context of the present treatment of consumer interest (page 136). As I have said in the text, I am in favor of a change in the treatment of the latter.

Finally, Speagle and Silverman point out that the imputed interest corresponding to mortgage interest is not matched by corresponding imputed service charges in the calculation of imputed net rents since no deposits are assigned to the function of home ownership. Hence output is higher than it would be if deposits were so assigned and were treated as business deposits. I accept this criticism—the difference would be less than $100 million, on the basis of a reasonable allocation of business deposits. Moreover, the assignment of business deposits to noncorporate business, on which our present imputation procedure rests, is an uncomfortable one, since it makes a distinction between deposits held by owners of unincorporated enterprises in a business and in a personal capacity. My proposal for a modified banking imputation would obviate this distinction.

Note 9: Duplication

KUZNETS' VIEWS

To my mind, the present attitude to the consumer analogy is not systematic. For instance, Simon Kuznets made clear that his proposals for the treatment of government imply wide departures also from the conventional treatment of private consumer expenditures in "National

Income: A New Version" (*Review of Economics and Statistics,* August 1948; see also an earlier statement in *Studies in Income and Wealth, Volume One,* National Bureau of Economic Research, 1937, p. 37). In a paper written only a little later and addressed exclusively to the government problem, he nevertheless proposed that the contents of consumer expenditures as conventionally defined should be used as a yardstick for judging what government expenditures are to be regarded as final:

> "A third criterion must, therefore, be introduced. It requires . . . that the services by government to individuals have an analogue in the private markets. Only those government activities directed to satisfy individuals' wants are included which find their parallel, and on a substantial scale, in similar services purchased by individuals on private markets" ("Government Product and National Income," *Income and Wealth,* Series I, Cambridge, Bowes and Bowes, 1951, page 195).

COLM'S VIEWS

For all practical purposes I find myself in agreement with Gerhard Colm's views as expressed in his paper in *Problems in the International Comparison of Economic Accounts* (page 113). However, two theoretical issues still separate us. He maintains that the idea of segregating the intermediate output of government is theoretically sound though under present conditions "an attempt to distinguish between end products and intermediate products becomes practically meaningless" (*ibid.,* page 214). I would say that the distinction is meaningless theoretically also.

Secondly, Colm does not seem to admit the generality of the duplication phenomenon. On this point I have some hope of yet convincing him. He writes "I attempted such classifications during the thirties, when there was a question, for example, about the proper classification of education. Education aids the individual and also helps to provide enterprises with a more productive labor force. With respect to enterprises, the value of education is reflected in the value of private output." I should like to ask why this comment applies only to public education, and why an exactly similar comment should not apply to the same type of educational services if financed from private sources?

BOWMAN AND EASTERLIN VIEWS

Bowman and Easterlin (*op. cit.*) come to the conclusion that government intermediate services should be identified by direct examination of government expenditures and eliminated from the national

product. I have given my main objections to their argument in the text, but I shall assemble them in this note with special reference to their article:

1. The writers assume that the concepts of final and intermediate government product are too obvious to need definition. Hence they give no demonstration that the principle of including all government purchases in gross national product is improper. This is the assumption on which the article is based rather than a conclusion which is there established. But I do not think that we have concepts of final and intermediate government services and I think that it is incumbent on those who think otherwise to show that such concepts are available.

2. This demand might be deemed pedantic if the advocates of the segregation of government intermediate services had ever come forward with a concrete list of such services, on which they could agree and the usefulness of which could be demonstrated in practice. But the various members of the camp disagree basically about the scope of these services, not only with each other but also, over time, with themselves. Some have become so cautious that they make little or no systematic attempt to give concrete contents to their general pronouncements. Bowman and Easterlin fall into this group. I do not think that one would be unjustified in asking them to provide a list of government goods and services classified into final and intermediate, especially since they sympathize with the view that the proof of the pudding is in the eating (page 49).

3. It would also be helpful if the discussion did not stop with the general allegation that the inclusion of government intermediate services causes "duplication," but if an attempt were made to show concretely what the nature of the distortion is. After all, national output is a tool of economic analysis, and it should be possible to demonstrate exactly how, and for what uses, the tool is warped. There is no such demonstration in the Bowman and Easterlin article (with one exception which I shall analyze below).

4. Next, it is important to look out systematically for what I have called the "consumer analogy." In diagnosing government duplication it should be ascertained whether similar "consumer duplication" does not exist. If it does, similar treatment should be provided for it or reasons should be given why similar treatment need not be provided. Bowman and Easterlin are not explicit on this point. On page 47 we read: "If our economy were institutionally free of government it would still be necessary to review the list of personal consumption expendi-

tures for omissions and improper inclusions." But this remark remains in the nature of an *obiter dictum* and does not become a central part of their argument.

Their awareness of the consumer analogy is blurred also in specific applications. They refer to the case of flour made available to business without charge and argue that our treatment leads to duplication (pages 48-49). They assume that there is a shift from a situation in which bakeries buy flour commercially to one in which flour is supplied to them free by the government and that thus, corrected for price change, the national product measure would show an increase between the two situations: the same quantity of bread would be listed in both, and flour would be added in the second. This argument assumes that our deflation procedures are not refined enough to distinguish between bread and bakery services. If we make this assumption we get the same results for the private sector. Suppose we envisage an economy in which the switch from the initial situation is to one in which housewives buy the flour and then have it baked into bread by bakeries. Exactly the same spurious increase in national product would follow if the data were deflated in the manner specified by Bowman and Easterlin. But surely they would not argue that flour purchased by housewives should be omitted from our measure, as they do in the case of flour purchased by the government.

The four points made so far are applicable to many of the discussions of the government problem which follow the general line taken by Bowman and Easterlin. The next, a less important one, is specific to their argument.

5. They object to the notion of national income at factor cost on the ground that it involves a distinction between payments for factor services and transfers. But this objection applies equally to their proposal for measuring net output via the direct classification of government services. Obviously one must classify government expenditures into purchases of services (including factor services) and transfers before one can classify the services into final and intermediate.

COMMENT

RICHARD A. EASTERLIN, University of Pennsylvania

George Jaszi introduces his discussion of "output seen as final product" with an "operational definition" of national product. From this he proceeds to consideration of two major topics—imputation, "the tradition, well-established in national output measurement, of recog-

nizing as consumption certain items other than those admitted by the rule," and "duplication," "proposals for excluding from final product certain categories of government service; and . . . of private consumption. . . ."[1]

One cannot help feeling that much of this discussion would have benefited from more explicit attention to the concept of national income. In the discussion of imputations there is no reference to the concept of national income. In consequence the reasons advanced for including imputed items in a measure of national income seem seriously inadequate. In the discussion of "duplication," not only is there little or no reference to the meaning of the national income concept, but the bulk of the arguments advanced seems counter to any meaningful concept of national income at all. The problem of the treatment of illegal activities is not even included in the discussion of output seen as final product, though it is clearly an exception to the definition offered by Jaszi. Finally, the discussion of the national income concept itself does not progress beyond reference to an "operational rule" that is followed in constructing the present income estimates.

In the following discussion these remarks will be developed more fully and some of their implications noted. It should be emphasized that the concern here is with the estimation of national income proper, not with the organization of statistical data in a multipurpose system of social accounts. In order to clarify the issues, the approach followed by Jaszi will be contrasted with an alternative approach to national income measurement, here designated the "welfare approach." In making this comparison, it is not intended to imply that the welfare approach is the only defensible model for national income measurement or that it is uniquely devoid of conceptual problems. The difficulties of the welfare viewpoint are well known and have been widely debated in the literature. However, in the absence of a perfect theoretical model providing clear-cut solutions to all the problems of national income measurement, one is forced to choose from among alternative models of varying degrees of imperfection. The point of the following remarks is that Jaszi's model appears to yield considerably less satisfactory results than the welfare approach.

The definition of national income, imputations, illegal activities, and "duplication" will be considered in order. Throughout the discussion the terms "national income," "national product," and "national output" are used interchangeably.

[1] Page 57. It is not clear why Jaszi classifies these problems under "consumption." They are problems relating to the estimation of national product as a whole, not merely to one component thereof.

THE DEFINITION OF NATIONAL INCOME

A definition of national income as generally understood might run somewhat as follows. National income is the net output of the economy. Net output can be measured only with reference to some assumed end purpose of economic activity. This end purpose has generally been taken to be the welfare, present and future, of individual consumers. In short, national income is the contribution of economic activity to consumers' welfare.

The significance of this concept, which has provided the theoretical foundation of most efforts to measure national income, derives from two major considerations. First, it is the income concept that has constituted the focal point of economic theory at least since the days of Marshall. Second, in the realm of public policy, it is the income concept that is critically relevant to appraisal of economic progress in nonauthoritarian societies.

Instead of a basic concept, Jaszi offers an operational definition of national income. He states that "national output as the sum of final products can best be characterized from an operational standpoint as the sum of purchases not charged to current expense by business."[2] (A briefer term, more common in the *National Income Supplement, 1954*, is "purchases not resold."[3])

From the ensuing discussions it is clear that Jaszi has some misgivings about this definition. Thus, he says, "To be sure, this operational rule is not profound in the sense of expressing the ultimate goals of measurement. But it is valuable and important because it tells us in a clear, frank, and unadorned manner what we actually do when we measure the bulk of the national product. To use a colloquial expression, recognition of the rule helps to keep our feet on the ground."[4]

The obvious question is: On what ground? One can conceive of an infinite number of possible rules, any one of which might be followed in securing a "national income" total. What is the particular advantage of the rule cited by Jaszi? Certainly, the significance of "purchases not charged to current expense by business" as a measure of national income is hardly self-evident. Are there some "ultimate goals of measurement" which endow this rule with particular significance as a measure of national income? If so, what are they? Unfortunately, one will scan Jaszi's discussion in vain for answers to these questions.

[2] Page 56.

[3] Cf. *National Income Supplement, 1954, Survey of Current Business,* Dept. of Commerce, pp. 30, 37.

[4] Page 56.

Jaszi not only fails to justify selection of his particular rule, but he soon makes clear that this rule is not in itself sufficient to secure a measure of national income. He goes on to say that "the rule must be construed to cover transactions of types to which accounting rules are applicable, even though in practice the transactors do not apply them," and, further, that "to improve the measure of total output and its breakdown, we make what are in effect important modifications in the rule. . . ." These modifications, it should be noted, involve, on the one hand, the *inclusion* in the net output measure of items which are never purchased, and the *exclusion* of others which are "purchased and not resold." In short, Jaszi's definition of national income reduces in essence to (1) presentation of an operational rule which happens to be presently employed in compiling the United States estimates, plus (2) the statement that important modifications must be made in the rule.

One cannot help feeling that this statement of the meaning of national income leaves much to be desired. It does not deal with the fundamental question of what one is really trying to measure. The definition which is offered bears no explicit relation to any income concept discussed in economic theory. It is couched rather in the terminology of business accounting, the relevance of which to economic analysis is, to say the least, tenuous.

If the concept of national income is to be made meaningful and understandable, it would seem essential to go beyond this type of operational definition, and to specify the ultimate goals of measurement. It is to be hoped that Jaszi will clarify his viewpoint by setting forth his understanding of these goals and indicating how his operational definition of national income follows from them.

IMPUTATIONS

What is the justification for including imputations for nonmarket activity in a measure of national income? Using the welfare concept outlined in the preceding section one might argue as follows. Certain forms of activity yield products, which, while they do not enter the market place, do contribute to the economic welfare of consumers. Conceptually, therefore, these products should be included in a measure of the net output of the economy. How far one should go *in practice* in imputing for nonmarket activity can be answered only in terms of the problem at hand and the reliability of the available data. If one were concerned with short-term movements of net output in a highly industrialized economy, the necessary imputations would be few. On the other hand, if the concern were with intertemporal or interspatial

comparisons of economies at very different levels of development, the range of imputations would be stretched much further.

What reasons does Jaszi offer for the inclusion in a measure of *national income* of imputations for nonmarket activity? It is not easy to answer this question. At one point in his discussion Jaszi seems to be arguing there are no reasons at all.[5] About the only positive statements he makes are that "each of the current imputations has been adopted on the ground that it adds to the usefulness of the data in economic analysis,"[6] or that "a concrete practical need for imputations exists."[7] These reasons seem singularly lacking in reference to the concept of national income, and indeed appear so broad as to justify almost any action for any purpose. There is no reference to an end product criterion, unless this is implicit in the statement that imputations improve the statistics in a normative (and also behavioral) sense. Does "normative" imply some end product concept, some ultimate goals of measurement?

In fact, however, Jaszi specifically disavows the use of an end product criterion to justify imputations. He states, "I would hesitate to explain imputations as being simply the concrete implementation of general definitions of final product and economic activity. . . . This approach to the problem leads into the snares that I have tried to analyze in my paper (text note 36) and my comments on the Hagen and Budd, and Ross papers."[8] This statement is difficult to understand. Does

[5] Page 58.

[6] Page 60.

[7] Page 209; cf. also page 60. Perhaps an example of what Jaszi has in mind in the latter phrase is the justification given in the *National Income Supplement, 1954,* for the imputation for the rental value of owner-occupied homes—"to provide comparable treatment between rented and owner-occupied housing" (page 46). Does not this "concrete consideration," however, give rise to an analogous one—the need for comparable treatment of services of domestic servants and similar services performed by housewives? One cannot help wondering if the "concrete considerations" which are advanced provide any more solid basis for the particular imputations made (and not others) than does reference to "tradition."

Oddly enough, Jaszi in his comments on the paper by Raymond T. Bowman and myself objects to our statement that the Department of Commerce undertakes some imputations because it feels tradition requires it. His objection is hard to reconcile with his own reference to imputation as "the *tradition,* well-established in national output measurement, of recognizing as consumption certain items other than those admitted by the rule" (page 57, italics mine), and with statements in the *National Income Supplement, 1954,* such as "the imputations made are the result of concrete considerations and of the *traditions of national output measurement,*" that "cognizance has been taken, in the main, only of sizeable and unequivocal types of factor income in kind which have come to be recognized *through tradition* as elements of real income," and that it is necessary to recognize the essentially arbitrary and *tradition-based* nature of the decisions that must be made in this area." (pages 45, 38, 39, italics mine).

[8] Page 209.

Jaszi mean to say that in measuring the national income, i.e. the net product of the economy, some items are to be included with little or no reference to a final product criterion? If so, what does he mean by *net* output? Does he feel that "usefulness for economic analysis" or "concrete practical need" provides a more satisfactory justification for the inclusion of items in a measure of *national income* than reference to a final product criterion? Does he believe that explanations such as these enable him to avoid the snares to which he refers? It is hard to reconcile the complacency with which Jaszi sweeps aside as pursuit of a will-o'-the-wisp all prior attempts to justify imputations with the type of "explanations" he offers in replacement.

ILLEGAL SERVICES

Jaszi's discussion of output seen as final product contains no reference to the question of the treatment of illegal activities in the measurement of national income. The treatment of these activities in the present official estimates, however, does not flow from the "operational rule" used in identifying final product. It seems relevant therefore to consider this issue briefly. In the absence of an explicit statement by Jaszi on this issue, the reasoning offered in the *National Income Supplement, 1954,* will be taken as representative of his viewpoint.

There can be little question that a large number of illegal activities (for example, the sale of dope, prostitution, and hired murder) involve "purchases not resold." Moreover, it is likely that a fair estimate could be made by the Federal Bureau of Investigation of the value of a number of these activities. Yet the National Income Division makes no attempt to secure such information, and in fact, would exclude conceptually these activities from its measure of national income. The reason, if welfare were the aim of measurement, would be that we have in the body of law in our society an overt pronouncement that such activities are not a positive contribution to economic welfare. What is the NID's reason for exclusion? It is that the exclusion is a *"tradition-based convention."*[9]

It seems unnecessary to point out that reference to tradition is hardly a sufficient reason for including or excluding items in measuring the net output of the economy. Decisions of this type can be justified only by explicit reference to the aim of measurement. May one hope that Jaszi will make explicit his understanding of the concept of net product, and explain how the decision with respect to illegal activities is related to it?

[9] *National Income Supplement, 1954,* p. 30, italics mine.

DUPLICATION

Let us turn now to Jaszi's discussion of "duplication." The concern here is with the illustrations he advances relating to institutional change and technological change. These illustrations are offered as part of an effort to establish the proposition that the criticism of duplication leveled against the present official national income estimates arises from a mistaken endeavor to draw inferences concerning welfare from movements in national income.

In order to lay bare the full implications of Jaszi's arguments, each of these illustrations is examined in detail below, comparison being made between the national income total yielded by Jaszi's approach and that obtained in the welfare approach. The analysis suggests that while meaningful results are yielded by the welfare approach, the results secured under Jaszi's approach are difficult to reconcile with any concept of net output known in economic theory.

INSTITUTIONAL CHANGE

Consider first Jaszi's discussion of the implications for the measurement of national income of shifts in the institutional organization of production. In this connection Jaszi advances the orange-transportation example. Let us compare the measure of net national product which Jaszi would secure with that obtained following the welfare approach, under varying assumptions with respect to institutional organization in the production of oranges.

Let us suppose (Case 1) that there is one orange produced, price, f.o.b. Miami, 10 cents, and that it is purchased by a consumer in New York who pays a 2 cent freight charge. The only other output is one loaf of bread, which is purchased at a price of 20 cents. What would the national income be?

Jaszi would calculate, following his convention of "purchases not resold": consumer expenditures, 32 cents (oranges, 10 cents, bread, 20 cents, transportation services, 2 cents); government expenditures, zero; net national product, 32 cents.

The same result would be yielded by the welfare approach, but the reasoning would be different. In this approach it is necessary first to identify the real end products of the economy by reference to the end product criterion, and then to value these end products appropriately.

The end products in this case are clearly only the orange and loaf of bread; the transportation services were not desired as such, but were purchased because they were necessary to obtain the orange. It is

doubtful that anyone would argue that if the orange could have been secured without the transportation services, additional expenditure would nevertheless have been made for these services for the pleasure they bring in and of themselves.

How should the loaf of bread and orange be valued? Since the end purpose with which we are concerned is consumers' welfare, the appropriate basis for valuation is the set of market prices which reflects relative marginal utility.[10] The price of the bread is clearly 20 cents, but what is the proper price of the orange? The correct answer must be 12 cents, since in making his purchase the consumer weighs the price inclusive of the transportation charge which he must bear to get that orange against the marginal utility of the orange. Hence, national income equals one orange at 12 cents, one loaf of bread at 20 cents, total, 32 cents. The accompanying table summarizes the argument: the approach advocated by Jaszi is labeled NID Approach.

CASE 1
Consumer Pays Freight Charges
(*cents*)

NID Approach			*Welfare Approach*	
Consumer expenditures		32		
Oranges	10		1 orange at 12 cents	12
Bread	20			
Transportation services	2		1 loaf of bread at 20 cents	20
Government expenditures		0		
Net national product		32	Net national product	32

It should not be concluded, however, that because in this case the result yielded by the two approaches is the same, the difference between the two is merely a matter of semantics. For suppose the situation had been slightly different. Suppose the government had paid the cost of transporting the oranges, and that the delivered price of the orange to the consumer were 10 cents.[11] Assume the two situations identical in every other respect: what would net national product be according to each of the two approaches?

Using his convention of "purchases not resold" Jaszi would calculate: consumer expenditures, 30 cents (oranges, 10 cents, bread, 20

[10] Cf. J. R. Hicks, "The Valuation of the Social Income," *Economica*, May 1940, pp. 105-124.

[11] This is only one of a number of possible prices, any one of which might result depending on the manner in which the government financed its expenditures and the price effects of its mode of financing. For the present purpose, comparison of the two approaches, it is irrelevant which price actually results.

cents); government expenditures, 2 cents (transportation services); total 32 cents.

The welfare approach would yield a different total. The end products would be the same as in the preceding case—one loaf of bread and one orange. The price of bread would also be the same, 20 cents. The proper price of the orange, however, would be 10 cents, since this is the price that the consumer weighs against the marginal utility of the orange in considering his purchase. Hence national income equals one orange at 10 cents, one loaf of bread at 20 cents—total 30 cents.

CASE 2
Government Pays Freight Charges
(cents)

NID Approach			*Welfare Approach*	
Consumer expenditures		30		
Oranges	10		1 orange at 10 cents	10
Bread	20			
Government expenditures (transportation services)		2	1 loaf of bread at 20 cents	20
Net national product		32	Net national product	30

This example makes clear that the two approaches are not simply different ways of looking at the same thing. It also suggests that Jaszi's assertion that the duplication problem really concerns only the constant and not the current dollar totals[12] is incorrect for what we have here is precisely a difference in current dollar totals.

Let us consider the two results with reference to the theoretical framework underlying each. It seems clear that the result yielded by the welfare approach is logically consistent with the welfare concept of national income. The end products have been distinguished from the intermediate by reference to their contribution to consumer welfare and their relative value established in terms of these criteria. It does not follow, however, that the result yielded by Jaszi's approach is incorrect, for Jaszi has not accepted the welfare concept of national income. On the other hand, one finds it difficult to state with what concept of national income his result is consistent. What are the final products, the elements of real income, in his calculation? Are they oranges, bread, and transportation services? If so, what is the end purpose criterion which justifies the inclusion of the services required to transport oranges as an element of real income in addition to the oranges themselves? Or are the end products really only oranges and bread and the transportation services included to secure the proper

[12] Page 74.

relative weights of the two? If so, what is the end purpose criterion which provides the logical basis for the weighting system that is used? It seems reasonable to suggest that the decisions reached with respect to items included in National Income and their relative valuation should flow from the underlying national income concept. In the approach advocated by Jaszi no such relation is apparent.

To this point, we have been considering current dollar estimates of national income. Let us turn now to the question of measuring changes in real income. Comparison of Cases 1 and 2 adds nothing to our knowledge in this instance, because the two approaches yield identical results (no change). Further illumination may be secured, however, by introducing a third situation in which the cost of transporting the orange is borne by business and the consumer pays a price of 12 cents. The accompanying table summarizes the *current* dollar totals yielded by the two approaches.

CASE 3
Business Pays Freight Charges
(*cents*)

NID Approach			*Welfare Approach*	
Consumer expenditures		32	1 orange at 12 cents	12
Oranges	12			
Bread	20		1 loaf of bread at 20 cents	20
Government expenditures		0		
Net national product		32	Net national product	32

Suppose now we wish to measure the real income change between Case 2 (government pays freight charges) and Case 3 (business pays freight charges). It seems clear that in terms of any concept of national income, real income does not change—since the same products are produced in both situations—the only difference is the institutional organization of production. And this is the result that is yielded by the welfare approach—the quantities in each situation are weighted by the prices of one (say Case 3) and identical national income totals obtained (32 cents).

What is the result yielded by the NID approach? The reply most persons would be likely to give is that the NID approach would yield a lower real national income in Case 3 than in Case 2. In Case 2, the final products seem to be one orange, one loaf of bread, and transportation services, while in Case 3 only the orange and bread appear. Hence, when these two sets of quantities are weighted by the same set of prices, Case 3 will show a smaller total.

Examination of Jaszi's paper, however, reveals this reasoning is mis-

taken. For Jaszi also secures a "no change" answer for this problem—at least he would if "deflation procedures" were sufficiently refined. The source of the error in the foregoing reasoning, it appears, is in thinking that the orange in Case 2 might be treated as equivalent to the orange in Case 3. This apparently is quite wrong, for according to Jaszi, "There has occurred a change in the nature of the product provided by the original enterprise; and this change is missed by the deflation procedure . . . business product consisting of f.o.b. oranges is counted as equivalent to business product consisting of c.i.f. oranges, although *there is actually no more justification to do so than to count cloth as the equivalent of suits.* Clearly, no 'duplication' in the current dollar estimate is involved. All that is required is that we be on our toes when we deflate the national product—both its government and private components."[13]

It seems difficult to reconcile this argument with any meaningful concept of national income. Consider, for example, the implications of this statement with respect to the real content of the national income aggregate at a given point in time. Two oranges, identical in physical characteristics, are plucked from the same tree in Florida, shipped in the same freight car to New York, and purchased and consumed by the same person. If, however, one of these oranges were shipped in a box for which the grower paid the freight charges, and the other in a box for which the government paid the freight charges, Jaszi would say these two oranges are no more equivalent than cloth and suits!

Jaszi views this whole question as one of a statistical error in deflation. The problem is much more basic, however, for his viewpoint seems completely at odds with the fundamental conception in economic analysis of income as a complex of *real* commodities and services. In his approach a product can no longer be identified with reference to its physical characteristics alone, but its value characteristics must be considered as well. A change in the value characteristics of the same physical good is to be taken as a change in the nature of the product. Thus the assumption by government instead of business of the cost of transporting a given model automobile is to be considered equivalent to a shift, say, from two- to four-door models, or from sport to luxury cars.

The fallacy in Jaszi's argument is most obvious if one considers the nature of the "real" income that is being measured in his calculation of real income change from Case 2 to Case 3. Since, according to Jaszi, an orange in 2 is no longer an orange in 3, then "real" income in 2 must consist of an orange, f.o.b., bread, and transportation services.

[13] Page 305, italics mine.

"Real" income in 3, however, consists only of an orange, c.i.f., and bread. That is, though the total product has remained the same, the composition has changed, according to Jaszi. But in what meaningful sense has the composition of real output changed? Perhaps Jaszi's deflation argument has enabled him, if only superficially, to avoid clearly erroneous conclusions with respect to movements in *total* "real" output. One may submit, however, that it has done so only at the cost of a more serious error with respect to the change in *composition* of output. For when this error is recognized, it becomes clear that the implications of Jaszi's reasoning so far undermine the concept of real output as to rob even the conclusion with respect to the movement in total output of any significant meaning.

CHANGES IN TECHNOLOGY

Let us consider, finally, Jaszi's illustration of technological change,[14] using the situation cited as Case 2 above, in which government subsidizes transportation of the orange. Following Jaszi, we assume that the efficiency of the transportation system decreases; the art of building bridges is forgotten and as a consequence more miles of transportation are needed to bring the orange from Miami to New York.

There can be little question that under these circumstances real income has *not* increased— in fact with a fixed amount of resources it would have to fall. Now the welfare approach, which counts only the number of oranges and loaves of bread and values them at the same prices in each situation would indicate precisely what happens to real national income. For example, if the additional transportation services were provided by removing all resources from bread production, the welfare approach would show a decline in real national income from one orange and one loaf of bread to just one orange. (This result would, of course, be obtained no matter who paid the freight charges).

But what result would Jaszi obtain? The answer is that after the decline in efficiency, national product would be *larger* (page 71). Moreover, Jaszi makes quite clear that this astounding result is not attributable to his treatment of government. In the situation in which consumers pay the freight charges and there is no government (Case 1), Jaszi comes to the identical conclusion—an increase in national product after efficiency declines.

[14] Page 71. Jaszi's other illustration, in which coal purchases (and, according to him, national product) rise because heating systems become less efficient, is really a problem in quality change. Jaszi neglects to take into account that offsetting the rise in coal output there will be a decline in the real output of heating systems, since the poorer quality heating system of the second situation represents a smaller real output than that of the first situation.

What defense of this conclusion does Jaszi offer? His defense is simply that this illustration demonstrates that it is not possible to draw inferences with respect to changes in consumer welfare from movements in net national product when technology changes. But what inference *can* one draw? For here is a situation in which total resources remain unchanged while efficiency declines, and the measure of net national product shows an increase. The only reasonable inference would appear to be that Jaszi's measure of net national product is incorrect. And this error, one may suggest, flows from the same source indicated in the foregoing parts of the discussion, namely, that the decisions made in his approach are not made with reference to a meaningful concept of national income.

CONCLUDING REMARKS

There can be little question that Jaszi's conceptual viewpoint is representative of that underlying the present official national income figures. There can also be little question that these figures are widely used for appraisal purposes—as a test of the success of economic activity. National income figures are cited as evidence of the greater material well-being enjoyed by Americans today with respect both to our predecessors in this country and to our contemporaries abroad. Moreover, with the increasing emphasis throughout the world on economic achievement, comparisons of this type are likely to increase rather than diminish in the future.

Yet Jaszi and the NID are reluctant to face the welfare implications of the national income concept. This is evident in the vagueness of the arguments advanced with respect to imputations and illegal activities. It is evident in the resort to accounting terminology in stating the final product criterion. It is evident in the tautological definition of net national product as "the market value of the net output of goods and services produced by the Nation's economy."[15] It is evident, finally, in the readiness with which Jaszi advances arguments that purport to destroy the welfare significance of the national income measure—arguments which, if valid, would be fatal to any concept of real product.

One can only urge that denial or avoidance of the welfare implications of the concept is not the appropriate course to follow. The choice, given this appraisal use, has been clearly stated. It is "between (a) letting national income estimates be taken at their face value and misinterpreted because of incomplete awareness of the underlying assumptions and (b) attempting to have them used and discussed in terms of their relevance to this or that specific problem or issue of public policy

[15] *National Income Supplement, 1954*, p. 58.

in full cognizance of the assumptions upon which the concept rests and the compromises in measurement forced by lack of data."[16] It seems time, if the danger envisaged in the first alternative is to be avoided, for the NID to recognize the welfare significance of its work and to face squarely the question: what is the meaning of *national income?*

Reply by Mr. Jaszi

Richard A. Easterlin's comments provide a welcome opportunity to discuss in somewhat greater detail than seemed appropriate in my paper the well-known attitude to the measurement of national income which he so ably represents. My remarks will show that I have no basic objection to what he calls the "welfare-approach" to national income measurement though I regard the incessant emphasis on that approach as heuristically unhelpful.

There is genuine disagreement between us on the intermediate services of government, but it has nothing to do with the broad "approach"—welfare or other. The broad approach does not throw light either on the origins of the disagreement or on its possible resolution. I continue to think that the issues that divide us can be analyzed in a more concrete manner along the lines I set out in my paper, observing the canons which I proposed for the discussion. I regret that Easterlin has not pursued my proposals.

THE BASIC CONCEPT OF NATIONAL INCOME

Easterlin is wrong if he thinks that I dissent from his concept of the national income as he states it in his comment. Quite to the contrary, I believe that almost anyone concerned with national income measurement would arrive at a definition similar to Easterlin's, if he tried his hand at producing a definition of this type. That I myself subscribe to this type of definition should be clear from my previous writings. For instance, in the article on the "Objectives of National Income Measurement"[1] to which I referred in my paper, as well as in the *National Income Supplement, 1954,* itself, there is presented an approach to national income, in terms of the ultimate goals of measurement, that is quite similar to Easterlin's. The national output is interpreted as designed to measure "goods and services provided to satisfy the needs of individuals," "elements of the standard of living," "items that directly

[16] Simon Kuznets, *National Income: A Summary of Findings,* National Bureau of Economic Research, 1946, p. 136.

[1] Milton Gilbert, George Jaszi, Edward F. Denison, and Charles F. Schwartz, "Objectives of National Income Measurement: A Reply to Professor Kuznets," *Review of Economics and Statistics,* August 1948.

satisfy human needs"—all phrases that convey very much the same meaning as, I believe, Easterlin intends to convey by the definition which he puts forth.

But this unanimity on definition has not prevented the emergence of diametrically opposed views on the concrete problems which we are discussing and does not seem to have contributed to the resolution of the intellectual deadlock that is apparent. This fact has convinced me that the repetition of these generalities on which we all agree serves no useful purpose. There is little practical purpose in opening a conference on the problems of juvenile delinquency by a formal restatement of one's opposition to sin.

Since a statement of the ultimate goals of measurement leaves open so many questions on what should actually be measured, one must have an operational definition that provides a firmer guide. I have found the operational definition of national income I advance eminently useful. In focuses on the conceptual building blocks that are generally used to construct national income totals (not just the United States national income totals of the moment, as Easterlin somewhat less than fairly implies on page 130). In this way, it helps to bring out clearly the nature and limitations of these totals and suggests the need for the provision of alternative conceptual building blocks if totals are to be obtained to serve needs very different from those to which the existing measures are adapted. To use an analogy: if someone is contemplating an attempt to reach the moon by building taller towers, it will be of the first importance for him to recognize that existing towers are made of brick, cement, steel, and so forth, all materials obviously unfit to serve as elements of towers designed to reach the moon. He can then see clearly that his project is doomed in the absence of practicable specifications for the materials to be employed instead.

Easterlin asks me to specify how the operational definition of national income is related to one in terms of the ultimate goals of measurement. We have done this to the best of our ability in the publications I have cited, by suggesting how the "operational definition" results in a measure that seems to common sense to serve the "ultimate goals of measurement."[2] Unless I am mistaken, a more rigorous type of derivation of the operational definition from the one couched in terms of the ultimate goals of measurement is impossible. Let me use another analogy. In a speech before the annual convention of the Ladies' Auxiliaries of the Association to Defend the American Family, a house might be referred to as a structure designed to give shelter to the spiritual values of the American home; whereas in a speech to the

[2] See, for example, *ibid.*, p. 183.

Construction Materials Committee of the Association of Journeymen Builders it might be referred to as a structure designed from brick, wood, steel, and cement. I would consider each of these definitions felicitous and highly to the point in the context of their respective settings. I could, ultimately by appeal to common sense, try to show that these structures we call houses, fitted together from brick, wood, steel, and cement, provide serviceable shelters to units called families which in turn are the carriers of certain spiritual values; but of a neater, more formal linking of the two concepts I would despair.

In the light of this general introduction, I turn to the specific points raised by Easterlin.

IMPUTATIONS

I certainly do not object to the conventional invocation of economic welfare which Easterlin performs in introducing this subject. All I maintain is that when this invocation has been duly performed, we have not progressed one step further in the specification of a list of items for which imputations should be made (and of a list of items that should be excluded even though they, too, contribute to economic welfare). Such a list will emerge only, to use Easterlin's own words, "in terms of the problem at hand."

Moreover, unqualified interpretation of imputations as flowing directly from a general notion of economic welfare is likely to give rise to two opposite and equally dangerous mental tendencies. On the one hand, it tends to foster unreasonable dissatisfaction with the status of imputations in extant measures of the national income and to encourage the vain pursuit of a general logical formula which will put an end to the arbitrariness which apparently prevails. On the other hand, it promotes the illusion that there are concepts, now used effectively in handling imputations, which would permit us to measure the output of government in a basically different and better way than at present.[3]

[3] In note 7 of his comments Easterlin assembles several quotations from my work and that of my colleagues in which the traditional aspects of imputations are stressed; he seems to wish to establish in that manner that we include imputations in the measures of national income merely because we follow tradition. Two comments are in order. First, statements to the effect that imputations are traditional do not imply that tradition is the chief reason for including imputations, any more than the statement "I shot the brown dog" implies that I shot him chiefly because he was brown. Secondly, in a field in which clear-cut rules are so patently unavailable, it is only natural that tradition should serve as a secondary guide, and only honest to admit it. It would have been instructive if Easterlin had attempted to demonstrate that the use of welfare criteria allows a more cogent explanation of any concrete list of imputations he likes.

ILLEGAL TRANSACTIONS

Easterlin takes me to task for not including a discussion of illegal transactions in my paper. I acted on the belief that this Victorian embellishment of the national income structure could be safely ignored in a paper devoted to fundamentals.

However, I am willing to accept his challenge. It presumably lies in the supposition that the welfare approach provides definite guidance in the handling of illegal transactions in the national income. I do not believe it does. In principle, the economic welfare criterion does not necessarily imply the exclusion of illegal transactions. To equate, without further discussion, what contributes to economic welfare to what is legal is surely not very profound. In practice, what light does the welfare approach throw on the question as to how alcoholic beverages should be treated before and after the repeal of prohibition? Should black-market transactions during a war be regarded as generating national income? How is one to compare the output of a country where gambling is legal with that of another country where gambling is illegal?

Up to this point, I believe that my differences with Easterlin are not basic. Rather, they reflect different habits of thought, which are partly matters of taste. With respect to duplication, however, I cannot offer a similarly comfortable interpretation. Here matters of substance divide us.

DUPLICATION

It would serve no purpose to restate the argument presented in my paper, but with the latter as a background the following marginal notes on Easterlin's comments may advance the discussion a little further.

1. Easterlin seems to have misunderstood my argument completely. For instance, he writes that my "illustrations are offered as part of an effort to establish the proposition that the criticism of duplication leveled against the present official national income estimates arises from a mistaken endeavor to draw inferences concerning welfare from movements in national income." Nowhere do I state that this is the purpose of my illustrations or that welfare comparisons are not a legitimate aim of national income measurement. I take the contrary position. For documentation, the reader is referred to the third point in the summary of my section on duplication.

2. One of the major logical pitfalls in the definition of final product is illustrated by Easterlin's comment that "The end products in

this case are clearly only the orange and loaf of bread; the transportation services were not desired as such, but were purchased because they were necessary to obtain the orange." To say that the orange and bread are final but the transportation services are not seems to me just as faulty as to say that the cloth of a suit is final but that the tailor's services in making it are not. I think Easterlin's error stems from the fact that he talks indiscriminately about "oranges" and "bread" without specifying whether they are f.o.b. or c.i.f., being deceived by the circumstance—economically irrelevant—that oranges and bread do not undergo a visible physical transformation in being converted from an f.o.b. to a c.i.f. state.

3. Easterlin gives an illustration (Case 2) in which, according to his approach, government-provided transportation services should be excluded from the national product. Should similar privately-provided transportation services paid for separately by consumers also be excluded? My paper gives an analysis of the negative answer to this question. I utilized there the essence of Easterlin's example as a stepping stone for my argument. In short, I posited two situations exactly alike in all relevant respects (quantities and prices of production and, more broadly, tastes and technologies). They differed only in that in the one case transportation services were provided by the government whereas in the other they were supplied privately and bought separately by the consumers. I argued that the national income totals in these two situations should not differ, as they would according to Easterlin's calculations. (The obvious intellectual quagmire into which we would be led by an affirmative answer to my question is also indicated in my paper.)

4. I remain unconvinced by the argument Easterlin develops in connection with his Case 3. To use a somewhat different case, suppose the comparison is between two situations in which government is not involved at all. Both are exactly alike except that in one situation consumers pay separately for the transportation charges, whereas in the other the transportation charges are included in the price of the products they buy. Would Easterlin seriously suggest that transportation charges should not be part of the current dollar output total in the first case? Would he similarly suggest that, if consumers buy flour and have the baker bake it into bread, the payments made for the services of the baker should not be counted; that, if consumers buy textiles and have them made into furniture coverings, the separate payment to the upholsterer should not be counted, and so forth? If instead the items are (to my mind properly) included in current dollar expenditures, the rationale applied in deflation must, I believe, be the one which I ad-

vanced. In the deflation of expenditures for business products, the oranges Easterlin regards as identical must be treated as different, just as a suit and the cloth for one are treated as different, because such expenditures cover a service in the one case not covered in the other.

5. Easterlin's criticism of my analysis of technological change reflects (a) a simple misunderstanding and (b) the same general lack of a common ground between us which was apparent from his earlier points:

a. In the case I analyze, I obtain an increase in real product consequent upon a decline of efficiency, because I make the assumption that the additional labor effort devoted to transportation is obtained from an increase in the labor force rather than by a diversion of part of the existing labor force from the production of bread. However, it would have been equally possible to assume that transportation is increased at the expense of bread production, and in that case real product would have shown no change. I am sorry that because I neglected to spell out this matter Easterlin was exposed to an unnecessary stumbling block in following an apparently difficult argument.

b. The essence of my demonstration consists of showing that the distortion (increase or no change in national product, whichever follows from the particular assumptions made) involves no problem unique to the case of government but that such distortion can arise also in situations not involving government at all, given principles of measurement which, as far as I know, are universally accepted. I can only repeat my suggestion that those who discuss the problem of "duplication" pursue systematically what I have called the "consumer analogy," and provide a comprehensive analysis and diagnosis of the situation in that light.

In conclusion, I feel that our record is in harmony with the eloquent passage Easterlin quotes at the end of his comment. By basing our work upon the only broad concept that can underlie national income—one related to economic welfare, by specifying also an operational definition that covers with a simple rule the bulk of the area of actual measurement, and by discussing the manner in which the ultimate goals of measurement are served by the operational definition, we have helped to ensure that national income estimates are used "in full cognizance of the assumptions upon which the concept rests and the compromises in measurement forced by lack of data."

PART II