STUDIES IN

Income and Wealth

VOLUME TWO

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Income and Wealth

VOLUME TWO

BY THE CONFERENCE ON RESEARCH

IN NATIONAL INCOME AND WEALTH

NATIONAL BUREAU OF ECONOMIC RESEARCH

NEW YORK · 1938

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(*Resolution of October 25, 1926, revised February 6, 1933*)

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FOREWORD

This volume, the second in a series of studies by the Conference on Research in National Income and Wealth, contains the reports presented, under arrangements made through the Conference, at the meetings of the American Economic and American Statistical Associations in December 1937 at Atlantic City; as well as the reports submitted to the third meeting of the Conference in April 1938 at New York City. It includes also the discussion to which these reports gave rise, both at the Association and Conference meetings and subsequently by correspondence.

Like the first, this volume is the result of an effort on the part of the Conference to stimulate analysis of various controversial problems in the field. The attempt is not to distil immediately and directly a uniform consensus of opinion on these controversial problems. The aim is the more modest one of stimulating scrutiny of the problems in order to establish their ramifications and to formulate the implications of the diverse treatments to which the issues may be subjected. Such an analysis should make it more probable that in the practice of measuring national income, wealth, and their component elements the choice among different treatments will be made in fuller cognizance of its implications; and that the efforts at adding to the data in the field will be profitably directed at information needed for adequate treatment of the more controversial items. A more widely held consensus of opinion may well be the ultimate consequence of such analysis. Its immediate aim, however, is and should be that of removing only such divergence of opinion as results from an unsatisfactory formulation of the problems and the failure to understand the nature of the issues involved.

With these aims in view, the Conference preferred to have the problems analyzed by individual students in the field, rather

than attempt group efforts directed immediately toward authoritative and final statements; to allow the differences of viewpoint to appear fully in the discussion; and to encourage a generalized formulation of the issues without requiring quantitative treatment as an indispensable and final step in the analysis. Our hope is that the accumulation of the results and effects of such analysis as is presented in this and the first volume of *Studies* will result in a natural shift of emphasis toward application of the analysis in quantitative measurement and thus toward more direct attempts to gauge the magnitude of the different elements involved.

This volume, like the preceding, has been made possible only by the keen interest of the authors in the problems and by their willingness to devote time and energy to the preparation of reports or comments. The editing of the volume was done by Milton Friedman, and was reviewed by the two other members of the editorial committee in charge, M. A. Copeland and W. W. Hewett.

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Part One

ON THE MEASUREMENT OF NATIONAL WEALTH

SIMON KUZNETS

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Discussion

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SIMON KUZNETS

ON THE MEASUREMENT OF NATIONAL WEALTH[1]

SIMON KUZNETS

I Definition and Basic Approaches

I DEFINITION OF NATIONAL WEALTH

Wealth can be defined most generally as the stock of economic goods. Economic goods, in turn, are sources of services for which people are willing to pay; and people are willing to pay for services only if a particular unit of the services has utility to them and is susceptible of disposition by them.

This definition may be used to segregate items that can be classified as economic goods and hence as the stock of wealth. But such an attempt yields no unique solution unless the active economic unit assumed in the analysis is specified: the congeries of items distinguished will be materially different from one type of economic unit to the next. True, willingness to pay can be tested only by an *individual's* experience and reaction. But in segregating wealth, an enumeration of all the objects for the services of which individuals are willing to pay will yield a much longer list if the individuals are considered solely in their individual capacity than if they are considered also in their capacity as members of a large social group, e.g., the nation. The first list will include all sources of services, regardless of the fact that what is service to one individual may be disservice to others and hence to the group as a whole. The second list will include only the sources of such services as, on the balance of satisfaction and dis-

[1] The first draft of this report was reviewed by Milton Friedman and W. H. Shaw' to whom I am indebted for many helpful comments.

satisfaction they yield to various members of the social group, are recognized as desirable both to individuals and from the viewpoint of the social group. By the same line of reasoning, the extension of the social group to include the world would still further restrict the list of wealth items. Items that may appear desirable from the viewpoint of a single nation (e.g., dreadnoughts and tanks) may not be sources of services desirable to the world as a whole, from the viewpoint of the individual as a member of the world community.

The fact that one and the same item in the stock of goods may be a source of conflicting satisfactions and dissatisfactions to various members of a social group reduces the list of wealth items as we pass from the individual taken in his individual capacity to a wider economic unit. But so far as scarcity affects desirability, passing to a wider unit increases the list of wealth items. Scarcity means that the utilization of a unit of a given good by an individual or a group makes it difficult or impossible for another individual or group to use another unit of the same good; hence the more extensive the group with reference to which we consider scarcity, the longer the list of scarce items. The services of a lake are not scarce to the few individuals who reside on its shores and thus have full access to all its services: the scarcity emerges when we consider the larger group of individuals whose access to the lake is limited. Items that appear abundant when we consider their availability to members of a single nation become scarce when reference is made to several or all nations.

Similarly, the power of individuals to dispose of sources of services or of the services themselves varies as we consider them purely as individuals or as members of social groups. A member of a nation considered as an individual has no power to dispose of the internal waterways, the fleet, and other collective goods; the same individual treated in his collective capacity does and can dispose of these goods. A single nation cannot dispose of the oceanic waterways; but the community of nations (the individuals as members of the world community) can dispose of them. Here again extension of the social group considered leads to an increase in the list of items that can be classified as wealth.

We can now define more clearly the concept of national wealth. National wealth is the stock of sources of events for which the

aggregate of individuals who comprise the nation are willing to make sacrifices (i.e., to pay). It excludes all sources of events which, while desirable to single individuals, are undesirable from the viewpoint of the national group as a whole; includes not only the sources of desirable events whose supply is scarce as among various individuals within the nation but also sources that are scarce as among the various national groups; and covers not only such scarce sources of desirable events as are disposable by individuals *qua* individuals but also such as are disposable by individuals as members of the nation.

This analysis clarifies the relation between the wealth of a given social group and the sum of the wealth of its individual members. The identity of these two totals is assured only if in advance the individuals whose wealth is measured are treated both as individuals and as members of the given social group. The sum of the personal wealth of Smith, Jones, etc., will not yield the wealth of the nation of which Smith, Jones, etc., are members, unless they are considered not only as individuals but also as members of the collective that we designate as the nation; or to put it more explicitly, unless we consider Smith, Jones, etc., not only as completely independent individual entities but also as fractional shares of the nation's collective entity. Similarly, the addition of the wealth of all the individual inhabitants of the world will yield the total of cosmopolitan wealth only if the individuals are considered both as independent entities and as fractional parts of the world community.

2 THE TWO APPROACHES

Wealth being the stock of economic goods, the first step in its measurement is the identification of these goods. Such identification is possible directly because goods have, if not necessarily a material expression, at least a distinguishable and specifiable location. Where they assume a material form, that of commodities, the identification is relatively simple. But even where no obvious material form exists, e.g., in such items as the skill of a carpenter or the business connections of an entrepreneur, their location may be distinguished and their relevance to the measurement of a given nation's wealth established. It is thus possible to identify directly the actual sources of services by reference to

the substantive characteristics of these sources, i.e., their material or immaterial form, their origin and place in the productive economic system, their actual location within the boundaries of the nation's economy. Measurement of wealth is then approached by listing all economic goods: commodities, institutional arrangements, human skills, natural resources, etc., placing values upon them, and summating the values into a comprehensive total. This procedure may be designated the substantive approach.

The sources of desirable events that are included in national wealth are apportioned among individuals, singly or in collectives, so that each individual has some claim to the disposal of some sources or of their yields. Their very scarcity, the indispensable attribute that characterizes them as economic wealth, makes it necessary for society to institute rules to govern the unavoidable struggle among members of the nation and the world for the possession and utilization of these sources. By these rules many of the sources are distributed so that each becomes subject to preferential claims by individuals as individuals; others are collective goods, at the disposal of individuals only as members of the social collective but barred to members of other collectives. This being the case, the measurement of wealth may be approached through the evaluation of the claims of individuals, considered in both their individual and collective capacity. For a considerable fraction of wealth these claims assume an overt form; are in themselves subject matter of economic activity; and can sometimes be more easily evaluated than can the sources to which these claims refer. The consequent procedure may be designated the claims approach.

Even if care is exercised to assign claims in all cases where a source of desirable events is identified (whether or not overt marketable expression is given to that claim) the totals of national wealth obtained by the substantive and the claims approaches will not be identical in either scope or magnitude. The former, relying primarily on location, yields a total of wealth within the nation's boundaries, but omits wealth outside these boundaries. The claims approach yields a total of wealth possessed by the members of the nation and thus may exclude some items located within the country and include some located outside the nation's

boundaries. Differences in valuation are likely to produce further differences in magnitude between the two totals. The direct valuation of sources of wealth need not necessarily yield the same total as direct valuation of the claims to these sources: for a large group of wealth items there are striking short term disparities between the two totals.

But the most significant difference between the two approaches is in the classification to which they give rise. The substantive approach leads to a classification of wealth items by their substantive characteristics; and the categories it distinguishes are little related to the distribution of wealth among individuals. The claims approach, on the other hand, emphasizes the relation between the source of wealth and the individual; and is especially suited to be the basis of distribution of wealth among individuals or other operating units and of classification of wealth according to differences in the character of claims.

Actual estimates usually follow a combination of the two approaches; and in practical measurement one need not force the total of national wealth and its breakdowns to be consistent with only one of the two approaches indicated. But in the discussion of problems of scope and valuation the differentiation of the two approaches leads to a clear recognition of the various significant categories of wealth and to an easy definition of different variants of the national wealth total.

II Composition and Scope

I SUBSTANTIVE APPROACH

The scope of national wealth in the substantive approach is best analyzed by considering the various classifications of wealth instruments[2] to which this approach gives rise. These classifications are familiar, having been evolved in the economic analysis of various types of goods. It will, therefore, suffice to indicate briefly the most important classifications; and then use the categories

[2] The term 'instruments' is used to designate the substantive sources of desirable events. The term 'items' is used to designate any unit in the stock of wealth whether the instrument itself or the claim to it.

established to describe the different variants of national wealth resulting from the substantive approach.[3]

a) *Material and non-material*

This distinction is most important in delineating the scope of national wealth estimates. Material sources of desirable events are usually interpreted as commodities and material natural resources, whether perishable or durable, movable or immovable. Under non-material, one usually finds the goodwill and patent and other monopoly powers of an enterprise, skills and capacities of the population, efficiency of the government and of other social institutions, etc. Strictly speaking, all sources of desirable events have a material expression, since no observable phenomenon is without some material substance and locus. The justification for classifying some as non-material is that their material expression is not easily distinguished and specified; hence, both in their role in economic life and in their susceptibility to measurement, they are significantly different from such wealth instruments as have a distinct and easily discernible material form.

b) *Reproducible and non-reproducible*

This is a distinction second in importance only to that under (a). Like the latter it cannot be applied strictly, since few existing sources of desirable events are reproducible in their exact form. Reproducibility thus refers to the possibility of producing a close substitute rather than an exact replica.

The distinction, when applied, segregates products of human labor of the type found from generation to generation from two other groups of wealth instruments—one, quantitatively the less important, represents products of past labor performed by exceptional human beings the like of whom do not appear again; the second represents non-reproducible and irreplaceable natural resources. The most important item in this second group is land; but it includes also mineral and other natural resources. The distinction between reproducible and non-reproducible applies to both material and non-material wealth instruments; and, disregarding the non-reproducible products of genius, is largely

[3] For a somewhat different classification see Roy Blough and W. W. Hewett, Part Four, Sec. II, 3(a).

identical with that between wealth instruments that are products of past labor and those that are not.

c) *Durable and non-durable*

Both durable and non-durable sources of desirable events should be included in national wealth. But the classification is significant because it distinguishes groups that are subject to substantially different patterns of temporal behavior and that offer substantially different problems of valuation.

In applying this distinction it is, of course, necessary to specify more definitely the attribute of durability; associate it with some minimum period of life of utilization of the wealth instrument; connect it with a distinction between finished and unfinished goods made with reference to the stage at which ultimate utilization is gauged as to duration; and perhaps establish a more detailed gradation of durability than that represented by the dichotomy between durable and non-durable.[4] It is important to note that the distinction between durable and non-durable wealth instruments necessarily implies a distinction between finished and unfinished.

In actual measurement, the categories of wealth items distinguished are largely institutional in character, and often result from the ways in which the available data are grouped. While many of these institutional categories (land and improvements, inventories, gold and silver, machinery, etc.) can be resolved into cross-combinations of the classifications listed above, other categories utilize substantive characteristics of wealth that have not been touched upon because they did not seem sufficiently important (e.g., the distinction between gold and silver and other commodities; between industrial machinery and farm machinery; between machinery and livestock). It will suffice here to call attention to the existence of these additional classifications, some of which may be strictly consistent with the substantive approach to national wealth and with that approach alone.

d) *Variants of national wealth total*

Several distinct variants of the national wealth total may be defined on the basis of the substantive approach. They all refer to

[4] See more detailed discussion in Simon Kuznets, *Commodity Flow and Capital Formation* (National Bureau of Economic Research, 1938), I, 6-8.

the stock of economic goods within the territorial boundaries of the nation, but differ in degree of comprehensiveness. These variants follow in declining order of comprehensiveness.

Variant S-I, the most comprehensive, would include not only all material but also non-material economic goods. With reference to the non-material items there may sometimes be a doubt as to the exact limits of location (cf. Marshall's discussion of the location of scientific progress vs. that of untranslatable national literature[5]).

Variant S-II would include only such economic goods within the country as have material expression (i.e., commodities, land, and other natural resources of a material character). The justification for the omission of non-material goods, if formulated on the level of the substantive approach only, would be the difficulties of discerning, segregating, and valuing the sources of desirable events that have no fixed material expression.

It may further be suggested that some material economic goods should not be included in the total of national wealth, because they are neither reproduced nor consumed and are thus exempt from the type of activity that is the essence of economic reality. Thus land, if we disregard improvements on it, should not properly be included, since an increase in its value reflects not an increase in its supply but a growing scarcity. Other indestructible national resources such as waterways and mountains should likewise be omitted. This application of the criteria of non-reproducibility and indestructibility (i.e., eternal durability) excludes only one group of material goods that perhaps should be included: the product of past labor. But the volume of such goods, taken in their material aspect, is so small as to render its omission relatively insignificant. The third variant, S-III, would thus omit from national wealth not only non-material instruments but also such material ones as are non-reproducible and have a life that may be considered of infinite duration compared to the time periods relevant to economic analysis.

Furthermore, other non-reproducible natural resources, although destructible, may also be omitted. Such resources, typified by minerals in the bowels of the earth, are not products of past labor; their accurate measurement is often exceedingly diffi-

[5] *Principles of Economics*, 8th ed. (London, 1920), pp. 59-60.

cult, precisely because they are neither products of past labor nor reproducible; and changes in their value, when valuation is attempted, are often due to changes in the technique of measurement rather than to any actual increase or decrease in their volume within the nation's boundaries. The omission of such natural resources yields variant S-IV, which excludes not only all non-material goods but also all non-reproducible material goods, whether or not indestructible. The omitted material goods are not, by and large, results of past human effort.

2 CLAIMS APPROACH

Before the composition of national wealth from the viewpoint of the claims approach can be discussed, two comments are in order. First, the claims considered are not exactly identical with legal rights and claims as they appear on the statute books or in the decisions of courts. No mere economist is able to deal with the intricacies of a nation's legal framework in its bearing upon property rights or other rights of economic significance. Nor is it necessary to do so in the analysis of problems concerning the measurement of wealth. Our consideration of claims is based on general observation of how individuals behave, within the legal framework, with reference to various wealth instruments. Such general observation reveals that any given single wealth instrument is at the preferential disposal of a single individual or a limited group of individuals; that this single individual or limited group of individuals is at much greater liberty than others to utilize the given instrument of wealth, this 'greater' liberty being sufficiently appreciable to make for a significant difference in economic intercourse. These states of the preferential position of a single individual or of a limited group of individuals we designate as their claims, and as such are the subject of basic consideration in the claims approach.[6]

Second, there is extensive pyramiding of claims, of the type that cannot take place in a list of distinct instruments of wealth in the substantive approach. The claims of one individual or

[6] Some of them may not be legally enforcible. Thus a member of one nation (citizen or resident) has a claim to the use of certain collective goods that cannot be exercised by a member of another nation. But such claims of a citizen or resident are not legally enforcible against the nation's government.

group of individuals to a given source of services may be overlaid by claims of another individual or group of individuals to the same source. Hence if such claims are to be summated into a national wealth total, duplication can be avoided only if either of two procedures is followed: claims by one individual member of the nation against the others are excluded; or all claims are counted, but those against other members of the same nation are added in with negative signs. So far as each unit in this measurement is a claim, the pyramiding does not affect the scope of national wealth in the claims approach.[7]

a) *Direct and indirect claims*

The most important distinction among claims to wealth instruments arises in the association or lack of association of claims with the freedom of disposition. For a large group of wealth instruments, the claim of an individual is closely associated with freedom to dispose of the instrument or of its services. A skilled artisan who has the claim to his own skill is also the one who has the freedom to and usually assumes the disposition of the services of that economic good. An individual entrepreneur combines the claim to the capital of his enterprise with the freedom of active management and disposition of these goods. For the head of a household the claim to the goods in the household is also associated closely with their economic disposition. Such claims may be designated as *direct*.

However, for a large body of claims no such association between claims and the disposition of the *actual instrument of wealth* exists. The wealth instruments that constitute the capital of incorporated enterprises are subject to claims by bond- and stockholders and other individual creditors; but with the exception of one-man or family corporations there is usually little association between the claim of the security holder and the active disposition of the corporation's stock of goods. Every member of a nation has claims to the instruments of wealth collectively owned; and the same holds true of smaller public collectives, a city, a state, etc. But no member of the nation or of other collectives in his individual capacity is thereby given the freedom of active disposition of collectively held instruments of wealth. In these cases

[7] Except for the claims by and against members of other nations.

and many others, a host of institutional regulations and active groups intervene between the holder of the claim and the active disposition of the services to the source of which the claims refer. They may, therefore, be designated as *indirect* claims.

b) *Transferable and non-transferable claims*

The transferability meant is economic in character, in the form of purchase and sale. Some claims can be transferred easily from one individual to another, and actually change hands rather frequently in the ordinary course of economic life. Other claims are also transferable, although perhaps only a small part of them changes hands over a long period. By contrast, some claims are not transferable, the wealth instrument being so attached to the individual's identity as to constitute an inseparable possession.

Three comments should be made concerning the attribute of transferability. First, in the case of direct claims, transferability and non-transferability should be judged with reference to the claim to the instrument of wealth rather than to the services the instrument yields. Thus a skilled artisan can and actually does transfer claims to the services of his skill in the form of a labor contract, but his claim with reference to his own skill is as a whole non-transferable.

Second, the attribute of transferability cuts squarely across that of the degree of directness of the claims and creates significant subgroups within each category. There are large groups of transferable and non-transferable among both the direct and indirect claims. Each of the resulting four classes of claims is significantly different from the others. Thus, transferable direct claims differ significantly from transferable indirect, for in the former a transfer implies the separation of an individual from direct disposition over the instrument of wealth while in the latter a transfer means no such separation. The distinction between transferable and non-transferable direct claims, or between transferable and non-transferable indirect claims is too patent to need comment.

Third, for the transferable claims alone must the offsetting operation for duplication be carried through. Only a transferable claim of one individual can underlie the claim of another individual, for in case of failure there should be the possibility of

a transfer of the underlying claim. And while all the overlying claims are not necessarily transferable (consider the indirect claims of individuals implicit in a claim by a government agency for tax payments against another individual), it is necessary in correcting for duplication to adjust only one side of duplication, preferably the side of the underlying claim, that belonging to the debtor.

c) *Variants of national wealth total*

Other categories among claims could be established, especially by the use of legal distinctions among priorities, specificity of attachment to a given asset, order of enforcement, etc. But the classifications suggested and the brief discussion above suffice to indicate the scope of basic variants of the national wealth total for the claims approach. In all these variants the national wealth total is obtained by adding the values put upon the claims of all the individual members of the nation, allowing for duplication by adjusting the transferable claims for the value of claims overlying them. But the variants differ in comprehensiveness. In a decreasing order of comprehensiveness, they are as follows:

Variant C-I, the most comprehensive, conceives national wealth as the total value of all claims by individual members of the nation, but with the transferable claims offset by the claims outstanding against them, whether held by individual members of a given nation or by members of other nations. The claims are understood in the comprehensive sense in which they refer to all the identifiable sources of services located not only within the territorial boundaries of the given nation but also outside it.

The departures from this most comprehensive concept of national wealth follow naturally the line of excluding non-transferable claims: only those claims are included that actually appear on the market, and provide indisputable evidence of both the economic character of the item and of its economic magnitude. This procedure provides an easy way of disposing of the vexing problems that appear when more inclusive treatment is attempted: such problems as drawing a line between scarce and other sources of disposable services; or between sources that produce events whose desirability may be questioned from the standpoint of the aggregate of individuals comprising a nation and those

which are indisputable instruments of wealth rather than of illth; or the problem of finding a measure of value for items that never appear as such on the market. But such a rigid limitation encounters the diffiulty that it omits too much; e.g., non-transferable claims to certain collective instruments of wealth, whose existence and value are patently clear.

We therefore obtain as the next variant of the national wealth total a concept that forms a transition step to the more rigidly restricted concept. This variant, C-II, defines the national wealth total as the sum of values of all transferable claims of individuals (offset as under C-I) and of all non-transferable indirect claims. It thus omits only the non-transferable direct claims.

The final basic variant in the claims approach, C-III, is the one that limits total national wealth to the sum of values of only transferable claims of individuals. This concept is broadly identical with that of *private* wealth, so long as such private wealth includes only economic goods, whether material or immaterial, that are external to the individual himself.

3 SUBSTANTIVE AND CLAIMS APPROACHES COMBINED

The different variants of national wealth so far listed yield different national wealth totals. The most comprehensive variant in the substantive approach, S-I, refers to all instruments of wealth within the nation's boundaries but takes no account of claims by the nation's members upon wealth instruments located abroad or of claims by foreigners upon the wealth instruments located within the given nation's boundaries. In this respect it is different from the most comprehensive variant in the claims approach, C-I. The next variant in the substantive approach, S-II, is significantly different from C-I, as well as from C-II and C-III. Both C-II and C-III refer not only to material but also to non-material instruments of wealth. For similar reasons S-III and S-IV are significantly different from any of the variants listed in the claims approach. In short, all seven variants defined so far yield totals of significantly different scope.

Furthermore, if we deal with categories consistent with one approach alone it is impossible to combine them into a total that has a clear-cut meaning in terms of the other approach. No matter how we combine the groups and cross-classifications of claims:

direct, indirect; transferable, non-transferable; enforcible, non-enforcible; etc., we cannot obtain a total that could be equally clearly determined by means of the categories of the substantive approach alone: material, non-material; reproducible, non-reproducible; products of past labor, not products of past labor; etc. Claims usually refer to complexes of wealth instruments, rather than to single distinguishable instruments, and a number of these complexes combine several categories of the substantive approach in varying mixtures.

Consequently, if the two approaches are to be combined in determining the scope of national wealth, this combination can be attained only by an addition to the attributes of one approach of attributes taken from the second. Wealth combines the idea of a substantive source of desirable events and the idea of ownership. The need for cross-classification of categories taken from both approaches is a natural consequence of this duality.

We may begin with the substantive approach and consider the distinctions that may be brought in from the claims approach. The first is suggested by the efficiency of the claims approach in distinguishing between claims of the members of the nation and claims of members of other nations. Under certain conditions it may be unimportant that the items included in national wealth are within the nation's boundaries: what may be important is the identity of the nation whose members can lay claim to the disposition of these items. The result of this application of the claims approach is to correct the totals obtained by the substantive approach for the net balance of claims against foreign countries. And for purposes of global measurement it may not be important to consider to what substantive categories of domestically situated wealth claims by foreigners refer; or to what substantive categories of wealth instruments situated abroad the claims by members of the given nation refer. Thus the adjustment for the net balance of claims against foreign countries may be applied to any variant in the substantive approach. Designating variants so adjusted by SC-I we may distinguish the subvariants, following the distinctions made heretofore among the various substantive categories.

The second attribute to be brought in from the claims approach is transferability. The importance of this attribute in eco-

nomic analysis has already been commented upon. In this, and subsequent applications of it, we may assume that it already contains the adjustment for the net balance of claims against foreign countries. The result is another set of variants, generically designated by SC-III (for parallelism with C-III) but containing several subvariants following the substantive distinctions.

Finally, the application of the attribute of transferability by itself may be deemed to result in too narrow a delimitation of national wealth; and the cross-classification of the substantive categories should, therefore, be with the combination of all transferable and non-transferable indirect claims rather than only with the transferable claims. The introduction of non-transferable indirect claims makes it possible to include collectively held instruments of wealth.

These various cross-classifications yield the twelve variants set up in tabular form on p. 18. The meaning of and the significant differences among these variants need no comment, since they follow directly from the distinctions drawn in the discussion of each of the two approaches. But some ambiguity attaching to the expression 'instruments of wealth subject to transferable claims' should be cleared up. This expression may be understood to mean either that there is some connection between given instruments of wealth and the transferable claims; or that the connection is such that the transferability of the claim may lead to a transfer of the actual instrument of wealth or of its economic equivalent. The expression in the tabular outline is used in the latter, stricter meaning. Thus, SC-III-2 does not include material instruments held by government agencies even though public bonds may be outstanding.

This comment makes it clear that the twelve variants, in addition to the variants arising from the substantive and the claims approaches each taken singly, comprise all the significant versions of the national wealth total, as far as the scope of this total is concerned.[8] It is this list that will be referred to subsequently

[8] It will be noted that SC-I-1, SC-II-1, and SC-III-1 are identical with C-I, C-II, and C-III, respectively. Similarly, SC-I-1, SC-I-2, SC-I-3, and SC-I-4 are largely coextensive with S-I, S-II, S-III and S-IV, except for the adjustment in the former set for the net balance in claims against foreign countries. Subsequent discussion can thus be largely confined to the SC variants.

when the determination of the scope of the wealth concept in terms of the objectives that national wealth measures are to satisfy is under discussion.

Variants of National Wealth Totals resulting from the Combination of the Substantive and the Claims Approaches

SC-I *Substantive Variants adjusted for the Net Balance of Claims against Foreigners*	SC-II *Substantive Variants combined with the Category of Transferable and Non-transferable Indirect Claims*[1]	SC-III *Substantive Variants combined with the Category of Transferable Claims*[1]
1 Most comprehensive, incl. material and non-material instruments	1 All instruments of wealth subject to transferable claims and to non-transferable indirect claims	1 All instruments of wealth subject to transferable claims
2 Incl. only material instruments of wealth	2 Material instruments of wealth subject to transferable claims and to non-transferable indirect claims	2 Material instruments of wealth subject to transferable claims
3 Same as I-2, but excl. non-reproducible and indestructible instruments	3 Same as II-2, but excl. non-reproducible and indestructible instruments	3 Same as III-2, but excl. non-reproducible and indestructible instruments
4 Same as I-2, but excl. all non-reproducible instruments	4 Same as II-2, but excl. non-reproducible instruments	4 Same as III-2, but excl. all non-reproducible instruments

[1] Already inclusive of the net balance of claims against foreign countries.

Before leaving the subject of scope, it should be pointed out that the various classifications of wealth items have not been exhausted. Three comments should help to indicate the most important omissions.

First, the further distinction within the various substantive groups (whether or not cross-classified in the manner shown) between those items subject to direct claims and those subject to indirect claims is of considerable importance. It has no bearing upon the scope of national wealth estimates since both those items subject to direct claims and those subject to indirect claims are to be included. But once the scope of the national total is determined the distinction between those instruments of wealth that are subject to direct claims by individuals (even though at the same time they may be subject to indirect claims by other

individuals) and those that are subject only to indirect claims is extremely significant. Thus, if this distinction is applied to SC-III-2 it results in the separation of goods held by consumers and unincorporated enterprises from the goods held by business and public agencies.

Second, there is the classification among goods held by consumers, by unincorporated enterprises, by business corporations, by public non-government agencies, and by public government agencies. This distinction results from a combination of the substantive and claims approaches, i.e., from the combination of the attribute of the directness with which the source produces desirable events (consistent with the substantive approach) with the attributes of transferability of claims and directness of claims attached (consistent with the claims approach). This distinction again has no bearing upon the scope of national wealth that has not already been considered in the variants discussed above, for there seems no good reason for omitting either goods held by consumers or those held by business enterprises (incorporated or unincorporated) or by non-government public agencies; and if one wishes to omit goods held by government agencies this can be done by taking any of the SC-III variants. But that such a classification is of high value in application to any national wealth total need not be argued.

Third, a comment should be made concerning the distinction between wealth instruments external to the individuals who possess them or have claims to them (although these wealth instruments may consist in certain predispositions of other individuals) and wealth instruments internal to the individuals who have claims to them.[9] This distinction again results from the combination of two opproaches in that it distinguishes the locus of the substantive source with reference to the individual claim. But it adds nothing new to the classifications and variants considered above. Internal sources of desirable events are largely identical with those subject to non-transferable direct claims. A substantive variant that would exclude them would be closely similar to SC-III-1, except that it would not be adjusted for the net balance in claims against foreign countries.

[9] See Marshall, *op. cit.*, pp. 56-7.

III Valuation

Once the scope of national wealth is determined, the problem arises of reducing the instruments of wealth or the claims to a common unit that will reflect the conomic significance of the various items. Without such reduction to a common unit, no addition of the items into a national total or comparison of their relative magnitude is possible. And unless the common unit to which the reduction is made is economic in character, the comparison and the total have no ascertainable meaning in economic analysis.

Items of wealth are important because and only because they are sources of desirable events. Thus their theoretically correct value is determined in terms of the services they yield, being generally definable as the value of the services they are expected to yield in the future, discounted at the appropriate rate of interest. The various methods of valuation of wealth employed in practice are designed to yield an approximation to this theoretically correct value; and should be judged with reference to it as the ultimate criterion.

The reason for the existence of several methods of valuation, instead of one based directly upon the discounting of expected services and incomes, is that in practice data for the direct capitalization of expected yield are not available, and by the nature of the case could not easily be available to an outside observer. The various methods of valuation will be discussed in the following order: (1) capitalization of income; (2) current market price; (3) current reproduction cost; (4) original cost.

1 CAPITALIZATION OF INCOME

If the theoretically defined value of wealth items is to be attained directly by a valuation procedure, the services yielded by the wealth item may be assumed to be represented by the net income it produces. On this assumption, the current value of any wealth item is determined by three variables: (1) the magnitude of future income streams; (2) the temporal distribution of these expected incomes in the future; (3) the rate of interest to be used for discounting. Lack of knowledge about any of the three variables makes it impossible to apply this method of valuation

satisfactorily. And a brief consideration of each of the three variables will show that, by their very nature, *direct* information on them is not likely to be available for any but minor groups of wealth items.

The determination of the first variable requires data on incomes expected from the various items of wealth, the latter classified into the various categories it is important to distinguish. Since the requirement is for *expected* incomes, the relevant information is in the nature of a forecast rather than of a record of past or present economic events; and it is this characteristic that makes the information necessarily conjectural. Such estimates are assuredly made for some wealth items, and were the investigator to have access to them (in the files of appraisal and valuation companies or of business enterprises), the variable could be measured for selected categories in the national wealth total. But such access cannot be expected. Even were it given, the question would always arise whether in accepting these data, it is justifiable to hinge the wealth estimate upon such an elusive and highly variable basis as what people think the given items of wealth will yield in the future; without inquiring further as to why they think what they think, and whether some more definite and controllable criterion should not be applied with which to test and perhaps revise these opinions.

In practice, segregable data on the amount of expected incomes are not available; and at best, the investigator has at his disposal data on incomes for the current year and perhaps for past years, assigned to various categories of wealth items. In using such data one should, theoretically, consider both current and past incomes. But the difficulties of such a consideration, requiring a disentanglement of the various factors in the temporal changes of income and an evaluation of the likelihood of these factors acting in the future, are apparent and overwhelming. Hence, investigators who have applied the method have taken data on the current year's incomes, estimated the number of years the existing instruments of wealth are expected to be in use, and obtained the amount of expected income by multiplying the current year's income by this estimated number of years.

This procedure is open to several objections. First, it necessarily omits a large number of wealth instruments the income

from which does not appear in an overt form on the market place. Second, the estimate of years of use is necessarily rough, and in many instances reduces itself to an estimate of the total life of the various wealth items rather than the expected life of the actually existing instruments. (Sometimes this estimate of life takes into account the discount rate to be applied.) Third and most important, the current year's income is a faulty guide to the incomes that my be expected in the future; and whenever any implicit estimate of such future incomes does occur in the market place, it is far from being fully based upon the current year's income (consider the prices of items whose current year's income is negative).[10]

It is equally difficult, if not more so, to obtain data on the temporal distribution of future incomes. The latter is often neglected in the discussion of this method of valuation. But obviously its effect on current value can be quite material—increasing as the rate of discount increases. Of two wealth instruments, both with the same amount of future expected income and the same total period of future life, one will have a greater current value than the other if a much larger share of its expected income matures earlier. As already indicated, the usual practice of investigators who follow this method is to assume implicitly that the temporal pattern of future incomes is a straight horizontal line on an absolute scale. It need not be argued that this is a gross oversimplification of reality.

Nor is it easy to determine the third variable, the rate of interest. If one assumes that forecastible risk elements have been fully taken into account in determining the first two variables, the third is the 'pure' interest rate, i.e., the rate that expresses

[10] This is one possible interpretation of the procedure used by Robert Giffen, Josiah Stamp, and most English estimators of national wealth, which consists in segregating current income due presumably to the use of given instruments of wealth and then multiplying it by 'years purchase'. If the estimate of 'years purchase' is based only or primarily upon the consideration of the prevailing rate of interest and the duration of life of the various instruments of wealth, the method is largely that of capitalization of income. But often the estimator considers also the prices at which the given wealth items change hands in the market and compares these prices with current incomes to derive the 'years purchase'. In this case the procedure is really based on the current market prices approach, current income being used only as a statistical device to pass from sample market prices to complete coverage. For the discussion of the current market price method see Sec. III, 2.

the marginal productivity of capital, the difference in risks involved in various groups of capital goods having been removed. If one proceeds on the more realistic assumption that only some of the most obvious risk differentials have been used in determining the first two variables, the third variable becomes an interest rate that preferably should vary from one category of wealth items to another, to reflect differences in risk not accounted for by the first two variables. In either case it is exceedingly difficult to ascertain the third variable even with rough accuracy. It may be argued that for an estimate of wealth at a given point of time it is not important that the interest rate used for the third variable be precise, since whatever error is implied in taking any given rate is the same for the component parts of wealth. But this contention is apparently true for the 'pure' interest rate alone; and even then it is misleading, provided there are differences in the temporal distribution and/or total period of future utilization. For goods differing in either of or both these respects, the effect of any given discount rate in reducing the gross amount of expected income to its current value will be different. An incorrect discount rate will then be tantamount to a distortion of weights in valuing the different component categories.

One may thus recognize that the current value of wealth is the discounted sum of its expected net yield, and still conclude that a valuation method based directly upon this definition is, in the nature of the case, subject to severe practical limitations. It is the basing of the procedure upon the evaluation of expectations that makes it directly consonant with the theoretical standpoint; but this very emphasis on the expected future, rather than on the observable past and present, makes the procedure impracticable and leads in its actual use to gross over-simplification. This suggests that other methods of valuation, which approach the measurement of discounted value of future earnings *indirectly*, may pass the test of the ultimate criterion more satisfactorily.

2 CURRENT MARKET PRICE

Since the discounted value of future incomes is presumably the touchstone that guides buyers and sellers on the market when items of wealth change hands, it may be suggested that the best guide to the value of wealth items is the prices they currently

fetch on the market. If a substantive approach is followed, the prices used should be those realized in transactions in which the wealth instrument itself changes hands. If a claims approach is followed, the prices used should be those realized in transactions that represent transfers of claims from one individual to another. The method suggested is identical with that followed in national income measurements in which the various commodities and services included are weighted by their current market prices.

Further consideration reveals, however, three significant differences between national wealth and national income in their susceptibility to valuation at current market prices. First, national wealth is a stock, and as such refers to a moment or point in time; whereas national income is a flow, and thus refers to a span of time (a decade, a year, a month, etc.). Hence, the question as to what is meant by current market prices is easily answered for national income: prices that have materialized during the span of time to which the total refers (a decade, a year, a month, etc.). But what is the meaning of 'current' for market prices of a stock of wealth at a given moment of time? Strictly speaking, there are no transactions and no current prices at an instant of time, unless the price of a given good is conceived as being in continuous existence until it has been superseded by a new price resulting from a new transaction in the same or a comparable good.

This question is not an exercise in mental hair-splitting, but a practical problem in any estimate of national wealth. If we are told that the figure designated as national wealth on December 31, 1922 is obtained by evaluating the various items at current market prices, what exactly is meant? Are only those prices 'current market' that actually materialized in transactions that occurred on December 31, 1922? If so, it is quite obvious that prices would be available for only a minute fraction of the stock of national wealth and fail to represent significant constituent categories in it. Are current market prices as of December 31, 1922, then, to include not only prices realized in transactions actually occurring on that day, but also prices that have materialized in the most recent transaction involving the various items of wealth? If so, should not some limit be put upon the 'life' of a price materialized in a past transaction? If a coal mine (or an

important constituent in that complex of goods) has not been sold since 1917, should the price at which the mine was sold in 1917 be considered as current on December 31, 1922? And what would be the treatment if a coal mine were actually to be sold on January 1, 1923 at a price one-third below that at which a mine was sold in 1917?

Evaluation of national wealth on the basis of current market prices can have a definite meaning only if a finite period is assigned within which market transactions are to be studied and the prices arising in them applied to the component items of the wealth total. This period cannot be very long, for then the result would be to combine prices that prevailed in transactions at one date with prices that prevailed in transactions at another date distantly removed from the first. Such heterotemporality of prices may result in an appreciable distortion of the weights of various wealth items and thus yield a national wealth total whose meaning is both ambiguous and misleading. It is also obvious that the period for which current prices are considered should not be confined to the time preceding the point of valuation, but rather should be spaced out on both sides of that point, so as to decrease the maximum time span between the instant to which the valuation is referred and the date on which any of the prices considered has actually materialized on the market.

The limited span of the period for which current prices must be observed in the valuation of national wealth at a given point of time accounts for the second significant difference between national wealth and national income in the applicability of current market prices to the two totals. The various *marketable* commodities and services included in the national income for a given year have actually passed through the market place during that year (with the minor exception of such items as farm products retained by farmers). It is thus possible to find prices for an overwhelming proportion of the marketable constituents of national income (we are disregarding for the time being such items as are produced within the family economy). But of national wealth, even when we consider marketable items alone, i.e., items that are bought and sold as such on the market, only a minor fraction actually passes through the market during the limited period that should be considered in establishing current market prices.

Thus, if we assume this period to be about a year, it becomes clear that of certain important groups of wealth instruments, such as industrial machinery and equipment, and real estate, only a minor fraction actually passes through the market and is evaluated in terms of current prices.

That current prices can relate to only a minor fraction of the national wealth total would not in itself constitute a disadvantage if these prices could be treated as a representative sample. But there is reason to suppose that, at least in the substantive approach, this is far from being the case. Thus the transactions involving a transfer of the actual instruments of wealth are usually of two types: (a) purchases made by users to replace or expand the available stock of wealth instruments; (b) sales and purchases (either voluntary or compulsory) that are largely a result of desire on the part of individuals and groups of individuals to terminate direct possession of the wealth instruments. For such important groups of marketable wealth instruments as durable equipment and durable consumers' goods, transactions of type (a), which represent largely gross capital formation, account for only a small fraction of the stock at a given point of time and thus may fail completely to cover large categories of goods; and even then they refer to instruments that qualitatively may be so different from the already existing ones that it would be difficult to consider their prices as representative of the current prices of the existing instruments of wealth.[11] Transactions of type (b), including largely forced sales and sales for purposes of consolidation or reorganization, would again account for only a minor share of the existing stock if the time span is limited and also fail completely to cover certain categories; and even then may be so dominated by transactions of an exceptional character (such as forced sales) as to yield prices quite unrepresentative of the economic value of the existing stock viewed from a broader standpoint of normal conditions and of a going economy.

By contrast, a large proportion of transferable claims passes through the market within a fairly limited time—a characteristic true especially of transferable indirect claims and hence true of

[11] So far as current market prices refer to replacement goods alone, the procedure becomes identical with that of reproduction cost valuation. For a discussion of the latter see Sec. III, 3.

total transferable claims (so far as the former account for a preponderant share of the latter). And even if the share actually passing through the market were not absolutely great, the market is so organized as to facilitate these transactions and thus free the prices established in these transactions from the peculiar influences that affect the sale of existing instruments of wealth. The difficulty with which the existing substantive wealth instruments can change hands is in part the reason for the creation of transferable indirect claims. Individuals may then participate indirectly in the economic process and may retain the freedom of easy withdrawal. Obviously, current market valuation is more easily established for transferable indirect claims than for the substantive instruments of wealth to which these indirect claims refer.

But the ease of measuring at current market prices a large body of transferable claims facilitates the problem of valuation only in the claims approach, not in the substantive approach. The current market value of transferable claims, which refer to a given complex of wealth instruments, cannot be taken to measure the current market value of that complex of instruments itself; cases may be easily found where this complex would change hands on a normal market at a price substantially different from that of the market price of total claims outstanding. The reason is that the prices of claims traded as such are affected not only by the current market values of the underlying instruments of wealth but also by factors immanent to the claims market itself, i.e., largely speculative factors which would exercise much less influence in a transaction involving a transfer of substantive items of wealth.

Finally, there is a third significant difference between national wealth and national income in the applicability of valuation based upon current market prices to the two totals: the larger share in national wealth of items that are not, as such, marketable at all, i.e., they never appear on the market. It is true that national income, broadly defined, also comprises large groups of commodities, and especially of services, that are confined to the family economy and never appear on the market (housewives' services, etc.). But the share of such items in national wealth is probably still more appreciable, largely because our institutional

framework allows a much less extensive commercialization of wealth instruments themselves than of their services. Services of human skill and capacity are sold on the market, and their compensation forms a preponderant share of national income; but in modern society this stock of skill and capacity possessed by an individual is not a saleable merchandise. Also the services of certain collective goods do find a market evaluation in national income; but these goods themselves never appear on the market and a current price can never be found for them. This limitation of the valuation based on current market values is equally relevant to both approaches: if there is a large group of substantive wealth instruments that are never sold, there is also a large body of non-transferable claims.

To summarize, there is incompatibility between the concept of national wealth as a stock and a valuation approach based on current prices: by the nature of the case current prices are an aspect of a flow. This incompatibility leads to the difficulty that, in the substantive approach particularly, only a minor share of the existing stock is actually evaluated at current prices; moreover, this evaluation takes place under conditions that may render these current prices extremely unrepresentative of the whole body of existing instruments of wealth.[12]

3 CURRENT REPRODUCTION COST

This valuation of wealth at current reproduction cost is closely akin to valuation at current market prices. Like the latter, it utilizes prices that materialize in the current market; but the prices it utilizes are those of the means of production that would have to be employed to reproduce the given item of wealth, rather than the prices of the wealth items that have changed hands.

Where the wealth items treated are claims, there is no significance to be attached to 'reproduction cost' except that of 'replacement cost'; and obviously the replacement cost of a given

[12] Note that the difficulty of obtaining current market prices for existing fixed capital equipment is partly the cause of the use of other types of valuation by business enterprises in estimating the current consumption of capital. This gives rise to difficulties in the measurement of *net* national income. See Solomon Fabricant, *Studies, Volume One* (1937), Part Three, and *National Income and Capital Formation, 1919-1935*, pp. 23, 26, and Ap. D.

claim is the price it currently fetches on the market. For claims, the present method is thus identical with that of current market prices. Only in the substantive approach are significant differences between current reproduction costs and current market values likely to arise, with consequent differences in the applicability of the two methods of valuation. As indicated above, many transactions in which the substantive sources of wealth change hands materialize under conditions that result in prices completely unrepresentative of the bulk of existing wealth instruments; all such transactions during a relatively short current period account for only a minor fraction of the existing stock of wealth. But labor, materials, and other means usually employed in the production of wealth instruments have a wide and active market; their economic value receives a thorough and continuous testing in the market place. It is thus possible to use prices of new wealth instruments to measure the value of existing ones.

However, the method of valuing at current reproduction value is subject to several limitations. First, and most important, it cannot be applied to non-reproducible instruments of wealth such as land, natural resources, or products of human skill or gifts of exceptional kind. In addition, a large group of wealth instruments are reproducible, but not freely. The theoretical tendency of current reproduction costs to approximate capital value, the latter measured as the present value of expected money returns, can be assumed to be effective only when the wealth instruments in question are freely reproducible or equally easily adjustable upward or downward.[13]

[13] A more detailed formulation of the two qualifications to the operation of the tendency of reproduction costs to equal present value of expected returns has been suggested to me by Mr. Friedman. First, the tendency holds under conditions of competition alone, i. e., either when anyone (not only the present owners of the existing instruments of wealth) can reproduce the instruments, or when the number of present holders of the instruments is large and no one of them considers his own influence on price. For otherwise, the instruments will be produced only if expected *marginal returns*, i. e., the returns on the new instruments minus the losses on the old instruments through forcing down the price of their services, are greater than reproduction costs. There is thus, in such monopolistic cases, no tendency whatever for reproduction cost to equal the present value of expected returns.

In the second place, it seems evident that adjustments that involve additions to the stock of instruments can, in many cases, be made with greater rapidity than those which involve diminutions. If this is so, then, other things being equal—in particular, total demand—reproduction cost has an upward bias.

Second, even for freely reproducible instruments of wealth whose identity and cost of reproduction are easily ascertainable, the ease of establishing reproduction cost refers to *gross* value rather than *net*. For example, to find out the cost of reproducing, *in its unused form*, a steam engine that has been in operation for about three years may be relatively easy. But, with minor exceptions, it would be impossible to establish directly a reproduction value for the steam engine at the given age and stage of consumption, i.e., to measure its value adjusted for the consumption that has already taken place rather than its gross value. Thus, the applicability of the method of current reproduction value is contingent upon an estimate of the deduction for capital consumption to be applied to the existing instruments of wealth. The only assumptions upon which such a deduction could be dispensed with would be that wealth estimates are used for comparative purposes only and that in the categories or totals to be compared the ratios of accumulated consumption to gross reproduction costs of the instruments are identical. It is obviously impossible to accept either the limitation of use or the assumption.

The nature of the third limitation of the method depends largely upon the way in which the deduction for accumulated consumption is made. Obviously, one way of making such a deduction would render the present method identical with the current market price valuation. It could be contended that the amount of accumulated consumption for a given instrument of wealth is best measured by the difference between the gross reproduction price of the instrument (in its unused form) and the current market price of the given instrument at the present age and stage of its life. In this interpretation, the reproduction cost procedure becomes identical with that based on current market prices.

If the former is to differ from the latter, the estimate of accumulated consumption should be relatively independent of the current market prices of instruments of wealth. It is possible to attain this independence by basing the estimate of consumption upon long range assumptions concerning the probable life of the instrument and the shape of the consumption function during this life. These data provided, it is possible to arrive at the current value of a given instrument of wealth by considering first its

current gross reproduction value and then reducing it in accordance with the ratio of future use to total use (including that already in the past).

If the estimate of accumulated consumption is based upon factors that bear but an indirect relation to the currently changing economic scene, however, there is a third limitation to the valuation of wealth by current reproduction costs. This limitation arises from the contradiction between the simultaneous reference of the minuend, i.e., gross reproduction cost, to currently changing conditions, and of the subtrahend, i.e., estimate of accumulated consumption, to a long range view that disregards current conditions. As a result, there may be considerable under- or overvaluation of instruments of wealth as compared with their current value as it would be if measured consistently as the discounted value of expected returns.

The second and third limitations of the present procedure, both arising from the necessity of estimating accumulated consumption, would be offset by practical advantages were such estimates easily available. But in actual practice, estimates of consumption are usually provided in conjunction with a basis of valuation distinctly different from the reproduction cost basis (see Sec. III, 4). There is, therefore, little immediate practical advantage that would offset the theoretical disadvantages of the current reproduction cost method of valuation.[14]

4 ORIGINAL COST

The first step in this valuation procedure consists of assigning to various wealth items the cost at which they were acquired by their present holders. The second step is to adjust this original cost for the accumulated consumption sustained by the given wealth item from the date of its acquisition by the present holder to the point of time at which valuation occurs. From the theoretical standpoint this method is a hybrid of those discussed in Sections III, 2 and III, 3, and has no specific features that would make its consideration worth while. From the practical stand-

[14] This is not to deny the usefulness of this basis of valuation when it can be derived by correcting values obtained by another method of valuation. Thus, it can be applied as a modification of the method discussed in Sec. III, 4. But the theoretical disadvantages are, of course, not obviated thereby.

point, however, it is the method by which business enterprises and many non-business agencies evaluate a large group of substantive wealth items and which, consequently, underlies a body of data exceedingly important in estimates of national wealth. It is, therefore, of interest to discuss briefly this method of valuation. Since its practical advantages are relevant only to the measurement based upon the substantive approach, the discussion is couched in terms of this approach alone.

In its first step, that of assigning values corresponding to original cost to present holder, the procedure is applicable to a much wider range of wealth instruments than either of the valuation methods discussed so far, even disregarding the impracticable capitalization of incomes. The reasons are, first, that original cost may be either reproduction cost or current market price at time of purchase; the original cost procedure thus combines the scope of both these methods of valuation. Second, original cost is taken whenever it occurred, whether or not within a recent period understood as 'current' in the two valuation methods discussed so far. Hence, it is possible to measure at original cost a much greater variety of wealth instruments than at either current market prices or current reproduction costs; also a greater variety than on the basis of market prices or reproduction costs separately, even though such prices or costs are taken from market experience covering a long period.

Were the present procedure confined to the first step, the results, largely for the same reason that makes this first step of such wide applicability, would fail to conform to any reasonable interpretation of the goal. There would still be some substantive instruments of wealth missing, i.e., those that have never been produced, acquired by private interests, or exchanged on the market. In addition, and of greater importance, the items actually valued would be weighted at prices far apart; and a number of these prices would presumably be subject to all the defects that attach to current market prices (see Sec. III, 2).

It is the second step that transforms the valuation to one more closely relevant to the current value of wealth. This adjustment cannot make up for the omitted items, but it can allow for (a) the accumulated consumption, of the type considered in connection with the current reproduction cost method; (b) the change

in either market price or reproduction costs that occurred from the time of acquisition of the given instrument to the time at which the current valuation is being considered. So far as such a double adjustment is possible, we arrive in a circuitous way at the current value of wealth.

The difficulties of such an adjustment are obvious, and the likelihood of failure constitutes the serious defect of the procedure. But it must be noted that in practice such adjustments are continually being made; and that business and other enterprises prefer to arrive at current values of many wealth instruments not by direct capitalization of expected incomes, or by using directly current market prices, or by estimating current reproduction costs and then making an adjustment for accumulated consumption, but by considering first the original cost of the item and then allowing for accumulated consumption and changes in value of expected incomes whenever the latter are appreciable. The reasons for such a procedure can be easily surmised. The deficiencies of a direct capitalization procedure, the sparsity and lack of representativeness of current market prices, and the limited applicability of current reproduction costs make it difficult to use these methods. But original cost is an item clearly apprehended by the enterprise that sustained it, and the estimate of consumption is already implicit in planning investment and activity. Allowance for changing expectations and discount rates is an adjustment that business enterprises prefer to delay as much as possible, rather than be forced to make continually. But when the change is considerable, the adjustment is usually made in the form either of revised valuation by the original owner or of a sale to a new owner at a valuation different from the one that would result from the adjustment of the original cost for the accumulated consumption alone.

It is not suggested here that this circuitous valuation of the current value of wealth instruments by enterprises is either precise or sensitive. But the fact that such valuation is pursued by business enterprises and is tested, even if not too promptly, in the crucible of economic experience, makes it, in the light of the weaknesses of the other methods discussed so far, perhaps the most suitable for a large body of substantive instruments of wealth that are at the direct disposal of business enterprises.

5 LIMITATIONS IMPOSED BY DIFFICULTIES OF VALUATION

The discussion in Part II emphasized primarily the wide scope of the concept and the variety of categories that may be distinguished within it. In contrast, the emphasis in the discussion of valuation is upon the difficulties inherent in the problem. The contrast is not accidental; it is typical of many a treatment of national wealth (and for that matter of national income) in which the investigator begins with a broad survey of the field and is then hemmed in by limitations arising when the problem of measuring the magnitudes in the field arises. It is a contrast manifest when one compares the breadth of discussion in the purely qualitative treatments of national wealth with the narrowness of the actual measurements in the statistical studies providing the estimates.

The immediate bearing of this contrast is that it narrows the field of choice among the variants of national wealth listed above and that should be considered further with reference to the various objectives that estimates of this total are supposed to satisfy. It is, therefore, important to indicate how some of the limitations of valuation methods are overcome in practice, and to suggest the possible effects of these practices.

One way of repairing such shortcomings of valuation methods as reside in the lack of data is to transfer the task of estimation to the shoulders of individuals closely connected with various wealth items and hence likely to be in possession of information not ordinarily available to an outside investigator. This practice, particularly common in this country, consists of asking the owners of wealth items, or the users of wealth instruments, or the taxation authorities to supply the missing data in the form of an estimate of the value of the wealth with which they are connected. It is assumed that in such cases, even though objectively observable data (such as prices in current transactions) are not and perhaps cannot be available, the persons connected with the wealth items will be able to utilize all relevant information, including that which is accessible to them alone, and thus provide a satisfactory estimate of current value.

The nature of these estimates cannot be discussed here even briefly, since they vary from one type of estimator to another,

from one investigation to another, and from one type of wealth item to another; and I know of no publised comprehensive analysis and test of such data. One surmise, however, seems plausible: these estimates must essentially be the result of a mixture, in varying doses, of the different methods of valuation discussed above. In some cases, they are likely to be dominated by valuations at current market prices; in others, they may take into account current reproduction costs; in still others, original cost, roughly adjusted, may be the basis of the figure provided; in still others, some crude capitalization of incomes may be employed. In many estimates there is perhaps a simultaneous combination with some rough and unconscious weighting of several of these valuations. The important point is the essential ambiguity of such estimates, if they are to be taken in any sense other than that to which they literally correspond, viz., the magnitudes reported by certain groups of people in the present connection, as the values of given wealth items.

Another way in which the limited applicability of each method of valuation taken separately can be overcome is for the estimator himself to combine the various methods, applying one to one group of wealth items and another to another group. Thus, when the substantive approach is used, wealth held by business corporations may be measured at original cost adjusted for the accumulated consumption, since this is the way in which business enterprises in general value their wealth instruments. Goods held by consumers may be evaluated on the basis of current reproduction cost, adjusted for accumulated consumption. Other groups of wealth instruments, especially real estate, may be evaluated on the basis of current market prices. Still others, notably wealth represented by the skill and capacity of people, may be evaluated as the discounted value of expected earnings. These various partial totals may then be added into a comprehensive national wealth total.

This practical expedient is effective in extending the scope of measurable wealth and raising the comprehensiveness of the estimate. But its results are subject to serious qualifications. The first and most obvious is that the use of different valuation methods may make for lack of comparability among parts and hence for ambiguity in the resulting total. True, in some cases such use

of different valuation methods is necessitated by essential differences in the institutional framework within which various groups of wealth instruments are utilized. Thus, current market value can be applied to private real estate and cannot be applied to the real estate property of the state (to which only a reproduction cost or original cost method of valuation is applicable). In such cases lack of comparability among values is deeply rooted in the division of the social organization between private and public sectors, and the expedient under discussion does not introduce specific limitations of its own. But in other cases the variety of methods used may be due to differences in the supply of data rather than to basic differences among the groups of wealth items evaluated. In these cases the expedient makes a net contribution to a lack of comparability among parts and to the ambiguity of the total.

The second, less obvious danger of applying different valuation procedures to different groups of wealth items is that it may lead to duplication of values and an inflation of the total. This danger is especially apparent in the simultaneous treatment of public and private wealth. The construction of a park is significant because the park is expected to yield desirable events. With the construction of the park (for which perhaps a special assessment was imposed upon the surrounding real estate) the current market value of surrounding real estate rises, and this rise is reflected in the valuation of this real estate at the current market price. On the other hand, the value of the park may be estimated on the basis of original cost (or reproduction cost). If, then, the results are added in the national total, one and the same instrument of wealth is evaluated twice: in the increase in the current market value of the real estate, and again in the orginal cost value of the park.

This duplication is specific and thus different from the more general interrelation of all values in an economic system. The value of a wealth item, no matter by what method measured, is observed for the item as an integral part of the economic system; and it is thus interrelated with all other values. But this general contingency of values of one group of goods upon the values of other goods does not justify specific duplications of the type indicated above: such duplications do not usually occur within the

private sector of the economy proper and are therefore beyond the range suggested by the general interrelation of all prices in the economy. Nor are they likely to occur if one method of valuation is adhered to throughout.

Finally, it is clear that neither supplementation of established evidence by estimates of people closely connected with certain wealth items nor the combined use by the estimator of different methods of valuation assures the possibility of providing even a rough value for *all* the items in a comprehensive national wealth total, as such totals have been defined in Part II. For large groups of wealth items none of the methods of valuation listed can be applied; and these items are not closely bound up with any specific groups of people who could provide estimates of satisfactory trustworthiness. Who can place a value upon the rivers of this country, or upon the skills and capacities of the nation's housewives?

The only solution of such difficulties is to limit the scope of the estimate. The extent of this limitation will depend partly upon the supply of available data, partly upon the skill and daring of the estimator, and partly upon the degree of accuracy he desires in his totals. Whenever such restriction of scope occurs, there may be adequate reasons for it, besides the sheer impossibility of setting a value upon the parts omitted. And one might suggest that these reasons are provided by the objectives of national wealth measurement. But as we shall see presently, these aims, as usually formulated, call for comprehensive scope and unambiguous valuation; and their consideration serves only to emphasize the difficulties of national wealth measurement brought out above.

IV Objectives of Measurement

The estimation of national wealth is not undertaken for any psychic income that the operation itself yields to its performers; or for the pleasure that the large global totals may yield to some members of the nation, who experience a glow of pride at the astronomical figures that gauge the nation's and thus, indirectly, their own wealth. The serious objectives of the measurement are

to provide estimates whose meaning makes them useful data in economic analysis; and such objectives must obviously exercise a controlling influence on the solutions of the various questions that arise in determining the scope of the estimates and the basis of valuation.

In the consideration of these objectives it is most convenient to begin with a review of the aims as they have been stated by students in the field; reformulate these somewhat so as to facilitate their analysis; and then consider each objective separately in an attempt to ascertain what particular approach is required in order to render a satisfactory result probable, and whether national wealth measures are at all likely to produce results satisfying the aim in question.

I THE OBJECTIVES AS STATED

The most detailed list of objectives that measures of national wealth may be deemed to satisfy, or uses to which they may be put, has been provided by Robert Giffen.

> "The uses to which the figures can properly be put, regard being always had to the fact that the data and methods employed are sufficiently alike for the special purpose in hand, appear to be the following:
>
> 1. To measure the accumulation of capital in communities at intervals of some length—not less, perhaps, than ten years—this . . . being perhaps the most important use to which such figures can be put.
> 2. To compare the income of a community, where estimates of income exist, with its property.
> 3. To measure the burden of national debts upon different communities.
> 4. To measure, in conjunction with other factors, such as aggregate income, revenue, and population, the relative strength and resources of different communities.
> 5. To indicate generally the proportions of the different descriptions of property in a country to the total—how the wealth of a community is composed.
> 6. To measure the progress of a community from period to period, or the relative progress of two or more communities, in conjunction with the facts as to progress in income,

population, and the like; to apply, in fact, historically and in conjunction with No. 1, the measures used under the above heads 2, 3, 4 and 5 for a comparison at a given moment.

7. To compare the aggregate accumulation in a community with that portion of the accumulation which can be described as free savings, and which is gradually invested through the agency of the Stock Exchange.
8. To throw light on the question of changes in the value of money, which are themselves among the facts to be investigated and allowed for in comparing the valuations of different countries or the valuations of the same country at different times."[15]

Later investigators, whenever they dealt directly with the uses of national wealth figures and the aims of measurement, have added but little to the list; the additions that have been made are refinements that can be brought under one of the heads listed by Giffen. Thus G. H. Knibbs in an official report recapitulates Giffen's list and adds:

9. "To determine the distribution of wealth among the individual members of the community, and thus to furnish a measure of the relative degree of opulence or penury of the various classes and the number of persons in each of such classes."
10. "To enable a comparison of wealth with income to be made in respect of the various classes."[16]

The only new objectives that Josiah Stamp adds to the above list reflect the spirit of the times:

11. "Consideration of the applicability and yield of schemes of taxation, e.g., the capital levy . . ."

and

12. "Questions relating to War indemnities."[17]

Some of the uses listed above are by-products of wealth measures that would satisfy other aims, and hence cannot exercise an independent influence on the determination of the estimates.

[15] *Growth of Capital* (London, 1889), pp. 136-7.
[16] *The Private Wealth of Australia and Its Growth* (Commonwealth Bureau of Census and Statistics: Melbourne, 1918), p. 177.
[17] *Wealth and Taxable Capacity* (London, 1922), p. 6.

Thus, revelation of changes in the value of money (objective 8) is a by-product of wealth measures that satisfy objective 1, the need for gauging the accumulation of wealth. Other stated objectives are also not independent, in that they constitute but a reformulation, from a somewhat different angle, of another aim (compare 7 with 1, or 6 with the preceding ones). For purposes of the discussion below, the list can be condensed into a smaller number of wider objectives:

1) Comparisons of 'strength' among various countries at a given moment.

2) Comparisons for the same country among successive points of time, in order to reveal wealth accumulation and provide a test of 'progress'.

3) Comparisons of the stock of wealth with either yields (income) or burdens and drafts (debts, taxation, indemnities, etc.).

4) Determination of the relative proportions of various wealth categories in the country's total, the distribution of wealth by size being comprised among such composition studies.

The discussion under these four headings will be governed by one consideration not introduced heretofore. In asking whether a measure of national wealth can satisfy a given purpose the question will be considered on the assumption that national income measures are available. The question is then reformulated to read: do national wealth measures contribute to the satisfaction of the objective at hand some element that is not already provided by a measure of national income? This reformulation may seem to make too severe a demand upon national wealth estimates. But it is justified by the fact that national income measures do answer a number of important questions that no wealth measurement can answer; that, consequently, national income measures will be provided, if the available data allow, whether or not national wealth estimates are provided. It would therefore be highly unrealistic to discuss the purposes national wealth estimates may be deemed to satisfy, disregarding completely the availability of national income measures.

2 INTERNATIONAL COMPARISONS

In considering the possible use of national wealth estimates for measuring the comparative 'strength' or 'power' of nations, some assumptions must be made concerning the scope of this attribute.

Economic strength and power are presumably to be defined with reference to economic activity; but even so, they may be defined narrowly or broadly. A nation's power to overcome the effects of a flood, to withstand the pressure of an economic boycott, or to engage in war may be quite different from that involved in carrying on normal economic activity. Unless we want to subject national wealth measures to such narrow tests, our discussion must be predicated upon the assumption that economic strength or power of a nation means, most generally, its ability to solve the tasks arising in the ordinary course of economic activities, i.e., the tasks of production and distribution on as large and satisfactory a scale as possible.

If national wealth measures are to be used in comparing the economic power of nations so defined, three conditions follow. First, the concept of national wealth required is that resulting from the substantive approach, since it is the sources of desirable events themselves, rather than claims to them, that should be identified, evaluated, and classified in order to take account of a nation's productive power. The only modification that could be introduced by the claims approach is an adjustment for the net balance of claims against foreign countries (thus using variants of the type SC-I); but even this modification is in order only if normal economic conditions imply international relations in which international debts are more than a scrap of paper. Second, the national wealth total demanded is obviously most comprehensive in scope (S-I or SC-I). All types of wealth instruments have a bearing upon the economic power of a nation: those that have material form and those that have no specifiable material form; reproducible and non-reproducible; products of past labor and not products of past labor; perishable and durable. Third, the method of valuation should allow adjustment for differences in valuation levels as among different nations. Of the various methods of valuation listed in Part III, that of current reproduction costs best satisfies this criterion, since it places most reliance upon prices of standardized goods. The other valuation methods, with their emphasis upon the pricing of existing, qualitatively variegated instruments of wealth, would offer almost insuperable difficulties in the way of adjustment for international price disparities.

It will be noted at once that a contradiction exists between the

requirements of scope and valuation. The former calls for a most comprehensive national wealth total; the latter for a valuation method that can refer only to a restricted part of national wealth —that freely reproducible. This contradiction cannot be resolved by assuming either that the relative proportions of freely reproducible to total wealth are the same for the nations compared, or that the international differences in the price levels of freely reproducible goods are parallel to international differences in the valuation of other goods. Both assumptions are disproved by observation. Finally, it must be remembered that even if all the methods of valuation were combined it would be impossible to measure the national wealth total taken most comprehensively. The essential contrast between scope and valuation, indicated above, persists here for the simple reason that international comparisons call for the most comprehensive concept of national wealth.

Let us assume, however, that it would be possible to value comprehensively the total wealth of different nations by a method that enables adjustment for disparities among the national price levels. Do the measures of national wealth contribute any distinctive element to the comparison that is not already provided by a similar comparison of national income? As between equally comprehensive sets of national income and national wealth measures, is there a specific contribution made by the national wealth comparisons?

Offhand, one would be inclined to answer in the affirmative and assume that differences in average life of existing wealth instruments would make for differences in national wealth, even on the assumption of equal national incomes. It would thus seem, at first, that of two nations with the same national income, that nation in which a larger share of the net national product is yielded by durable wealth instruments would show a larger national wealth total. But this impression is misleading. If the nations have equal national incomes, that with the less durable wealth stock is obviously as capable of taking care of its larger annual replacement bill as is the nation with the more durable wealth stock and a relatively smaller annual replacement bill. But if replacement is maintained, the stock of non-durable wealth instruments is, strictly speaking, of eternal life; and so is any

stock of wealth instruments that is maintained and replaced. Hence, the only factor that, with equal national incomes, could yield different wealth totals for two nations would be either the discount rate or the expected annual net return in the future.

But if current national incomes are the same for two nations, and current incomes alone are used in evaluating national wealth, the totals cannot be different. For if current national income alone is considered, the interest rate that should be applied for discounting, i.e., expressive of the marginal productivity of the total stock of wealth, is necessarily the same; and, by assumption, there cannot be any differences in the expected annual return. In short, if national wealth is evaluated on the basis of current national income, the evaluation of the global total of the former cannot add anything to the comparison in terms of national income alone. Of course, if wealth were to be estimated not as a global total but by its component parts, additional information would be provided, its usefulness depending upon the type of breakdown. If this breakdown sheds light on such questions as the interrelations of stocks of various goods in the maintenance of large volumes of activity, dependence for maintenance upon products from abroad, specificity of capital instruments, then, national wealth measurement will contribute to the understanding and appraisal of the economic strength of nations elements that are not contained in comparisons of national incomes. But such use of national wealth estimates comes under the head of the fourth objective, the possible uses of measures relating to stocks of wealth of various description, rather than the use of the national totals.

If a national wealth measure, based upon consideration of current national income, does not add anything to a comparison of national incomes proper, can it not be claimed that national wealth measures reflect not only current national income, but also the past, and are adjusted by a forecast of the future? Granted that national income measures for two nations contribute all that is indicated by a comparison of their national wealth totals, it may be contended that as between national wealth estimated as of a certain date and national income measured for a given year, the former magnitude is more efficient: it reflects not only the current year's income but also the past and a reasonable

forecast of the future. Thus on practical grounds of a more comprehensive consideration of national income, a measure of national wealth for a given point of time is to be preferred in international comparisons to a measure of current national income.

This advantage of national wealth estimates for purposes of international comparisons is not to be denied. But it is fairly limited, since for years in which current national income is disturbed by peculiar conditions, national wealth is also affected, although perhaps to a more limited extent. On the other hand, the advantage is more than offset by the difficulties attaching to a national wealth valuation that do not characterize national income estimates to the same degree. The latter can be made much more comprehensive; can be more thoroughly evaluated; and will permit a number of important uses that national wealth measures cannot satisfy.

Thus, for purposes of international comparisons, estimates of national wealth are of little value if estimates of national income are available. Once the latter are given, national wealth measures are of importance only so far as they serve to reveal areas not easily observable in national income measurement (e.g., consumers' goods in households, the imputed income from which is more elusive than their existing stock). But such areas are necessarily very restricted, and would hardly justify the compilation of national wealth totals; or be of importance in determing their scope and characteristics.

3 COMPARISONS OVER TIME

The purpose of comparisons of wealth estimates at successive points of time is to reveal the total accumulation of wealth during the period elapsed. Whether this total accumulation will then be compared with 'free savings' in Giffen's terminology; studied by various categories; compared with the change during the same period in income, debt, taxation, etc., is not directly relevant to the discussion at hand.

This objective again leads to certain conditions to which national wealth estimates must conform. First, as in all cases where the substantive significance of wealth is emphasized, the use calls for a substantive approach, perhaps modified by the adjustment for the net balance in claims against foreign countries. Second,

while it is necessary to make the derived measure of wealth accumulation as comprehensive as possible, this does not mean that the wealth estimates themselves at the successive points of time have to be most comprehensive. For obviously, as long as the nation's boundaries are constant, the natural resources that are neither reproducible nor destructible need not be taken into account. Third, in valuing the various instruments of wealth at different points of time, that method of valuation is to be preferred which most easily allows for adjustment for changes in price and value levels from one point of time to the next. For reasons similar to those mentioned in Section IV, 2, the current reproduction cost method is the most suitable of the four.

The difficulties involved in obtaining a comprehensive national wealth estimate, even if it excludes non-reproducible, non-destructible items, and especially the complexities of any adjustment for differences in valuation levels between successive points of time lead one to the question, why employ such a circuitous way of measuring wealth accumulation. Why not measure directly the current flows to and from the stock of wealth and obtain as a result the net accumulation of wealth during any given time unit?

Giffen, who considers this particular use of national wealth estimates most important and to whom this use was the primary reason for the attempt to estimate national wealth, faces the question squarely. His discussion of it is interesting.

> "The object being to ascertain the accumulations of capital, and not primarily the amount of capital itself at a given time, it is an obvious suggestion that the problem may be attacked directly. Why not, it is said, reckon up the savings annually as they are made in the different forms in which they are made? . . . this question of method is of some importance, and, perhaps, demands somewhat fuller illustration.
>
> "The objection to the method of merely recording investments as they are made, instead of valuing the whole property of the country at different dates, is, first of all, its incompleteness. It is difficult, if not impossible, if we follow it, to take any account of the regular annual investment by individuals in their own business or properties, which must always be the most important form of saving—far more important in amount

than the visible public investments. Next, even if it could be complete, this method makes no allowance for bad investment, for the waste of capital which is possible (the investment so-called having been merely a form of throwing money into the sea), and it makes no allowance for the depreciation or loss of capital in old investments which have become obsolete or useless. By valuing property at different times as it stands, any inclusion of capital which has been merely wasted, or which has depreciated, is avoided. At each date only effective capital is reckoned. No doubt in many cases the valuation may represent a greater sum than has actually been invested, even when allowance is made for changes in prices; but the element of judiciousness in investments is as much to be allowed for as any other in a question of the amount of property in a country, and this is really a reason for the method and not against it. For these two reasons mainly, then, the method of valuing property at different times is to be preferred to the method of investments as they are made . . . . There is a third reason in its favour. The figures when obtained by it can be compared with those obtained from the annual records of investments, and this comparison is useful in many problems, of which the amount of free savings coming on the general investment markets—i.e., the Stock Exchange—and the proportion that amount bears to the whole savings of a country is one.

"Of course . . . the exact meaning attached to the word accumulation must always be kept in mind . . . . No method can be quite perfect. If we record merely investments as they are made, without considering whether they are judicious or not, and disregarding altogether the loss and depreciation of old investments, we get a fact which may be useful in some discussion, though not in others; and may call it, if we so please, the annual accumulation of capital. If we wish, however, to compare effective capital or property at one time with effective capital or property at another, we must proceed by the method of periodic stocktaking and valuation, and call the difference between the valuations at different times, allowing for changes of prices, the accumulation of capital. The amounts to be dealt with in either case might not in some cases differ greatly from each other, but the different senses in which the

words may be used, and the possibility of differences in the amounts of the accumulations as differently defined and ascertained, should, of course, be kept in mind."[18]

If by annual accumulation we mean with Giffen the annual flow of savings, as reflected in the money streams, Giffen's strictures on this method and his preference for the periodic national wealth estimates can easily be understood; and can be considered valid even now for most of the countries in which the freedom of individuals to invest their savings and the complexity of the channels through which such savings flow would make it exceedingly difficult to attain either a comprehensive estimate or one free from duplications. Also, with reference to flow of savings, it would be difficult to take account of any waste or depreciation. However, it is possible to study annual accumulation not through the observation of monetary flows, but of the flow of commodities and services. It is possible to measure gross formation of wealth and then net formation of wealth, with a fair degree of comprehensiveness.[19] Since the basic data needed for this task are a product of the censuses of production, transportation, and distribution, this method should be the most practicable in all countries that have the usual fundamental censuses.

This method of measuring annual and total accumulation seems to possess advantages lacking in the method of comparing national wealth estimates at successive points of time. First, the annual measurement of gross and net formation of wealth is, for the same level of accuracy, necessarily more comprehensive than the estimate of national wealth, for the simple reason that production and transportation (and even to some extent distribution) are concentrated in the hands of a smaller number of units than is true of the various wealth instruments; and the flows of commodities and such services as cumulate into wealth are more easily observed than the total stock of national wealth (consider e.g., the difficulty of estimating wealth in the hands of households, of government agencies, of wealth represented by education). And while such a difficulty affects also the measurement of

[18] *Growth of Capital*, pp. 3-6.

[19] I am referring here to the National Bureau's studies of capital formation and capital consumption. Broadly defined, capital is synonymous with wealth; and is so used in the studies referred to, subject to limitations imposed by available data.

net additions (through its influence upon estimates of consumption of wealth), its weight there is not as large as it would be in a direct measurement of wealth. Second, for obvious reasons the current flow of goods into wealth is more easily priced, since it passes through the markets during the year; and such thoroughness of valuation means ease in adjusting for changes in price levels. Third, the separate treatment of gross formation of wealth and of consumption, revaluation, etc., is an advantage, since measures of gross formation of wealth have distinct uses of their own; and it is best to deal separately with the involved problem of consumption of wealth (whether 'productive' or 'unproductive') instead of assuming that it is adequately taken account of in successive estimates of national wealth. Finally, the measures of the annual accumulation of wealth, being measures of flow, bear an intimate connection to the estimates of the annual national income, and allow an important breakdown within the latter total.

As compared with these advantages, the method of deriving the accumulation of wealth from national wealth estimates at successive points of time, with the immense difficulties of adjusting for changes in prices and valuation, does not seem a practicable and reliable way of measuring accumulation. To be sure the method has some specific uses. For certain groups of wealth instruments the net accumulation even now can be measured best by a comparison of stocks at successive points of time rather than by observing the flows (e.g., inventories). But such uses of national wealth estimates are obviously few and necessarily transient: the moment our basic data on sales and purchases become more comprehensive, we cease to need the data on year-end inventories in order to measure changes in them.

If there is a place for national wealth estimates in gauging the accumulation of wealth, it is largely as a rough check upon the cumulated results of the annual observation of flows to and from the stock of wealth. To have more than one method of obtaining a final result is always useful, if each of the two methods is of sufficient accuracy so that the result of one can be used to check the result of the other. But if national wealth estimates are to be used for such purposes, their degree of accuracy will have to be closely tested to make certain that it is sufficiently high for any

effective use as a statistical check. The troublesome problem of scope, and especially of valuation, will have to be solved more satisfactorily than has been done heretofore, if the resulting wealth estimates are to be sufficiently accurate to serve even as rough checks upon the results of the analysis of annual gross and net accumulation.

4 COMPARISONS WITH YIELDS AND DRAFTS

Comparisons of national wealth with national income, with the total amount of public debt or of debt more widely defined, or with any other yields and drafts appear at first meaningful, because one tends to think of such comparisons in terms of an individual's experience. An individual may compare his wealth with his income, his obligations, his taxes, etc., with results that are enlightening in the consideration of his economic power. But, as will be seen presently, no definite significance can be ascribed to such comparisons when carried through for national totals.

We may first consider the comparison of national wealth with national income; and proceed on the assumption that the two measures are coterminous, i.e., that their scope has been defined equally broadly, so that every item of wealth that yields income (whether positive or negative) is included under national wealth, and every income stream from existing sources is included under national income. Three possibilities may then arise: national wealth may be valued by methods other than capitalization of incomes, or it may be valued by capitalizing incomes, whether only current or current combined with past, or it may be valued by capitalizing current income alone. Of these possibilities, only the first two can yield independent comparisons of wealth and income.

If national wealth is valued by a method that does not take directly into account the income streams, what does the comparison with national income show? It would obviously show what factors, other than current income stream, determine the value of wealth. Such factors are the particular market conditions under which wealth changes or changed hands, the prevailing rate of discount accounting for the preference of present over future goods, the income streams in the past, and so on. The ratio is thus affected by a congeries of factors and can hardly

be interpreted satisfactorily. An identical income-wealth ratio for two nations at the same moment of time or for the same nation at two different moments of time conveys no definite information. If one is interested in the peculiar market conditions affecting prices of wealth items in their actual transfer, or in the 'pure' interest rate, or in the differences between past, current, and future income streams, these factors have to be studied directly. The national income-wealth ratio is too ambiguous a measure to be of much help.

This conclusion is equally valid for a comparison of national wealth with national income when the former is valued by capitalizing income streams, that have a coverage wider than the current national income. Here again the resulting ratio reflects the capitalization discount rate and the differences between such income streams as have been considered in the valuation and those that represent the current income flow. Equality of, or differences among, such ratios are not susceptible of clear interpretation and, again, anyone interested in the factors underlying these ratios will have to study them directly.

Moreover, we have assumed thus far that in the comparison national wealth and national income are of equally comprehensive scope. As a matter of practice they rarely are. Few if any estimates of national wealth include the value of human skill and capacity, i.e., the source of incomes that accounts for the most important share of current national income. Thus, during the post-war decade wages and salaries alone accounted for over 60 per cent of total national income in this country; and this percentage should be raised to take account of the service part of entrepreneurial incomes. The failure to include the value of the source of service incomes in total national wealth means that when the latter is compared with total national income, the comparison is of a minor fragment of national wealth with income the bulk of which does not arise from this fragment. Nor can one assume that at various times or among various nations the proportion of the value of human skill and capacity to total national wealth is the same. The ambiguity of the income-wealth ratio as actually computed from usually available measures of national wealth and national income is thus still greater than it would have been were the two totals coterminous.

What of the comparison of national wealth with debt? Here again, excluding the case when the net balance of foreign indebtedness is considered in determining the scope of the national wealth total, little definite meaning attaches to the comparison. Debts are significant primarily as indicators of forced streams of payment of either interest or principal. Their importance is thus best evaluated by comparing either the sum total of interest payments and repayments with the gross income of the debtor or the total of interest payments with the net income of the debtor. A direct comparison of national wealth with debt yields only ambiguous results: total debt may increase more than national wealth, but with a lower scale of interest payments and a higher income flow to the debtor group the economic magnitude of the debt may actually have shrunk.

The same reasoning applies to any comparison of national wealth as a positive item with debts, claims, etc., as negative items. Except when a consideration of these negative items is needed in order to ascertain the net total of national wealth (without duplications) little significance attaches to the comparison. The enlightenment that is sought in such cases is more directly obtained by comparing the forced flow resulting from the existence of debt with the flows to the debtors. And so far as the relation between wealth and debts leads to significant groupings within the national wealth total itself, this use of national wealth estimates is one best characterized as the use for composition analysis (Sec. IV, 6).

5 COMPOSITION ANALYSIS, SUBSTANTIVE APPROACH

The discussion of aims of national wealth measurement has yielded negative results so far. On the assumption that measures of national income are available, the use of national wealth estimates for comparing economic 'strength' of nations, for deriving accumulation of wealth over a period, or for comparisons with incomes, debts, etc., does not seem to promise significant results and justify the attempts to compile the estimates. Only when we reach the use under discussion, the possibility of measuring the relative magnitude of the various component parts of the national wealth total, do specific contributions of the measures seem probable. Because the categories of wealth items are so distinct for

the substantive and the claims approaches, separate treatment for each approach is provided.

Some of the significant categories of wealth instruments have been distinguished in the discussion of the composition of national wealth in the substantive approach (Sec. II, 1) and in the discussion of the two approaches combined (Sec. II, 3). In addition to these categories of material and immaterial, reproducible and non-reproducible, perishable and durable, consumers', business and public, some others may be of interest. Of apparent interest are: the distinction (1) among the total of wealth instruments used by the business system proper of the sub-totals disposed of by various branches of the economic system (agriculture, mining, manufacturing, etc.); (2) among various types of consumers' goods by their durability; (3) between monetary metals and other goods.

But what is the reason for this importance and the potential value of measuring the magnitude of existing stocks of goods by the categories mentioned above? The first answer that suggests itself is this: the various categories represent results of activities that are affected by significantly different combinations or factors, or if affected by the same factors, seem to respond in significantly different ways. Thus we distinguish goods held by consumers from those at the disposal of business enterprises, because the disposition of the former goods seems to be influenced by factors, and their flows are subject to temporal patterns, significantly different from those for the latter. Similarly, we keep reproducible goods apart from non-reproducible, because the response of these two categories to an identical stimulus, e.g., a rise in demand, is likely to be entirely different.

But this answer, referring as it does to differences in response and temporal pattern, relates to a distinction among flows rather than among stocks. It justifies the segregation in the total volume of production or consumption of the various categories mentioned. But if goods held by consumers respond differently from goods disposed of by the business system to such a factor as an expected price rise, all one need do is to distinguish between the flow to and from the stock of consumers' goods and the flow to and from the stock of goods at the disposal of the business system. Assuming that it is possible to measure such flows comprehen-

sively and in detail, would anything be contributed by a measure of the *stocks* of these goods?

The answer is in the affirmative because within these categories stocks bear a significant relation to volume of activity. Hence a consideration of the magnitude of stocks is indispensable for an understanding of the changes in the flows to or from them. Thus, the stock of economic goods we designate as 'inventory' is itself an instrument of production in the hands of a merchant, and bears a significant relation to the volume of activity that can be performed by a merchant within a given period. Unless we measure the inventory and appraise the bearing of its magnitude upon sales, it is impossible to understand the changes in the flow of purchases and sales by the merchant. The same reasoning applies to many other groups of wealth instruments. As illustrations, consider the influence of: (1) inventories and fixed capital goods held by producers on the flow of production, (2) the stock of monetary metals on the operation of the money and credit system, (3) the stock of goods held by ultimate consumers on their demand, (4) the stock of human skill and capacity on adaptation to changing demand for labor of various types. With the existence of significant relations between the magnitude of such stocks and the volumes of the flows to which they contribute, the measurement of the magnitude of the former is an indispensable step in the analysis and understanding of the changes that occur in the latter.

This reasoning may at first seem to be in contradiction to the statement above of the ambiguity of a comparison between national wealth and national income. If the stock of goods bears a significant relation to the flows it assists in producing, and if the magnitude of the stocks has to be studied preliminary to an analysis of factors that affect the flows, is not the same true of the bearing of national wealth upon national income? But the contradiction is only apparent. First, the magnitude of stocks of economic goods is important only if measured for various significant categories, and the categories must be significant in the sense stated above, i.e., they must segregate groups in which economic activity seems to be affected by significantly different factors. The trouble with a national wealth-national income ratio is precisely that it results from comparisons of global quantities

in which the significant subcomponents are hopelessly intermixed. Second, national income is only one type or, rather, aspect of the flow to which national wealth contributes. There are other types with reference to which the magnitude of existing stocks of goods, when distinguished by significant categories, bears a more determinate relation: e.g., the total volume of activity of a given sector of the economy rather than the share of national income originating in it.

If this argument as to the importance of measuring *stocks* of goods by significant groups is accepted, several inferences can be drawn. First, any changes or differences in the relative magnitude of these stocks signify changes or differences in the way the fluctuations in activity within the various categories combine into a total characterizing the economy as a whole. A shift in the relative importance of inventories and fixed capital equipment is important in understanding how the fluctuations in the volume of fixed durable investment will combine with the fluctuations in the volume of short term investment in inventories. Hence, if comprehensive measures of flow are not available, and they are rarely available, the totals of stocks of various groups of wealth instruments provide the needed weights with which measures of change of various degrees of incompleteness may be combined. And sometimes the data on stocks may be available by categories for which the data on flows may not be available; in which case the former will provide a substitute for the latter. Here again, the use of wealth data for significant categories rather than for the global total admits of a promising use, which, when applied to the latter, would yield results of little importance.

Second, to measure existing stocks of wealth instruments is important only for groups in which the bearing of the stock upon volume of activity and changes in activity is perceived; and whatever national wealth total is to be formed by adding the magnitudes for the various categories distinguished should be limited by relevance to economic analysis. This consideration seems to have influenced, if unconsciously, most estimates of national wealth made in the past. All estimates of national wealth include inventories and fixed capital equipment of the business system because of the obvious significance of these stocks in determining the volume of economic activity, and the importance of having

the magnitudes available for understanding why the business community acts as it does. The reluctance to include such an item as public wealth resides in a doubt that the volume of public wealth is definitively determined by the volume of activity of public agencies, and that the activity of public agencies is as clearly subject to economic analysis as that of the business system. The reluctance to deal with the value of human skill and capacity lies not so much in the difficulty of measurement (other elements included in some estimates may have offered greater difficulties) as in the doubt that the production of such skill and capacity, as determined by the man who will eventually possess them, is influenced by factors susceptible to economic analysis.

This leads to the other part of the same inference, viz., that the national wealth total itself is largely conditioned by the nature of the economic problem in which the measures will be utilized. For some problems the consideration can be limited to wealth disposed of by the business system proper; for other problems the scope will have to be much wider. Any 'general' statements made with reference to categories and totals will be general only because predicated upon prospective use for the most obvious economic problems of a given country and time. If problems of occupational composition of the population had been more in the foreground of economic analysis, the estimates of national wealth would have paid more attention to the evaluation of the stock of human skill and capacities. And it is equally obvious that if speculation and activity in real estate had not played a prominent part in the changing economic activity of this and other countries, less attention would have been paid to the inclusion of this item (especially the value of land) in the national wealth totals.

The demands of the economic analyses in which estimates of groups of wealth instruments are to be used should dictate the answer to the questions not only of scope but also of valuation. For some problems the gross value of such instruments, at either original or reproduction cost, is more significant than the gross value adjusted for accumulated consumption. For other problems either original cost or reproduction cost is the valid method. For still others the current market price may be the only admissible basis of valuation. No general statement can be made except

the need of considering the various problems in which the estimates are to be used in deciding the questions of valuation. And it is quite possible that such consideration will call for application of different methods of valuation to different groups of wealth instruments, as the only condition of the comparability of the latter and of their addibility into a significant total.

6 COMPOSITION ANALYSIS, CLAIMS APPROACH

It has just been contended that the magnitudes of stocks of wealth instruments, by significant groups distinguished largely from the viewpoint of the substantive approach, are important in analyses that seek understanding of the causes and the course of economic change. A similar contention may be made for magnitudes that would result for wealth categories distinguishable in the claims approach. If measures of inventories and fixed capital equipment are necessary to understand fluctuations in flows of the goods to which they contribute, it is equally true that measures of various types of claims are needed to understand fluctuations in a number of monetary flows: distinguishable types of claims signify differences in the freedom and hence elasticity with which various monetary streams can adapt themselves to changing conditions or different stimuli. Indeed, complete analysis requires measures of wealth items based upon both approaches; if the two are treated here separately, it is largely a matter of convenience in presentation, rather than of essential independence of results of the two approaches in the treatment of economic problems. It follows that categories, methods of valuation, and totals of national wealth consistent with the claims approach are also conditioned by the demands of the economic problems in the analysis of which the results are to be used.

However, for the important uses under discussion, the claims approach, as analysed above in connection with the scope of national wealth totals, should be extended in one important respect. So far we have dealt primarily with the *net* total of claims; and while the duplication and multiplication of offsetting claims was mentioned, the scope of national wealth could be determined in terms of the net total, disregarding the pyramid of claims superimposed upon the base area of net equities. This emphasis on the *net* total led directly to the treatment of all claims as re-

siding in individuals; for after all the offsetting is done, the aggregate of individuals comprising the nation may be recognized as the ultimate claimants.

In considering the possible use in economic analysis of measures of groups of claims, this net residue approach seems oversimplified. For any operating economic unit, the net total of claims by individuals it represents does not describe adequately its magnitude and role in economic activity. For this purpose all claims that impinge upon this unit should be considered, the gross value of both claims that individuals exercise through it and obligations to which the same individuals subject themselves through the same unit. Thus in considering, for purposes of economic analysis, the complex of claims represented by a business corporation, it is not sufficient to compute only such net worth as represents the net claims of the individuals who are the corporation's stock and bond holders. Before offsetting, one should consider also the indebtedness of the corporation and the gross value of individuals' claims upon it. For, obviously, the character of the claims that are used as the offsetting quantity, as well as of those used to derive the positive value of the complex of claims, is an important element in the analysis that traces the connection between stocks of claims and flows of payment.

But in such treatment, what becomes of the reference of all claims to individuals as ultimate claimants? We may either abandon or retain this reference. Abandonment would involve the admittance of claimants that are not individuals but are either legal or other operational entities. Business and other enterprises would appear as such entities, with the result that claims by these enterprises and obligations upon them would be recognized, instead of only claims by and to individuals. Retention of the reference of all claims to individuals would be possible on two conditions: (a) that detailed distinction of individuals' claims by degree of indirectness be introduced, in addition to all other classifications that may seem necessary in the analysis; (b) that in considering claims for each individual, his gross claims and offsetting obligations be measured and classified separately (in the various classifications that may be deemed necessary), and the measure thus go beyond the net residue of claims for each individual.

The choice between these alternatives is determined largely by the problem in the analysis of which the measured magnitude of claims is supposed to assist. When the problem involves the consideration of activities of non-individual entities as such, recognition of these entities as claimants is necessary and the reference of all claims to individuals must be abandoned. In this case, claims and obligations of business and other enterprises are to be treated directly and measured as such; and the individuals will be considered only as they appear at one of the ends of binary links that are represented by claims or obligations in this approach. If the problem involves the consideration of individuals as individuals, and of them alone, then, of course, reference of all claims to individuals as the ultimate claimants is indispensable. Instead of binary links, the chain of claims and obligations may and will necessarily be stretched longer until it reaches from one individual to the next; but for every individual his gross claims and offsetting obligations are to be considered and measured separately.

This discussion has direct bearing upon one classification that is peculiar to the claims approach and is not significant in the substantive approach, distribution of wealth by size among individuals or families. In view of the wide interest in this calssification and the frequency with which, in the past, data have been tortured into a semblance of a distribution, a few comments are perhaps not out of order.

The basic purpose of apportioning wealth by size among individuals and families is to measure their relative economic power and to ascertain how equally or unequally such power is distributed. It follows from the discussion throughout this essay that a satisfactory distribution of wealth by size among individuals or families should conform to the following requirements: (a) it should be most comprehensive, i.e., include all items of wealth, all scarce sources of desirable and disposable events with reference to which there may be inequality among individuals and families; (b) it should consider not only the net balance of claims and obligations, but also the gross claims and obligations, since variation in the character of the two affects the meaning of the net residual; (c) it should distinguish various types of claims, and especially operate with the indispensable distinction between

direct-indirect, transferable-non-transferable; (d) it should likewise distinguish various types of obligations, by characteristics important to the debtor; (e) it should allow either directly or by cross-classification with the relevant variable (e.g., regional location) for differences in the purchasing power of the money in which the claims and obligations are evaluated.

As contrasted with a distribution of wealth by size so articulated, the usual estimates customarily begin with a national wealth total (net in character) which omits such an important source of income as skill and capacity; proceeds to distribute this net total by size among individuals and families without reference to the character of the claims and obligations, or the purchasing power of the monetary equivalents. In such an estimate a farmer whose only wealth is a farm with a gross value of $20,000 and a mortgage of $15,000 is as rich as a young physician who during his first few years of practice saved $3,000 and invested another $2,000 in office equipment, etc., a result patently absurd as a measure of economic power, whether one treats it as power in the long run of normal economic activity or as reserve power for emergencies. Such distributions seem to be on a par with other uses of national wealth totals of the type discussed in the early parts of the present Section of this paper. They represent misuses of statistical data due largely to a failure, often unconscious, to analyse closely the relation between the aim of the measure and the conditions it should satisfy.

V Summary and Conclusions

Section I defined the concept of national wealth and described the two basic approaches to its measurement and analysis. Section II is devoted to a description of the variants of the national wealth total and their composition, from the viewpoint of each approach taken separately and then of the two combined. In Section III, in considering the problem of valuation, we encountered the basic difficulties of measurement of national wealth and indicated that such difficulties could be solved only by a drastic limitation of the scope of the concept. In Section IV the discussion of the various aims of national wealth measurement

indicated that for important groups of uses the most comprehensive concept should be employed; and that even then the specific contribution of national wealth totals is insignificant, provided that national income measurements are available and that measurement of the current flows to and from the stock of wealth is practicable. The only significant uses to which wealth measurements can be put are in composition analysis, i.e., in the valuation of stocks of wealth items for groups significant in that for such groups stocks have a definite bearing upon changes in the flows in whose production they are indispensable.

The dependence of wealth measures upon their use in analysis of various economic problems makes it impossible to define exactly the scope, composition, and basis of valuation of national wealth estimates, without a specific definition of those economic problems in the elucidation of which such measures are important. This accounts for the vagueness of the discussion in Sections IV, 5 and IV, 6 where we could indicate only the directions in which measures of stocks of wealth items might prove to be of use. There is thus a disturbing but unavoidable contrast between the specificity of our negative results with reference to the uses claimed in the past for national wealth measures and proved to be of illusory value and the vagueness of our positive statements with reference to the uses in which the measures of national wealth, by various categories, may prove to be significant.

Some of these uses are already apparent, thanks to studies that have been made in the past that have indicated significant relations between stocks of wealth instruments and the fluctuations in the flows to which they contribute. Many others will become more securely established as a result of further experimental study. For such study we shall need both more data than we now possess and further refinements of the already available data. Thus for the measurement of wealth in the substantive approach we need data on stocks of wealth instruments in the hands of public and semi-public agencies, these stocks appropriately classified; on stocks of goods in the hands of ultimate consumers; on value of real estate not covered under corporate reporting or in the Census of Families, with the indispensable breakdown between the value of land and improvements; data on the value of

human capital; information upon the pricing and evaluation of various items of wealth. And there are refinements of already available data that would increase their usefulness considerably: segregation of land from improvements, and of real estate from machinery and equipment in all corporate reports on fixed assets; the provision of data separately on gross value and on accumulated consumption of such assets; the breakdown of producers' inventories among raw materials, in process, and finished products; and the provision of detailed information on the methods by which values of wealth instruments now recorded have been obtained.

A similar list of needs can be easily prepared for the claims approach. We obviously lack data on the volume of obligations by individuals as ultimate consumers, including personal loans, installment credit, open book credit, loans on insurance policies, etc.; on obligations of individuals as holders of real estate, whether residential or not; on claims and obligations of individuals, security investors, and speculators; on the volume of both claims and obligations of non-incorporated enterprises, whether private or semi-public; and perhaps most important of all, on terms under which claims are born and die. Obvious refinements of existing information are also in order, such as more adequate indication of the industrial direction of claims by one group of business enterprises upon the others; a better breakdown of miscellaneous assets and liabilities, and of surplus plus undivided profit items.

But it is unwise to attempt to set out in detail here the specific positive uses to which national wealth estimates, properly broken down, may be put; and the specific areas of the field in which there is need for further data or analysis, that would make it possible to prepare estimates suitable for significant uses. The first task requires a careful inventory of the various studies that have already utilized wealth measures of varying degrees of inclusiveness and an evaluation of the indispensability and fruitfulness of such measures in the analyses made. The second task requires, in addition, a careful inventory of all the materials now available bearing upon wealth measurement as a basis for listing what appears to be missing. Neither task can be handled easily within the confines of this paper, and within the present competence of its author.

Discussion

I R. T. BYE

Formerly, economics was thought to deal primarily with wealth; income was given a distinctly subordinate position. Economics, indeed, was often defined as 'the science of wealth'. Even the subject of distribution, which really deals with income, was referred to as 'the distribution of wealth'. Yet, on careful reflection, it must be recognized that it is income, not wealth, that is the primary objective of economic endeavor. Wealth has no meaning except through its association with income. This is well illustrated by the principle, long recognized, that the mere creation of material things does not result in wealth; material goods are wealth only when they yield some useful product, that is, income. By the same token, the value of wealth depends upon the income it yields, being derived therefrom through the process of capitalization or discounting, as Dr. Kuznets observes. Since the very concept of wealth is thus a correlative of income and consists in its power to yield income, rather than in its materiality, there seems to be a logical basis for abandoning the idea that wealth is confined to material objects and to recognize that any source of income is wealth, just as any income-bearing asset has a capital value. So construed, the term wealth will include human beings, as well as such intangibles as acquired knowledge and skills, and even the inventive genius of a people and the political forms and habits of a nation, all of which affect its productive power. In these matters, therefore, I find myself in substantial accord with Dr. Kuznets, as well as with Irving Fisher and others who have expressed similar views.

However, it is not so clear that measures of wealth can be entirely discarded for measures of income. Income statistics show us what our product has been in the past, but wealth is produc-

tive capacity for the future. A measurement of wealth, therefore, if a satisfactory one can be found, will indicate what our future income is likely to be. The difficulty is to secure a satisfactory measurement. The income of future years is a matter of uncertainty about which the best predictions are none too good; it can be questioned, therefore, whether estimates of wealth can be very reliable. No doubt the capital valuations of the market place are an attempt to discount the future, but the speculative element in them is so very great that one cannot place much reliance upon the figures, and of course they are confined almost entirely to material wealth, ignoring intangibles.

Apart from the difficulty of measuring the non-material forms of wealth, there is a further question, voiced by Lionel Robbins, as to the validity of statistical value totals. Robbins argues that, since values are merely expressions of exchange ratios between different goods, their total has no meaning. Prices are, of course, merely monetary measures of value ratios. Suppose we have two factories, one valued at $200,000, the other at $100,000. This merely means that one is worth twice as much in exchange as the other. Of what significance then is the sum of $300,000, which represents the addition of the two combined? Is it not a logical absurdity? This objection applies to income totals as much as it does to wealth totals.

Yet both wealth and income have objective reality apart from their exchange ratios. Commodities and services, capital equipment, inventions, and other forms of productive power do exist, and ought to be susceptible to measurement. Is there, perhaps, a more suitable method of measuring them than the value totals that have usually been employed? I have a feeling that, in our search for objective concepts that can be expressed quantitatively we tend to take the easiest path, rather than the most correct. This underlies the desire on the part of many to define wealth in terms of materiality, so that the elusive and baffling intangibles may be omitted from the picture, and it is perhaps the reason for attempting to measure wealth and income in terms of value totals. But we are only deluding ourselves if we imagine that we get fundamental measures of economic phenomena by such means. No mere aggregates of wealth or income will ever tell us anything about changes in the content, the kind and quality of

the stock of wealth, or the income flows; yet these qualitative changes are more significant than any others. I believe that if statisticians would devote more effort to problems of this sort, some progress might be made. I have in mind more investigations similar to that made by Willard Thorp in a Census monograph of some years ago, when he attempted to estimate the increase in our productive capacity by expressing it in terms of the horsepower of existing mechanical equipment, and such physical indexes of production as that of W. W. Stewart. I believe that if statisticians would go resolutely at the task, they might eventually find some way to measure changes even of the qualitative sort.

Dr. Copeland objects to any attempt to define wealth in terms other than the pecuniary values of the market. He argues that other units of measure, such as the foot, are purely arbitrary and relative and have no meaning other than that given to them by accepted usage. This seems to me to be confusing the unit of measurement with the thing to be measured. The concept of wealth is one thing; the unit we should use to measure it is another, and we need to define that concept with care. Surely Dr. Copeland must know that everyday usage of such terms as wealth and income are vague, varying, and inconsistent. They will not suffice for scientific purposes. We cannot hope to arrive at useful measures of economic phenomena until we first carefully define the thing whose measurement we are attempting, and we cannot avoid the difficulties of handling such imponderables in economics as non-material wealth by arguing that we must take the concepts of the business world as we find them. However, I do not think we need take Dr. Copeland's remarks on this subject too seriously, for his and Mr. Martin's paper[1] is admitedly an attempt to get behind the value measures of income afforded by the market to the concept of physical or real product as conceived by the economist. Therefore, we may assume that he would deal similarly with wealth.

[1] Part Two.

II GERHARD COLM

Dr. Kuznets' examination of the concept and the measurement of national wealth leads to the conclusion that measures of national wealth are more dubious than measures of national income and their use much more restricted in economic analysis. Since national wealth and national income totals represent attempts to grasp more or less the same phenomenon, Dr. Kuznets believes that national wealth totals are of little use when estimates of national income are available. Composition analysis alone may result in additional information.

I agree that the concept of national wealth raises more problems than the concept of national income, and I should like to add a few arguments to those suggested by Dr. Kuznets in this respect. On the other hand I should like to emphasize the relative usefulness of estimates of national wealth within the limitations that are rightly stressed by Dr. Kuznets.

The measurement of national wealth has a lower degree of reality than the measurement of national income. However national income may be defined and measured, it comprises the whole or a part of the national product of a period. During this period the major part of the national product is exchanged at certain prices. These prices are the basis for the measurement of national income and they are *real* because the product was actually sold and bought at these prices. Only for measuring a relatively small part of the national product must fictitious prices be used in imputing values.

National wealth is a measure of the stock of instruments that at a specific moment are disposable by the members of a nation individually or collectively for use in production or in consumption. Only a small fraction of all these instruments actually change hands. Therefore actual prices that can be used in evaluating these instruments relate to a much less significant part of the total than in evaluating the social product. Most of the prices on which the estimates of national wealth are based are fictitious.

In two instance of major importance, however, the estimate of national income is more fictitious or incomplete than the estimate of the corresponding items in national wealth. It is easier

to estimate the value of personal property such as jewels, furniture, pieces of art in private possession, household equipment, at a specific moment than the services that may be derived from them during a period. Except in the case of houses owned by their occupants an attempt has seldom been made to measure such services, because an evaluation would be fictitious, while an estimate of the value of personal property is less difficult. The same holds true for the measurement of public properties like roads, buildings, dams, waterways, bridges, libraries, warships, and cannons. It is possible to evaluate these items on the basis of cost or reproduction prices, while measurement of the value of current services derived from such properties would be very unreal. The correct evaluation of consumptive and of public wealth involves difficult problems; yet an inclusion of the services of these instruments in national income estimates is even more difficult. When it has been attempted, the property value has first been estimated and from this an income estimate derived.

For the whole sphere of production for profit it remains true that the measurement of current yield provides the basis for the measurement of the capital value. I have very little to add to Dr. Kuznets' excellent discussion of the various methods of valuation. For this whole sphere of instruments owned for profit the capitalization of revenue is the decisive method. The capitalization may be performed either by the statistician on the basis of an estimate of expected future revenues or by the parties selling and buying capital goods or capital claims in the actual economic process. The latter is the method if market prices are used in estimating capital value.[1] In both methods the fundamental question arises what the *real economic significance of the capitalization of expected revenues* is. The capitalization of an expected revenue has been developed as a means for comparing various types of investment. By capitalizing the expected revenue of an enterprise the question can be answered how much loan capital a capitalist must invest in order to receive as interest the same annual revenue that he expects to receive from the enterprise whose valuation is under consideration. An investor, in deciding how much he is willing to pay for the purchase of an enterprise

[1] Here we do not need to deal with the secondary factors in addition to the capitalization of expected revenues which determine the price of capital goods.

or of shares in an enterprise or of real estate, must compare how much he would receive as interest if he invested a corresponding amount with a savings bank or in first grade bonds. Capitalization is a means for comparing various types of investment. Can it be used for measuring wealth which comprises all possible types of investment? This is of course a question similar to the old problem of measuring the world by units that were designed for the comparison of weight. This consideration supports Dr. Kuznets' conclusion that national wealth as an absolute expression of welfare is an erroneous concept. This conclusion does not, however, seem important if we consider that national wealth estimates have mainly been used either for comparison from time to time and from country to country or for composition analysis.

The use of national wealth estimates for comparison from country to country or from time to time has meaning only if the interest rate in both countries or at both times is similar and has the same importance for the capital market as a whole. In recent times the general rate of interest has declined in importance because the capital market has been split into various sections with relatively little interdependence. This is, of course, a situation quite different from the conditions at a time when the capital yield for various types of investment was closely correlated to the interest on first grade bonds.

The comparison of national wealth estimates further presupposes that the distribution of income among the various factors of production is similar. If national wealth is defined not only as the stock of instruments for production or consumption but includes in addition 'human capital', as Dr. Kuznets suggests, then the estimate comprises a capitalization of profit, interest, and wages. Then a difference in the distribution of income among the various factors connot influence the sum total of wealth. The inclusion of 'human capital' does not, however, seem to me feasible. In this respect I should like to venture a criticism of Dr. Kuznets' paper. Wealth always implies a subject that can dispose of an object. It could be construed, of course, that the worker owns his ability to work and capitalizes his reward in order to measure its value. But he can capitalize only his net revenue, i.e., the revenue after deduction of current expenses. I do not see

any practical way of dividing the wage into two parts, one considered as compensation for expenses for the reproduction of the ability to work, one as a net return from the 'human capital'. The expenses for the reproduction of the ability to work comprise the 'investments' necessary for raising children up to the age of gainful occupation, including the public costs of education; the current expenses for making a living during the time of gainful occupation and an amount for depletion of the ability to work. A further deduction is needed for the fact that those men and women who are able to earn must support those who are unable to work. This deduction may take the form of expenses for the support of members of the family, of charity payments, or of taxes for the support of people on relief. In any case, there is a human liability to be deducted from the human assets in calculating the net value of the 'human capital'.

Now it appears that this net value of 'human capital' will not be an item comparable in size to the value of the 'instruments' of production and consumption; its calculation implies arbitrary assumptions of imputed values; and it is superfluous for most purposes of composition analysis of national wealth. Therefore, I suggest that estimates of wealth be confined to the realm of the 'instruments' of production and consumption.

The computation of the value of human capital would be feasible only in the case of some rare and highly desired skills where the reward is obviously higher than the costs of reproduction. Yet even in such a case I should prefer to count only the products of such a genius, be they patents, paintings, books, or achievements in organization (which are all expressed in other items of wealth) and to regard the skill that may lead to further achievements as belonging to the category of *potential* wealth which will be counted only after it creates *actual* wealth.[2]

Another construction could regard the net value of 'human capital' as the difference between the productivity of labor and the cost of labor to the entrepreneur. This net value of 'human capital' cannot be added to the value of instruments of production because it is already one factor that determines the revenue

[2] This eliminates the 'capital' a great singer has in his voice. He creates not wealth but services, unless he produces phonograph records.

that can be expected from the material capital and that determines thereby the capital value. There is no capital value of instruments of production independent of the net value of 'human capital', in this meaning of the word.

If the net value of human capital is not counted as a separate item in national wealth, then an increase in labor costs without a corresponding increase in productivity of labor, i.e., an increase in labor costs at the expense of profit or of interest, affects total wealth. An increase of the ratio of labor in the social product does not in itself make a country really poorer. Therefore a comparison is possible only upon the assumption that the distribution among the factors of production is not changed except by changes in their relative productivity.

The national wealth estimate must use various methods of valuation for the various parts of national wealth. While the method of capitalization of future revenues (in the form either of capitalization by the statistician or of the market price) may be used for the whole sphere of profitable instruments, costs of production or reproduction are mainly used for evaluating public property. By using these two methods an estimate of national wealth "reflects not only the current year's income but also the past and a reasonable forecast of the future" (IV, 2). It is also true that the estimate of annual national income is determined by some factors determined by past events (depreciation and obsolescence) and some factors anticipating future events (investments for future production), yet this problem of time as a determining factor is of much greater importance in the estimate of national wealth. Exact capitalization does not imply the multiplication of the current year's revenue by some multiplier. The real meaning of capitalization requires that future revenues be transformed into their present day value by the method of discounting. The present day value of a future return becomes smaller the more distant the future is. Oil sources that can produce a certain quantity per year during fifty years and oil sources that can produce the same quantity per year during one hundred years have almost the same present day value. A dam or a canal designed to last centuries has virtually the same present day value as a dam or canal that will necessitate major expenses for repairs after several decades, because the expenses for repair that will be necessary in

some future decade have a relatively small present day capital value. If measured at cost prices of reproduction, however, the value of a dam or canal so solidly built that it will last a century without major repairs will be much greater than of the construction that will necessitate early repairs. What are the 'real' values of future returns? I doubt whether in the sphere of public properties the capitalization of future returns would be more nearly correct than the application of cost or reproduction values, even if it were feasible to use the capitalization method for such projects. Behind the fact that dams and canals are built to last a long time, behind the whole policy of the conservation of natural resources and many other government policies lies the opinion that the future requires a consideration by the government different from the one that results from discounting future returns. It is not a result solely of a lack of accounting practice in public administration that in countries where public and private forests exist side by side the prevalent types of trees in the public forest are those which require a much longer period from planting to commercial use than in private forests. From the point of view of business accounting, investments in such public forest must be regarded as waste because the investments are more expensive than the sum of discounted expected returns. This does not mean, of course, that for a consideration of public policy a return of a distant year ought to be valued equally with a return of next year. It means only that the valuation of future returns from the point of view of public policy may differ from the valuation that results automatically from the capitalization method. To apply cost values (minus depreciation and obsolescence) to public investments seems to be justified under the assumption that the public authorities pay due attention to the relation between present expense and future returns. The application of different methods of valuation in the public and private sphere can therefore not be regarded as a fundamental objection against the computation of national wealth totals.[3]

I should like to mention in this context the problem of evaluating natural resources in private or public hands that are not yet being used at the time of the estimate. They must be regarded

[3] It is impossible to deal here in detail with the interesting problem of the valuation of time in the public and private spheres of the economy.

as *potential* rather than as *actual* wealth so long as they are not yet used as an instrument for production. Drawing the line between actual and potential wealth is another of the great problems involved in the concept of national wealth.

National wealth and national income are two totals that can be used to compare the welfare of various countries and various periods. Either total can be used for this purpose only with great reservation. The greatest shortcoming of national income estimates is that they can cover but a portion of the total national product[4] and that they depend on the accidental conditions of the period for which the estimate has been made. National wealth estimates are less dependent on fluctuating business conditions, but this advantage creates at the same time great difficulties. It results in the necessity of employing fictitious values and of meeting the baffling problem of the time factor.

Despite these additional difficulties an estimate of national wealth is not useless even if reliable income estimates are available. First, even assuming that national wealth is only another expression of the phenomenon that is measured also by income estimates, it would not be useless. If for a comparison of two countries or two periods, national income figures are available, the comparison would be checked by national wealth estimates which are based on entirely different statistical sources. Moreover, it makes possible, as Dr. Kuznets rightly says, other classifications. The distribution of income and of property are not identical. Private indebtedness can be measured only by comparing it with capital values. The comparison of the growth of productive and consumptive wealth, of private and public property, of incorporated and non-incorporated capital, are of the greatest interest. For all such classifications an estimate of national wealth is needed not as a measure of absolute value in itself but as a figure to which the parts can be related in order to show the relative importance of certain elements of national wealth. This figure of reference will be either the most comprehensive estimate of national wealth or a part of it, such as total private wealth or total productive wealth (capital) corresponding to the problem under consideration. Thus I conclude that the

[4] Compare my article in *Volume One*, Part Five, Sec. I.

concept of national wealth is meaningless as an *absolute* expression of economic welfare; it has a limited value for international and intertemporal *comparisons*; it is almost indispensable for analyzing the *composition* of wealth and for the international or intertemporal comparison of this composition. I believe that this conclusion is in agreement with Dr. Kuznets' except perhaps in the emphasis.

III M. A. COPELAND

Dr. Kuznets' paper might be summarized as follows: wealth is defined in abstruse terms; several variants of the wealth concept are distinguished as well as a variety of valuation bases for wealth measurement; wealth is held to be more difficult to measure than income and a global measurement of wealth to be of little use. To say the least, this is hardly an optimistic view of the prospects of adding to our knowledge through the development of wealth measurements.

I should like to try to indicate why I think a somewhat less pessimistic view is warranted. First, I suggest a word of comment on his abstruse definition of wealth. To me it seems a definition that does not define (i.e., delimit adequately), for I submit that except for the unanthropomorphic connotation of the word 'stock' it is a fairly good characterization of a primitive conception of the deity—"the stock of sources of events for which . . . individuals . . . are willing to make sacrifices (i.e., to pay)" (I, 1). I may add that virtue, beauty, social distinction, and truth are evidently included in wealth according to Dr. Kuznets' concept.

A scientific definition of wealth would seem to me to run in terms of the method of measurement, i.e., in terms of a consolidation of balance sheets. A definition of this type has already achieved widespread recognition in the case of social income, i.e., in terms of a consolidation of the income statements of the enterprises of which a society consists. I have suggested elsewhere that if economists define basic economic concepts such as wealth and income by specifying only the processes of measurement, e.g., if they define wealth by specifying those processes which lead them

to conclude that the wealth of the United States at a given date is so and so many billion dollars, they will have followed the example of the physical sciences.[1] Thus the physicist defines the distance between two points in terms of the number of separate superpositions of a specified type that can be made upon a straight line between them by a given meter stick or standard bar. Again, the mass of a body may be defined in terms of the process of comparison with a standard gram on a suspension balance.[2] Properties other than the property of measurability (or observability) in the specified way are irrelevant to the definition. They are not ruled out, however, but are determined by subsequent observations; for example, it may be determined that the attraction of two bodies varies directly with the product of their masses and inversely with the square of the distance between them.

When Dr. Kuznets says of an analysis of national wealth into claims that "the claims considered are not exactly identical with legal rights and claims as they appear on the statute books or in the decisions of courts. No mere economist is able to deal with the intricacies of a nation's legal framework", he appears definitely to deny an accounting approach to wealth, for the mere accountant admittedly deals with legal claims and rights. The avoidance of an accounting approach is, I believe, responsible for Dr. Kuznets' holding that "even if care is exercised to assign claims in all cases where a source of desirable events is identified . . . totals of national wealth obtained by the substantive and the claims approaches will not be identical in either scope or magnitude." His substantive approach is primarily an approach in terms of assets; his claims approach is primarily an approach in terms of equities. The failure to obtain identical totals through the substantive approach and the claims approach is due chiefly to two facts: (a) valuations of assets and of equities may be independent and inconsistent; (b) for a non-isolated economy

[1] Cf. 'National Wealth and Income—An Interpretation', *Journal of the American Statistical Association*, June 1935, pp. 377-8.

[2] I do not mean here to be presenting a definition of any of the four items: wealth, social income, distance, and mass. I merely intend to indicate the general characteristics I believe a definition of each of these four concepts should have. Most of my paper in *Volume One*, Part One, was devoted to a definition of social income of the type here advocated.

some assets may be equities in other parts of the world and are thus not regarded by Dr. Kuznets as items of (non-material) 'substantive' wealth. I suggest rewording Dr. Kuznets' proposition in terms of assets and equities and omitting the word 'not', thus: "If care is exercised to identify the equities in all cases where an asset is identified, and conversely, totals of national wealth obtained by the asset and equity approaches will necessarily be identical if the valuations are consistent."

Since Dr. Kuznets' argument is largely negative in character, it may be appropriate to suggest that when he finds difficulties in estimating wealth he is in some degree hitting at a straw man. Few economists have regarded human beings as forms of wealth. An accounting approach to wealth would exclude them from the leading or basic concept of wealth except where slavery prevails. Dr. Kuznets has not found it practicable to include in national income many items that correspond to items in the global conception of wealth which he finds so difficult to measure, e.g., the value of housewives' services. A more modest and usual conception of wealth would be easier to measure.

Incidentally, for any given concept of national wealth there is a corresponding concept of national income, and conversely. Dr. Kuznets does not investigate the concepts of national income that correspond to each of his variants of national wealth. Consequently, when he comes to assert of his most global concept of national wealth, "On the assumption that measures of national income are available, the use of national wealth estimates for comparing economic 'strength' of nations, for deriving accumulation of wealth over a period, or for comparisons with incomes, debts, etc., does not seem to promise significant results" (IV, 5), he is using the term national income in an unspecified sense. Presumably, if he is consistent, compensation for damages to human beings will not be a part of this national income, nor will the costs of maintenance and repairs of human beings; but the value of the annual addition to the stock of human beings will be a part of the (saved) income of the nation just as will the value of the addition to other livestock.

Dr. Kuznets' difficulty in finding use for a global estimate of wealth may be explained partly by noting that a similar difficulty exists if we attempt to explain the use of a mere global

estimate of national income. Such general statistical measures as a global figure for national income or an all commodity wholesale price index are of little use until we begin to investigate their breakdowns.

However, when Dr. Kuznets argues that the global figure for wealth adds nothing to the global income figure for international comparisons and time comparisons, one may note that he does not recognize adequately the possibility that he has not exhausted all the cases. Thus, he tells us that a wealth-income ratio (presumably a wealth-property income ratio if capital values of human beings are excluded) either reveals nothing but the method of computation of wealth or is difficult to interpret. As indicating one possible omission in his argument by elimination I suggest that he did not, in writing this passage, contemplate the use of wealth measurements in making comparative measures of changes in social input and output as discussed by Mr. Martin and myself.[3]

Dr. Kuznets also argues that for purposes of time comparisons global national wealth estimates add little to global saved income estimates. One may agree with him that saved income and the increment in wealth are identical and still find it advantageous to compare the amount of the increment with the amount of total wealth, as indeed Dr. Kuznets does on pages 50-51 of *National Income and Capital Formation, 1919-1935*. The interrelation of the physicist's concepts of velocity and displacement does not make either a substitute for the other; nor does the interrelation between saved income and wealth, as Dr. Kuznets seems to urge. Moreover, when Dr. Kuznets suggests that measurements of wealth are not yet sufficiently accurate to afford a check on measurements of saved income (IV, 3) he is in difficulty. "The troublesome problem of scope, and especially of valuation" is probably no less troublesome when applied to measure gross and net capital formation than when applied to those items of wealth that need to be measured to provide a check on annual measurements of gross and net capital formation. So far as the 'troublesome problem' of *scope* goes, clearly the case is precisely on all fours. The crucial importance of *valuation* for the measure-

[3] Part Two.

ment of annual increments may be seen by saying that 60 to 65 per cent of gross capital formation, 1920-35, according to Dr. Kuznets, was for replacements. I see no reason to believe that the difficulties of valuation here are less than in the case of the corresponding wealth measurements, and the wealth measurements are presumably more sensitive.

Three minor comments on Dr. Kuznets' paper may be offered.

1) The scheme of classification of claims or equities might well include priorities as a basis of classification.

2) His discussion of the capitalization of income (III, 1) might give an appropriate separate recognition to a fourth item in the analysis (in addition to expected income, its time-shape and the rate of interest), namely, the probable error of each installment of expected income. This seems especially advisable since he assumes that the current rate of interest to be used is "the 'pure' interest rate, i.e., the rate that expresses the marginal productivity of capital", whatever that may be.

3) Dr. Kuznets' discussion of reproduction cost (III, 3) seems to me to fail to recognize the complexity of this method of valuation as it has been revealed in practice in the case of public utility valuations. I suggest these difficulties may be a reason for giving more attention to book valuation.

IV E. M. MARTIN

Dr. Kuznets devotes a substantial portion of his paper to proving that national wealth estimates have no use that cannot be better served by national income figures. I believe he has under-estimated the importance of at least two uses that national wealth estimates alone can serve.

The ratio of annual additions to the stock of wealth to total wealth at the beginning of each year is important as a measure of the rate of wealth accumulation. Theoretically such ratios should be based on estimates of both wealth and additions to wealth in terms of the same set of prices. Nevertheless, ratios derived from the book value of the stock of wealth and values in current prices of additions to that stock would fill an important gap in our economic information. Both alone and in relation to

other factors, such as the rate of population growth, data on changes in the rate of wealth accumulation would be of value in understanding the economic development of a nation. The comparison of rates of wealth accumulation in different countries would throw substantial light on variations in economic conditions.

Moreover, unless wealth is defined as capitalized current income, hardly a defensible concept, the comparison of the national wealth of different countries is a necessary complement to national income comparisons in measuring relative economic strength. National wealth estimates make at least two important contributions to such comparisons. In the first place, wealth figures include the value of known natural resources, of raw materials, and of unconsumed finished goods. These values are reflected only partly, if at all, in national income figures, yet in time of crisis they may be of decisive importance. In the second place, national wealth estimates include a more or less rough measure of the total productive capacity of a country, whether currently in use or not. The value of the unused plant and equipment of a country in the throes of a depression must not be overlooked in making comparisons with nations enjoying relative prosperity. National wealth estimates avoid to a large extent the wide cyclical fluctuations in economic activity which are fully reflected in national income.

Dr. Kuznets has discussed briefly (IV, 2) the value of national wealth estimates for purposes of international comparison. Without making all the points noted above, he concludes, "Thus on practical grounds of a more comprehensive consideration of national income, a measure of national wealth for a given point of time is to be preferred in international comparisons to a measure of current national income."

If Dr. Kuznets had stopped with this sentence, it would not be possible to disagree with him. But a few sentences later, the final paragraph of the Section starts: "Thus, for purposes of international comparisons, estimates of national wealth are of little value if estimates of national income are available." It is difficult to understand how the existence of national income estimates cannot only deprive national wealth figures of their 'preferred' position, but also render them of 'little value'.

Nor does the intervening paragraph throw much light on this transformation. Its main point is that national income is easier to estimate and has more numerous uses, advantages which 'offset' the preferred status previously given to national wealth figures. It may readily be conceded that national income estimates should be made first, but their 'offsetting' advantages cannot deprive national wealth estimates of their 'preferred' status for international comparisons. And "if estimates of national income are available," the 'offset' becomes irrelevant and the estimation of wealth the most important next step in improving international comparisons of economic strength. For many countries, including the United States, national income figures are available and national wealth estimates are the immediate problem.

V SIMON KUZNETS

Before considering the issues raised by the discussants, it may be advisable to indicate the points of agreement. I find myself in complete accord with Dr. Colm's remarks; and while in his emphasis he is somewhat more optimistic than I as to uses of national wealth totals, his discussion provides a valuable supplement to mine. I also agree heartily with most of Dr. Bye's statement; although there are grave doubts in my mind as to the validity of any yardstick in economic measurement other than that of market value, modified, to be sure, to meet the test of the fundamental criteria of real needs and real costs. The argument that values are merely exchange ratios can only mean that any value total is dependent upon the composition of the goods basket of the economy. This does not exclude the possibility of making these totals comparable with reference to a given basket of goods, difficult as it may be to reduce income or wealth totals for various periods and countries to such comparable complexes of goods. Finally, I cheerfully acknowledge the sins of omission with which Dr. Copeland charges me in his three minor comments. The second and third of the suggested additions would only serve to reenforce the statements made in my paper.

It is with reference to the major sins of commission that I find myself recalcitrant. Dr. Copeland and Mr. Martin raise several

important questions. While an adequate treatment is impracticable here, it might clarify matters if a brief statement were to be made on each point raised.

1) To begin in a lighter vein with the 'deity' argument. Two important elements in the definition of wealth given in my paper should bar a theological interpretation. First, the definition refers to sources of desirable events, while gods have been notoriously lavish with undesirable works. Second, the sources of desirable events are susceptible of disposition by man, either in his individual or collective capacity; while gods have again been well known for evading control by ordinary humanity. Of course, if one wishes to confine deity to the favorable gods and looks upon material sources of satisfaction as an uncontrollable and animated cornucopia, then wealth is a deity; and has been worshipped accordingly by some of the more devout practitioners of the cult of Mammon.

2) Both national income and national wealth are essentially appraisals of the economic system, the former in terms of the positive content of the goods it produces for ultimate consumption (present or future) and the latter in terms of the stock of such goods at any moment of time. The measures lose most of their significance if they are identified, along the lines of Dr. Copeland's suggestion, with mechanical totals of what entrepreneurs, or accountants, *think* income or wealth is. Just because in business intercourse accountants are charged with the duty of recording returns, costs, and values and making entries for claims and obligations, it does not follow that the consequent ease of measurement justifies identification of national income and wealth with the sum total of accountants' income sheets or balance statements. As Dr. Bye pointed out, Dr. Copeland himself refuses to accept one of the basic assumptions of accounting procedure, the stability of the monetary unit. Why should we accept other assumptions of accounting technique implicit in their valuation of various assets and liabilities?

3) The distinction between the substantive and claims approaches is neither identical nor comparable to the distinction between assets and liabilities. The latter terms are both comprised under the claims approach. The essential lack of identity between the totals in the two approaches, and especially the dif-

ferences in the type of classification to which the latter give rise, is an important consequence of the dual character of wealth. Note that this distinction between the two approaches has no comparable significance for national income.

4) It is true that, as Dr. Copeland states, "for any given concept of national wealth there is a corresponding concept of national income, and conversely." But the statement has little bearing upon the discussion of uses. In the discussion in my paper the assumption that national income estimates are available referred to national income measures usually provided in economic literature; and there seemed to be no need to specify them, since their broad outlines, i.e., their reference to the products of the business and public economy and almost complete exclusion of products of family economy, are fairly standard. It is in comparison with these measures of national income that national wealth estimates, even when made impracticably comprehensive, seemed to contribute little of specific value for most of the uses discussed.

5) In this connection one may agree with Mr. Martin's statements that "wealth figures include the value of known natural resources, of raw materials and of unconsumed finished goods"; and that they are "a more or less rough measure of the total productive capacity of a country, whether currently in use or not." But so do national income measures, with the qualifications noted in Dr. Colm's comments. The only serious claim that can be made for the specific contribution of national wealth totals is that they reflect not only the current production but also that expected in the future; and it is this claim, in connection with international comparisons, that is referred to in Section IV, 2. But the sentence that Mr. Martin cites from that Section is just a description of the claim, not an acceptance by me of its validity. On the contrary, it is the definite conclusion of the paper that this presumptive advantage of national wealth estimates is more than offset by their necessarily more limited coverage in other respects; and the more fictitious character of the values employed.

6) The use of national wealth totals to measure the relative rate of accumulation of wealth has been suggested by both Dr. Copeland and Mr. Martin. Such comparison of annual accumulation of wealth with the existing stock is undoubtedly interesting. But

its usefulness is either conditioned upon the significance of wealth as a stock of goods at the disposal of the nation for the satisfaction of present and future needs, or would be warranted by a search for regularities over time that would be more probable in the percentage rate of accumulation than in the absolute totals of net wealth formation. The first source of interest is severely limited by the difficulties encountered in a comprehensive measurement of wealth as the stock of all goods, and in its evaluation in terms of price levels comparable with those of annual accumulation. The second source of interest calls for composition analysis rather than for totals, since the secular tendencies in the rate of accumulation would presumably be different for different groups of wealth instruments.

7) Dr. Copeland's statement that all the difficulties encountered in measuring national wealth are applicable to the estimate of net wealth formation, because the existing stock of wealth must usually be evaluated before current wealth consumption can be measured, is quite correct. I also agree with his claim that the difficulties of finding proper uses for a global estimate of wealth would be encountered also for a global estimate of national income. And yet there are significant differences in both comparisons, in disfavor of national wealth estimates. In contrasting direct measurements of gross and net wealth formation with comparisons of national wealth totals at successive points of time, there is the fact that difficulties of estimating comprehensively national wealth affect only a part of gross wealth formation and that the latter measure is of interest on its own account. In the case of national wealth and national income, I should be the last to deny that an unadorned global estimate of national income is in itself of no great utility. But as Dr. Colm and I have pointed out, national income totals still possess much greater reality than national wealth totals because they refer to a process that itself provides the measures of its results; and are necessarily a more comprehensive reflection of the activity of the economic system.

In conclusion, it is important to note that as far as the practical bearing of the discussion is concerned, there seems to be no substantial disagreement between the position taken in the paper and the viewpoints of the discussants. This practical application is in the direction of discouraging attempts at global estimates of

national wealth and encouraging studies of separate groups of wealth instruments and claims. The purposes of such studies would be to establish more adequately the significant classifications within the complex of wealth instruments or claims; to explore the various difficulties that would arise in the evaluation of the different groups; and to point a way to measurement of national wealth that would be directed from the beginning at the significant classifications in the field. The very fact that estimates of national wealth have recently receded in importance and public use as compared with measures of national income, and that the latter thus bear the brunt of satisfying the need for a single figure appraisal of the workings of the economic system, provides an opportunity of reviving quantitative studies of national wealth on the basis of strict subordination to purposes of economic analysis. That these purposes demand emphasis on composition analysis and a healthy scepticism of presumably all-inclusive global totals was the paper's main conclusion, if not its sole thesis.

Part Two

THE CORRECTION OF WEALTH AND INCOME ESTIMATES FOR PRICE CHANGES

M. A. COPELAND AND E. M. MARTIN

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Discussion

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THE CORRECTION OF WEALTH AND INCOME ESTIMATES FOR PRICE CHANGES

M. A. COPELAND AND E. M. MARTIN

I Introduction

The problems connected with the deflation of estimates of national wealth and national income as measured in current dollars necessarily involve certain general considerations with respect to the use of the deflation technique. It will be well to bear in mind that the application of a deflating index to any dollar volume figure should be conceived as an indirect method of constructing an index of physical volume. If the deflating price index applied is constructed by the aggregative formula the method is, of course, subject to certain arithmetic imperfections, since the aggregative formula does not conform precisely with the requirements of the factor reversal test. However, with an exception to be noted shortly, this defect in an aggregative type index may fairly be regarded as a minor source of worry, and our discussion will be in terms of that formula.

Since we conceive of deflating income as an indirect way of constructing an index of physical volume, it is possible to define what we mean by a satisfactory deflation of a dollar volume figure through comparison with a corresponding directly constructed physical volume index. However, we must recognize that a single dollar volume series may quite properly have reference to, or correspond to, more than one physical volume series and may properly be deflated in more than one way. When, therefore, we seek to deflate national income, for example, we need to specify

precisely what physical volume we are seeking to measure through the deflation process. We propose to argue that the total social income may properly be deflated in at least two quite different ways and that certain segments of it may be deflated to represent at least three corresponding physical volumes.

The deflation of national income has sometimes been attempted by breaking the total into several constituents and applying a separate deflation index to each constituent series. When the constituent series correspond to the values of two mutually exclusive groups of commodities and services, as, for example, the classification of commodities and services of ultimate consumers into (a) consumers' commodities, and (b) consumers' services, the application of a separate price index to each constituent is a step in the direction of the direct construction of a physical volume index. If in the deflation process the breakdown were carried far enough, the substitution of the physical volume index technique for the deflation technique would be complete.

The application of a single deflating index to a dollar volume series assumes that all our P's (prices) and Q's (quantities) are positive. In the deflation of income we shall have occasion to deal with cases where some of the Q's are always positive and others always negative, i.e., with cases of a dollar volume that we may conveniently represent as $\sum PQ - \sum pq$. In such a case it will be necessary to deflate the positive dollar volume and the negative dollar volume separately and then take the difference of the two deflated figures. The application of a single deflating index to the net dollar volume leads to erroneous results. For example, let us assume two dollar volume series for which $P_1 = p_2 = 2$; $P_2 = p_1 = 1$; $Q_2 = Q_1 = 3$; $q_2 = -1$; $q_1 = -2$. Obviously our net physical volume has increased. If we deflate the net dollar volume directly, using an index constructed by the usual, aggregative formula, our price index in period 2 will be

$$100 \frac{P_2 Q_1 + p_2 q_1}{P_1 Q_1 + p_1 q_1} = 100 \frac{1 \cdot 3 - 2 \cdot 2}{2 \cdot 3 - 1 \cdot 2} = -25\%.$$

In period 1 it will be 100% ,as will the dollar volume index. The dollar volume index in period 2 will be

$$100 \frac{P_2 Q_2 + p_2 q_2}{P_1 Q_1 + p_1 q_1} = 100 \frac{1 \cdot 3 - 2 \cdot 1}{2 \cdot 3 - 1 \cdot 2} = 25\%.$$

The deflated dollar volume or physical volume index is thus -100% in the second period. Where we are dealing with a net dollar volume, the failure of the aggregative formula to conform to the factor reversal test is crucial.

The attempt to deflate wealth and income involves certain problems we shall do well not to forget. They have to do in part with the defects of existing price and physical volume measurements where there are changes in the physical and other specifications to which a price or a physical volume series applies, and in part with the fact that in comparing two dates (or places) we may find a number of items that occur only in one term of the comparison. In the language of the aggregative formula for a physical volume index,

$$\sum \frac{P_1 Q_2}{P_1 Q_1},$$

Q_1 for some item may be zero and P_1 indeterminate. So far as old commodity or service items have dropped out of national income or new ones have appeared and so far as qualitative changes have taken place in individual commodity or service items, there is no very satisfactory way of constructing a physical volume index either directly, or indirectly through deflation. We may seek to avoid both difficulties by the use of substitute commodities or services or by reference to a demand or a supply analysis. Thus we may regard an automobile (a) as the equivalent of so many horses and buggies, (b) as the equivalent of so many man-hours of labor, tons of steel, etc., or (c) as so many passenger miles of transportation. None of these devices is entirely satisfactory and while there is no reason to assume even a rough agreement among the results of the three devices, there may be some reason to think that limits can be placed by a proper use of (b) and (c).

At present our information concerning prices and physical volumes pertinent to the correction of wealth and income estimates for price changes is far from adequate. Also, experimentation with the use of the data available is in its infancy. Consequently, our discussion of the problems involved in wealth and income deflation will necessarily be fragmentary, hypothetical, and highly tentative.

One broad aspect of the deflation problem, although admittedly important, will receive only incidental mention—the application of the deflation technique to geographical comparisons. Present consideration will center on time comparisons; that is, we shall be concerned with price and physical volume index numbers for one time period using another time period as a base, where the data in both periods refer to the same country or region. We shall not be concerned with price and physical volume index numbers for one country using another country as a base, where the data refer to the same time period. However, many of the problems involved in the two types of deflation are quite similar.

The problems involved in correcting wealth and income estimates for price changes will be discussed in the two succeeding sections. The first is devoted to wealth estimates and the second to income figures. In each case the deflating process is outlined under the assumption of an isolated economy before proceeding to discuss the more complex problems involved in deflating wealth and income estimates for a nation which is part of a world economy and for various types of segments of the national total. A final section examines the ethical implications of the deflation process when applied to the measurements of social income and wealth that are derived from a consolidation of the accounts of private and public enterprises.

II The Correction of Wealth Estimates for Price Changes

Although much less has been done toward the development of deflated wealth estimates than toward the development of deflated income estimates, it will be convenient to consider first, problems connected with wealth deflation.

Most wealth items differ from income items in involving a larger number of possible alternative bases of valuation, no one of which can claim to be *the* valuation at current prices. Any deflation technique applied to a wealth estimate will consequently depend upon the basis of valuation.[1]

There has been a tendency in attempts to deflate wealth and

[1] See Simon Kuznets, Part One, Sec. III.

income greatly to over-simplify the deflation problem. This has been true more particularly in the case of wealth deflation. It has sometimes been assumed that a single price index, little more complex than the Bureau of Labor Statistics wholesale price index, may properly be applied to any available wealth estimates without regard to the basis of valuation employed in making the estimates. Most wealth estimates, however, rest in part at least on existing accounting records. So far as accounting valuations based on accepted accounting practices are employed in wealth estimates, items of wealth substantially identical, except for age differences, will be valued at any given date at different prices. In general, a wealth estimate based on good accounting records would embrace:

1) Land parcels, each valued at the price of its most recent transfer with some allowance for subsequent market appreciation or depreciation;

2) Other durable goods, each unit valued at its original cost less depreciation based on that cost and the unit's expected life;

3) Inventories valued at cost or market, whichever is lower.

Thus similar parcels of land and other durable goods will be valued at the prices prevailing at various dates, and the application of an index based on current prices will give erroneous results.

The objective of deflating wealth estimates may be considered as twofold: (1) to secure a revised estimate of the value of the stock of wealth for some base date in terms of a single set of prices; (2) to measure changes in the stock of wealth in terms of the single set of prices used in securing the revised total for the base date.

By adding the increment in wealth for the intervening period as secured by step (2) to the base date total secured by step (1), the total amount of wealth, valued at base date prices, can be measured as of any other date. Owing, however, to the numerous possibilities of error in computing in deflated prices annual increments of wealth for any extended period, a recomputation of the total stock of wealth in terms of base date prices should be undertaken at intervals as a check on such a procedure.

Essentially, the task of deflating the total stock of wealth to base date prices is one of estimating the physical inventories of

wealth items, and multiplying each item by its respective base date price. In considering this process further, it will be convenient to assume that wealth at any date may be classified under six heads:

Total Social Wealth as of. . . . . .

81) Sites and permanent improvements
82) Wasting natural resources
83) Other durable tangibles
84) Inventories
85) Intangibles
86) Net equity of residents in wealth located in other communities (i.e., gross equity in wealth located abroad less equity of persons residing abroad in wealth located in the area under consideration)
90) Total wealth owned by residents of area under consideration.

For an isolated community or for the world as a whole, item (86) will be zero. For the present we shall confine our consideration to such a situation. The problems involved in evaluating (a) the base date inventory in terms of a single set of prices, and (b) subsequent increments in the same prices, will be considered for items (81) to (85) separately.

81) *Sites and permanent improvements.* A major problem in the deflation of wealth is the segregation of those items of wealth and, in some cases, of those qualities of wealth items that may be regarded as not subject to wear and age deterioration or depletion. Unfortunately for the statistician, not all natural resources are non-wasting in this sense, and some man-made resources are substantially non-wasting; for example, some grading and stream diversion. The task of dividing a piece of real property into (a) site and (b) sub-soil rights which are wasting in character for purposes of a physical inventory of national wealth is troublesome, but nonetheless essential to a satisfactory deflation of wealth estimates. Even when segregated, no cost of production basis for the most part is available for the valuation of permanent wealth. Some type of market value or possibly capitalized earning power is the primary recourse. Fortunately, unless differing methods of valuation for these items (sites and permanent im-

provements) should lead to widely different valuations, the resulting difference in deflated measures of wealth will not be very important.

In the case of sites and permanent improvements the deflation problem is largely confined to its first aspect, the computation of a revised estimate of the valuation of the stock of wealth for some base date in terms of a single set of prices. The measurement of changes in the stock of wealth in terms of that set of prices is a problem of small importance in connection with this type of wealth.

The fact that physical increments in the stock of this type of wealth are negligible makes this a good opportunity to emphasize the need for distinguishing two types of increments in the unadjusted total value of wealth as between one date and another. Unadjusted wealth valuations for two dates may differ: because of (a) the value of the increment in the physical stock of wealth, and (b) changes in the valuation of the stock in existence at the first date. Correction of wealth measurements for price changes excludes mere market valuation changes from the measurements of deflated total social wealth or national wealth for an isolated community. Such capital gains, whether realized or not, do not represent increases in real wealth.

The second phase in the reduction of a series of wealth estimates to a single set of base date prices consists in the valuation of the annual increments in the physical quantities of the various wealth items in terms of these base date prices. The valuation of these increments is important not only for deflated wealth figures, but also for deflated income figures, since for an isolated community it yields deflated saved income. In the case of sites and permanent improvements the annual increments in physical wealth will consist largely of a few items such as the elimination of land surface by the damming of a stream, or the making of land surface by providing drainage for an area.

82) *Wasting natural resources.* The valuation problem in the case of wasting natural resources, such as mineral deposits and soil fertility, is similar to that in the case of sites, but determination of a satisfactory valuation is more important, both for deflated wealth figures and for deflated income figures. This is true because in contrast to the situation with respect to sites and per-

manent improvements the physical quantity of wasting natural resources is by definition normally subject to change. Such resources are subject to depletion through use in a manner that allows setting up rules for the computation of decreases in the available stocks. While most such resources are not reproducible, in many cases our knowledge of the stocks existing at any date is incomplete, so that discoveries may add to the quantity available. The net annual increase or decrease in the stock of any wasting natural resource (resulting from discovery, depletion, etc.), when expressed in terms of base date prices, is thus an item in the valuation of the increment of total physical wealth. Since this item may be positive or negative, and since there may be important changes in the total physical stock of the resource in existence at different dates, the base prices (weights) used become more important than in the case of those permanent resources whose stocks remain relatively constant.

Because there are both positive and negative physical items, increments and decrements, it is important, as noted above in Section I, to apply the deflation process separately to positive and to negative items. It is necessary to distinguish two types of annual change in the physical stock of wasting natural resources: (a) depletion which is always negative and which is of a somewhat regular nature so that it can be approximated by some rule of thumb; (b) valuation readjustments which have some physical or legal basis and which occur irregularly. We have noted above that valuation readjustments due to mere price changes are not included in deflated social wealth or in deflated saved income, but not all valuation readjustments are of this type. Discovery leads to a valuation readjustment, although it is a valuation readjustment for which there is a definite physical basis. Damage due to an 'act of God' represents change in wealth which, like discovery, leads to a valuation readjustment for which there is a definite physical basis. Capital gains and losses that represent changes in physical assets should be included in measures of increments in deflated social wealth. There is undoubtedly a shady middle ground in which it is difficult to distinguish between revaluations due to changes in physical assets and those due merely to price changes, but this difficulty does not justify excluding from a measurement of changes in the stock of real wealth those

types of revaluation which obviously represent changes in the physical assets available. A more or less theoretical example of a revaluation that might well be included for some purposes although no change in physical units takes place is that which would result from the legal abolition of slavery.

The adjustment of depletion charges to represent base-date prices involves special and difficult problems because of the nature of the available data. While it is known that such charges may be based partly on eccentric valuations and partly on arbitrary percentages of gross revenue, etc., there is little basis for determining what part of reported charges is determined in any particular way. Hence it is difficult to know what adjustment to apply. However, the objective both of adjustments of depletion charges and of adjustments in discovery write-ups should be to provide figures that will represent for each year the value of the net change in reserve stocks known to exist as of each year end, those stocks being treated as potential stocks of the mined and worked-over mineral and valued by the deduction of costs of extraction, working over, etc., at base date prices (assuming the prevailing techniques of each year) from the value at base date prices of the mineral when extracted and worked over.

83) *Other durable goods.* Correction of book valuations of the stock of buildings, equipment, and other durable goods is perhaps less difficult than are the problems discussed in connection with sites and wasting natural resources. Nonetheless, comparisons of inventories of such durable goods at different dates are sufficiently complicated. Almost no two structures are alike even in a single year; not only are they different in physical characteristics, but their suitability for the purpose envisaged as well as the economic value of that purpose is subject to almost infinite variation. The difficulty of constructing a continuous and consistent index of prices over a period of years is of course much greater. To avoid this difficulty, it may be necessary to measure changes in the prices of buildings by changes in the prices of units of labor and materials used in their construction. Such a method involves several obviously false assumptions such as a fixed state of the arts, an unchanging prudence in erecting such structures, and an unchanged ratio of profits to other costs. A rough check on some of these errors may be had by physical volume indexes of square

feet of floor space, cubic feet of inclosed space, etc. The measures derived by such a method are necessarily extremely rough and unsatisfactory. It is, at best, the least bad alternative, an alternative all too frequently necessary in this field.

The problem of evaluating, at base year prices, the annual increments in this class of wealth are extensively discussed in Dr. Kuznets' volume on Capital Formation.[2] However, a brief comment may be attempted here. Three chief types of items included in such annual increments may be noted: (a) new construction, (b) depreciation, (c) real capital gains and losses. (a) The valuation basis for new construction should presumably be an estimate of what actual cost would have been, had base-date prices prevailed during its construction. Both those new constructions (and equipment installations) which are offsets against depreciation, etc., and those which represent net additions to the stock of durable goods should be evaluated in the same way. (b) Some of the comments made respecting depletion are applicable to depreciation. Available data afford a very inadequate basis for determining what valuations were used in computing depreciation charges. Hence adjustments to base-date prices, though essential, are not very secure. The objective of such adjustments should be to establish valuations to be depreciated on the same basis as that which is used for new construction under (a). (c) Real capital gains and losses are of less consequence here than for (82). No special comment seems called for.

84) *Inventories.* The problems connected with the correction of inventory valuations for price changes have been explored by Dr. Kuznets.[3] No special comment is necessary here except to say that for the estimator of national wealth this type of correction is not only easier to make than those considered above, but is also the most important type of correction, particularly for purposes of comparing wealth at two near-by dates.

The deflation of increments in inventories is theoretically a relatively simple matter. Inventories are by definition items that are counted or 'inventoried' at the beginning and end of each period. The obvious procedure is (a) to convert the physical

[2] *Commodity Flow and Capital Formation,* Volume I (National Bureau of Economic Research, 1938).
[3] *Studies, Volume One* (1937), Part Four.

inventory on each date into terms of base-date prices, i.e., deflate the dollar inventory figures, and (b) to take the change in their deflated value from the beginning to the end of the period as the deflated net increment. It is not, of course, possible to deflate the current dollar increment directly. Such a procedure would involve the difficulties noted in Section I above.

85) *Intangibles.* A discussion of the problem of the effect of corrections for price changes upon intangibles can be presented more satisfactorily after some consideration of the problems of deflation in connection with national income. It may be suggested at this point that the existence or non-existence of known intangibles in the list of social wealth items will not affect the physical volume of wealth. One reason for expecting this to be true may be mentioned here. To some extent intangibles represent valuations that might have been attached to certain of the tangibles. Thus an accountant, if he is persuaded to recognize such a value at all, may choose between (a) writing up the value of the permanent tangibles, (e.g., mineral resources), and (b) setting up an item called by some such name as 'good will'. It is obvious that if the former procedure had been chosen, the resultant revaluation would not represent an increase in the physical volume of national wealth.

In an isolated economy the increase in national wealth, corrected for price changes as measured along the lines outlined above, should also represent an index of the saved income of the nation in terms of physical units during the period under consideration.

Thus far we have assumed that we were dealing either with the world as a whole or with an isolated community. The problem of the deflation of wealth is simpler and less ambiguous as applied to an isolated community than it is when we abandon this assumption and attempt to deflate some type of distribution of wealth. The same is true of income. Three major types of distribution of wealth (and corresponding types of distribution of income) may be noted briefly:

1) By region (in the case of wealth, according to the residence of the owner or the situs of the wealth; in the case of income, according to the residence of the recipient or the situs of the wealth and labor from which the income is derived);

2) By the class of individual or family owner or recipient (distribution of wealth by size of holdings or of income by size of income);
3) By industry groups or types of economic activity (in the case of wealth, by types of industry to which the wealth is devoted; in the case of income, by types from which the income is derived).

When social wealth is divided into segments in any of these three ways, each segment may be deflated to represent the physical volume of wealth in existence and the changes in that physical volume. A given class or community of owners may be separated out and its holdings at two or more dates compared (without reference to other classes or communities) in terms of constant prices. The same process may be applied to the wealth attached to an industry or located in a geographic region. The deflation procedure in these cases should be the same as that outlined above for the deflated total wealth in an isolated community. It may be referred to as the wealth-extant technique.

While it is not difficult to apply this technique to the wealth *located* in a given area, it is hardly possible, on the basis of present information, to apply it accurately to the wealth *owned* by a particular class such as the residents of the United States. To make such an application, we should need to identify in the international account (a) the physical items of wealth located abroad and the total or fractional ownership claims upon them held by residents of the United States, and conversely, (b) the items of physical wealth located in the United States and the claims upon such wealth held abroad.

The procedure may conveniently be indicated in terms of the following equation:

(1) Wealth located in the United States
+(2) Wealth located abroad but owned by residents of the United States
−(3) Wealth located in the United States but owned by nonresidents
=(4) Wealth owned by the residents of the United States.

Item (4) may best be deflated through deflation of items (1), (2), and (3), although theoretically item (4) may be deflated directly. However, since data on items (2) and (3) are available largely in terms of equities, expressed in some cases as market values and

in others as par or as book values, deflation of these items to represent the physical assets claimed is difficult. A special problem arises in the case of debts, since these are specified in dollars or some other currency. A roughly satisfactory method is to assume that, when expressed in dollars, the same correction factor should be applied to them as to all wealth located in the United States. The algebraic sum of changes in the deflated values of (1), (2), and (3) should be equal to the deflated income saved by persons residing in this country.

Difficulties similar to those involved in applying the wealth-extant technique to a geographical distribution exist in applying it to a personal distribution of wealth. However, existing information lends itself to the application of this technique to an industrial distribution.

When we are deflating segments of total social wealth, we may seek to take account of the effect of price changes upon the distribution of wealth. For this purpose two formulas may be suggested. The first depends in part upon the wealth-extant technique. In comparing the purchasing power of the wealth held by individuals in different wealth classes, for example, we may estimate first the values in current dollars of the various equities in the wealth, including intangible wealth. All values, including those applicable to land and intangibles, must be expressed in terms of current prices regardless of whether this involves recognizing both realized and unrealized capital gains and losses. Only thus can changes in the distribution of the command over goods and services be measured. The total wealth figures so obtained should next be divided into the deflated total value of wealth extant, as determined by the method appropriate to an isolated community, and the current value of each segment then multiplied by the resulting ratio. In other words, the wealth-extant technique is applied to determine the total physical volume of wealth in constant prices at a given date, and current prices are employed for purposes of distributing that total. If the movement of prices since the base date had affected each type of wealth equally and if the distribution of intangible items of wealth had remained unchanged, the share of each segment in the physical stock of wealth would be the same, whether the wealth-extant method of deflation or the one just outlined were

used. The latter method may be referred to as the wealth-extant-total-distributed-on-current-valuations. Two subvarieties of this method may be distinguished: the use of (a) current book valuations, (b) market values of the equities.

Theoretically this method, with either valuation basis, is applicable to any of the three types of distribution listed above: geographic, industrial, and personal. It does not lend itself to a distribution where information refers principally to one segment as, for example, when we are interested in the wealth owned in the United States. However, the international claims in such a case may play a sufficiently small part in the national total so that a rough adjustment will suffice. The equation on page 96 (which is applicable to this and various other forms of deflation) may, for the present purpose, be used to determine the net external credit; that is, item (2) minus item (3). It may be assumed that, for a rough approximation, the same percentage correction should be applied to this net figure as is applied to the total wealth located in the United States. The resulting figure for total wealth owned in the United States in deflated dollars might then be distributed by wealth classes according to the method of the total-extant-distributed-on-current-valuations. Or an industrial distribution might be made treating the international account as if it were one of the industries.

In applying the total-extant-distributed-on-current-valuations method to saved income, it should be applied separately to the wealth on January 1 and the wealth on December 31. The result of such a procedure may be thought of as the logical conclusion of attempts to deflate savings as measured in current dollars by an appropriate index of the price of investment goods. The savings of any person on the basis of current valuations will, of course, equal his claims on December 31 minus his claims on January 1. The sum of all such differences will equal the total savings measured in current valuations. For any year the deflated savings of any person will also equal his wealth as determined by the total-extant-distributed-on-current-valuations formula on December 31 minus his wealth, determined in the same fashion, on January 1, and the sum of such individual deflated savings will equal total deflated savings.

A second possible meaning, which also takes account of the

effect of changes in the prices of wealth items upon the distribution of wealth, may be suggested for deflated wealth as applied to various segments. This concept is that of the wealth of the segment in current prices, deflated by an index of the prices of consumption commodities and services purchased by the owners of the wealth. Such a measure should be obtained by deflating current values of wealth at different dates by appropriate cost of living index numbers. The current values used should theoretically be the same as those employed in the method previously suggested, including capital gains and losses on the holdings of equities in both tangibles and intangibles, and employing either a book value or a market value of equities basis of valuation. This method of deflation of wealth, which may be referred to as the consumption-exchange method, is easy to apply either to determine the total deflated value of wealth owned in the United States or its personal distribution.

It is not intended to imply that the methods of wealth deflation here suggested are the only possible methods. Enough has been said, however, to make clear that several methods are possible. Unfortunately, for purposes of wealth distributions no single method can be designated as the best. For total social wealth the wealth-extant method seems to be the most serviceable. Since it is to be presumed that wealth is desired by individuals not for its own sake but either because it yields an income or because it may be used to finance consumption in the future, changes in the relative values of various forms of wealth have the same effect on the individual investor as savings or withdrawals of savings. Therefore, for distribution a method of deflation that takes account of changes in wealth valuations seems indicated. However, any such method involves an arbitrary assumption of some bill of commodities and services for which wealth actually owned might hypothetically be exchanged by the individual owner.

III The Correction of Income Estimates for Price Changes

In discussing the correction of social income for price changes, it will be convenient to follow a procedure similar to that followed in the case of wealth in the preceding section. We shall assume

as our starting point that the values of the income items are based directly upon existing business records.

In order to outline more clearly what we are first proposing to measure, i.e., the physical volume of goods and services made available each year by the economy, there is presented below a list of the principal items of goods and services, consumed or saved, that make up the national income defined as a total of ultimate products. The list is an adaptation of that in an article by Clark Warburton.[4]

Total Social Income

1) Food, including beverages, tobacco, and purchased meals
   a) In kind
   b) Purchased
2) Clothing, laundry, jewelry, etc.
3) Home furnishings
4) Housing
   a) Owned by occupant
   b) Rented
5) Non-business transportation
   a) Purchased
   b) Furnished by owned autos, etc.
   c) Use of highways, streets, bridges, etc.
6) Non-business communication
7) Health maintenance
8) Recreation, amusement, art, literature
9) Education
10) Religion and services of miscellaneous social organizations
11) Miscellaneous government services
12) Insurance
13) Use of banking and currency facilities
14) Miscellaneous privately-provided goods and services

100 Total of (1) to (14), consumed income

15) Net additions to inventories (including business and government, but not consumers' inventories)
16) Net additions to gold and silver stocks
17) Net additions to stock of durable goods held by business concerns and governments, and of houses and automobiles owned by consumers

[4] 'Value of the Gross National Product and its Components, 1919-1929', *Journal of the American Statistical Association*, December, 1934.

18) Net increase in the nation's external credit

200 Total of (15) to (18), saved income, excluding market valuation readjustments

300 Total of 100 and 200, total national income

The total represented by item 100 equals consumed income if we assume, for convenience, that, except for houses and automobiles, consumers' commodities as well as services are consumed in the year of purchase and that consequently the inventories of all consumers' commodities (except houses and autos) are zero. Of course, this assumption is not true and leads to errors in the portrayal of year-to-year changes in income, and to the omission of a total of wealth that is important in absolute if not in percentage terms. The warrant for such an incorrect assumption is partly that the percentage errors are not large, but mainly the inadequacy of present data on consumers' stocks. Were satisfactory data available on stocks of any other consumers' commodity, it would, of course, be accorded treatment similar to houses and automobiles rather than electric energy.

Item (18) disappears when we are considering the world as a whole or an isolated economy. For simplicity we shall make the assumption that item (18) is not involved for a first consideration of the problems of income deflation. On this assumption, the total of items (1) through (17) may be taken to represent either the total income derived from the community's human and property resources or the total of consumed income plus saved income for the year (excluding market valuation readjustments).

One qualification of this assumption, due party to the present state of our information, may be noted. The assumption implies that estimates of total social income by the debit net value product method and by the ultimate products method will be equal. Theoretically, the two definitions should come to the same thing. Actually, there are difficulties in making the accounts balance precisely. Thus there is difficulty in apportioning the gross revenues of certain industries (other than income from investment) between consumption and business uses. This is true of transportation and communication and more especially of such government services as those rendered by the Army and the Navy. With government services, there is a question not only of apportionment but also of determination of the gross value product of the service to be apportioned. Indeed, we may fairly class gov-

ernment services with imputed incomes with respect to the valuation problems involved in their determination.[5]

Questions regarding the determination of the debit net value products of certain types of business are also unsettled, as well as questions regarding the portion of their gross revenues (other than property income) that is assignable to consumption. Among these types of business are insurance, investment banking, real estate brokerage, and commercial banking. The entry on behalf of each of these types of business in both the debit net value product column and the ultimate products column is still a matter of dispute.[6]

Under these conditions, the net value product definition of national income still leaves opportunity for differences of opinion as to some of the items to be included in our list of ultimate products. However, there is substantial agreement on most items.

In attempting to deflate social income to determine the physical volume of ultimate products, we may note first that the technique for handling items (15), (16), and (17) has already been discussed in the preceding section. Deflation technique here involves its application separately to the positive net physical increments of wealth during the period and the net physical decrements during the period (or else separately to the opening and closing inventories).

Items such as (1b), (2), and (3) call for little discussion. They have been conceived as typical of all ultimate products in many over-simplifications of the deflation problem. They may be treated as a group and a single deflation index applied, if that seems most convenient. However, one limitation on the use of a single index may be mentioned. For some ultimate products, available price and dollar volume data are more satisfactory than available physical volume data. For other ultimate products, highly satisfactory physical volume data may be available while either price data or dollar volume data may be not entirely satisfactory. Under these conditions, the direct use of a weighted physical volume series seems indicated.

[5] See G. C. Means, Part Five, discussion by Simon Kuznets and Dr. Means' reply; Gerhard Colm, *Volume One*, Part Five, discussion by Simon Kuznets and Dr. Colm's reply.

[6] See M. A. Copeland, *Volume One*, Part One, pp. 23-6.

Several of the items on our list represent imputed incomes or incomes that must be evaluated by a process equivalent to imputation. This is true of items (1a), (4a), (5b), and (5c), as well as some other items. The imputation process necessarily involves some assumption regarding values and care should be taken that this same assumption is employed in the deflation process applied to these series.

Some items involve a peculiar difficulty for deflation because the only physical measure applicable to them is monetary, i.e., a dollar. This is the case with the services rendered to ultimate consumers by money stocks and checking accounts and with the services rendered to ultimate consumers by insurance companies. Perhaps the only solution in such a case is to treat these items along with the inevitable residual category, assuming that it is safest to consider them as needing the same percentage correction for price changes as all other ultimate products in the aggregate.

In an isolated community, the deflated social income that results from the procedures described above may be regarded as an index of the physical volume of production. We should recognize, however, that existing production index numbers differ from it in two major ways:

1) They correspond to deflated gross value product rather than, as in the case of deflated national income, to the deflated net value product of the economic system. They include production of durable goods for replacements as well as for additions;

2) They do not include the production of services, which are included in deflated national income.

Deflated net value product, however, corresponds to what economic theory has usually meant by production.

It was noted above that more than one deflation of the same dollar volume may be possible. The discussion up to this point has been of the procedures required to deflate national income in its credit aspect as the value of ultimate goods and services. National income may also be treated in its debit aspect as a set of primary distributive shares—payroll, interest, profits, etc. We may deflate national income in its debit aspect in order to measure changes in the physical volume of services of labor and wealth used by the economic system in the productive process.

In other words, we may use deflation to measure in physical terms the 'input' that results in the 'output' of our economic system.

In terms of uncorrected prices, total national income in debit terms and in credit terms are necessarily equal. In general, the correction of national income for price changes over a series of years will make the two volumes unequal, except in the base year, in which physical output and input are both equal by definition to 100 per cent. Over a period of years the output curve will ordinarily increase more rapidly than the input curve, and this more rapid increase may be taken to measure the increased efficiency of the economic system.

The input series is composed of two major parts. The first is compensation of employees deflated by the changes in the rates of compensation or an index of man-hours of input weighted by the various levels of earnings rates. The second part is deflated property income derived from the wealth used by the economic system in the production of goods and services. The complexity of the existing financial structure of our economic system obscures the relationships involved in computing a deflated property income figure analogous to the deflated labor income figure. In the case of labor we may think of various classes as each receiving on the average so many cents per man-hour. In the case of wealth we may think of various groups of the ultimate owners (equity holders) as receiving each so much per factory-hour. Perhaps the most convenient way to compute the deflated property income constituent of our deflated input index is to construct an index of the physical volume of wealth used in production each year and weight it by the total property income in the period selected for the determination of weights. This weighted plant-hour series might then be added to a correspondingly weighted man-hour series to measure physical input for the economic system.

The input series may represent the services of labor and wealth used by the economic system as described in the preceding paragraph or it may represent an index of the services available for use regardless of whether they were or were not employed by the economic system. When unemployed services of labor and wealth are included, a comparison of the volume of deflated income in

the sense of commodities and services with the volume of input yields a rough measure of the social losses due to the incomplete utilization of available economic resources in periods of unemployment of labor and wealth.

Comparisons between the trend of the index of the physical volume of labor input and that of the physical volume of wealth input should provide interesting information concerning the effect of mechanization on the proportion of factors as between wealth and labor.

Thus far we have been discussing the problems involved in deflating estimates of total social income upon the assumption of an isolated economy. Except for an income estimate for the entire world, such an assumption is contrary to fact. Our task is incomplete without an analysis of the additional complications introduced when the estimate to be deflated is for a segment of the world economic system. The three principal types of segments distinguished above in the discussion of wealth (see pages 95-6) also require discussion for income: (1) by geographic area (a) from which derived, or (b) in which received, (2) by size-of-income classes; (3) by the industry from which derived.

Two additional types of distributive share that are of special interest in the case of income are by race and by degree of urbanization of the community in which the income recipient lives. Deflation technique for an income distribution by race may be thought of as analogous to that for a distribution by size-of-income classes and, similarly, deflation technique for a distribution by degree of urbanization of the community in which the income recipient lives may be conceived as a special case of distribution by geographic areas.

It is important to emphasize that in discussing the incomes of the various segments it is, in many cases, desirable to include capital gains and losses in estimating income in current prices.[7] It may also be desirable, in some cases, to include in income such secondary distribution items as gifts and certain kinds of government income such as relief. Owing to the limitations of available data for the first two types of income distribution the only practicable procedure is to estimate and deflate the income received directly by individuals, unless in property incomes we are to

[7] See Clark Warburton, *Volume One*, Part Two, pp. 97-101.

include market appreciation and depreciation of securities in lieu of credits and debits to surplus.

For many types of distributive shares, the deflation that is of most interest is to an index of the volume of commodities and services that can be acquired in exchange for the income received by the group in question. The deflation of distributive shares to an index of the volume of commodities and services that can be acquired may take several forms. The procedure that especially suggests itself is to deflate the income received by an index of prices of commodities and services actually purchased by the recipient of that income.

For types of distributive shares that represent income received, this method of deflation seems sharply defined so far as consumed income is concerned. The weights and prices are selected with a view to constructing indirectly through deflation an index of the physical volume of commodities and services actually consumed. When we come to saved income, however, the ambiguities of the deflation process for wealth segments are present. The two principal alternatives that are open may be suggested, the alternatives already considered in connection with the deflation of wealth. One is the application of the consumed goods indices to saved income. The second method, which assumes that it is possible to apportion the income of each segment between consumed and saved income, is the construction of an index of the prices of saved goods by dividing total savings in deflated dollars into total savings in current dollars, current dollars being determined either on a book value or market value basis. The resultant index is used to deflate the saved income of each distributive share, on the assumption that the prices of the investment goods acquired by it have fluctuated in the same way as those of all saved goods. Saved income deflated in this way is then added to consumed income deflated by a cost of living index. This second method has the effect of distributing deflated savings, estimated by the wealth-extant method, in accordance with the distribution of wealth increments measured in current dollars. It is the counterpart for income of the 'wealth-extant-total-distributed-on-current-valuations' procedure described on page 97. Deflating saved income by this second method gives a result for the total deflated

income of each segment that approximates the 'goods actually purchased' idea more closely than does the first method.

As an alternative to this second method, the index of the prices of saved goods may be combined with the index of prices of consumed commodities and services into an overall index for deflation purposes, using base-year amounts of consumed and saved income as weights, but this device may get into difficulties in a period when negative savings are involved.

The analysis of income by geographic region may have reference either to the income derived from or received in a nation. In contrast to the situation in an isolated economy the two concepts are not ordinarily identical. Procedures to be followed in estimating and deflating these two figures for a nation are similar to those which must be used in estimating and deflating the income derived from or received in any other type of geographic region, although fuller data are available on international relationships than on most interregional transactions.

Just as in the case of a single business enterprise the net value of product is equal to the total value of the product less payments to other enterprises for commodities and non-personal services, so in the case of the nation, the value of commodities and services imported from abroad must be deducted from the value product of the domestic economy in order to estimate the value derived from the domestic economic system alone. These relationships may be conveniently set forth in an equation. The result, representing the difference between two sets of values, cannot be deflated directly for the reasons noted in the Introduction. Hence, each item in the equation below must be deflated independently by an appropriate price index.

(1) Value of commodities and services consumed by residents of the United States
+(2) Net increment in wealth located in the United States
+(3) Value of commodities and services exported
−(4) Value of imported commodities and services
=(5) Value derived from the economy of the United States.

The chief method of deflation for item (1) is, as already noted, the same as that discussed for consumed income in an isolated

economy. The technique for an isolated economy is also applicable to item (2). Items (3) and (4) should presumably be deflated by the prices involved in the international transactions they represent. In the case of merchandise, the deflations would thus be of the type already worked out by the Department of Commerce. The algebraic sum of the first four items after deflation would represent the deflated value for item (5), the value derived from the economy of the United States.

We are also interested in a deflated figure that will represent the income received by residents of the United States, including accruals. Such a figure may be computed by adding to the value of commodities and services consumed in the United States the net increment in the wealth owned by residents of the United States as computed by the formula given above on page 96. In this case, however, as noted above on pages 97-9, several possibilities are open for the deflation of saved income.

To deflate a personal distribution of income the procedure suggested above on page 106 for distributive shares representing income received may be followed, using either of the two methods of deflating saved income there outlined. The first—the application of consumed goods indices—is much simpler but the second—the analogue to the 'wealth-extant-total-distributed-on-current-valuations' procedure—will in most cases give more satisfactory results.

It is possible, of course, to measure changes in the deflated income derived from the various industries that make up the nation's economy. It is relatively simple to deflate the net value product of an industry by an index of the prices of a bill of commodities and services for multiples of which it might be exchanged and thus obtain a measure of changes in the relative value of the product of each industry. It is not so easy, however, to deflate the net value product of an industry to an index of the physical volume of its production of commodities and services. For this purpose, account must be taken of changes in the prices of items that the industry in question must purchase from other industrial groups. If an enterprise had only direct labor and material costs and borrowed no money and if, further, an unchanging set of manufacturing operations were performed by the business year after year (i.e., if there were no vertical or horizontal

integration or disintegration), we might construct a measure of its deflated net value of product, using a price margin index as a deflator. Such a procedure may be applied somewhat roughly even where indirect costs, such as taxes are present.

Theoretically the deflation of the net value product of an industry in the latter sense would involve constructing for articles and services purchased by the industry from other industries an index of the prices paid (so far as this is feasible) and then deflating the values of commodities and services so purchased. In the same way, the value of the total product of the industry should be deflated by an index of its prices. The difference between the two deflated figures would represent the deflated net value product. A first step toward constructing indices needed to compute such a deflated figure for agriculture has been taken by the Bureau of Agricultural Economics, which computes an index of prices farmers receive and an index of prices farmers pay for various goods used in production.

There is no reason to assume that such a deflated net value of product would vary from year to year in proportion with the net value of product deflated to give an index of the volume of commodities and services obtainable in exchange for that net value product. In a new and rapidly expanding industry, net physical output may often increase much more rapidly than the physical volume of commodities and services that workers in and owners of the enterprises can command with their distributive shares. It has been suggested that the so-called productivity theory would not call for equality of output and reward in such a situation, partly because of changes in technique and partly because of the inelasticity of consumers' demand. Nonetheless, the probability of divergent movements of deflated net value of product in an exchange value sense and deflated net value of product in a productivity sense seems to support the view that it is dangerous to talk about the distributive shares derived from an industry as the income produced in that industry.

As in the case of wealth, the methods of deflation discussed above by no means exhaust all the possibilities. They indicate, however, the necessity for defining clearly the objective of any deflation in order that the most appropriate technique may be chosen.

IV Deflation and Ethics

We have noted that in an isolated economy deflated social income represents what economic theory has usually meant by production. It may be added that deflated social wealth represents what economic theory has usually meant by wealth, and that, except for what may be called real capital gains and losses (such as those due to discovery, and unanticipated fire and flood), deflated saved income represents what economic theory has usually called savings. As H. J. Davenport has pointed out, these concepts inevitably have an ethical connotation.

The application of the consolidation process to balance sheets and income statements to estimate national wealth and income dodges many difficult questions, and gives the resulting totals an appearance of objectivity. Deflation also is a statistical process that appears to be thoroughly objective, and does not allow two income estimators much leeway to apply differing ethical conceptions. Yet the result of these two processes enables us to clarify out thinking concerning certain types of activity that are individually gainful but socially useless or even wasteful.

It will be useful to review the nature of these processes in order to see their significance for the type of ethical judgment involved in such terms as wealth and production. The consolidation of income accounts involved in the net value product formula does not require the income estimator to say whether any business for which he is computing a net value product is socially useless or parasitic. It does require the income estimator to draw a line between (a) that part of the gross revenues (other than property income received) of the enterprise whose net value product he is computing that derives from the sale of ultimate products, i.e., consumption commodities and services and additions to social wealth, and (b) that part of such revenues that derives from the sale of intermediate products and services to other enterprises. By the same token, this consolidation process requires the income estimator to distinguish for an enterprise whose net value product he is computing between those expenses which represent payments to other enterprises for intermediate products or the value of wealth used up through depreciation, depletion,

etc., and those expenses and other debit items that represent ultimate distributive shares. Thus the consolidation of accounts requires the income estimator to look at the economic system as a whole, identifying the net unduplicated value of the products it turns out and the cost of the services of labor and wealth employed. Through defining the values of ultimate products and the amounts of the various distributive shares, the consolidation process defines the two methods of deflating income which yield measures of the physical volume of (a) social production, (b) input. So far as deflated income estimates imply an ethical judgment, this judgment appears to center on the relationships between social input and social output, i.e., it has to do with the efficiency or the wastefulness and possible parasitism involved in payments for the employment of wealth and labor in ways that may or may not produce as large a volume of social output as some alternative employment might provide. Not only does this afford a somewhat narrow range of ethical judgments but also the ethical judgments of course cannot derive merely from the statistics. One must in addition make the ethical assumption that on the whole it is socially desirable that, for a given physical volume of social input, the physical volume of social output should be as large as possible. The ethical judgment, on this assumption, that some forms of employment of labor and wealth that result in private gain are socially useless or undesirable has to do chiefly with situations in which employment increases the dollar volume of ultimate products without increasing their physical quantity. The consolidation process and deflation together make it theoretically possible to identify such activities.

The identification of socially useless and wasteful input, however, requires us to establish for each unit of output that certain units of input are a condition both necessary and sufficient and that when the necessary and sufficient condition for every unit of output is provided, some unnecessary units of input remain.

Deflation of social income enables us to measure changes in the relation between total social output and total social input, but no absolute unit of measurement common to the two physical volumes is available. In comparing the volume of social output with the volume of social input a base period is essential. We cannot say that a given volume of input is needlessly large in

comparison to a year's social output. We can only say that as between two years input is larger in comparison to output in one year than in the other. The identification of an activity as not contributing to the deflated social income implies comparison with another period or situation (hypothetical perhaps) in which the activity is absent and production undiminished.

In making such a comparison of input and output other things must remain constant. If we are to establish fully that the decline in a given item of input does not involve a corresponding decline in output, we need a case where this given item of input declines and where there is no change in any output item or in any other input item. Unfortunately, in actual comparisons other changes are certain to obscure the comparison in which we are interested. Technological improvements may lead to savings in input that offset increases in input items suspected of being unnecessary. An increase in the density of population may result in a poorer social proportion of factors. We cannot hope to identify as socially useless any form of economic activity merely by comparing overall measurements of total social input and total social output for two or more actual periods. If and when fairly satisfactory measurements of social input and output are available for a period of years some statistical technique may perhaps be developed that will assist in isolating connections between specific input and specific output changes. Wanting this, we must have recourse to the type of theoretical isolation that economic theory has extensively employed in the past.

Two corollaries of these considerations concerning relations between input and output may be noted. (a) Not only are measurements of input and of output independent, so that input cannot in general safely be used to measure output; but also we cannot conclude that the addition of a specific item of input will necessarily involve an increase in output. (b) When, without any change in technique or in the physical amounts of any item of input, there is an increase in the dollar volume of ultimate products (and, of course, concomitantly of distributive shares) there can be no increase in the physical volume of output of ultimate products. Input is a necessary condition to output even though not a sufficient condition.

As economic theorists early recognized, the obvious example

of a primary distributive share derived without a clearly corresponding input or output item is monopoly profit. It seems clear that the introduction of a monopoly into an economic system will involve a curtailment of output and thus a decrease in deflated social income, although the net value product formula is applied unmodified to the monopoly's accounts.

If the monopoly continues, its profits may be capitalized as an intangible asset. In the consolidation of balance sheet accounts to determine social wealth this intangible item clearly will not cancel out. It is an item in the dollar value of social wealth. The same will be true of the grant of the right to charge toll at a bridge. Assuming that the toll is not a form of payment to induce either the construction or maintenance of the bridge, the toll will involve no change in the social output or deflated social income, and conceivably it will increase the dollar volume of annual income by precisely the amount of tolls collected during the year. If the toll does not increase deflated social income, consistency would seem to require that its capital value should not increase deflated social wealth.

Now if we modify the assumption concerning the payment of tolls so that a part of the revenues from tolls is used to defray the cost of maintenance of the bridge, the result will be that deflated social income (i.e., output) will be increased by the amount by which the bridge would otherwise have depreciated. The capitalized value of the unexpended balance of revenue from the tolls will, however, continue as an asset item on the consolidated national balance sheet in current dollars. The argument that led us before to conclude that when wealth is measured in deflated dollars this item disappears is still applicable. The capitalized value of monopoly profit may be conceived as analogous to the capitalized value of residual toll income. While a part of the gross revenue of the monopoly is employed to defray the cost of production of the monopoly's product, there is a balance of excess profit arising from the monopoly of the production, the capitalized value of which presumably appears as an asset on the monopoly's balance sheet.

The analogy to the toll bridge may readily be extended to include the capital value of a patent or a trade mark. In these cases, however, the monopoly income is paid for a type of labor

that contributes to our stock of technological knowledge. This knowledge might be conceived as a form of wealth but is not ordinarily regarded as capable of a satisfactory money evaluation. Its continued existence clearly has nothing to do with the continuance or expiration of a patent right. We conclude, then, that deflating social wealth may be assumed to eliminate the values of intangibles such as patents and copyrights. However, in a computation of the distribution of social wealth even in deflated dollars all these intangible items should be taken into account.

A theoretical consideration of the bearing of the net value product of a monopoly upon deflated social income emphasizes the danger of using such an expression as 'the income produced by an industry' to designate an estimate of national income in terms of distributive shares. Such a designation confuses different concepts of deflated social income; as applied to a monopoly it confuses the deflated net value product of the monopoly in a productivity sense and in an exchange value of distributive shares sense (cf. p. 109). As applied in other cases it may involve a confusion of social input and social output.

Unfortunately, it is easier to identify a socially useless activity in theory then in practice. While monopoly elements are pervasive in our economic system, cases of pure monopoly are rare if not nonexistent. Rather, we should look for what has been called monopolistic competition. The difficulty in practice in identifying socially useless activity that partakes of a monopolistic character may be illustrated by a consideration of sales effort. An increase in sales effort (input) may involve an increase in the current dollar volume of national income without a proportionate increase in the physical volume of national income. We may think of sales effort as in part at least directed not so much toward increasing an ultimate product as toward increasing the consumer's willingness to pay for it. But it must be recognized that a portion of sales effort takes the form of providing entertainment by radio and subsidizing newspapers and periodicals. Moreover, sales effort provides market information. Existing practices respecting sales effort creates problems for the national income estimator. Some of the apparent value of ultimate products, such as cigarettes, should be subtracted from these products

and set up as a separate imputed income account, representing the value of such services as radio broadcasting and market information. An argument might be made for counting among these services the education of those consumers' tastes which respond most readily to sales effort.

The application of the deflated social income technique to determine which activities are socially useless is by no means easy. We should recognize, moreover, that it is subject to quite definite limitations. Consolidation of accounts and deflation together identify certain goods and services as ultimate products but this list may include various items that many would regard as socially deleterious or at best of doubtful value. Shoddy goods, harmful patent medicines, and other forms of 'illth' should, of course, be included by the impartial income estimator, weighted by their market values, in his measurement of the physical volume of social product. A similar comment applies to wealth. Consolidation and deflation together may be taken to eliminate intangible items. They do not, however, eliminate such items as the burglar's jimmy or the library of a shyster lawyer.

In spite of the difficulties involved in applying the social usefulness criterion afforded by deflated social income and in spite of its marked limitations, it may be worthwhile to suggest forms of 'economic' activity that the deflation technique for the measurement of social output and input seems likely in whole or in part to call in question. To some extent at least, the net value product derived from a so-called 'merchants protective association' may involve an increase in the current dollar volume of social income without a proportionate increase in the physical volume of the income. The extent to which an increase in net value products derived from the business of stockbrokers, investment bankers, or realtors can be identified with an increase in physical volume of national income is by no means clear. In the case of the activities of national military establishments, we may wish to distinguish physical volume of product, as measured from a national point of view, from physical volume of product measured from a world point of view. The mutually destructive activities of two armies can scarcely be counted as productive from a world point of view; from the national point of view of each nation considered separately, the activities of its army might be

regarded as productive. In the case of lawyers' services, some activities may be assumed to be reflected in a physical volume of national production index; others may resemble more closely the status of the 'services' rendered by a so-called merchants protective association. There is difficulty also in determining the extent to which the lobbyist, the ward heeler, and the walking delegate increase deflated social income.

But difficulties attach to other types of economic activity. How far the activities of banks, courts, and police can be made to reflect themselves in any measure of the physical volume of national income is something of a question. Moreover, in products such as automobiles and clothes, improvements in quality represent a type of increase in the physical volume of output that is extremely difficult to show statistically. Again, as J. M. Clark has pointed out,[8] some products are clearly multidimensional in that a single physical volume series cannot adequately represent them. Thus railroad passenger service cannot be measured by either number of passengers or number of passenger miles alone. This difficulty is doubtless present in less aggravated form for other products commonly represented by a single series. In view of all the difficulties in our physical volume measurements there is some danger of confusion between failure to be recorded in a physical volume of production index because of (a) technical difficulties in the construction of physical volume indices, and (b) the social parasitism of the type of industry involved.

A related and perhaps more serious difficulty is that there is too much room for differences in ethical judgments in deciding on the inclusion of some items as ultimate products. We noted above that in the present state of our techniques of measuring national income a complete balance between the value of ultimate products and the cost of ultimate distributive shares is not possible. So long as such a balance is not fully worked out there is some opportunity for genuine differences of ethical opinion concerning the counting or not counting of some items in the list of ultimate products. Fortunately such differences are confined to relatively few items. It is to be hoped that the lack of objectivity regarding these marginal items may be diminished by further research.

[8] *Studies in the Economics of Overhead Costs*, (University of Chicago Press, 1923), Ch. X.

V Summary

Our principal findings with respect to the deflation of wealth and income may be summarized in the following fourteen propositions:

1) Deflation is an indirect way of constructing various kinds of indices of physical volume.
2) Where income figures represent the difference between a positive and a negative dollar volume series, the positive and negative incomes must be deflated to base period dollars separately, the difference between the deflated figures being the deflated net income figure.
3) In an isolated economy the object of the deflation of wealth may be considered as twofold: first, to secure a revised estimate of the value of the stock of wealth for some base date in terms of a single set of prices; second, to measure changes in the stock of wealth in terms of the single set of prices used in securing the revised total for the base date.
4) In an isolated economy, deflated wealth is a measure of changes in the physical volume of (1) sites and permanent improvements, (2) wasting natural resources, (3) other durable tangibles, (4) inventories.
5) Intangibles do not appear in the total value of deflated wealth.
6) In an isolated economy, the value in current prices of the ultimate products of the economy may be deflated to represent an index of the physical units of output of commodities and services. The result measures what economic theory has usually regarded as production.
   a) Consumption commodities and services will, of course, be deflated by an index of their cost.
   b) The increment in deflated wealth will be equal to the deflated saved income for the period.
7) In an isolated economy the total net value product considered as the distributive shares of labor and property may be deflated to represent an index of the physical volume of input—in effect a weighted index of man-hours, factory-hours, etc.

8) When we come to consider various types of distribution, wealth may be deflated so that each distributive share represents in physical volume terms changes in the physical volume of wealth actually owned, i.e., the number of acres, machines, etc., in each share. This method of deflation, referred to as the wealth-extant method, takes no account of the effect of changes in the prices of wealth items on the distribution of wealth. The method is the same as that for an isolated economy.

9) In computing the deflated values of distributive shares of wealth or income by geographical areas, classes of individuals, or industry groups, the values to be deflated should for most purposes include the revaluations of both tangibles and intangibles at current prices, on either a book value basis or a market value of equities basis.

10) One method of deflating wealth for distributive purposes is to pro-rate the total deflated wealth, as determined by the wealth-extant technique, on the total wealth in current dollars (intangibles and write-ups included). This method is referred to as the wealth-extant-total-distributed-on-current-valuations method. Saved income for distributive purposes may also be deflated by this technique.

11) For distributive purposes wealth may also be deflated by the use of index numbers of consumers' goods appropriate to the various classes of wealth owners. This consumption-exchange technique may also be employed to deflate saved income.

12) There is no direct way to deflate the income derived from a community to represent a physical volume of products. The following relationships, using the United States as an illustration, may be used for the purpose. The income derived from the economy of the United States in deflated terms may be determined by deflating each item in the left hand member of the equation:

(1) Value of commodities and services consumed by residents of the United States
+ (2) Net increment in wealth located in the United States
+ (3) Value of commodities and services exported
− (4) Value of imported commodities and services
= (5) Value derived from the economy of the United States.

13) The net value product of an industry may be deflated to represent approximately its physical volume of output by expressing in deflated dollars (a) its gross value of products, (b) the deductions for commodities and services purchased from other enterprises and for depreciation and depletion.

14) Estimates of national wealth and income through the processes of consolidation of individual accounts and deflation together make it theoretically possible to identify economic activities that result in private gain but are socially useless or undesirable. The theoretical possibility of such identification derives chiefly from the distinction between deflated social income in the sense of output and deflated social income in the sense of input. A specific item of input may increase the dollar volume but not the physical volume of output.

Discussion

I R. T. BYE

There has been considerable protest at the inclusion, in the paper by Messrs. Copeland and Martin, of what they frankly state to be an ethical bias. They even go so far as to declare that almost any economic analysis must necessarily proceed from some ethical preconceptions. I am not sure I should go along with them altogether on this, but that is not my present concern. I wish rather to emphasize that it is not necessarily unscientific to describe the economic system in terms of its purposes, nor does such a description, in my judgment, involve an ethical bias that is in any way likely to weaken the objectivity of the findings. If I may illustrate from the field of physiology: it is obvious that the organs of the human body have certain functions to perform —the heart to promote the circulation of the blood, the stomach and intestines to carry on the processes of digestion, and so on. The physiologist necessarily studies these organs in relation to those functions, and we can hardly accuse him of bias when he devises certain instruments to measure the action of the heart or the digestive power of the stomach. The economic system likewise exists for the purpose of accomplishing certain objectives, which are summed up in the word 'economy', Broadly, this word may be defined as 'making the scarce means of production go as far as possible in maximizing utility'. Given such an objective, it is entirely possible to describe the economic process in terms of the institutions that have grown up to promote it, without departing from strictly scientific procedure; and if we could devise means of measuring that elusive thing we call utility, it would be perfectly scientific to classify the various institutions with respect to their utility-yielding power. An ethical implication in the statement of the objective itself need not interfere with the scientific validity of the findings reached in relation to that ob-

jective, provided the conclusions are established by strict cause-and-effect analysis after the objective has once been stated. Therefore, I see no impropriety on the part of the authors in giving us a definition of production and then developing techniques for deciding whether a given item of input yields an increment of product, in the sense in which they define it. Whether "it is socially desirable that, for a given physical volume of social input, the physical volume of social output should be as large as possible" is, as they state, an ethical matter, but that has nothing to do with the technique; for whether a given input does in fact give as large a physical volume of social output as possible is not a matter of ethics at all, it is purely a question of scientific fact. There is no virtue in scientific men making a pretense of entire abstraction from ethical preconceptions. In the last analysis, the value of science consists in its ability to serve our ends, which involves its application to ethical problems. It is only important that in scientific work ethical judgment should not be allowed to warp our observations of fact, or to interfere with the strictly logical analysis of cause-and-effect relationships.

II SOLOMON FABRICANT

Messrs. Copeland and Martin suggest the construction of an index designed to measure the 'physical volume of input'. The input series, it is stated, is composed of two major parts, one representing man-hours of labor and the other some measure of real (or physical volume of) services derived from wealth used in the productive process. The 'physical volume of wealth used in production' is offered as the specific measure of the real input of wealth (III); and this is further clarified in the phrase 'factory-hours'. Minor parts of the input series are not mentioned except perhaps in the 'etc.' in the seventh proposition of the summary.

Two difficulties trouble me in considering these interesting suggestions. First, how can Messrs. Copeland and Martin reconcile their measure of income (which *includes* rents earned by intangible assets) with their measure of input (which includes the physical volume of services derived from labor and wealth—the latter *excluding* intangibles)? Second, just what is meant by 'used' in the phrase "services of wealth used in the productive process"?

It is pointed out by the authors that the 'physical' volume of output in the base year is equal to the 'physical' volume of input in the same year, and both are 'by definition' equal to total national income. If the 'services' of intangible wealth are not included in input, how can this be true? It is indeed surprising that the statement is made that intangibles do not appear in the total value of deflated wealth (proposition (5) of the summary). The distinction between the real social capital embodied in a new technical process, invention, or formula, or in organizing a going concern, and that embodied in tangible goods, does not seem satisfactory. There are, of course, many statistical reasons for making the distinction, but these are not offered as the primary reason. If, for statistical or other reasons, the measure of input does not include the services of other agents of production (besides those of labor and tangible capital goods) any deviation of the input curve from the output curve will arise not only from changes in the efficiency of the economic system but also from changes in the quantity of these other services.

As to the second difficulty: what do 'factory hours' really stand for? Is idle machinery to be considered as contributing to the input? And what about machinery and plant held in reserve? The same difficulty arises when one asks whether one's heart is idle between beats. The cycle of movement of the heart is clearly one organic process. It should not be divided into parts except to describe the process. *If* the business cycle also is an organic unit we may not logically define input (of capital, at least) except in terms of a whole business cycle period.

There are other difficulties in defining the input of capital. It is suggested that land sites and permanent improvements tend to remain fixed (II). An important question arises here concerning obsolescence. If a given type of land is abandoned because its product can no longer command an adequate price, can we say that there has been no decline in the capital resident in the land? Of course, obsolescence of this sort may not necessarily be considered as a charge against income. But Messrs. Copeland and Martin do not separate charges or credits on capital account from income, despite their admission that economists have usually eliminated at least certain capital changes from their measures of saving.

Another point: the problem of a base period raised below by Mr. Friedman comes in again in the statement concerning the measurement of "the social losses due to the incomplete utilization of available economic resources in periods of unemployment of labor and wealth." It is implied here that the base year situation of employment of capital and labor is accepted as the criterion of full employment (this is explicitly mentioned in Sec. IV). It is further implied that the economic system can really continuously function at full steam. But if the nature of the system is such that it must work in cycles, some other criterion than the base period must be selected by which to measure the social losses arising from incomplete utilization of economic resources (including intangibles). I have here in mind theoretical models of economies different from the present economy in one or more respects: e.g., a socialist economy. Another difficulty of the base period arises in weighting the input of capital by the property income in the base period. If (as Messrs. Copeland and Martin suggest) capital gains and losses are to be included in property income, the choice of the base period becomes especially serious. The 'weight' given the input of a particular capital good may be relatively huge (and positive or negative) in one base year and small in another.

III MILTON FRIEDMAN

The process of deflation represents an attempt to get behind the monetary veil in which economic transactions are ordinarily shrouded and to measure changes in magnitudes that are considered in some sense more fundamental than value sums. In order to perform this task it is essential explicitly to recognize and analyze the more fundamental magnitudes the changes in which it is desired to represent by an index. Only if this were done would it be possible to obtain satisfactory criteria on the basis of which different methods of deflation could be judged and the results they yield analyzed. If, as has been done by Messrs. Copeland and Martin, the aim of deflation is stated solely in such intrinsically ambiguous terms as the construction of 'an index of physical volume' without further analysis of the fundamental ends for which such an index is desired, it is in-

evitable that mechanical criteria will be employed, that solutions offered will be in the nature of assertions rather than of answers susceptible to 'proof', and that the choice among alternative solutions will be almost entirely arbitrary. The absence of basic criteria of judgment makes for an analysis that is necessarily confined to the consideration of a series of related problems, each treated more or less on its own merits.

An excellent illustration is provided by the 'wealth-extant-total-distributed-on-current-valuations' method proposed "to take account of the effect of price changes upon the distribution of wealth" in "deflating segments of total social wealth." The method is to distribute the "total physical volume of wealth in constant prices at a given date" among the different segments according to the proportion of the total wealth in *current* prices owned by each segment. The only justification offered for this particular method is that "if the movement of prices since the base date had affected each type of wealth equally and if the distribution of intangible items of wealth had remained unchanged, the share of each segment in the physical stock of wealth would be the same" whether the method just outlined were used or a separate physical volume index were computed for each segment (II). Granted that the method proposed by Messrs. Copeland and Martin in some way takes into account the effect of price changes, any number of other methods can be devised that also do so 'in some way' and that satisfy the one criterion the authors employ. Thus an arithmetic, geometric, harmonic, or any other average between the two contrasted procedures is equally valid, if no other criterion is employed. Granted also that the authors recognize the existence of alternative procedures, the listing of alternatives is scarcely a substitute for an analysis designed to enable a choice to be made among them or to indicate reasons why a choice cannot be made; and an incomplete list of alternatives chosen presumably on the basis of unexpressed but implicit criteria may not even be a complement to such a more fundamental analysis.

I THE USE OF DEFLATION TO MEASURE TECHNOLOGICAL CHANGE

The authors consider two principal types of deflation, one designed to measure 'real output' or command over goods and

services, the other designed to measure 'real input' or the quantities of factors of production employed or available. In both, the procedure suggested is, essentially, to select a base year, and compute for other years the total value of commodities and services or of factors of production using base year prices. In fact, practical difficulties make such a procedure difficult or impossible and hence it is necessary to employ the indirect method of computing aggregative price indices using base year quantities and then deflate current value totals by the indices so computed.

The theoretical problems involved in the first type of deflation —that designed to measure 'real output'—have been extensively considered by many writers. There is general agreement that no method has been devised that is entirely satisfactory even when 'tastes and preferences' can be assumed to remain unchanged, and that the method assumed by Messrs. Copeland and Martin has a very definite bias—economic, not mathematical in nature —which is likely to be the more important the farther away the base period. This bias arises because a sum of money that in a later year will buy the same basket of goods as that consumed in the base year will yield a larger 'real' income, since the fact that price relations are different in the second year makes it possible to buy with the same amount of money a basket of goods more desirable than that consumed in the base year. Hence, the use of the index proposed by the authors overstates rises in the cost of living and thus understates rises in 'real output'.

It seems less frequently to be recognized that the problems that arise in deflation designed to measure 'real input' are similar in nature and that a similar bias results. The input price index assumed by the authors involves the determination of the value of the combination of factors of production employed in the base year at the prices of later years. However, with unchanging techniques, a sum of money sufficient in a later year to purchase that combination of factors represents a larger 'real input' and makes possible a larger output. For, at the prices of the later year the combination of factors employed in the base year is no longer the best combination; and for the same cost a combination can be purchased that will make possible a larger output. The use of the index discussed thus overstates the rise in input costs and understates the rise in the volume of input. Assuming no difficulties in

measuring output in a comparable fashion, there would thus be a tendency to overstate the extent of technological improvement.

The authors believe that a comparison of the two types of indices provides a basis for estimating the degree of technical change. Fortunately, for this purpose, the biases in the two indices are in opposite directions and thus to some extent counterbalance each other. While the output index understates rises in the volume of output, the input index understates rises in the volume of input. However, the divergence between two indices, each of which is subject to a bias, can scarcely provide an accurate measure of changes in technology even though the two errors are in opposite directions. Add to this the necessity of assuming 'constant tastes', if the comparison is to be meaningful, and the difficulty of obtaining an adequate measure of the quantity of capital, i.e., of the price of a unit of capital, as well as the lesser difficulties with the other factors of production, and the possibility of actually employing the procedure suggested by Messrs. Copeland and Martin seems exceedingly small.

The derivation of a measure of 'real input' that would provide an adequate basis for measuring changes in economic efficiency is even more complicated and difficult than the measurement of 'real output'; for the former involves the latter and other difficulties as well. This is easily seen by even a brief and incomplete consideration of the basic theoretical problems. It is evident, in the first place, that we do not wish to measure 'real input' in the classical sense of 'real' costs, i.e., the pain costs involved in productive activity. For this would entirely leave out of account non-human factors of production unless the exceedingly unreal and obsolete notion of a real cost of 'abstinence' were assumed. But what other common unit can be used to measure volume of input? Obviously, input is valued only for the output it makes possible. Hence the only way by which the volume of input can be measured is in terms of the volume of output. Were the analysis to stop at this point it would seem as if there were but a single problem—the measurement of 'real output'. We can, however, go somewhat farther, and ask the question—to what extent is the change in output over some specified period a result of a change in the quantity of the available resources, and to what extent does it result from a change in the way in which these re-

sources are employed.[1] In order to answer this question it would be necessary to determine the volume of 'real output' that *would* have been produced had techniques remained unchanged. A comparison of this series with the actual 'real output' then provides a measure of the change in efficiency.

In order to obtain for any particular year the two figures needed —namely, actual 'real output' and the 'real output' that would have been produced had techniques remained unchanged—it is necessary to determine four things: first, the various combinations of output items that *could* have been produced with the resources available in the given year had techniques remained unchanged; second, the particular combination of output items that *would* have been produced; third, the 'real ouput' that combination represents; fourth, the 'real output' the combination actually produced represents. In order to arrive at the first it would be necessary to know the 'production functions' corresponding to the techniques of the base year; to arrive at the second, it would theoretically be necessary to solve the equations of general equilibrum—not, note, the classical equations applicable under conditions of perfect competition, but those applicable to the real economy; to arrive at the third and fourth requires the solution of the problem of measuring 'real output' not only for actually consumed baskets of goods but also for hypothetical ones.[2]

My purpose in stating the problem in this fashion is not, of course, to suggest any practical solution, but rather to indicate the complexity and difficulty of the problem, and the kind of knowledge required for an exact solution. The real problem, of course, is how, on the basis of observable data, to arrive at approximations to this exact solution that can be reasonably expected to be sufficiently close for the purposes for which they are desired.

[1] This separation is to a considerable extent artificial: technological change affects not only the way in which resources are employed but also the quantity and character of the resources themselves.

[2] Certain of the difficulties with the usual methods of measuring 'real output' not heretofore mentioned should be noted. First, they take no account of the way the output is distributed among the various consumers; second, by presenting a figure supposedly relating to the community as a whole, they implicitly assume that 'utility' is comparable among individuals and that it is measurable.

As these comments have implied, and as would be obvious in any event, the choice of the base year is of crucial importance in problems of deflation. Yet the authors nowhere consider this problem except for a brief comment in the section on 'Deflation and Ethics'.

The authors may object to the criticisms voiced above on the grounds that different formulae will give essentially similar results or that they were concerned not with the index number problem but with other aspects of deflation. As to the first point, its validity has not yet been demonstrated. Moreover, even if it were correct it would not mean that the results could, without further investigation, validly be interpreted as Messrs. Copeland and Martin have suggested. As to the second point, I have argued that a failure to consider the fundamental problems of deflation underlying the selection of index numbers has resulted in an unsatisfactory analysis of those problems which are dealt with by the authors.

2 THE RELATION OF 'INCOME DERIVED FROM AN INDUSTRY' TO 'INCOME PRODUCED IN AN INDUSTRY'

Some comment seems called for by the authors' assertion that "the probability of divergent movements of deflated net value of product in an exchange value sense and deflated net value of product in a productivity sense seems to support the view that it is dangerous to talk about the distributive shares derived from an industry as the income produced in that industry" (III).

The meaning of the two types of deflated net product referred to in this quotation is most easily seen by considering an industry that produces a single homogeneous product, is completely integrated vertically, and in some sense maintains its capital intact. All the expenses of such an industry will be distributive shares, the value of its net and total product will be identical, and both will be equal to the distributive shares derived from it. In such a case the 'deflated net value of product in a productivity sense', according to the authors' definition of that term, would be obtained by dividing the total current value of the output of the industry by the price of the homogeneous product it produces, i.e., *it would be equal to the number of units of product produced*. The 'deflated net value of product in an exchange value

sense' would be equal to the total current value of output divided by an index of the prices of goods and services purchased by those who receive distributive shares from the industry. It is thus obvious that divergent movements between the two will depend solely on whether the price of the homogeneous product produced by the industry rises, remains constant, or falls relative to the price index employed. If the price of the product rises, deflated net value in a productivity sense will fall relative to deflated net value in an exchange value sense, and conversely.

The divergency on which Messrs. Copeland and Martin lay such great stress is thus solely a reflection of a change in relative prices. And I must admit that I cannot see the bearing that the existence of changes in relative prices has on the question of whether 'distributive shares derived from an industry' should be identified with 'income produced in that industry'.

Dr. Copeland has elsewhere objected to the identification of these two notions[3] and the paper under discussion contains numerous comments to the same effect. The equality of income derived from an industry and income produced by an industry is admittedly a purely arithmetical result: profits are computed in such a way that income derived from an industry is necessarily equal to the value of the product of an industry and the latter is defined as equal to the income produced by an industry. The objection to this terminology seems basically to rest on a feeling that it implies an ethical justification of incomes obtained by the recipients of distributive shares. This attitude derives in part from an identification of economic productivity as valued in the market place and social productivity considered from a broader point of view; and in part from the acceptance of the J. B. Clarkian doctrine that individuals 'ought' to receive what they produce. Dr. Kuznets has elsewhere noted the incorrectness of the first of these notions.[4] The second seems to me equally unjustified. Under a laissez-faire economy individuals may be able to obtain the value product attributable to their activities; but this is fundamentally different from saying that such a system of distribution is ethically desirable. 'To each according to his abili-

[3] *Volume One*, Part One, pp. 7, 48-9.
[4] *Volume One*, Part One, pp. 35-7.

ties' may be the rule; 'from each according to his abilities, to each according to his needs' may nevertheless be the ethical objective.

Moreover, to object to a terminology that identifies the income derived from an industry with the income produced by it on the grounds that payments are received for the production of commodities and services that from a social point of view represent disservices and illth seems to imply acceptance of the ethical principle that each person 'ought' to get what he produces and objection to the present system of distribution solely on the grounds of an improper evaluation of 'product'. The result is that argument centers on the less important point, while the fundamental ethical issue is neglected and insufficiently emphasized.

IV M. A. COPELAND

With Dr. Bye's affirmation of the propriety of economists' concerning themselves with ethical judgments I am in entire agreement. See my discussion of this point in the *American Economic Review* (XXI, 68).

In his comment on Dr. Kuznets' paper, Dr. Bye has charged me with "confusing the unit of measurement with the thing to be measured." I wish to reply with a countercharge. Dr. Bye has confused the definition of a term with the full complement of the things that may be predicated of it. A definition, as I see it, need not provide us with a description of the thing defined. It should merely enable Dr. Bye and others, inculding myself, to agree on what we are talking about, i.e., to limit the use of the term defined so that it is uniquely determined. Such a limitation, however, does not prevent us from finding out anything we can about the thing designated by that term, except that it makes sure we all mean the same thing by the term. We may define distance, mass, and force in terms of their respective methods of measurement (say, a rule, a suspension balance, and a spring balance). This does not prevent us from discovering that two masses attract each other with a force that varies inversely as the square of the distance between them. Similarly when I urge a definition of wealth in terms of accounting processes, I certainly do not mean to prevent anyone from investigating the ethical significance of wealth, or from making in the measurement of wealth

corrections for any given accounting practice when we agree that that practice gives rise to a need for such corrections. But I do urge that our investigation of wealth will be more objective if we keep out of our definition descriptive predicates not essential to a mere definition.

V M. A. COPELAND AND E. M. MARTIN

1) Dr. Fabricant asks: "If the 'services' of intangible wealth are not included in input, how can" it be true "that the physical volume of output in the base year is equal to the physical volume of input in the same year and both are 'by definition' equal to the total national income?" This question is apparently based on a misreading of our statements concerning the relation between input and output measures. Since the subject is apparently difficult and others have also been confused, it may be well to restate our position in more detail.

The movements of at least three different sets of input and output, or credit and debit, series may be compared:

a) Dollar value of input and output expressed in current prices,
b) Dollar value of input and output deflated to represent changes in physical volume,
c) Indices of the physical volume of input and of output.

We here are interested in comparing the movements of (c), physical volume of input and of output measures. We may select the same base year for both and assume that the figures for input and for output are both equal to 100 in that year. This is a simple and accepted statistical device. The validity of this assumption of base year equality is not affected by questions of the scope of the measures of input and output used. It is in this sense that we have stated "in the base year . . . measurement of physical output and of input are both equal by definition to 100 per cent."[1] Since the input and output figures for years after the base year measure changes in physical volume only, the movements of

[1] Although (b) is an indirect method of obtaining physical volume measurements, the method of deflation that has been assumed for the purpose of our analysis does not in general make deflated dollar figures of input and output actually equal in any year. It might be argued that in the base year all deflation indices will equal 100 per cent, since (a) the dollar values of input and output in current prices are equal in 'that year', (b) the deflated dollar figures will be the same as the undeflated

neither the input nor the output series can be affected by changes in the 'services' of intangible wealth, the item that seems to concern Dr. Fabricant.

We have not suggested that measures of input and output in current dollars be contrasted. If complete and accurate data were available, measures of input and output in terms of current dollars would be equal in every year. Nor have we said that measures of input or output in current dollars should be compared with measures of input or output in terms of physical volume as Dr. Fabricant's question asserts. Our point is solely that divergence is likely to appear between the movements of a series representing the physical volume of input and that of a series representing the physical volume of output, and that this divergence is a rough measure of changes in the efficiency of our economic system.

2) Dr. Fabricant suggests that our argument for not including the 'services' of intangibles in measures of changes in physical volume "does not seem satisfactory". We believe we may fairly postpone replying to this criticism until Dr. Fabricant indicates why he finds our argument unsatisfactory.

3) Dr. Fabricant asks "What do 'factory hours' really stand for?" We pointed out that at least two different assumptions are possible, one including and the other excluding certain idle factory hours. Our answer, then, is that the term may stand for either a measure including these idle hours or a measure excluding them, according to the purpose the measurement is intended to serve.

4) Dr. Fabricant objects to our saying that wealth and labor are idle during a depression and that their idleness involves waste. Apparently it is agreed that measurements of social waste due to incomplete utilization of available resources necessarily imply a possible alternative utilization that avoids the wasteful idleness. In suggesting a year of prosperity as indicative of such a possible alternative utilization, of course we never asserted that this base year could be taken to represent full employment—only that if

dollar figures and hence equal to each other. For all labor and property incomes and for consumed income we may readily choose the same base year. But for saved income we cannot. Rather, we must select a base date, say January 1 of the base year for the other deflation indexes. Hence, deflated saved income for this year will not in general equal the undeflated figure.

properly selected it may represent fuller employment than some other period the relative wastefulness of which it is desired to measure. But beyond this Dr. Fabricant's objection is fundamental. In comparing business cycles to heart beats, he in effect asserts that cycles cannot be moderated at all except by a catastrophic change in our economic system.

5) Dr. Fabricant asks: "If a given type of land is abandoned because its product can no longer command an adequate price, can we say that there has been no decline in the capital resident in the land?" What apparently he means is: "Can we say that there has been no decline in the physical volume of wealth represented by land?" Thus he seems to hold that market depreciation (a price change without any physical deterioration or depletion) should be reflected in a physical volume index.

Mr. Friedman uses the somewhat high-sounding language of an absolutist philosophy to make what boils down to the following three points:

1) Only the aggregative formula has been investigated, and the findings might have been different had some other formula been employed;
2) There are practical difficulties in developing actual satisfactory measurements of input and output;
3) A divergent movement between deflated net value product in a productivity sense and deflated net value product in an exchange-value sense is due solely to relative price movements, and hence offers no reason for distinguishing income derived from an industry from income produced in an industry.

1) *Only the aggregative formula has been investigated, and the findings might have been different had some other formula been employed.* Mr. Friedman apparently feels that the burden of proof should rest on us to establish that other formulae would give essentially similar results. Our argument, however, was largely confined to distinguishing and exploring the significance of various meanings for deflated wealth and deflated income, using this single formula by way of illustration and, in general,[2] using any base period at random.

[2] However, in discussing measurements of social waste due to unemployment of labor and wealth, we found it convenient in comparing two periods to take the period of greater employment as a base in the sense of using this period as a standard of comparison for measuring the decrease in efficiency in the period of less full employment of labor and wealth.

That some formula may exist that would cause some distinction drawn by us to disappear is admittedly possible. We think Mr. Friedman will agree that all the distinctions we drew and explored would remain had we couched our discussion in terms of some type of geometric mean formula or median formula. If this is so, we suggest that we may fairly ask Mr. Friedman again to respond to the challenge we submitted at the meeting of the Conference; namely, to illustrate some part of our findings that would be invalidated by the selection of a formula other than one of these three types.

2) *There are practical difficulties in developing actual satisfactory measurements of input and output.* It must of course be conceded that measurements of changes in the physical volumes of social input and output are certain to be rough under present conditions. However, those who insist on a high degree of precision had best choose some field of activity other than estimating national wealth and income.

The measurement difficulties about which Mr. Friedman is concerned do not seem to have deterred others to the same extent. Dr. Kuznets has already provided measures of deflated national income in an output sense. As to the difficulty of obtaining a satisfactory measure of social input, this measure depends chiefly on adequate measures of the quantity of capital (or wealth) and of the quantity of labor. Dr. Kuznets' measures of capital formation necessarily involve measurements of the quantities of all kinds of capital assumed to have increments (or decrements) during the period under consideration. Moreover, in estimating labor income as a part of the process of estimating national income, estimates of the total man-years of employment have been developed. Thus substantially the two main elements for measurements of changes in social input (except for measurements of changes in the stock of nonwasting, non-reproducible wealth, and these are assumed to be zero) are admittedly at hand.

3) *A divergent movement between deflated net value product in a productivity sense and deflated net value product in an exchange value sense is due solely to relative price movements, and hence offers no reason for distinguishing income derived from an industry from income produced in an industry.* We agree that a divergence between deflated net value product in a productivity sense and deflated net value product

in an exchange-value sense may be regarded as due solely to relative price movements. But so long as two separate measures exist they should be carefully distinguished and each assigned an appropriate name. It seems to us useful to reserve the term 'income produced' in an industry for a measure that when deflated, represents an output measurement. The term 'income derived from' an industry is, we believe, a more appropriate title for the debit measurement of net value product in current dollars, which, when deflated, represents the goods that the primary distributive shares might claim.

Mr. Friedman surmises that the interest in this distinction "derives in part from an identification of economic productivity as valued in the market place and social productivity considered from a broader point of view." We do not, of course, identify these things. On the contrary, we insist on the distinction. We fear others may fail to make it if 'productivity' is used without the qualifying verbiage Mr. Friedman here offers us. If he will always use qualifying words such as those quoted above in conjunction with terms like 'product' and 'productivity', there is no need for further argument.

Mr. Friedman also concludes that our desire to distinguish productivity as valued in the market place (that is, distributive shares received) and social productivity considered from a broader point of view (that is, output) is due in part to an acceptance of the doctrine that individuals ought to receive what they produce. One need not accept this view, and we do not, to be interested in knowing whether individuals may receive primary distributive shares for withholding production or for engaging in pursuits that may properly be called rackets. One might hold, as we do, that "individuals should receive primary distributive shares only if their actions tend to increase the aggregate social output," without reading proportionality into the proposition and making it embrace the secondary distribution so that it reads, "individuals ought to receive just what they produce". One may be interested in incentives without being worried about abstract justice.

Part Three

NATIONAL INCOME, SAVING, AND INVESTMENT

GOTTFRIED HABERLER

HARVARD UNIVERSITY

Discussion

M. A. COPELAND

CENTRAL STATISTICAL BOARD

HANS NEISSER

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GOTTFRIED HABERLER

NATIONAL INCOME, SAVING, AND INVESTMENT

GOTTFRIED HABERLER

Greater abundance of statistical data in many countries has made it possible to compute national income at shorter intervals and with greater accuracy than before. Not only have the data become more plentiful, but also the methods have been improved and the concepts defined more precisely so that a number of mistakes frequently made in earlier computations are now being avoided.

In addition, a distinctive and significant change in the tenor and purpose of national income calculations has occurred in recent years. National income has always been regarded by economists as a comprehensive measure of economic progress, of economic welfare. The interest attached to national income from the welfare point of view has recently spread from the professional economist to the general public. Governments and politicians have acquired the habit of formulating the aim, and of measuring the success, of their economic policies in terms of national income.

Meanwhile, economists have gradually become more interested in national income also for another reason: they use it increasingly as a tool of economic analysis. From that point of view, however, interest attaches not so much to aggregate national income itself as to its component parts. But since some of these are defined or calculated as residuals, a measure of the total becomes indispensable for measuring the parts.

I National Income as a Welfare Concept

I VALUE JUDGMENTS IN WELFARE PROBLEMS

Let us first discuss national income as a welfare concept. I shall not go at great length into what I should call the philosophical

problems of welfare economics as they are discussed, say, by Professor Pigou in the first part of his *Economics of Welfare* or even more penetratingly by Professor Gunnar Myrdal in his book, *The Political Element in the Development of Economic Doctrines.*[1] (Professor Myrdal, by the way, seems to me to adopt a somewhat too skeptical or too austere attitude and throws out the child with the bath water.) These more philosophical discussions demonstrate that all welfare probelms involve value judgments which are not capable of a purely scientific solution. The scientific task consists in making these value judgments explicit and in showing which value judgments underlie the ordinary methods of computing national income. The problem is somewhat more difficult than it would perhaps seem at first blush, because it is not simply a question of attaching a value index to a final result that could be reached quite independently of whether a value is attached to it. Unfortunately, the method of arriving at a final measure of national income itself does depend on, and vary with, the underlying value judgments. But as I said, I do not propose to go into these problems. I prefer to leave them unsolved.[2]

2 NATIONAL INCOME AND ECONOMIC WELFARE

National income is considered a measure of economic welfare. But economic welfare is usually defined in a broader sense. It is therefore better to say that national income affects economic welfare. Other things being equal, economic welfare is greater, if national income is greater. Such other things that also affect economic welfare but are usually not considered a part of national income are, for example, the presence or absence of cer-

[1] Available in Swedish and German.

[2] In my book *Der Sinn der Indexzahlen* (Tubingen, 1927) and in the article, Der volkswirtschaftliche Geldwert und die Prisindexziffer (*Weltwirtschaftliches Archiv*, Vol. 30, July 1929, p. 6** *et seq*) I have shown that (a) for one individual, making several simplifying assumptions, a rational method of calculating changes in 'real income' can be evolved; that (b) the extension of the concept of price level and real income to a number of individuals (or society as a whole) involves arbitrary decisions that can be justified only on the basis of some value judgments. The problem mentioned under (a) has since then attracted much attention and the analysis has been pushed forward. (Cf. especially various articles by Hans Staehle which are quoted, together with other references, by Ragnar Frisch in *Econometrica*, Vol. IV, 1936, p. 2, and A. Wald, Zur Theorie der Preisindexziffern, *Zeitschrift fur Nationalokonomie*, Vol. VIII, 1937, pp. 179-219.) As far as I am aware the problem mentioned under (b) has not been constructively dealt with. See also M. A. Copeland and E. M. Martin, Part Two, and discussion by R. T. Bye and Milton Friedman.

tain wants. If, say, the state of health is poor and requires some expenditure for the service of a physician or for medicine, but does not impair the earning or producing power,[3] welfare is less than it otherwise would be;[4] but we should probably not say that the real income is smaller. We should rather say that a larger part of the income must be spent on, or consists of, medical services.

Similarly, if the economic system does not run smoothly, or is not believed capable of running smoothly if left alone and if, consequently, much money and effort must be spent on 'policing' the system more or less extensively—from the nineteenth century night watchman to the Administrator of the AAA or NRA or any of the other alphabetical agencies—economic welfare is certainly affected. It would be greater, if all that effort could be devoted to the production of, say, food or clothing and shelter for the poor. But whether national income is impaired is another question. If we include the services of the 'police' (in the wide sense indicated above) in national income, it is not. Thus innumerable facts affect economic welfare, that is to say, make the situation more or less desirable than it would be in their absence, but do not—or need not—in general affect real income.

3 SOME PROBLEMS OF INCOME DEFINITION[5]

a) *Value judgments in income definition*

The answers to the questions raised in the preceding sections depend, of course, on the definition of income. It can be defined more or less inclusively, and these questions of definition are not purely academic. The practical statistician is forced to give defi-

[3] If the producing power of the people is affected, national income will be affected too, but to a smaller extent than economic welfare, because the medical services will be included in national income.

[4] As a criterion, I should take the preference act of the individual. The situation that the individual prefers we characterize as a higher welfare position. Since we can rely on the preference act of the individual (which we try to infer from his behavior in the market), we need not introduce any value judgment. If, on the other hand, we deal with a multitude of individuals or with society as a whole, we cannot rely on individual decisions. Society as such does not act and the decisions and preferences of individuals will, as a rule, be contradictory, at least to some extent. Consequently we, that is, the observer (scientist), will be forced to supply the unifying decision; that is to say, we shall have to pass a value judgment.

[5] For other discussions of this general problem, see *Studies, Volume One*, (1937), M. A. Copeland, Part One; Clark Warburton, Part Two; and Gerhard Colm, Part Five, Sec. I.

nite answers, explicitly or implicitly, whenever he decides whether he wants to include certain items in national income.

There is general agreement that all goods and services that pass through the market are to be included, whether they are sold for money or exchanged one for another. Furthermore, of those goods of which only a part passes through the market, that part which does not change hands but is consumed by the owner or producer is to be included—the consumption of farm products on the farm, the value of the services of a house to its owner, etc. The income of domestic servants—whether received in money or in the form of food and lodging—is almost invariably included in national income. (The question whether that is to be done may be put by asking whether the income of the employer is to be defined inclusive or exclusive of the value of the wages paid for domestic services and of the food and shelter supplied to domestic servants.) However, the line that separates a domestic servant from a worker may be very hazy where household and business are not sharply separated as, for example, on the farm or in the case of the small business of a craftsman or a shopkeeper. And surely the wage of a worker has to be deducted from the receipts of the employer to arrive at the latter's net income. From the services of servants it is only a small step to the services of housewives and daughters which are frequently evaluated and included in national income. But sometimes, especially in the American household, not only the female members but also the male members perform many of the domestic services that in other countries, where labor is cheap, are performed by hired servants. It may be difficult to draw the line.

b) *The treatment of government services*

There is furthermore the question of the income of the government or rather of those who receive their income from the government: government officials, the police and fighting services, pensioners, receivers of poor and unemployment relief, and of subsidies, recipients of interest on government securities, etc.[6]

[6] On all this compare Colm, *Volume One*, Part Five. Dr. Colm distinguishes between the income of the government and the income of government officials. I should rather prefer to eliminate the government and focus attention on the physical individuals who receive their income through the government. In some cases, however, especially in the case of durable goods constructed by the government (gov-

Are all these receipts to be included in national income? Or more precisely: if these sums are counted as income of the respective recipients, do the taxes and contributions from which they are paid have to be deducted from the income of the taxpayers? Is the income of the taxpayer to be defined inclusive or exclusive of taxes? An analogy will clarify this issue. Suppose we buy food from a farmer or the services of a physician. What we pay to the farmer or to the physician comes out of our income and becomes income of the farmer or the physician. We would not deduct these sums from our income. If we pay taxes, we provide income for a government official, a Congressman, the President, a WPA worker, a farmer who receives a subsidy, and so on. Do we have to deduct this from our income? Obviously it depends on whether we regard the various government activities as useful. And our views will evidently differ according to their nature and the theory we hold about the usefulness, productivity, and desirability of the various government services.

It is clearly necessary to distinguish between different branches of government activity. Not everybody will consider an AAA subsidy that induces a farmer to destroy or not to produce wealth a useful service. In many other cases the usefulness of government services cannot be doubted. But even if we have, in a more or less arbitrary way, made up our mind what we consider useful and therefore constituting a part of the national dividend, it is still difficult to achieve an absolutely consistent treatment. Suppose we have decided that a certain part of taxes is to be deducted from the taxpayer's income, corresponding to that part of government expenditure which is considered a mere transfer of income, e.g. sums spent on poor and unemployment relief. If the same amount were raised, instead of by taxes, by selling government securities to the same group of people, nobody would deduct that amount from the income of the buyer of these securities or somebody else's income.

There is still another difficulty, which, after closer consideration, proves to be a blessing in disguise. If we consider some types

ernment investment), it may be a convenient fiction to speak of government income, without allocating it to individuals. But special care must be taken to avoid double counting. See also G. C. Means, Part Five, and Clark Warburton, *Volume One*, Part Two, Sec. IV.

of government activity 'productive' or 'useful', that is, as contributing something to national income, and therefore count expenditure connected with them as income and do not allow a corresponding deduction from taxpayers' income, we should sometimes commit an error of double counting. This would be the case when these services are not directly consumed, but rather help to produce something and thus enter the value of goods which, in turn, are counted as part of national income. The principle will become clear if we consider an analogy from the market sphere. Suppose a producer of, say automobiles, buys intermediate goods, raw materials, labor, and so on. Naturally we cannot put down as part of national income the value of all these things together with the gross value of the product, i.e., of automobiles. Exactly the same principle must hold for those government services that contribute to the production of goods or services that form a part, directly or indirectly, of national income.

Now there can be no doubt that a large part—I venture to say the greater part[7]—of government services (exclusive of income transfers such as poor and unemployment relief) are of this kind, are 'cost services' (as Professor Colm says), that is to say, have to be classified as producers' goods rather than as consumers' goods. This is undoubtedly true of all the services that directly assist business (information services, consular services, etc.), of a large part of legal services (courts), police, fighting services, etc. In order to test whether a particular kind of service is a consumers' or producers' good, the following question might well be asked: suppose the service in question is discontinued and no impairment of the production of other goods and services (which form a part of the national dividend) results, would the discontinuance of those government services be regarded as a loss? If not, they are clearly not regarded as valuable in themselves, but only because they assist in the production of other services which are either valuable in themselves (consumers' goods) or contribute directly or indirectly to the production of such goods. Of course, in a number of instances the answer to such a question will not

[7] It should be noted that this guess is not dependent on a radical laissez-faire attitude.

be uniform, but will vary according to personal predilections and general outlook. Some people, for example, may attach a value to military displays, training, the kind of mental attitude that a vast military machinery is bound to foster, quite irrespective of whether the expense can be justified by a rational evaluation of internal or external disturbances of the production process which are obviated by the existence or the activity of the military machine. But I venture to say that in many cases an agreement could be reached.[8]

If once a certain type of government activity has been declared as not having a value of its own in the sense indicated above, but as representing either a mere transfer of income or at best a cost service, the further treatment is unambiguously predetermined: we need *not* find out whether it actually is productive, that is to say, whether it contributes something to the national dividend. A staunch laissez-fairist would deny categorically that government activities can be productive. People with less extreme views would consider each case according to its own merit. But from the point of view of a computation of national income we need not go into that matter, just as we do not and need not inquire whether each worker, whose income we count as part of the national dividend, really contributes a value product equal to his wages. Even if he were a saboteur, that is, if his value product were negative, our calculation would not be upset. His wage must be put down as his income and will in any case be deducted as cost from the value product of the firm. His negative productivity will automatically find its expression in smaller physical output. In the national income calculation it will show up either in decreased profits or in higher prices (if output is lower than it otherwise would be) and hence a lower figure of deflated (real) income.

Similarly, for all cost services of the government (just as for income transfers effected by the government) a corresponding sum must be deducted from the taxpayers' income, that is to say, their income must be defined and measured exclusive of that part of taxes which corresponds to the cost of such government

[8] For an attempt at a quantitative allocation of government expenditures between producers' and consumer's goods see R. W. Nelson and Donald Jackson, Part Six.

services (plus transfers). If it is held that some (or all) of these services contribute nothing, that they do not aid but impede the production of wealth, that does not in the least disturb our calculation. If it is true, then the ouptut of goods will be smaller than it otherwise would be and, provided the methods of calculating national income are otherwise correct and the data complete, that would find its expression in the national income figure in a lower level of money income of certain individuals or in a higher price deflator (price index).

How the cost of such government services and of income transfers is to be allocated among different groups of taxes and taxpayers is an entirely different question. The allocation must be to a very large extent arbitrary, because most government services are broad overhead services for the economy as a whole, and it is in many cases impossible or even meaningless to say that they contribute to one line of production rather than another. The allocation among different taxes is in any case only of secondary importance. The important thing is the classification of government services.[9]

If it could be assumed that all government services are of the nature of producers' goods, the computation of national income would be enormously facilitated; for then all questions of the productivity or usefulness of government activity, in principle as well as in specific cases, could be neglected as irrelevant. Unfortunately, this is not possible. Many types of government activity are certainly rather of the nature of consumers' goods; e.g., all or a large part of the services for recreation, education, health. Here the difficulty arises that we have—in most cases—no prices of these services. The price index (cost of living index or whatever it is) used to deflate money incomes does not and cannot take account of the prices and changes in the prices of these services. We know only the money cost, and, if money costs rise or

[9] Dr. Colm's paper can, it seems to me, be criticized on this score. He discusses first the question of 'Public Revenue in National Income' and speaks of the classification of public services only later, as if it were of the nature of an afterthought. What he says under the first heading seems to me inconclusive, if not looked at in the light of what follows. I see no justification for the postulate that cost services should be charged to business taxes rather than income taxes, or that the shiftability or the actual shifting of taxes should have anything to do with the question whether the taxpayer's income should be defined inclusive or exclusive of the tax.

fall, that need not imply a more or less plentiful supply of the services, but may merely reflect a change in the efficiency of rendering them. In the market sphere a change in cost due to a change in efficiency would be corrected by a change in price (assuming correct methods and complete data).

A further difficulty arises from the welfare point of view in connection with government investments in durable goods or construction. Irrespective of whether they are wholly or partly of the nature of durable consumers' goods (parks, roads, schools) or of producers' goods (dams, irrigation projects, office buildings, armaments, etc.) they are usually counted as part of the national product. From a welfare point of view, however, this is justifiable only if the works are considered useful or desirable, and if their desirability or usefulness is roughly proportional to their cost;[10] for what we know is only the cost and not—as in the case of goods sold in the market—the price the consumer is willing to pay. Thus all the difficulties that could be avoided in the case of cost services currently consumed come to the fore. There can be no doubt that the solution of these problems cannot but be very rough and will to a large extent depend on value judgments concerning which no general agreement can be expected and which are incapable of a rigorous scientific proof.

II National Income and its Components as Instruments of Economic Analysis, with Special Reference to the Relation between Saving and Investment

I THE PREVAILING TERMINOLOGICAL CONFUSION

When it comes to using the concept of national income in economic analysis, especially in business cycle analysis, fortunately many of the difficulties mentioned in the first part of this paper can be avoided; but as we shall see, others take their place. This must be attributed to the fact that, although the same words are used in economic analysis in general, and cycle analysis in par-

[10] This has, of course, nothing to do with possible 'secondary' ('multiplier') effects of a policy of public expenditure on output and employment as a whole. If there are such effects—positive or negative—they would find their expression in a changed output of other goods and would thus be taken care of automatically by a correct national income calculation.

ticular, as in the computation of national income for purposes of welfare economics, their meaning undergoes a more or less far-reaching transformation.

It is not difficult to find examples. Take as a first instance the problem of government investments (public works) and their influence on economic activity. This problem has been much discussed in recent years under the heading 'Investment and Consumption', and by some writers a fairly stable quantitative relationship between the two has been assumed ('multiplier'). It would seem to follow that all the difficulties connected with the definition and measurement of the volume of public investment mentioned above would be brought to the fore, if the multiplier theory were applied to a specific case and an attempt made to find out what the probable consequences of government expenditure on economic activity were likely to be. Fortunately that is not so. Whether some types of government expenditure are regarded as productive or not, whether they are classified as consumption or investment, whether people are paid for leaning against a shovel, for digging holes, for having in some way participated in the World War (veterans' bonus), for building a dam, or for constructing a road or a battleship is almost entirely irrelevant from the point of view of the further effect of such expenditure. In many cases the classification of these types of expenditure as consumption or investment expenditures is quite arbitrary, but fortunately equally irrelevant from the point of view of their immediate secondary effects. What matters is the way these expenditures are financed, whether the successive recipients spend the money and how quickly they spend it, the existence of idle factors of production in those branches into which the additional demand is being directed (the absence of bottle necks), and the avoidance of psychological repercussions. It follows that the statistical application of the multiplier theory as it is now current among the Keynes school is not very useful. The multiplier states a relationship between investment and consumption, and Mr. Keynes and some of his followers try to draw conclusions from the relative magnitude of consumption and investment in normal years when private, profit-seeking, and price motivated investments prevail, which are then applied to find out something about the probable effects of what is more or less

arbitrarily classified as 'government investment'. The whole problem is thereby misconceived and attention diverted from the strategic factors indicated above.

The foregoing remarks, of course, touch but superficially the complex problems connected with a public works policy. I wanted only to give a first example of the difference between the meaning of such terms as 'investment' in an analysis of the business cycle and their meaning in national income computation.

We find, however, these disastrous equivocations not only if we apply the concepts national income, investment, consumption, saving, etc., to the public sphere of the economic system, but also if we confine ourselves to the market sphere where, on the whole, all those concepts are less ambiguous.

In almost all current theories of economic fluctuations the relation of saving and investment and the division of the national income into its component parts, that is to say, into consumption and investment or consumption and saving, play a very important role. It would seem to follow that for all these theories statistical income computations, especially when they break income into its components, are of the greatest value. Unfortunately, the confrontation of the theories with the facts by means of statistical measurements of income, saving, investment, and so on, with a view to verifying or disproving the theories, has so far made hardly any progress.

The reason is to be found not only and not primarily in the inadequacy of the statistical data, but in the pitiful confusion prevailing in the theoretical sphere: different theorists use the same words in a different sense, and statisticians in still another. Frequently they are not aware of the differences in meaning, and in many cases they are not able to handle their own set of definitions consistently. No wonder that statisticians do not derive much inspiration from the theory.

In the following pages a short sketch of some of the concepts of saving and investment as developed in recent theoretical literature will be offered, with special reference to statistical applicability. However, no exhaustive treatment is contemplated. The literature on the subject is already too vast and is still growing rapidly.[11]

[11] A bibliographical note is appended to this paper.

2 THE CONTROVERSY OVER THE DEFINITION OF SAVING AND INVESTMENT

Probably no other two concepts have given rise to so much confusion and discussion in recent years as saving and investment. Are saving and investment necessarily equal? Can there be a difference between them? If so, what does such a difference mean? How is it to be measured? What are the consequences?

The fight about these questions is still raging and the pages of the various economic periodicals are filled with the cries of the battle.

It would seem well to begin by recalling, and to keep in mind, a few simple principles which, elementary though they are, have not always been observed in the discussion.

Whether saving and investment are necessarily equal or can be different depends on their definition. Without giving a precise definition there is no sense to such statements as 'it is a fact that saving and investment are equal' or 'they are in reality equal or unequal'.[12] If it is said, as many writers now say, that saving and investment are necessarily equal under all circumstances, and that their being unequal is absolutely inconceivable, this must be so by definition and must be demonstrated by a tautological transformation of the terms; an appeal to the facts or to experience is nonsense. In other words, this equality by definition does not tell us anything about the real world, but expresses a terminological convention about the use of the symbols (words). Hence there is no sense in using it as a condition for economic equilibrium or in postulating it as an objective of economic policy.

Since, however, almost all economists are rather loose in the definition of their terms and do not always use them consistently, it is not safe to rely solely on the explicit definitions a writer gives; we must also consider how he actually uses his terms. And a criticism that confines itself to pointing out that in a certain theoretical system the explicit definition does not fit the proposi-

[12] It sounds a little naive for A. P. Lerner to choose as a title for a paper the categorical statement: 'Saving Equals Investment', *Quarterly Journal of Economics*, Vol. LII (February 1938), pp. 297-309. An equally categorical and therefore naive attitude is displayed by Joan Robinson in her *Introduction to the Theory of Employment* (London, 1937) *passim*.

tions where the term is used, may be very superficial. A slight change in the definition will sometimes not only give sense to the propositions where the term is used, but also make them valuable statements. A fair and constructive critic will investigate this possibility.

3 THE KEYNESIAN IDENTITY OF SAVING AND INVESTMENT

Let us begin with saving and investment in a sense in which they are necessarily equal. If (as most writers do) we define the income of a period for society as a whole (we shall denote it from now on as Y) as the total output of the period or, more precisely, the money value of the output; if we define saving, S, as that part of the income which is not consumed, and investment, I, as the addition to the stock of capital, then S and I are identically the same thing. We have two symbols for the same magnitude. Both S and I denote the unconsumed part of current output. The definition and measurement of that magnitude involve, of course, difficult problems such as the determination of the proper amortization requirements and what is to be understood by maintaining capital intact. The magnitude in question can furthermore be expressed in terms of current prices or can be 'deflated', and the choice of the proper price index for deflating current-price values presents great difficulties. However, all these difficulties and ambiguities concern S and I alike; they cannot give rise to a difference between them, for the unconsumed output, after it has been defined in one way or the other, is the same thing whether we call it saving or investment.

These are, as is well known, Mr. Keynes' definitions as used in his *General Theory*, and so far he is, of course, quite right. And we must admit that these definitions are the ones frequently given by writers who do not care much about precise definitions, but try simply to formulate the everyday meaning of their terms. Therefore, those writers who want to speak of differences between S and I must change their definitions. Otherwise their terminology is inconsistent and it is difficult to attach any definite sense to what they are saying when they speak of a difference between S and I.

I have said that Keynes is right in saying that under these definitions S = I. But, of course, he says much more in this con-

nection, and much that is not right. First he defines S and I as identical, but at the same time uses both terms, and neither indiscriminately nor for purely stylistic reasons; then he keeps saying—and that is an integral part of his theory—that I and S are 'made equal', 'are brought into line' by a change in Y. None of this makes sense according to his definitions; S and I are equal because they are identical at any moment of time. No adjustment is required to make them equal, for they are different symbols for the same thing.[13]

But although aggregate S and I are identically the same thing, there is no necessity that for each individual S and I must be equal. How is this possible? Does it not prove that the equality of S and I is more than a convention about the use of terms?

To clear up the situation we may turn with profit to Mr. Lerner's account, since it is easily the most precise.[14] Y is there defined as the sum "of expenditures of all kinds".[15] All these Y's are classified either as C's or I's, consumption expenditures and investment expenditures, i.e., "expenditures on things other than consumption since these two make up all possible expenditures".[16] I is thus defined as Y-C. And S is also Y-C. But how can S and I then be unequal for some individuals?

The solution is very simple. Each act of expenditure that constitutes Y and C or I at the same time must be allocated to a given individual; it must have, so to speak, a personal index—it must be income, consumption, or investment of somebody.

[13] That has been pointed out by Myra Curtis, 'Is Money Saving Equal to Investment', *Quarterly Journal of Economics*, Vol. LI (August 1937), pp. 604-25, by R. G. Hawtrey and others.

[14] *Loc. cit.*, p. 298.

[15] Mr. Lerner's description is not quite general, because there are expenditures that are not income expenditures (interbusiness transactions, transfer payments, etc.) and, as we shall see, it is not always possible to identify individual acts of expenditure as income expenditures. But let us abstract from these difficulties and assume that we have somehow made a selection of those expenditures that constitute income.

[16] *Loc. cit.*, p. 298. Note that I is defined only negatively. That all Y's must be either C's or I's is not the only possible convention in accord with everyday usage of the terms. Suppose the government creates money and spends it on unemployment relief, then according to the ordinary usage we would say that these expenditures constitute income of the unemployed but neither C nor I. (The subsequent expenditure of these sums by the unemployed constitutes C on the part of the unemployed and Y on the part of the receiver of the money.) Mr. Lerner would probably classify that expenditure as an I-expenditure, because it is "on things other than consumption".

Now, one and the same act of expenditure constitutes Y of the *receiver* of money ("the receipt of which [viz., of the payments] constitutes all the incomes")[17] and C or I of the *spender* of the money. And likewise the S's, although they are made up of the same elements as the I's, are not allocated to the same individuals as the I's. Suppose, e.g., an entrepreneur pays wages to workers who are engaged in constructing a house. Then this expenditure constitutes I on the part of the entrepreneur and (so long as the workers have not spent the money) S on the part of the workers. When they spend the money the S is shifted to somebody else.[18]

Hence there is nothing mysterious about the fact that S and I are the same thing in the aggregate, but may be unequal for particular individuals. The purely conventional matter of the equality of S and I is not in the least affected.

4 VARIOUS DEFINITIONS ACCORDING TO WHICH SAVING AND INVESTMENT NEED NOT BE EQUAL

Let us discuss now the sense or senses in which saving and investment can be said to be unequal by sketching the evolution in the usage of these words in recent literature.

a) *Traditional definitions*

We can first distinguish the 'Pre-Keynesian' usage of the terms saving and investment. Before Mr. Keynes' *Treatise on Money* appeared, economists spoke quite naively and unsophisticatedly of differences between S and I. Wicksell and the Neo-Wicksellians, especially Professor Hayek, and others used that language and it was adopted by a great many other writers.

An excess of investment over saving was meant to imply inflation. If all investments during a period are financed by, or are equal to, voluntary saving, then, so far as these investments are concerned, no inflation, that is, no increase in total monetary demand for goods is occurring. If, however, investment exceeds saving, inflationary sources are being tapped; the excess is financed either by newly created bank credit or by dishoarding, which implies an increase in monetary demand for, and expenditure on, goods in general.

[17] Lerner, *loc. cit.*, p. 298.

[18] That in this case this account of the matter is not in line with the everyday usage of the terms is another question that will be discussed below under 4 (d).

On the other hand, saving is said to exceed investment when people hoard or when receipts are used to extinguish deposit money (by repaying bank credits). That part of income which people hoard they do not spend on consumption. Hence, on the definition of saving as income minus consumption, what is hoarded constitutes saving. But these sums are not spent on capital goods; hence they do not constitute investment; hence S exceeds I. An excess of saving implies deflation.

This language is irresistibly convenient and seems to express very realistically what actually happens during the prosperity and depression phases of the cycle respectively. Nevertheless, it conceals difficulties unless the definitions of S and I are different from those previously given. It seems that the writers mentioned above have not been aware of these difficulties; this is at least indicated by their failure to give careful definitions of S and I. We shall see at once that definitions of S and I can be devised that fit perfectly that convenient language [see below under (d)]. But historically the solution comes a little later.

b) *Keynes' early concepts*

The next stage in the doctrinal development is marked by Mr. Keynes' *Treatise on Money*, which has made the catch words 'excess-saving' and 'excess-investment' really popular. He makes these two magnitudes play a strategic role in the theory of economic fluctuations. Mr. Keynes was aware of the fact that under the loose every-day definition of S and I they are necessarily equal. He therefore tried to define his terms very carefully and consistently. Unfortunately, however, Mr. Keynes' definitions rob his terms of all causal significance in explaining expansion and contraction of output. All such statements, spread through the two volumes of the *Treatise*, as that this or that factor or event can produce a favorable or unfavorable effect on output only if and so far as it leads to excess investment or excess saving, are reduced to worthless tautologies. Since Mr. Keynes has given up the terminology of his *Treatise*, I need indicate only very briefly why that is so.[19] Income is defined as normal income, that is to say, total earnings minus windfall profits (plus negative profits,

[19] Cf. Hawtrey's analysis in *The Art of Central Banking* (London, 1932), pp. 334 ff.

i.e., losses). Saving is income minus consumption. Investment is total earnings minus consumption. Hence an excess of saving over investment is so defined as to be equal to losses, and an excess of investment over saving is by definition equal to profits. In turn, profits and losses are defined as that amount by which actual entrepreneurial income exceeds, or falls short of, that level which would leave the entrepreneur under no inducement to change the level of output and employment.

To give an example: inserting all these definitions, the statement to the effect that the introduction of a protective tariff will increase output, only if and so far as it leads to an excess of investment over saving, comes to this: "The introduction of a protective tariff will increase output, only if and so far as it changes entrepreneurial earnings to such an extent that entrepreneurs do increase output"—a proposition that does not take us very far.

c) *Ex ante and ex post concepts*

Another interpretation of a difference between saving and investment has been suggested by a group of modern Swedish writers such as Lindahl, Lundberg, Myrdal, and Ohlin.

For all the magnitudes concerned—income, consumption, saving, investment, etc.—they distinguish between an *ex ante* and an *ex post* sense. Looking back at the end of any period, what Y, C, S, and I actually were can be measured. In this *ex post* sense S and I are equal because they are both defined as Y − C.

From the *ex post* sense of these concepts the *ex ante* sense must be carefully distinguished, and what is true of the *ex post* phenomena of a certain kind need not be true of the corresponding *ex ante* phenomena. The *ex ante* phenomena are the expectations and plans entertained by all the individuals and firms at any point of time for some period ahead of that point. All members of an economic society at any moment of time expect a certain income, and plan or intend to spend a certain part of it on consumption and to save another part. The entrepreneurs expect certain prices to rule, a certain demand situation, interest rates, etc., and on the basis of these expectations they plan a certain amount of investment.

Summing up the expected incomes, the planned consumption, the planned savings, and investments of all individuals, we arrive

at the *ex ante* magnitudes of these phenomena for the economy as a whole.[20]

"There is no reason," according to Professor Ohlin, "for assuming that [planned saving and planned investment] should be equal. But when the period is finished, [realized] investment is equal to [realized] savings. How does this equality 'come about'? The answer is that the inequality of Sa [*ex ante* saving] and Ia [*ex ante* investment] sets in motion a process which makes realized income differ from expected income, realized savings from planned savings, and realized new investment differ from the corresponding plan. These differences we can call: *unexpected income*, *unexpected new investment* and *unintentional savings* . . . The business man who, after the closing of his accounts, finds that he has had a larger net income than he expected and that therefore the surplus over and above his consumption is greater than his planned savings, has provided 'unintentional savings' which is equal to this extra surplus. Unexpected new investment, which, like unintentional saving, may, of course, be negative, can mean simply that stocks at the end of the period are different from what the entrepreneur expected. . . .

"Assume that people decide to reduce their savings and increase their consumption during the next period by 10 million, as compared with the realized savings and consumption during the period which has just finished . . . Assume further that the planned investment is equal to the realized investment during the last period." (Since realized saving and realized investment are equal, the assumption implies that *ex ante* saving falls short by 10 million of *ex ante* investment.) "What will be the result? Retail sales of consumption goods will rise 10 million and the stocks of retailers will at the end of the period be down, e.g., 7 million, the remaining 3 million being the extra [unexpected] income of the retailers.[21] This latter sum is 'unintentional' savings. Thus real-

[20] No critical examination of the whole approach will be attempted, although it badly needs clarification and modification in several respects. After all, it is not expectations, that is, purely psychological phenomena, but actions, that influence and change the situation. People are, on the whole, not so much influenced by other people's expectations, as by their actual behavior. Therefore, in order to achieve complete clarity and precision, it will be necessary for the authors of that theoretical schematism to indicate how the psychological concepts can be interpreted by, or translated into, behavioristic terms.

[21] Professor Ohlin obviously assumes that retailers have put up prices to such an

ized saving is down only 7 million, or the same amount as realized investment."[22] Realized investments are down, because the depletion of stocks by 7 millions is counted as unintentional or unexpected disinvestment.[23]

Similarly, other cases of an *ex ante* difference between S and I can be analysed. "When the State finances public works with the printing of new notes, the increased investment is matched [*ex post*] by increased 'real' savings" although *ex ante* investments were in excess of savings, because no planned saving corresponded to the planned government investment. "At the end of the period some people hold more cash than at its beginning. This is evidence that they have had an income which they have not consumed, i.e., that they have saved. *Ex post* there is *ex definitione* equality between savings and investment."[24]

Mr. Hawtrey's analysis is similar. He distinguishes between 'designed' or 'active' investment, on the one hand, and 'undesigned' or 'passive' investment, on the other. Their sum is total investment and saving ('increment of unconsumed wealth'). Designed investment is defined as the voluntary acquisition of items of unconsumed wealth in the expectation that they will be remunerative. This is evidently what Mr. Ohlin calls *ex ante* investment. Undesigned investment is defined as an "increment of unconsumed wealth which is not acquired voluntarily in the expectation of its being remunerative. This will be an involuntary accumulation of unsold goods"—Professor Ohlin's unexpected

extent that the increased demand of 10 million has reduced stocks (measured in *old* prices) by 7 million.

[22] Bertil Ohlin, *Economic Journal*, Vol. XLVII (March 1937), pp. 64-6. Italics as in the original.

[23] This analysis involves the assumption that the supply of investible funds from other sources than current saving is elastic. In other words, that the money supply in the form, for example, of bank credit, is quite elastic, that the banks are prepared and able to finance the investment plans, even if consumption expenditure rises. Otherwise the planned investments could not go ahead undisturbed by the fact that people spend more on consumption. This assumption about the elastic money supply may be reasonable, especially if the period in question is sufficiently short; but it should be made explicit. It may not be correct and if it is not, the rate of interest will rise so much that the investment plans will be sufficiently scaled down. This may very well lead to more or less serious disturbances in the capital goods industries, as analysed by Professor Hayek in his various writings. These considerations suggest that Professor Hayek's theory can be well expressed with the help of the Swedish terminological apparatus.

[24] Ohlin, *loc. cit.*, p. 69.

investment. "Passive investment may be a negative quantity; that is to say, active investment may exceed saving, and the excess will be represented by an undesigned disinvestment or decrement of stocks of unsold goods. Thus active investment and saving (= total investment) may be unequal. If they are, the resulting undesigned increment or decrement of unsold goods will be a source of disequilibrium, leading to a decrease or an increase in productive activity and possibly also in the price level."[25]

d) *Robertson's definition of saving and investment*

D. H. Robertson has proposed a set of definitions that allows us to speak of differences between S and I and comes very near to, or even makes explicit, what is meant when the terms are used in the unsophisticated way outlined above under (a).

The discussion of a simple case will show that the definitions that make S = I (saving is income minus consumption; income is the value of total output; investment is output minus consumption), although they sound very familiar, lead sometimes to very strange[26] results which are avoided by Mr. Robertson's definitions.

Suppose somebody, the government or a private firm, spends money on the construction of something that is considered an investment, say, a road, and the money is created *ad hoc* by the

[25] *Capital and Employment* (London, 1937), pp. 176-7. Mr. Hawtrey's analysis avoids some obscurities that attach to Professor Ohlin's theory. Designed invesments are actual investments. They exist not only in the plans but can in principle at least, be registered *ex post*. Ohlin, in a later article, 'Alternative Theories of the Rate of Interest', *Economic Journal*, Vol. XLVII (1937), p. 423, characterizes the *ex ante* concepts of S and I as meaning the same as demand and supply *schedules* for saving. *Ex post* S and I are then actual demand and supply as determined by the intersection of the schedules. It is, however, difficult to see how one can speak of *the* difference between *ex ante* S and I, if S and I *ex ante* are schedules. There is, then, in reality, a whole series of differences, corresponding to a series of hypothetical interest rates. When Ohlin speaks of *the* difference between *ex ante* S and I, he probably means the difference corresponding to that rate of interest which actually obtains in the market (the rate of interest being determined by the intersection of the demand and supply curve of credit of which the curves relating to *ex ante* S and I constitute a part). This difference is then not only an *ex ante*, but an *ex post* phenomenon as well, being the same thing as Hawtrey's undesigned investment which was clearly foreshadowed in D. H. Robertson's 'induced lacking', *Banking Policy and the Price Level* (London, 1926), Ch. V.

[26] Strange in the sense of being in contradiction to general, unsophisticated usage.

banks or comes from hoards (idle deposits). The new money is paid out as wages to the workers engaged, either directly on the spot or indirectly in the industries that provide material and machinery for the construction of the road, and the workers spend what they receive on consumers' goods. The unsophisticated will say there is investment but no saving, the investment being financed by 'inflation'. No, says the sophisticated economist. Saving must be equal to investment. But where is the saving? Mr. Harrod informs us that "for a few days the whole of the net investment may be financed by the savings of those who receive that money; before they begin to spend the money they save what they receive".[27] The worker who receives his weekly wage on, say, Saturday afternoon and has no opportunity to spend it during the night and refrains from spending it on Sunday saves it. When he spends it gradually during the following week on consumption, he gradually dissaves and, presumably, the retailer save it if he raises the price of his wares and thus makes a profit. If he depletes his stocks, he disinvests and this disinvestment wipes out the original investment.

This account of the matter sounds very strange, but it follows from the definitions given above. The income of the worker increases by the whole amount of the wage, when the wage is paid out. Consumption does not rise at once. Therefore, $Y - C = S$ has risen by the whole amount.

There can be no doubt that this is very confusing and unusual terminology. It amounts to the substitution of the terms 'saving' and 'dissaving' for 'receiving' and 'spending' money. But we do not ordinarily call it 'saving' if people refrain from spending their money income immediately, that is to say, if they keep it for a little while, paying it out at discrete intervals. Only if money is not spent on consumption for a longer period than is dictated by the length of the income period is it said to be saved or hoarded.

It should be noted that this discontinuity of income payments, and of payments in general, is an essential feature of a money economy. A shortening of the income period and other payment periods implies an increase in the velocity of circulation of money.[28] If the income period approaches zero, the velocity of

[27] *The Trade Cycle* (Oxford, 1936), p. 72.

[28] Historically that happened to an extreme extent at the height of the German inflation in 1922-23, when incomes were paid out daily and, for a while, twice a

circulation rises to infinity and any finite quantity of circulating money raises the price level to infinity. In other words, a continuous money income stream is incompatible with a money economy. A perfectly continuous *money* income stream is a *contradictio in adjecto.*

Mr. Robertson takes care of that fact in his definitions. By adopting a 'period analysis', he introduces explicitly from the beginning the discontinuity of the income streams. He assumes that money received 'today' is available for expenditure only on the next 'day'. A 'day' may be a little longer than a day, say, a week. That depends on the payment habits. For any day he distinguishes, accordingly, between disposable and earned income. The disposable income is the earned income of the preceding day, and the earned income that is paid out today becomes disposable tomorrow.

Saving for any day is defined as *disposable* income of the same day minus consumption expenditure of the same day.

Investment, on the other hand, is defined as actual expenditure on investment goods during the day. Hence investment can be greater than saving because money may be spent out of other sources than disposable income. Expenditure may be made from newly created bank money or from hoards. This money becomes, of course, earned income on the same day and disposable income on the following day. Thus an excess of I over S, on the one hand, implies an increase of today's (earned) income over yesterday's (earned) income. An excess of S over I, on the other hand, implies a decrease of today's income as compared with yesterday's income. Evidently, if it is said in an unsophisticated way that any excess of I over S must be financed by 'inflation', precisely this is meant: inflation is defined as an increase in income, in other words, in MV (V being the income velocity of money).

Thus a set of definitions can be developed that gives precision and consistency to what I have called the unsophisticated usage of the terms S and I.[29]

day. Hence prices rose much faster than the quantity of money. This was reflected in a decline of the 'real' value (in terms of general purchasing power or of gold) of the total quantity of money to a small fraction of its normal level. (From this fact that the quantity of money in terms of gold decreased, some German economists, e.g., Karl Helferich, concluded that there was no inflation in Germany at that time!)

[29] It is interesting that Myra Curtis in her brilliant article (*loc. cit.*) applies a period

A few further remarks seem to be in order. Mr. Robertson uses income here in the sense of actual money income involving monetary transactions (a transfer of money), in contradistinction to income in the sense of the money value of real goods.[30] Evidently the two concepts do not coincide and should be clearly distinguished.[31] Professor Ohlin, for example, says that income, in his sense, "has nothing to do with the actual receipt of cash".[32] Thus, money income in Mr. Robertson's sense is no longer rigidly linked by definition with the value of output.

The two magnitudes need not coincide, because income in the sense of money value of output comprises items that do not give rise to monetary transactions ('imputed' income or 'bartered' income). But even if all transactions of goods took the shape of purchases for, and sales against, money, there would be certain discrepancies between the two types of income, because money incomes are received at discrete intervals while real income flows more continuously. Furthermore, if *new* money is created and handed to, say, an unemployed person or to an official, this might be called money income of the unemployed person or

analysis a la Robertson, apparently without being aware of this fact (at least, she does not mention Mr. Robertson's name) and, unfortunately, without making the distinction between successive short periods sufficiently explicit. That it is implicit in her analysis can be easily demonstrated. She speaks, for example, of "expenditure not out of income" which is "included in Y but not in I or C" (p. 610), I and C being defined as expenditure out of income on investment and consumption, respectively. The income 'out of which' people spend during a period is evidently Mr. Robertson's disposable income, and the income that is created by expenditure (out of income and not out of income) is the earned income of the period.

There is, however, one difficulty about Miss Curtis' scheme that is not present in Mr. Robertson's analysis. It is true that it can be objectively ascertained whether today's (earned) income is greater or smaller than yesterday's income, in Miss Curtis' words, whether there has been "expenditure not out of income" or whether "income has been withheld from expenditure" (has been hoarded). But how can we allocate the difference to C and I? How can we say, for example, that an expenditure not out of income was on consumption rather than on investment, or vice versa? Evidently, neither an individual piece of money nor an individual act of expenditure can be identified as 'coming out of income' or 'not out of income'. These are non-operational concepts, figurative language. What we can do is compare Y, C, and I in successive periods; but that should be sufficient to build up the definitions and to describe the process completely in all its details.

[30] Undeflated, that is, in current prices, or deflated by any sort of a price index number.

[31] A corresponding distinction should be made for saving and (perhaps) for investment.

[32] *Economic Journal*, Vol. XLVII (1937), p. 65.

official. Before the money is spent by the unemployed or the official on goods or services, there is no increase in the value of output corresponding to this income item. For a longer period these discrepancies between money income and value of output tend to become unimportant (because of the overlapping of periods at the beginning and end they never disappear completely), but in a microscopic analysis of the type into which the saving-investment controversy has led, they cannot be neglected.

In the case of non-wage and non-salary incomes, the concept of actual money income gives rise to further difficulties which make it impossible to define it without some reference to the real side of income. Not all money receipts and expenditures of a firm are income receipts and expenditures. Which part of the total flow of money is to be regarded as the income flow and which as 'intermediate transactions' can be defined only with reference to the 'real' sphere. But even if this has been accomplished satisfactorily, it is in many cases not possible, without more or less arbitrary conventions, to identify individual transactions (either the 'real' or the corresponding 'monetary' transactions) as income or non-income transactions. It is, for example not under all circumstances admissible to regard all purchases of consumers' goods by the final consumer as income transactions, because consumption might exceed income (that is, capital consumption or disinvestment might take place). Nor is it possible to identify an individual purchase of a capital good as constituting new investment or replacement, that is, as belonging or not belonging to the income sphere. Income and new investment can be determined only in the aggregate, as residuals, by deducting from total output consumption and what is considered necessary for maintaining the capital stock intact.[33]

These complications are, however, not insuperable, although no attempt has been made in this paper to elaborate the analysis so as to take care of them and to include all non-income transactions in a coherent scheme of definitions.

e) *A hybrid definition of 'excess saving'*

A peculiar and unusual definition of S and I is implied by the

[33] The definition and, *a fortiori*, the measurement of the latter item present very great difficulties in themselves. Fortunately, however, for many purposes a gross definition of income and investment seems sufficient.

statistical measures employed in the well known Brookings study.[34] What there is called a difference between S and I is not identical with any one of the various meanings of the ambiguous terms analysed above.

The Brookings studies have been subjected to very elaborate and destructive criticism.[35] Here only one point will be touched upon. For 1929 the Brookings study calculates an excess of S over I of 10.3 billion, and similarly for the preceding years. Since this was a period of rapid expansion, this result is paradoxical. On the Robertsonian or Swedish-Hawtreyian definition one should expect in prosperity years I to run ahead of S. The main reason for Mr. Moulton's striking result is his treatment of capital gains.[36] Realized capital gains are added to the income figure and hence to saving. Unrealized capital gains are, however, excluded from income.

This differentiation between realized and unrealized capital gains would seem to be hardly justifiable. Suppose A owns a capital asset that has risen in price. He sells it to B and realizes a capital gain which he spends on consumption, while he invests an amount corresponding to the original value of the asset and thereby keeps intact the nominal value of his capital. Hence A's income and consumption have risen by the same amount and his saving is zero. B's saving, on the other hand, is equal to the *new* value of the asset.

Now suppose that A does not sell the asset, but keeps it. B, on the other hand, saves and invests an amount equal to the *original* value of the asset and consumes an amount equal to the (unrealized) capital gain. Evidently as far as the market is concerned A and B together have bought consumption goods and investment goods to exactly the same extent as in the first case. A consolidated balance sheet of both should show the same amount of

[34] Cf. mainly H. G. Moulton, *The Formation of Capital* (1935), and the other volumes of that series: *America's Capacity to Produce* (1934), *America's Capacity to Consume* (1934), *Income and Economic Progress* (1935).

[35] Cf. A. F. Burns, 'The Brookings Inquiry into Income Distribution and Progress', *Quarterly Journal of Economics*, Vol. L (1935-36), p. 476, and H. H. Villard, 'Dr. Moulton's Estimates of Saving and Investment', *American Economic Review*, September 1937.

[36] For a similar interpretation of the Brookings result see Warburton, *Volume One*, Part Two, pp. 107-10.

S, C, and Y as in the first case. According to Mr. Moulton's method, however, we get in the second case a decrease in S by the amount of the capital gain as compared with the first case. It is difficult to see what the significance of this difference is.

There is, however, a more serious objection. A's capital gain is counted as an increment of Y, and, given C, of S. On the other hand, B's expenditure on the asset in question is not counted as I, because I is measured by the value of new investment goods. In other words, realized capital gains are S but not I. It is difficult to give an economic interpretation to the results of the procedure.

5 STATISTICAL APPLICABILITY

The question may now be asked whether it is possible to measure statistically saving and investment and differences between them in any one of these various meanings of the terms.

a) There will hardly be disagreement with the conclusion that saving and investment in the *ex ante* sense could not well be measured, even if the concepts were defined with perfect precision in operational terms which, as we have seen, they are not.

b) The concepts of S and I, as defined by Mr. Keynes in his *Treatise on Money*, are so unusual and depend so much on the peculiar definition of income exclusive of profit, profit being defined in a very special sense, that they too are not susceptible of statistical measurement.

c) Mr. Robertson's concept of the difference between S and I hinges on the distinction of very short periods. These periods are not the same for all types of income and payment; they change over time and overlap. Although, in my opinion, this terminological apparatus is extremely useful or even indispensable for a microscopic theoretical analysis, it does not lend itself to macroscopic statistical measurement. This, however, by no means precludes the desirability and usefulness of a statistical analysis of certain phenomena analysed microscopically by Mr. Roberston, e.g., of the hoarding process. But it need not be done under the heading of a difference between S and I.

d) Statistically speaking I should, for society as a whole, define S and I identically as unconsumed output. This, again, does not exclude the possibility of approaching that magnitude from dif-

ferent sides; say, from the money side, by calculating money income of individuals and deducting consumption expenditure, and, from the real side, by measuring the output of new capital goods and of consumers' goods, respectively. That is what, for example, Jakob Marschak and Walter Lederer in their book *Kapitalbildung* do. They try to measure what they call 'Geldkapitalbildung' and 'Realkapitalbildung', capital formation from the real and from the money side.

These two measures will never be the same, but the difference is by no means a measure of the difference between S and I in any one of the theoretical meanings distinguished above; it is entirely due to differences in the reliability and completeness of the statistical data used in the two procedures.

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Discussion

I M. A. COPELAND

It is difficult to read Dr. Haberler's admirable summary of the controversy over the relationships between saving and investment without getting the impression that various theorists, having become committed to the view that the difference between saving and investment is significant for an understanding of business fluctuations, have each sought to find a tenable meaning for this difference.

A clear understanding of the relationship between these two concepts seems to me to call for a recognition of the fact that investment represents the value of the increase in asset items on the consolidated national balance sheet, and saving, the value of the increase in equity items. When these two concepts are so conceived, it is clear that if saving and investment are consistently defined and evaluated for a given community and period, they will necessarily be equal. They are not, however, identical. The measurement of saving and of investment in such a way that they shall be defined and evaluated consistently is, indeed, extremely difficult. Dr. Warburton has given an able statement of the difficulties involved.[1]

Consistency of definition and valuation and hence equality of actual saving and investment is, of course, an integral part of such a view as that of Ohlin which rests essentially on distinguishing a record of past events from a statement of future estimates. With the insistence of this type of view on the necessity for a careful distinction between *ex ante* and *ex post* analysis I am in full agreement, as I am with the conclusion that in retrospect actual saving and actual investment for any past period are necessarily equal, *provided they are consistently defined*. But the propo-

[1] *Volume One*, Part Two, pp. 101 ff.

sition that planned saving and planned investment often differ significantly and the implication that unexpected investment and unintentional saving arise only out of such a difference[2] seem to me to imply a condition contrary to fact. This proposition and its implication appear to assume that for some advance period of significant length a budget or plan exists for each item of saving and for each item of investment to be made in the community; and incidentally, that the plans for saving and the plans for investment are made largely independently.

In commenting upon the criticism, sometimes leveled against the older type of economic theory, that it is an overrationalization of human behavior, J. M. Clark has noted that one interpretation of this criticism is that man is not ubiquitously a budget-making animal. I submit that a theory of the business cycle that assumes the budgeting of all saving items and the somewhat separate budgeting of all investment items in a community even for a period as short as a week assumes that man is a great deal more of a budget-making animal than is actually the case. Many investments and a larger number of saving items are not planned very far in advance.[3]

If we are to interpret business cycles in terms of budgets, there seems reason for considering a variety of discrepancies rather than concentrating on the discrepancy between budgeted savings and budgeted investments; for example, for considering the discrepancy between budgeted commodity sales and actual commodity sales. There is also some reason to urge that business fluctuations arise not so much because a complete set of saving

[2] See *Economic Journal*, Vol. XLVII (March 1937), p. 65.

[3] Ohlin has foreseen the possibility of a criticism of the type here offered on this one aspect of his theory. In a brief note (*Economic Journal*, XLVII, 426) he tells us that he hopes that every reader who feels that his assumption of planned saving and planned investment is unrealistic will ask himself whether this criticism does not involve the whole analysis of price in terms of supply and demand schedules. He appears to think of such schedules as consisting of budgets or plans. I suggest that supply and demand schedules need not be so conceived. Without renouncing my privilege of criticizing schedule analysis on other grounds, I suggest that it does not necessarily depend on the assumption that man is a budget-making animal. Different demands (supplies) at different prices may be thought of simply as different conventional or habitual responses to differing social stimuli. The relationship between a particular amount demanded and a particular demand price is thus a special instance of the relation between response and stimulus.

budgets and an uncoordinated complete set of investment budgets exist as because budgetary practice is still relatively new and far from universal. Further development of budgetary practice by both governments and private corporations is likely in the course of time to lead to the putting together of these budgets into an approach toward a consolidated budget for the community. Such a development may well prove to have a definitely stabilizing influence on business fluctuations.

Robertson's view of the distinction between saving and investment, with which Dr. Haberler is apparently in general agreement, I find somewhat elusive. Indeed at this writing I am uncertain how far the agreement between these two writers extends. I shall confine my remarks to Dr. Haberler's statement. His assertion that such a view is apparently needed to avoid the "very confusing and unusual terminology" involved in Harrod's position [II 4(d)] is not entirely convincing. If individuals increase their holdings of cash, or of 'deposit currency' (without decreasing their holdings of other equities), this increase may fairly be construed as a form of saving. But the illustration employed to show that this statement involves 'confusing and unusual terminology' [II, 4(d)] deals with a case where individuals increase their holdings of cash temporarily, owing to the periodic character of payments of wages, etc. The question whether there is a temporary saving by recipients of wages paid on a weekly basis during the early part of the week may be put in these terms: does the increase in the cash holdings of individuals due to payment of wages take place without a corresponding decrease in other equities held by individuals? If two consolidated national balance sheets were set up, one representing the condition immediately before payment of wages and the other representing the condition immediately after, there is no reason to assume that the payment of wages would involve a net increase in the total equities held by individuals. If accounts are kept on an accrual basis the increase in cash holdings would be offset by a decrease in the accrued payroll liabilities due wage earners. If the accounts are not kept on an accrual basis the increase in cash holdings of individuals would be offset by a decrease in proprietorship equities. In other words, the debit entry corresponding to the credit to cash on account of wage payments would presumably be either a

charge to accrued payroll liabilities or a charge to profit and loss. In neither case does the increase in cash holdings of individuals represent a net increase in the total equities held by individuals. No one would contend that a mere change in the form of equity held by individuals represented saving.

So far as I can see, the view offered to avoid 'confusing and unusual terminology' involves the use of two unnecessary and misleading terms, 'disposable income' and 'income velocity of money', and the affirmation and subsequent apparent denial of the same proposition. Whether this apparent contradiction is actual rests on a question of interpretation. The crucial proposition is

1) Money income received 'today' is disposable or available for expenditure only on the next day.

The two terms the need for which I question are defined as follows:

2) Today's 'disposable income' equals yesterday's income; and

3) 'The income velocity of money' equals income divided by the quantity of money.

Saving is defined and investment is characterized as follows:

4) Disposable income minus consumption equals saving; that is, yesterday's income minus todays' consumption equals today's saving.

5) Investment is equal to saving plus money spent out of other sources than disposable income.

For simplicity we shall, in what follows, consider only the case where the money spent out of these other sources is a positive quantity. The money spent from these other sources is said to represent expenditures made from newly created bank money or from hoards. Having recourse to this two fold source, either M or V, is equivalent to saying:

6) If today's income is larger than yesterday's, then in addition to disposing of today's disposable income (yesterday's income) the community disposes today of an additional sum arising from (a) an increase in the quantity of money if the income velocity of money is no larger for today than for yesterday, or from (b) an increase in the income velocity of money if the quantity of money is no larger today than it was yesterday, or else from (c) increases in both the quantity of money and its income velocity, if both increase.

This proposition (6) is an elaborate way of saying that more income is disposed of today than the amount of today's disposable income (yesterday's income). The amount of income disposed of today as distinguished from the amount of today's 'disposable income' (i.e., yesterday's income) is evidently today's income. Thus we are told an excess of I over S implies an increase of today's income over yesterday's income, presumably an increase equal to the excess of I over S.

Proposition (6) is also an elaborate way of saying that the resulting excess of today's investment over today's saving (or excess of today's investment over yesterday's income minus today's consumption) is independent of the quantity of money. The careful limitation of income to money income lends plausibility to the assertion of a relationship between the quantity of money and the quantity of income, but mathematically the form of the statement might be characterized as 'too true to be any good';[4] for proposition (6) regarding M and V ($V=\frac{Y}{M}$) would be equally true if M represented the number of marriages in Maryland or any other variable selected at random.

Thus the argument is reduced to the proposition that the amount of income disposed of today exceeds the amount of today's disposable income by the amount by which today's income exceeds yesterday's income. In other words, today's entire income is disposed of today. The apparent contradiction between this and proposition (1) may be resolved if we interpret the terms 'investment' and 'disposable income' appropriately. I think the use of the word 'today' to stand for a time period of unspecified length lends ambiguity to the time reference of the items, saving, investment, etc.[5] The word 'investment' suggests that 'today' is viewed in the past tense. The term 'disposable income' suggests that 'today' is viewed in the future tense. When we are speaking of disposable income then we may assume we are speaking of *estimates* of consumption and savings for the period called 'today', made in advance of that period. When we speak of investment, however, we may assume that we refer to an *historical statement* of the amount of investment during the period called 'today', made after 'today' has elapsed. I suggest

[4] Cf. Ohlin, *Economic Journal*, XLVII, 69.

[5] I do not think Robertson's own statement involves ambiguity in time reference.

that our apparent contradiction may be resolved if we rephrase propositions (4) and (5), stripped of unnecessary verbiage, as follows:

7) Budgeted saving plus budgeted consumption for today equals yesterday's income,

8) Budgeted saving for today may not turn out to equal actual investment today.

The above comments on Ohlin's view are, of course, applicable to this interpretation unless indeed the period called a day is very much shorter than twenty-four hours. Man is not yet ubiquitously a budget-making animal.

II HANS NEISSER

I INCOME EX ANTE AND DEMAND FOR COMMODITIES

Professor Haberler concluded his illuminating survey with skeptical remarks on the possibility of evaluating statistically the volume of saving *ex ante*. Moreover, even his discussion of the *theoretical* content of this concept and of the basic concept of income *ex ante* may have left the reader puzzled as to which concept of income *ex ante* should be accepted in analytical work. In these respects the *ex ante* concepts compare unfavorably with the *ex post* concept of income, which is both theoretically precise and susceptible of statistical measurement. The question thus arises whether in theoretical analysis the concepts of income *ex ante* and saving *ex ante* are really needed.

Two services are performed by *ex ante* concepts in the body of modern economic doctrine: first, the concept of income *ex ante* is designed to explain the amount of actual demand for goods, services, and investment, at a certain price for the item; second, a comparison of saving *ex ante* with investment is supposed to indicate whether an economic system is in an 'inflationary' or 'deflationary' state.

With respect to the first problem, a few remarks will suffice to show that none of the different concepts of income can serve as a satisfactory basis for the theory of demand. Income *ex post* includes unexpected profits or losses, which, by their very nature, cannot influence the entrepreneurs' demand *during the income*

period itself.[1] Keynes' income concept, in the *Treatise*, which excludes windfall profits and losses, encounters the difficulty that the borderline between expected and unexpected profits cannot be drawn distinctly.[2] As to income *ex ante* concepts, 'expected income' obviously does not govern demand, since present demand is largely cash demand, and therefore depends upon the means available to the buyer, while his willingness to borrow for consumptive purposes is contingent not only on the size of his income of the next period but also on the *certainty* with which it is expected. 'Robertsonian' income (= 'yesterday's' earnings) would determine today's buying only if not known in advance, i.e., on yesterday morning; for if earnings are not only known but even paid in advance, the income receiver feels entitled to use them during the day in which they are to be earned.

There is no way out of these difficulties except to describe demand as a function of several variables, none of which should be singled out by labeling it 'income *ex ante*'. The following variables would be included in this function:

a) Yesterday's income *ex post*: so far as paid at the end of the preceding income period, it will influence today's demand, even though it differs from the income expected for today.
b) Income expected for today if paid in advance.
c) Income expected for today if not paid in advance.
   aa) If expected with reasonable certainty,
   bb) If associated with either available money funds of the income recipient or with adequate credit facilities.

The spending function will also be influenced by income expected in the more distant future, because sudden fluctuations in yesterday's and today's income, if considered short-lived, are usually not allowed to affect spending as much as saving.

The list does not claim completeness and certainly calls for further interpretation. It is given here only in order to suggest the correct approach.

[1] The equality between *aggregate* saving ex post and investment arises from the inclusion of these profits and losses in aggregate income. This equality may be recognized more easily if it is recalled that the saver is not necessarily identical with the person who holds the title to investment. Bank credit expansion, for example, might yield unexpected profits to some entrepreneurs, who then may appear in income statistics as having saved a corresponding amount, whereas the title to the corresponding investment would be held by the credit expanding bank.

[2] This point is discussed in greater detail in Sec. 3 below.

In terms of such a function, Keynes' 'psychological law' of the 'propensity to consume' could be restated in a less objectionable form. As Professor Ohlin has pointed out[3], the propensity to consume, as a psychological fact, cannot be a function solely of income *ex post*, because this income's unexpected components cannot possibly play any role in governing spending during the income period itself. Thus, according to Keynes, an aggregate income of, say, $10,000, would be associated with spending of, say, $8,000 regardless of the source of this income. In fact, however, spending would be different according to the magnitude of the unexpected components, e.g., $9,000 expected income plus $1,000 unexpected profits versus $11,000 expected income minus $1,000 unexpected losses. In the second case spending would, obviously, be larger than in the first. As indicated above, income *ex post* will play a role in tomorrow's spending.

2 SAVING AND THE RATE OF INTEREST

It has never been doubted in modern theory that the current rate of interest equalizes the supply of money funds to be lent and the demand for money funds to be borrowed. It is not correct, therefore, for Keynes as well as for Ohlin[4] to ascribe to traditional theory the view that the current interest rate has the function of equalizing *saving* and *investment*; for that has been the function of the 'natural rate' of interest. In traditional theory the role of saving has been stressed solely because changes in the supply of funds, not originating in changes in saving, were supposed to have no influence on the *long run* interest rate level, affecting supply and demand for funds about equally. The traditional view, qualified in some respects even before Keynes, will be discussed at greater length later. First we want to clarify the main difference between Keynes and economic tradition.

Most conspicuous is Keynes' refusal to differentiate according to the sources of the credit supply, namely, between 'saving', on the one hand, and money funds, newly created or dishoarded, on the other; and in this respect, Professor Ohlin seems to agree with him.[5] According to Keynes, the credit supply is derived not

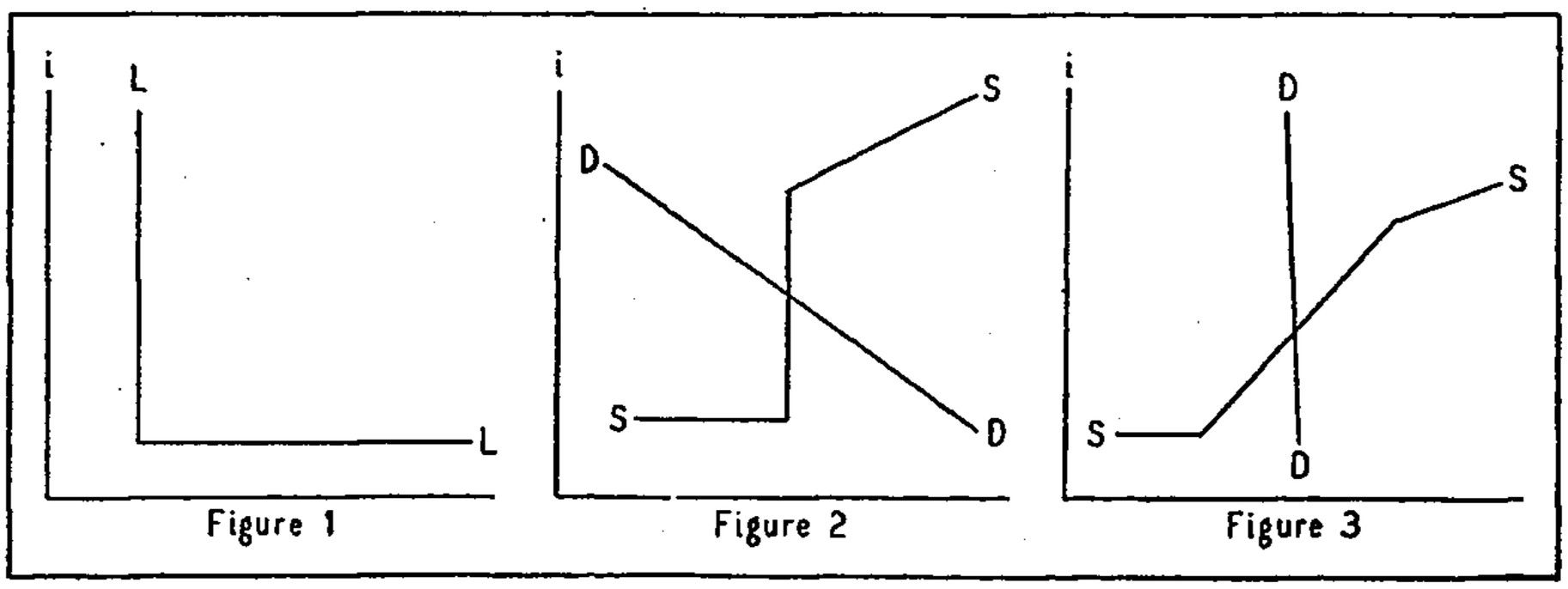
[3] 'Some Notes on the Stockholm Theory of Savings and Investment', Part II, *Economic Journal*, XLVII (June 1937), 239.
[4] *Ibid.*, p. 221.
[5] *Ibid.*, p. 224.

directly from current income but from that part of the *stock* of wealth that is kept in money form. And it must be admitted that for the supply in question (or, what is the same thing, for the demand for 'illiquid' assets) the situation is different from the demand for consumers' goods, which cannot be adequately analyzed without recourse to what is considered by people as their 'income'. Nevertheless, even from Keynes' point of view, it cannot be denied that the *current* rate of interest would be lowered by any increase in saving associated with an increase in the credit supply in the market. Only, and this is the gist of his theory, in contrast to theoretical tradition, this new interest rate level cannot be considered in any sense as an 'equilibrium' level, neither constant nor moving: other things being equal, it would be followed immediately by a decline in aggregate income and in the credit supply on the market. Clearly Keynes' theory replaces not the traditional theory of the current rate of interest, but that of the 'equilibrium' rate, provided this equilibrium is interpreted as a short run equilibrium in the traditional meaning of that term.

The basis of the new theory is the liquidity preference function. Nothing, however, can be deduced from the definition of the interest rate (i) as "reward for parting with liquidity for a specified period".[6] For this is consonant with theoretical tradition, according to which, in ordinary times, there have always existed sufficient investment opportunities at a rate of remuneration that covers the capitalist's risk as estimated by him; the liquidity preference function in the market (L), was therefore supposed to have the shape of a right angle (Fig. 1). In periods of depression, on the other hand, as has been acknowledged more recently, liquidity preference would become interest rate sensitive, and the marginal productivity of capital and the demand for capital would become inelastic. Under these conditions, a change in the interest rate, brought about by a shift in the level of supply, would not influence the amount of investment. If it is allowed in accordance with prevailing doctrines, to consider the propensity to save as fairly independent of interest rate fluctuations over a certain range, traditional opinion can be summarized as follows. In ordinary times, the interest rate is determined by the intersec-

[6] Keynes, *General Theory*, p. 167.

tion of an almost vertical supply function (S) with a negatively sloped demand function (D), the latter being pressed downward by the exhaustion of investment opportunities through current investment and raised again by technological progress, discovery of new natural resources, and growth of population (Fig. 2). During depression a positively sloped supply curve intersects an almost vertical demand function (Fig. 3). This picture, of course, symbolizes only an ideal type of capital market, merging the different capital markets and interest rates that co-exist in reality. It shows, however, that the difference between Keynes and the traditional opinion cannot be found in the formal definition of the interest rate as a price, but in empirical assumptions about the shape of certain functions.



The assumption that liquidity preference is always a function of the rate of interest when combined with the assumption of a rigid wage level and a negatively sloped marginal efficiency of capital, therefore, forms the cornerstone of Keynes' theory.[7] On

[7] The theoretical structure of Keynes' system has been elucidated in a masterly study by John Hicks, 'Mr. Keynes and the Classics', *Econometrica*, April 1937. Nicholas Kaldor, however (*Economic Journal*, December 1937, p. 748) lays stress on quite a different element: "It is this assumption [that saving is largely a function of real income] more than any other which is responsible for the 'revolutionary' innovations of Mr. Keynes' system." It cannot possibly be implied by Mr. Kaldor that the assumption itself is revolutionary. It has been common property of traditional theory, and leads, in combination with an inelastic liquidity preference function, to the orthodox result, and in combination with a negatively sloped liquidity preference function and the two other basic assumptions mentioned above, to Mr. Keynes' doctrine. Mr. Kaldor himself refutes, with the help of the Keynesian liquidity preference function, Professor Pigou's proposition that variations in money wages entail proportional variations in real wages. Since this proposition is based, however, on the alleged ability of the banking system to stabilize aggregate pur-

these assumptions, fluctuations in saving can influence only the instantaneous position in the capital market; and when considered for a longer, though still short run period, their effect would be offset by the very change in the interest rate they bring about. Indeed, this result follows from Keynes' basic assumptions, even if one argues from them on the lines of traditional theory: with a given quantity of money any decline in the interest rate, according to the first assumption, would increase the volume of idle balances and reduce the volume of transaction balances; then, aggregate income, aggregate demand and, at a given wage level, output and employment cannot but decline. Plainly, the process cumulatively reduces output until a stationary state is reached.[8] A positive rate of investment presupposes either technological progress, which raises the marginal efficiency function, or an increase in the quantity of money.

It has already been pointed out that Keynes' theory of interest expressly limited as it is to short run conditions, in which capacity is not 'fully' utilized over the whole range of industries, is in closer accordance with tradition than is usually recognized.[9] For it has never been disputed that in the short run an increase in the quantity of money would lower the interest rate; on the other hand, it is pointed out by Keynes himself that in the range beyond the 'bottle necks', both demand and supply of credit would be equally influenced by monetary expansion. Moreover,

chasing power, it would also fail to be valid were the demand for capital to become inelastic in the short run, as suggested above and elaborated more in detail in my study, 'General Overproduction', *Journal of Political Economy*, August 1934.

[8] Income in the stationary state is a minimum magnitude, not governed by the multiplier which indicates the ratio between *marginal* investment and *marginal* income. This minimum income, analogous to an integration constant in mathematics, is supported by replacement investment of a certain amount, which, in contrast to net investment, is not frightened away by high interest rates. Naturally, the *average* propensity to consume would be equal to unity.

[9] At first glance, the borderline between the range in which Keynes' theory is applicable, and the range for which 'classical' theory is still acknowledged as valid, seems to be drawn by Keynes differently from the usual borderline between short and long run, which refers to the degree of utilization. Keynes draws the line at 'the point of acquiescence', i.e., the point at which workers refuse to allow the real value of their wages to be reduced further by rising commodity prices. However, the difference is minimized by the introduction of the concept of 'bottle necks', i.e., points at which the short run supply curve for a commodity becomes very inelastic. If such bottle necks appear in several industries, the point of acquiescence is near.

the theory of 'reflation', as developed in the decade before the publication of Keynes' *General Theory*, has stressed more and more the minor importance of saving and the overwhelming importance of monetary expansion for any recovery from the depths of 'depression'. Likewise, the classical proposition that income, under certain conditions, is independent of the saving quota, is compatible with Keynes' system, provided the change in the propensity to consume (i.e., the multiplier) leads to an opposite change in the rate of investment. The main difference between Keynes and the Pre-Keynesians lies in the views of what is 'normal' in the capitalistic system: traditional theory considered 'full' or 'optimal' utilization as normal, and used this state as the starting point of analysis, while Keynes considers incomplete utilization as the natural state of the system. He even maintains that never in the history of capitalism has 'full employment', i.e., the point of acquiescence, been reached. The gap has been recently narrowed by Keynes' admission (in some articles in the *London Times*, January 1937), that the British economy *did* reach at that date the point of acquiescence.

The empirical validity of the three basic assumptions underlying Keynes' theory cannot be discussed here at length. The negative slope of the marginal efficiency of capital might easily prove the most crucial proposition. General theoretical considerations militate for the assumption that 'idle balances' of a speculative nature are always a function of the interest rate[10]; for any change in this rate is likely in the short run to induce *some* capitalists to refrain from immediate long term investing in order to profit from a reverse movement, while the volume of short term investment opportunities, which otherwise would represent a temporary haven, is limited.[11] As to the third assumption, the rigidity of wage rates in terms of money, it is clearly valid only

[10] Or rather as Keynes himself remarked recently ('The Theory of the Rate of Interest' in *Lessons of Monetary Experience*, ed. by A. D. Gayer (Farrar and Rinehart), 1937, p. 145), a function of several variables, of which the interest rate is one; otherwise the volume of speculative balances could not rise at the beginning of a reflation.

[11] Less weight can be attached to the experience gathered in open market operations, cited by Keynes (*General Theory*, p. 197; and again, *Lessons*, p. 149). For their function may be, not to substitute speculative balances for security holdings of the public, but to stimulate investment, i.e., to increase the volume of *transaction* balances.

with reference to limited periods. As Keynes points out,[12] a decline in wage rates would free money for 'speculative balances', and thus make possible investment even with a given quantity of money. The objections to a policy of wage lowering that can be raised from the standpoint of an investment theory based on profit expectations in the consumers' goods industries are outside the scope of Keynes' system.

3 DISCREPANCY BETWEEN SAVING AND INVESTMENT

The preceding remarks have not yet settled the question whether the definition of 'equilibrium' (as a state of zero profits) requires a concept of 'saving *ex ante*' (and consequently of 'income *ex ante*'), which would fall short of, be equal to, or exceed investment. The concept of spending as a function of several variables does not answer this question. However, the concept of 'expected saving'[13] can serve this purpose even less. True, since credit inflation or deflation creates windfall profits or losses, their exclusion from the concepts of income and saving seems to restore the fundamental importance attributed to the discrepancy between saving and investment by Wicksell. But suppose entrepreneurs, watching closely the process of monetary development, except changes that are later realized? Plainly, expected saving, which now includes their profits *ex post*, will then match investment, and the equality between saving and investment breaks down as a criterion of 'equilibrium' and as a causal explanation of its disturbance.

The only way out of these difficulties is to recognize as income only wages, interest, and differential rents for so-called permanent advantages provided by nature. This is Keynes' income concept in the *Treatise* except that the element of expected profits is not mentioned. By making them share the fate of windfall profits, it is indeed possible to formulate a valid criterion for equilibrium. But it does not require any concept of saving *ex ante*; nor is the equality between some kind of saving and investment that could be stipulated as one of the conditions for equilibrium sufficient

[12] *General Theory*, p. 263.

[13] Professor Ohlin uses the term 'planned' as equivalent to 'expected' ('Some Notes, Part I', *Economic Journal*, March 1937, p. 64), though a 'planned income' sounds rather curious. The argument in the text is not affected by the change in terms, unless the' plan' refers to the disposition of yesterday's savings.

for establishing it. Equilibrium is conditioned by aggregate profits being zero; and this condition in turn requires the fulfillment of the following equation:[14] entrepreneurs' spending plus net investment proper minus factors' saving equals zero.[15] This equation shows that the equality between expected saving and expected investment does not secure an equilibrium proper. Naturally, as long as the expectations remain in the sphere of the mind, they have no effect at all in the social world; but even if they lead to actions (because condition (a) or (b), Section 1 above, is fulfilled), they would fail to secure equilibrium proper, as recognized most easily if the first term on the left hand side is assumed to be zero; then, by the investment of *expected profits* the second term could be increased above the volume of factor's saving, which certainly would not be reduced by the same investment process; the equation is thus not fulfilled.

In traditional theory, the equality between saving and investment serves not only to define equilibrium proper but also to indicate the end of any process of monetary expansion or contraction, even though in this state aggregate expected profits would be positive and factor prices would be far from normal. In other words, it serves to indicate the preservation of an historically given volume of aggregate demand (which, however, should

[14] The equation refers to competitive conditions. Under monopoly, the monopolist's income and his saving have to be treated on equal footing with factors' income or saving.

[15] The term factor denotes here, of course, only labor, capital, and nature, the remuneration for which has to be reckoned at normal prices. No ethical judgment is implied in the omission of specific entrepreneurial activities; for if they have a supply price, they are included in labor, and if they have no supply price, any special remuneration is incompatible with equilibrium. Entrepreneurs' spending refers to their spending beyond the income they would receive as 'factors'; such entrepreneurial spending usually would be conditioned on expected, though not realized profits. The term 'net investment proper' restricts the investment concept to the acquisition of real capital goods in addition to the existing stock of fixed capital and working capital (or of the titles to such goods); and excludes, therefore, not mere replacement, but also the acquisition of money funds, whether designed as additional idle balances or additional transaction balances, i.e., rotating funds to discharge the firm's income and business payments. To any equilibrum that satisfies the condition of zero profits, there would correspond a 'neutral' rate of interest that would preserve it. In a growing system, it must be fixed at such a level that the necessary additional transaction balances would come forth. The volume of the latter would be governed by the increase in the quantity of factors, their 'normal' rate of remuneration (if necessary, adapted to changes in the marginal productivity of factors), and the degree of differentiation.

not be confused with stabilizing an historically given price level). This condition of a quasi-equilibrium can be best characterized with the help of the Robertsonian income concept, which, therefore, should be given citizenship in the realm of economic theory: yesterday's saving *ex post* equals today's net investment proper.

4 THE 'WELFARE' CONCEPT OF INCOME

In his introductory remarks, Professor Haberler points out that "national income has always been regarded by economists as a comprehensive measure of economic progress, of economic welfare", and he contrasts this 'welfare' concept with the concept of income as a tool of economic analysis. Both *ex post* and *ex ante* concepts of income perform an analytical function. The question may therefore be raised as to the relation of the 'welfare' concept to the analytical concepts.

Since it is clear that the welfare of people is contingent upon what they actually receive as income during the period concerned, only the *ex post* concept can be kindred to the 'welfare' concept. Indeed, the relation is very close. The welfare concept differs from the analytical *ex post* concept only by (a) measuring *national* income, in the sense of income *enjoyed* by the nation, not aggregate income *produced* within the bounds of the country; (b) taking account of generally accepted normative valuations, while the analytical concept of *ex post* income (= aggregate income produced) is based on actual market valuations.

Aggregate income produced is given by the market value of the current net[16] output. It is equal to the sum of all personal incomes, interest, wages, rent, and profits (disregarding for the moment the government's share). This proposition is an analytical judgment and thus always true, because profits are defined in such a way that they make up any difference between the value of the net output and the total of factor remuneration. Aggregate income produced disregards, therefore, the nationality of the income recipient, particularly of capitalists and entrepreneurs, while the welfare concept corrects the aggregate income produced by the net balance of interest and profits, paid to and received from abroad.

[16] The term 'net' indicates the necessity of excluding that part of current output which serves to keep constant the stock of real wealth. The difficulties implied by

More difficult is the treatment of payments that do not represent current commercial obligations, like reparation payments, or that are not made in fulfillment of obligations in the juridical sense of the word, like immigrants' remittances. Here pure capital transactions must be differentiated from transactions on income account. The capital value of an immigrant's fortune should preferably not be added to the current national income.[17] But what about the ready cash the immigrant carries with him to support himself during the first jobless months, and certain capital goods, like a plough, that he may bring with him? Or, if reparations are paid (as the five billion francs after the Franco-German War of 1870-71) mainly by the sale of foreign securities, then their amount could not possibly be deducted from the national income for the period concerned. On the other hand, it might be difficult in many cases to prove a direct causal relationship between changes in the capital stock and political obligations. Here the statistician cannot afford to refrain from arbitrary decisions.

In differentiating 'welfare' income from aggregate income produced, normative valuations play a minor role compared with the international relations just discussed. By application of these normative standards, any market income antagonistic to generally accepted ethical standards, e.g., the income of racketeers, prostitutes, etc., is excluded so far as it is not already excluded from 'aggregate income produced', because no stretching of the imagination can discover any 'service' connected with the 'income'.

In principle, no normative valuation enters the process of converting changes in money income into changes in real income through the application of price indices; in this respect, I apparently disagree with Professor Haberler. The computation of replacement deducted from gross income has to be based on market prices. The deflation of the *individual's* income must be carried through, in principle, by the application of the *individual* price

this condition cannot be examined here; *Volume One* contains an ample discussion of the problems involved. Here it may suffice to point out that in drawing the line between 'gross' and 'net', again the decision of the market may either be accepted or it may be corrected by the observer's normative valuations.

[17] The opposite view, however, is held by M. A. Copeland; see *Volume One*, Part One, p. 26.

index, derived from the *individual's* preference schedule.[18] Statistical practice, naturally, has to be satisfied with approximations, based sometimes on arbitrary assumptions; however, neither approximations nor arbitrary assumptions are the same thing as normative valuations. The latter enter the stage only if the statistician substitutes for the individual's preference schedule some normative preference schedule.[19]

The fundamental definition of aggregate income produced as the value of net, current output proves useful also in the determination of the so-called 'private income' and of the so-called 'public income'; the former refers to the current net output in the market sphere, i.e., goods possessing a market value regardless of their origin, the latter to the current net output of real services rendered by the government, not possessing a market value. The market value of the private net output is equal to the income of the different agents of production (including net profits) plus cost taxes minus government subsidies. Cost taxes are taxes that are deducted from 'gross income' or from 'gross profit' in order to get the usual net income figures. The equation represents, therefore, an analytical judgment, and is entirely independent of the complicated considerations concerning the incidence of taxes applied, for example, by Professor Colm.[20] Nor can the analysis of the factors governing the amount of 'public' income afterwards exclude some of the cost taxes, because of so-called double counting; for such exclusion would invalidate the fundamental identity.

Public income must not be confused with the 'government income' (or 'revenue') appearing in fiscal policy studies. It is largely income of the *private* members of the society, bestowed on them by the government through such public expenditure as satisfy certain criteria. As to the valuation of these public services, the decision of the constitutional public authorities represents, as Professor Colm pointed out in former writings, an ob-

[18] The differences between the price indices according to 'Laspeyres' (based on actual consumption in the *given* year) and 'Paasche' (based on actual consumption in the *end* year) do not invalidate the statement in the text. If they cannot be removed by the recent methods developed by Dr. Staehle and Professor Frisch, then we have to put up with *two* equally justifiable values of real income.

[19] See Copeland and Martin, Part IV, especially Sec. IV.

[20] *Volume One*, Part Five.

jective standard, corresponding to the decisions of the market in the private sphere. Since the services can be evaluated only on the basis of money costs,[21] the items of public income need deflation like the items of the private income, with a price index especially constructed for this purpose.

Certain difficulties arise in connection with the concepts of 'net' and 'real' as applied to public income. The qualification 'real', in 'real services, rendered by the government' is designed to exclude all mere 'transfer expenditure', which does not imply the surrender of real resources to the government (apart from the administrative costs involved[22] which also cannot be counted as public income). Illustrative of transfer expenditures are relief expenditures and pecuniary subsidies to business; as mentioned above, the latter are a negative component of private income. No differentiation is necessary as to the sources of these transfer expenditures. If, for example, relief expenditures are financed by the printing press, then one of two alternatives must materialize: either the current private output is stimulated, and private income and revenue from cost taxes are correspondingly enhanced, or private output is not stimulated. In neither case would the relief expenditures represent a part of national income, private or public. I am unable, therefore, to attach any significance to the concept of 'disposable income', which would include the dole, as suggested by Professor Colm.[23]

The term 'net' accounts for the necessity of excluding from public income any government service designed to maintain the

[21] The point is controversial. Professor Kuznets prefers 'taxes' as a measurement of public income (with certain qualifications), considering them as the 'price' paid by the taxpayer for the services concerned. For a more detailed discussion of the difference between the two priciples of valuation see G. C. Means, Part Five, discussion by Simon Kuznets, and Dr. Means' reply. In the considered opinion of the present writer it is not up to the taxpayer to decide about the 'commodity' (government service) and the 'price' (taxes); it is the constitutional authorities who render the decision or rather who decide what taxes shall be raised to supplement the expected revenues from other sources, like loans and interest from public investment; in rendering this decision they take account of *all* government expenditure. In other words, they decide *at the same time* the amount of (1) transfer expenditure, (2) 'exhaustive' expenditure, (3) taxes to be raised, (4) other revenue to be procured. Item (2) represents the 'gross public income'.

[22] Cf. A. C. Pigou, *A Study in Public Finance*, Ch. III; Gerhard Colm, *Volkswirtschaftliche Theorie der Staatsausgaben* (1927), pp. 47 ff; *idem*, in *Volume One*, Part Five, pp. 195 ff.

[23] *Loc. cit.*

stock of public capital with the help of which these services are performed. Beyond that, it has been pointed out correctly in *Volume One*, as well as by Professor Haberler, that public services rendered to private *business* must also be excluded.[24] But it would be going too far to exclude all kinds of public services which, like the services of the army, are of some indirect use for private business, or which, in general, can be considered as indispensable for the very existence of the modern state and the modern economy. That expenditure for education improves a man's ability to earn income, or that, without buying food, he would not earn any income at all, is not considered sufficient reason to exclude the service or commodity in question from net private output. Correspondingly, only such government services should be treated as a cost element of private business, and not counted as public net income, as would be paid for by private business were the government to cease to perform them. Or, any government service is to be excluded from public net income the performance of which by the government reduces correspondingly the costs of the private output. From this angle vocational training, building of roads to isolated factories, and even the services of a part of the police force might be excluded from public income, but the bulk of the public services, whether or not liked by the taxpayer, would remain.[25] It is doubtful, however, whether a public income, calculated on these lines, should ever be added to private income. Even if both forms of income could be reduced to a common denominator of valuation, the character of the services rendered in both spheres is so different that public income, classified summarily under a few headings, might best be presented as a separate item.

III GOTTFRIED HABERLER

I agree with most of Professor Neisser's comments on my paper. The points where there is a real or apparent disagreement concern either questions of minor importance or questions outside the scope of this volume, or else would require a lengthy argument

[24] See *Volume One*, Warburton, Part Two, pp. 83-92; Colm, Part Five, pp. 194-206.
[25] For an attempt at a quantitative allocation of government expenditures between expenditures furnishing services to business and those furnishing services to consumers, see Nelson and Jackson, Part Six.

for complete clarification. Therefore I refrain from replying to Professor Neisser's comments.

I should like, however, to make a few remarks on Dr. Copeland's strictures. Dr. Copeland begins by saying: "A clear understanding of the relationship between these two concepts [viz., S and I] seems to me to call for a recognition of the fact that investment represents the value of the increase in asset items on the consolidated national balance sheet, and saving, the value of the increase in equity."

I submit that this is not a fact, but a proposal for a convention about the use of the two terms. If it were a statement 'of fact' to the effect that the above meaning is the meaning generally attched to the two terms, there could be no doubt that it is not generally true.

Dr. Copeland proceeds then to say: "When these two concepts are so conceived, it is clear that if saving and investment are consistently defined and evaluated for a given community and period, they will necessarily be equal." This sentence is rather vague because the distinction between 'conceived' and 'defined' is not clear. Perhaps by 'consistently defined' Dr. Copeland means 'consistently applied'. Only this interpretation makes several further statements in Dr. Copeland's paper correct, where he insists that consistency of definition implies equality of actual saving and investment. When taken literally this is not true. There are consistent definitions of S and I that do not make them equal. Only if he means by a 'consistent definition' a 'consistent application of *his* definition', does his statement become true.

With Dr. Copeland's criticism of Ohlin's ex ante analysis on the ground that it assumes man to be more of 'a ubiquitously budget-making animal' than he really is, I am on the whole in sympathy. I suggest, however, that it is not so much a question of right or wrong as of more or less correct.

Dr. Copeland's criticism of my discussion of Mr. Robertson's definition of S and I seems to me to rest on several misunderstandings. He finds unconvincing my assertion that it involves confusing and unusual terminology to speak of saving when workers keep money for a short period (say on the average for half a week) because income is spent more continuously than it is received. He says: "If individuals increase their holdings of cash

. . . (without decreasing their holdings of other equities), this increase may fairly be construed as a form of saving." Now I do not deny that a consistent application of certain savings concepts (e.g., of the definition proposed by Dr. Copeland himself) will lead to the result that there is saving in that case. I only say that this is in conflict with the unsophisticated everyday usage of the term.

The rest of Dr. Copeland's comment I find very difficult to follow. I have the impression that he expects much more enlightenment from the very simple set of definitions than it can possibly furnish. Most of what he says is nothing but a repetition of the Robertsonian definitions in slightly different language. In addition, he formulates some obvious implications of that set of definitions that I did not state, in a tone that suggests that they constitute an argument against the set of definitions from which they are derived. It is, for example, quite true that in Mr. Robertson's scheme an excess of I over S implies an increase of 'today's' income over 'yesterday's' income. This corresponds and gives precise expression to the notion that financing of investments in another way than by 'voluntary' saving means, or leads to, inflation.

To clear up the matter I should like to state the few relationships algebraically. Let us denote by Y^d disposable income, by Y^e earned or received or actual income, and let the subscripts $_0$ and $_1$ refer to the 'days', to 'yesterday' and 'today'. Then we have:

$$Y_1^d = Y_0^e$$
$$Y_1^e = C_1 + I_1 = Y_2^d$$
$$S_1 = Y_1^d - C_1 = Y_0^e - C_1.$$
$$\text{Hence } I_1 - S_1 = Y_1^e - Y_1^d = Y_1^e - Y_0^e.$$

Dr. Copeland comes to this conclusion: "Thus the argument is reduced to the proposition that the amount of income disposed of today exceeds the amount of today's disposable income by the amount by which today's income exceeds yesterday's income. In other words, today's entire income is disposed of today." He thinks that this is an apparent contradiction of the fundamental assumption that income received today becomes disposable only tomorrow.

The appearance of a contradiction is entirely of Dr. Copeland's own making. It is due to the fact that he introduces quite superfluously the word 'disposed income' for what Mr. Robertson and I call 'earned or received income'. This term is not only redundant (because Dr. Copeland himself uses simply the words 'today's income' for the same concept), but also positively misleading, for the assumption is that 'today' this income is earned or received but becomes disposable, in other words *may* (but need not) be disposed of only 'tomorrow'. If, as Dr. Copeland says, "in addition to disposing of today's disposable income the community disposes today of an additional sum arising (say) from an increase in" M, this additional sum is not, in the Robertsonian terminology, *disposable income* of today; it does not come 'out of today's (disposable) income', but out of hoards or out of nothing, or out of the printing press. It *becomes*, however, income, it goes into income, viz., 'earned' or 'received' income of today and becomes disposable income tomorrow.

I hope that this disposes of Dr. Copeland's apparent contradiction. His own solution seems to me to rest on a misunderstanding. For Dr. Copeland is mistaken if he thinks that the term 'disposable income' should be interpreted as referring to " 'today' viewed in the future tense". He seems to believe that it is an *ex ante* concept, an expected, planned, 'budgeted' magnitude.

This is not correct. 'Disposable income' is an *ex post* concept, as can be easily seen by substituting for it its definition: earned or received or actual income of the 'day' before.

Part Four

CAPITAL GAINS IN INCOME THEORY AND TAXATION POLICY

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Discussion

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CAPITAL GAINS IN INCOME THEORY AND TAXATION POLICY[1]

ROY BLOUGH AND W. W. HEWETT

I Introduction

The subject of this paper presents the broad question of how capital gains should be treated in the concept of income and in taxing income.[2] The unavoidable difficulties of the subject are multiplied by a serious lack of uniformity in the use of the terms capital

[1] Profiting by the excellent contributions of the several discussants at the American Economic meeting in December 1937, this paper differs from the preliminary draft presented there in several respects. Since the comments of the discussants printed in this volume were based on the paper in its present form, the extent of their contributions is not fully indicated. We regret this result but have concluded that some of the original criticisms were of such a nature that our paper should not be published without taking advantage of them. The following are the more important changes.
1) The short summaries of American and British experience in the taxation of capital gains have been deleted as not essential to the chief issues under consideration and as requiring additional investigation. We are indebted to R. M. Haig and George O. May for comments leading to this deletion.
2) The comments of H. M. Groves and H. C. Simons indicated that our theoretical analysis was not clear and this presentation has been recast. We have sought to retain the clash of ideas with these discussants where real differences of opinion were apparent.
3) A few alterations in style and mechanics of presentation have been made.
4) Our comments in reply to the contributions of the several members of the Income Conference, which follow this paper, appear below as Discussion VI.

[2] For briefer discussions of the problem of the treatment of capital gains and losses in estimates of national income, see *Studies, Volume One* (1937): M. A. Copeland, Part One, pp. 19, 20, 30-32, discussion by Simon Kuznets and Dr. Copeland's reply; Clark Warburton, Part Two, pp. 97-101; Simon Kuznets, Part Four, discussion by M. A. Copeland, Milton Friedman, and A. W. Marget, and Dr. Kuznets' reply.

gain and income. That income is a term with several somewhat conflicting definitions needs no elaboration. Capital gain likewise has no single accepted meaning. In the federal income tax law a capital gain is the gain or profit received when an asset, other than stock-in-trade held for sale, is sold or exchanged at a profit. Popular usage commonly extends the definition to include an increase in the value of a capital asset even though that increase has not been realized through sale or exchange. 'Paper profits' on stocks or real estate are capital gains in this sense. In the broadest sense all property value appreciations, whether or not in stock-in-trade, are included in this concept of capital gains. Most economists, however, have not used the term in this sense. They have defined capital in terms of social wealth as distinguished from property assets; a capital gain is then an increase in the stock of such wealth items as are included in capital. Unfortunately even from the social wealth approach capital and consequently capital gains are not uniform concepts. The differences in concepts of capital and income necessarily give rise to different conclusions as to the relation of capital gains to income. Avoidance of confusion over mere terminology requires special care in definition.

The present writers take it that their starting point is the broad popular usage of capital gains as appreciations in the value of property. Part of the task is to survey the gap between this usage and that of capital gain as an increase in the stock of wealth with respect to different income concepts. The main problem, however, is to make analyses that will furnish guidance for the adoption of policies, in one case research policy in measuring incomes, in the other government policy in taxing incomes. As was perhaps inevitable, the subject has proved too broad in scope to be covered in its entirety. Important omissions and limitations will be noted in the course of the paper.

The discussion is divided into two parts. The first deals with property value changes as they relate to income in theory. Since measurement of income necessarily seeks to give quantitative expression to an income concept, this topic will have a bearing on income measurement. The second part deals with the treatment of property value changes in the taxation of incomes. The analyses of these two topics are quite distinct and the connection be-

tween them tenuous. The objectives are different—the measurement of social income versus the determination of personal tax liability. In our opinion the fundamental differences in the two problems makes the application of identical concepts of income to both purposes fallacious.

II Capital Gains and Income Theory

I DEFINITIONS

a) *Definitions of capital*

The lack of uniformity as to what elements should be included under the term capital is well known. Some writers would include all wealth existent at a point of time: land, producers' goods (other than land) and consumers' goods.[3] Others include only producers' goods.[4] A third group includes in addition to producers' goods those consumers' goods offered for hire.[5] Several writers do not define in terms of wealth at all, but call capital "a value sum expressed in terms of money".[6] It is clear that analyses of capital gains will yield different conclusions with different definitions of capital. If the first definition is accepted (all wealth in existence at a point of time) an increase in the market value of a capital asset is not properly classified as an addition to the total social capital unless it reflects a real increase in the stock of material economic goods; an increase in value is not necessarily evidence of a 'capital gain'. The last type of definition listed (a value sum) presents the opposite extreme: any increase in the market value of a capital asset must be classified as a capital gain regardless of its origin. An increase in the market value of a share of stock as a consequence of the development and ownership of a new patented process is then just as correctly labeled a capital gain as an appreciation arising as a consequence of additional equipment purchased out of earnings.

The other two definitions noted are merely restricted wealth

[3] See Irving Fisher, *Elementary Principles of Economics* (Macmillan, 1913), p. 38.
[4] See F. W. Taussig, *Principles of Economics*, 3rd ed. (Macmillan, 1921), I, 69-70.
[5] See T. N. Carver, *Principles of Political Economy* (Ginn, 1919), pp. 115-156.
[6] J. R. Turner, *Introduction to Economics* (Scribner's, 1919), p. 468. For a similar type of definition see F. A. Fetter, *Economic Principles* (Century, 1915), p. 267.

concepts, but each would lead to unique conclusions as to the items properly classified as capital gains.

Each of the many competing capital definitions was formulated by its proponent as a tool for general economic analysis. For an investigation of the more limited field of capital gains, the essential requirement of a capital definition is that it leave no misunderstanding as to the distinction between a value sum and concrete economic goods. Increases in the stock of wealth must never be confused with increases in the value of property that do not represent quantitative changes in the stock of wealth. This does not mean the denial of the opportunity to use a 'property value' or a 'capital value' concept without reference to the underlying situation with respect to economic goods; in fact, just such a procedure is followed in Section III where the problem of taxation policy is under review. *But it must be recognized that there are times when some economists desire to trace changes in the flow and stock of economic goods while other economists may be concerned only with alterations in the degree of ownership and control.* One may justly argue against the desirability of going behind an item of value for the purpose of tracing its relation to concrete goods, but as long as some authorities, rightly or wrongly, are interested in a study of changes in the flow or stock of economic goods, the student of income should define his terms in such a manner as to make quite clear whether the particular problem under review is one of value changes or of wealth changes. For this reason we shall restrict our use of the term capital to the total stock of wealth and reserve the word property to cover the concept of a 'value sum', whenever confusion of thought might otherwise result.[7]

b) *The definition of property*

In conformity with the above principles, the popular practice of using the word property as a synonym for capital or wealth must be avoided. Property is not wealth, but a title to wealth or a source of wealth—the legal right of ownership. "The three essential attributes of property are: first, the right to use and control; second, the right to enjoy the fruits and to receive income; and third, the right to alienate and dispose."[8] A house is wealth

[7] Cf. Simon Kuznets, Part One, especially Sec. I, 1.

[8] Eustace Seligman, 'The Relation of Law to the Modern Developments in Property Ownership.' *Proceedings of the Academy of Political Science*, Vol. II (1924-25), p. 442.

(or capital); the right to live in the house, control it, receive any income it may earn, and dispose of it at will is the property right, or simply property. Property is not a physical object, but a bundle of rights. A franchise, or an annuity, may represent no particular items of wealth, but, because they have a present value due to the control of rights to future income, such assets are classified as intangible property.

c) *Capital gain vs. property gain*

If capital is defined as a stock of wealth, capital can 'gain' only by an increase in that stock of wealth. A business that adds to its machinery, buildings, or inventory out of its earnings has increased the national capital. Capital 'gains' when the stock of capital goods has been increased. But in current usage a capital gain means an increase in the *value of an asset*, that is, of property. The federal income tax law states: "For the purpose of this title, 'capital assets' means property held by the taxpayer . . ."[9] Now an increase in the value of property is not necessarily evidence that a corresponding increase has been made in the national capital as a stock of wealth. Indeed, since with a franchise or a patent, greater profit is obtained by the control of output, production will probably suffer a reduction rather than an increase. Property gains may or may not represent increases in real capital.

This divergence between *property gains* and *capital or wealth gains* is a relatively recent development. Adam Smith seems to have used property to mean the same thing as wealth. "Property with Smith . . . was the protection by law of the laborer in holding for his exclusive use . . . the physical products of his labor . . . His commodities are always individually owned. His wealth of Nations is the sum of individual wealth. He thus has the double meaning of wealth as materials and their ownership."[10]

The development of intangible property and the corporation have played important roles in this trend toward the separation of property and wealth into distinct categories.

[9] *Revenue Act of 1936*, Sec. 117, par. C. In quoting only partially, no implication is intended that all kinds of property are capital assets.

[10] J. R. Commons, *Institutional Economics* (Macmillan, 1934), pp. 166-7. This work bases much of its analysis upon the distinction between property and wealth.

2 THE INCOME CONCEPT

a) *Relativity of income definitions*

As Simon Kuznets has so clearly stated in his article on 'National Income,'[11] income may be defined in many ways and the choice of definition depends upon the purpose, or use, to which it is to be applied. The point may be illustrated by contrasting three objectives: the measurement of (1) the volume of production; (2) standards of living; (3) taxpayers' ability to pay.

1) If one is interested in the measurement of a nation's production of wealth, and changes in that production of wealth, a definition of income in terms of consumers' goods proves inadequate. Production of consumption goods may fall while total production is rising, and rise while total production is falling. New producers' goods are part of the total product and so must be included. To disregard them would mean that a shift in the application of productive powers would be misinterpreted as a shift in the total volume of production. Depreciation of producers' goods must be deducted to avoid duplication, since producers' goods are destroyed in the production of new wealth. If the objective is to trace and compare the production of economic goods through time, a definition of income must be formulated in terms of the total net production of all commodities and personal services.

2) If one is interested in measuring changes in living standards, a definition of income in terms of consumers' goods (commodities and services) will be essential. Capital accumulations (that is, savings[12]) are excluded from income, since they are not directly consumable. The depreciation of capital goods is not deducted from consumers' goods produced; the failure to replace capital goods in the process of production allows an increase in the flow of consumption goods in the short run, making it possible to maintain living standards, or perhaps even to advance them, in the face of declining total production. A definition of income as a flow of services (advocated by Irving Fisher) would satisfy the needs of an investigator concerned with current standards of living.

3) A third objective may be a desire to estimate an individual's

[11] *Encyclopaedia of the Social Sciences*, XI, 206.

[12] For the sake of simplicity in analysis, it is assumed here that savings will all be converted into new capital accumulations.

(or a corporation's) gain in control over commodities and services as a basis for taxation on the ability to pay principle. Here the definition of income must face squarely the possibility that one individual may gain in control at the expense of other individuals without adding to the net product of industry. Net property value changes resulting from trade marks or monopolistically controlled natural resources—in fact, all changes having their origin in monopoly or imperfect competition—are examples of items that fall into this classification. A definition of income in terms of *economic power*, such as that of R. M. Haig, serves admirably these requirements. Professor Haig defines income as "the money value of the net accretion to one's economic power between two points of time."[13] Problems arising in the precise definition of economic power will be treated later, in the discussion of taxation.

Because of these, and other objectives, a great array of income definitions has resulted.[14] Of these numerous formulations, three types have come to dominate economic literature: (1) income as an accretion of economic commodities and services; (2) income as an accretion of services—a consumption concept; (3) the accounting type of definition utilizing the device of the balance sheet. The third type has many variations and would appear to include Professor Haig's concept of 'economic power' and Henry C. Simons' 'personal income'.[15]

We cannot here explore all the possibilities of each of these and other types of income definitions as they relate to capital gains. Since the definition of income in terms of the production of economic goods has been generally accepted by the students of social or national income, considerable emphasis on the relation of capital gains to that concept will appear in the following pages. The excellent income studies of the National Bureau of Economic Research and the United States Department of Commerce have

[13] R. M. Haig, *The Federal Income Tax* (Columbia University Press, 1921), p. 7. This definition is similar to that proposed by G. v. Schanz in 'Der Einkommensbegriff', *Finanz-Archiv* (1896) cited in P. H. Wueller, 'Concepts of Taxable Income: I, The German Contribution', *Political Science Quarterly*, Vol. LIII, No. 1 (March, 1938), pp. 102 ff.

[14] For an excellent list of definitions of income see Irving Fisher, *The Nature of Capital and Income* (Macmillan, 1927), Ap. to Ch. VII.

[15] *Personal Income Taxation* (University of Chicago Press, 1938).

in each case sought to go behind the raw data of the balance sheet and endeavor to trace changes in 'real income'; one of our primary interests will be to examine the problem of capital gains in relation to this type of income study. Before proceeding to this analysis a few comments concerning the consumption and accounting concepts of income are in order.

b) *The 'consumption' concept of income in relation to property value changes*

Irving Fisher, the chief proponent of the consumption concept, defines income as "a flow of services through a period of time",[16] asserting: "The only true method in our view is to regard uniformly as income the service of a dwelling to its owner (shelter or money rentals), the service of a piano (music), and the service of food (nourishment); and in the same uniform manner to exclude alike from the category of income the dwelling, the piano, and even the food."[17] Commodities have no place in the definition; income is received only when a service is rendered.

Under this definition savings are not income. Savings out of earnings will increase the future flow of services but the amount saved is not income. On the other hand, depreciation or the depletion of capital does yield services. In his writings, Professor Fisher repeatedly warns against "the fallacy of deducting from income any depletion of capital".[18] From this reasoning it is clear that property value increases are not income, regardless of their nature or source; likewise property value decreases are not deductible from gross earnings to obtain net income. If we accept Professor Fisher's definition, the whole capital gains controversy apparently disappears as a problem in theory, measurement, and taxation. The difficulty with this apparently simple solution is the obvious fact that the controversy has merely shifted from 'income' to 'earnings'. This conclusion is tacitly admitted by Professor Fisher, for he writes: "I used the term *earnings* to include capital gain and the term *income* in the sense of the value of services rendered by capital."[19]

[16] *The Nature of Capital and Income*, p. 52.
[17] *Ibid.*, p. 106.
[18] *Ibid.*, p. 134.
[19] *The Theory of Interest* (Macmillan, 1930), p. 455.

c) *The accounting definition of income as related to value changes*

The following appears to be fairly typical of accounting definitions of income. "Income is increase in wealth measured in terms of money, accruing or receiving during a given period. It arises from the use of capital or the rendering of personal service or both, as distinguished from the return of capital. It includes earnings, gains, or profits from any source."[20] On its face this appears to be close to a commodity and service definition. However, observation of accounting practice indicates that income in accounting is a property, not a wealth concept. Certainly, so far as the present writers have been able to ascertain, the usual accounting definition of income does not endeavor to distinguish sharply between gains that represent increases in economic goods and gains that grow out of mere transfers of rights to goods. The propriety of counting a gain or profit as income does not depend on its being traceable to a net increase in economic goods for society as a whole.

The accounting definition of income quoted above would seem to comprehend income as the accretion of economic power. Economic power is a balance sheet concept corresponding to the net worth of the business. If all changes in the values of assets and liabilities were recorded, income (or loss) under this concept would equal the difference in the net worth of the business (value of assets minus liabilities) at the beginning and end of the year, after adjustments were made for dividends paid and new capital invested.[21] Regardless of the accounting definition of income quoted above, however, the accountant apparently does not arrive at net income or profit from the balance sheet, but rather from the profit and loss statement. While the figures on the profit and loss statement and the balance sheet must check, not all increases in net worth are considered profits. Profits are distinguished from mere increases in the value of capital. Dividends are supposed to be paid only out of profits.

A capital gain arising from the sale of an asset is a profit and

[20] Preliminary Report of a committee on Terminology, American Institute of Accountants. Quoted from G. A. D. Preinreich, *The Nature of Dividends* (New York, 1935), p. 21.

[21] See R. M. Haig, 'Capital Gains and How They Should be Taxed', *Proceedings of the Academy of Political Science*, Vol. II, No. 1 (1924-25), p. 135.

may ordinarily be paid as dividends if the effect is not to diminish the working capital unduly or to impair the earning power of the business. Unrealized appreciations in the value of assets are ordinarily not recorded on the books. When they are recorded they are considered increases in capital and placed in a reserve account as not available for dividend payment. However, a decrease in the value of capital due to fire or obsolescence, or in some cases to a decline in market value, is recorded and recognized as a deduction from the net profits available for dividends. The accountant undoubtedly follows this somewhat inconsistent course as a rule of caution and conservatism.[22]

Although the above statement seems to be the general practice, opinion among accountants as to just what should be included in income is not unanimous. This is to be expected since accounting "is not a set of fixed rules or unbending principles" but "an instrument of public policy and of private management".[23] Accounting definitions will thus vary with what is accepted as good business practice or sound public policy. Since few if any business practices are universally accepted as good and since business practice and public policy may conflict, no precise definition of income is likely to be universally accepted in accounting.

The accounting concept of income is of particular importance to the statistician in measuring income and to the taxing official in taxing income, since the accounts are vital sources of data. A modified accounting definition including unrealized as well as realized property value changes as income is the basis of 'total book income' accepted in one of the outstanding measurement studies.[24] 'Total book income' differs from accounting income not only because of the inclusion in the former of unrealized value changes, but also because in its computation: (1) all values are reduced to dollars of constant purchasing power; (2) some attempt is made to look behind the items of income in an effort to obtain a more accurate estimate of national income in relation to the national net product.

[22] Cf. Solomon Fabricant, *Volume One*, Part Three, especially pp. 120 ff.
[23] John Bauer, 'Accounting', *Encyclopaedia of the Social Studies*, I, 412.
[24] W. I. King, *The National Income and Its Purchasing Power* (National Bureau of Economic Research, 1930), pp. 36 ff.

d) *Social income as a net product*

In that excellent little volume *Income in the United States*, national income was defined as "the commodities and services produced by the people of the country or obtained from abroad for their use . . . reckoned on a net basis, that is negative income, maintenance and depreciation charges are deducted, but not extentions and betterments".[25] This approach to the concept of social income has been basic to the great majority of income measurement studies and is in harmony with the income concept found in the writings of classical economists and their contemporary disciples. It represents an attempt to define the net product of the economic system.[26]

In order that human wants may be satisfied, an elaborate machine-like organization has been evolved to secure the production of commodities and services. The output of commodities and services includes: (1) new commodities produced—boots, clothes, bread, coal, dwelling houses, machinery; (2) personal services rendered—the sermon of the preacher, the physician's advice, the singer's song; (3) services of durable goods that have been carried over from the preceding income period—the services of dwelling houses, furniture, factory buildings, machinery. This third group, it will be noted, includes both *producers' durable goods* and *consumers' durable goods*—a point of great importance in the measurement of capital gains.

Taken together, the three groups constitute the total outpouring of commodities and services annually accruing to society. At the beginning of an income period society starts with a stock of factories, machines, land, dwelling houses, automobiles, and durable consumption goods. During the income period, new commodities are produced, new personal services rendered, and the old durable goods continue to yield their services. This total output may be called gross social income and is available for disposition as the receivers elect. In the process of production producers' goods will wear out and be discarded as obsolete, and national

[25] (National Bureau of Economic Research, 1921), p. 42. Modifications made for statistical reasons such as the omission of produce consumed by a farm family on the farm are not pertinent here and have been deleted in the above quotation.
[26] See Alfred Marshall, *Principles of Economics*, 8th ed. (London, 1920), pp. 71 ff.

resources will be depleted. If allowance is made for these items, the net social income remains. *Net social income is the total flow of commodities and services, through a given period, available for distribution after maintaining the capital fund intact.*

This definition of social income counts the items that make up the total social income, at the time production takes place. Every addition to what Josiah Stamp calls the 'national heap'[27] of commodities and services is part of the gross income and, after the costs of production have been deducted, the residual sum is the national or social income. From this reasoning it follows that the source of all capital is income; income must first accrue before saving for capital extension can take place. Capital can therefore 'gain' only by an increase in the stock of wealth by saving out of income. The only capital gain that can be recognized is a realizable increase in that stock of wealth.

e) *Income as a quantitative concept*

After reaching an agreement as to the meaning of the terms 'economic goods' and 'social income', there remains for the economist the very perplexing problem of expressing a given social income quantitatively. We can agree that a horse, a phonograph, and a Gibson Girl picture hat are all economic goods and, when produced, are part of the social income. We can also agree that if a change in consumers' desires and habits results in the substitution of the automobile, the radio, and the simple felt hat for the above-mentioned economic goods, the new commodities are also properly classified as part of the social income when produced. But, how can we express the first three goods as a total sum, and if we do succeed in solving this problem, would a comparison of that total with a total computed in a similar manner for the second three goods make possible a conclusion as to the relative *size* of the social income in the two periods?

If automobiles, radios, and felt hats could be reduced to a common denominator, the measurement of the social income for a given period and comparison between two periods would present relatively few difficulties.[28] The search for such an 'absolute'

[27] J. C. Stamp, *Wealth and Taxable Capacity* (London, 1922), pp. 42-43.

[28] We are not concerned here with practical statistical difficulties inherent in data. Such questions as, on the one hand, the advisability of including housewives' ser-

unit of measurement has been for economists the historical equivalent of the religious quest for the Holy Grail. In the absence of a physical unit of measurement such as the unit of energy, we are forced to resort to money prices as a 'second approximation'. The definition of social income is in effect amended to read—'a flow of commodities and services expressed in terms of money prices'. The significance of this shift to a quantitative income concept has not been sufficiently explored by students of income theory and income measurement. The difficulties are usually noted, but a few words of caution are not enough. Prices are value in exchange relations expressed in terms of a monetary unit. When the items of income are converted to money sums and these sums added, the procedure involves: (1) the adding of relative quantities, (2) expressing these relative quantities in a *non-stable* monetary unit. "As quantities of money expended, particular prices and particular incomes are capable of addition, and the total arrived at has a definite monetary significance. But as expressions of an order of preference, a relative scale, they are incapable of addition. Their aggregate has no meaning. They are only significant in relation to each other. Estimates of social income may have a quite definite meaning for monetary theory. But beyond this they have only *conventional* significance . . . A comprehensive aggregate of prices means nothing but a stream of money payments . . . But, of course, this does not exclude a *conventional* significance . . . [We] may assign to the movements of these aggregates a certain arbitrary meaning which is not without its uses".[29]

Obviously, statistical adjustments for price level (value of money) variations will not meet adequately the problems raised by continually shifting inter-price relationships. Very few spots in the field of economic research require the alert awareness on the part of the student that is necessary whenever deductions as to shifts in physical quantities are being drawn from social income aggregates.[30]

vices and food raised in one's own garden, and on the other, the limitations of accounting technique and depreciation reserves, all present difficulties that are extremely important but not directly relevant to the present study.

[29] Lionel Robbins, *The Nature and Significance of Economic Science* (London, 1935), p. 57.

[30] See M. A. Copeland and E. M. Martin, Part Two.

The conventional nature of the social income aggregate has a very direct bearing upon the problem of capital gains. We have noted that gains usually known as capital gains are in fact appreciations in the value of property assets. If the social income is defined as a net product of economic goods, value appreciations that are at root merely shifts in existing property rights must be differentiated from value appreciations that represent net additions to the flow of economic goods. This procedure is necessary if the social income aggregate is to have significance as an index of the productive achievement of an economic system. But complete confidence cannot be placed in the accuracy of the final result. Alterations in the habits of consumers, the development of new production techniques, the shifting of inter-price relationships as an indirect consequence of price level variations, all set traps for the investigator, especially in periods of rapid dynamic change. Only for short periods, during which the conventional assumptions that consumers' preferences and production technology remain unchanged are reasonable, can a relatively high degree of confidence be placed in the accuracy of definite conclusions. And even within such limitations, honest differences of opinion will arise repeatedly as to the relation between specific value variations and the net flow of economic goods.

f) *The problem of natural resources*

The definition of net social income in terms of the net social product must be admitted to be purely conventional. This principle can be well illustrated by an examination of the relation of natural resources to the social capital and income. Assume that a farmer discovers coal under the surface of his land and that after a careful survey the coal is found to be of excellent quality and approximately one million tons in quantity. Should this discovery of one million tons of coal be considered an addition to the social capital, and, for the income period in which the discovery was made, a part of the social income?[31] This issue can be

[31] This problem is of very great significance to the student of capital gains, for the same issue arises in other related and analogous forms, such as new technological developments. This part of the argument can better be discussed after the complication of *measurement* has been introduced.

solved only by making a conventional assumption consistent with the concept of social income. What is the function that the concept of social income as a net product is expected to satisfy? Common sense would appear to dictate that the objective is a method of appraising the degree of achievement of the economic system in supplying man with economic goods. Economists are interested in a concept of social income as a means of testing the success with which economic activity results in available economic goods. The logic of this reasoning demands that the discovery of new, economically available, natural resources be considered an act of production and the new resource part of the gross product. Since the stock of wealth has also been increased, the social capital may be said to have increased.

However, if the function that the social income concept is expected to satisfy can be better approximated by a conventional assumption that rules out new discoveries, it would be foolish to take issue with the authority assuming such a position as long as the intent and usage of the authority concerned is made quite clear. To decide otherwise might place arbitrary difficulties in the path of legitimate research.

g) *Individual income in relation to social income*

An individual, like the social group, may be said to have received income when he gains control of commodities and services through a period of time. In part, these commodities and services will come to him directly as, for example, the services of his wife, the use of his automobile, and the vegetables from his garden. The major proportion, however, must come from other producers through the medium of the exchange process. An individual is continually exchanging previously acquired control of wealth and his new production for the wealth controlled by others and the new production of others.

Consequently, while social income can increase only by means of an increase in the net social product, an individual may gain in control of commodities and services, independently of a gain in the net social product, by a transfer of control from other individuals. This fact gives rise to some questions as to the proper procedure with reference to the definition of individual income. Gifts, inheritance, fraudulent or predatory activity, and deliber-

ately created scarcities (e.g., monopoly) all illustrate economic gains on the part of individuals that do not represent real increases in the net social product. If such items are considered items of individual income, then it would apparently be impossible to consider social income as equal to the total of all individual incomes, and a statistician making an estimate of the net social product would be unable to utilize individual income totals as acceptable data. However, in the taxation of citizens in accordance with the ability to pay principle, the identity of social income with the total of all individual incomes is immaterial and irrelevant; any increase in control over economic goods constitutes an increase in the ability to pay taxes.

From the theoretical viewpoint, these discrepancies can be completely resolved by considering all items of individual gain that do not have their origin in a net increase in economic goods as transfers of rights to property or income. If we imagine that every individual keeps a set of books in which all transfers of rights to economic goods to other persons are classified as disbursements or outgo, then a consolidation of individual accounts would give a net income aggregate equal to social income defined as a net product.[32] In actual practice, however, no such accounting procedure is, or can be, followed. Therefore, the use of individual income accounts in estimating social income must introduce serious errors and arbitrary conventions must be accepted as the only possible way out. It may be that the degree of uncertainty thus introduced into social income estimates is so great that a strong case may be built for the abandonment of any attempt to resolve individual income data into equivalent economic goods. The present writers do not agree with this negative conclusion. In the remaining portion of the theoretical analysis of capital gains in relation to social income an effort will be made to interpret the significance of property value changes in terms of underlying economic goods. But we agree that the definition of personal income as a basis for taxation must disregard the origin of a particular income item. This point will be further developed in the section concerned with tax policy.

[32] See Irving Fisher, *Nature of Capital and Income*, Ch. VIII and IX, for the application of this idea to his concept of income.

3 PROPERTY VALUE CHANGES AND THE INCOME CONCEPT

a) *A classification of property*

To what extent are property value appreciations a part of social income defined in terms of economic goods—the social net product? When does a property value gain represent a real gain in commodities and services for society (or a nation) as a whole? The answer is complicated by two facts: (1) property, while in all cases a bundle of rights, is of different kinds depending on what the rights relate to; (2) gains may arise from several quite different sources. As to the *kind* of property, the following classification is followed in the discussion.[33]

PROPERTY CLASSIFIED AS TO KIND

1) *Tangible property*, that is property in which the legal right attaches to capital as we have defined that term. Houses, machines, automobiles, hats, are examples of wealth to which such property rights are attached.
2) *Intangible property*, that is, property in which the legal right does not attach to capital as here defined. This group of assets includes:
a) Assets representing the capitalization of expected income in excess of the normal earnings of capital, such as income due to monopoly or imperfect competition. Examples are legal monopolies such as franchises, patents, copyrights; trade secrets; and goodwill such as trademarks and personal goodwill.
b) Promises to pay, such as the promissory note. In general these assets derive their value from the legal claim to expected future earnings, which may be purely personal in character. However, if they derive their value from existing wealth, they constitute indirect titles. Mortgages are often of this character.
c) Indirect titles to tangible property and the preceding types of intangible property. Changes in the underlying tangible or intangible property in these cases will affect the value of the indirect title. Corporate stocks are perhaps the best example, although trust certificates are also in this class. Mortgage bonds may also at times be classified here, as their value may be determined in considerable part by their conditional title to existing wealth.

When the principles already developed are applied, three conclusions are reached concerning the extent to which changes in

[33] For a somewhat different classification see Kuznets, Part One, Sec. II, 1 and 2.

the value of these classes of property reflect changes in social income. First, changes in the value of indirect titles reflect gains or losses in capital only as the underlying property reflects such changes. Second, changes in the value of intangible property other than indirect titles are based upon expected future incomes rather than on existing incomes and thus do not constitute an increase or decrease in existing capital. Third, increases in the value of tangible property are part of social income only if they reflect increase in the stock of wealth. An examination must accordingly be made of the sources of changes in the value of tangible property.

Property value changes arise from four general types of sources: (1) production; (2) changes in the rate of capitalization; (3) changes in the prospective income stream capitalized; (4) changes in the level of prices.

b) *Property value changes and the process of production*

In the ordinary production process, goods appreciate in value by the addition of form, time, place, and possession utilities. These goods are also the object of property rights, the total of which must similarly appreciate in value. This appreciation in value accumulates as a commodity moves forward through the productive process. For example, a retail store in Chicago buys a hat for two dollars in Philadelphia and sells the hat to a consumer in Chicago for five dollars. Is this three dollars increase in price, income? The concept of production with reference to material objects is not restricted to the addition of *form* utilities; the addition of time, place, and possession utilities is also production. A careless definition of income as a 'flow of commodities and services' might have the effect of excluding all but form utilities. A hat is a hat, whether it be in Chicago or Philadelphia, and the quantity of hats is not altered by the act of transportation. However, when income is so defined, there is always the tacit assumption that changes in the value of a commodity, if they represent additional utilities, shall be counted as a change in the volume of production and therefore income.

Although as suggested earlier, all increases in the value of property may in the broad sense be included in the term 'capital gains', the term has not customarily been used to include the in-

crease in the value of goods as they move through the stages of production. What law makers and statisticians seem to be concerned about is how to treat shifts in the value of fixed capital as contrasted with circulating capital (including thereunder consumers' goods)—not the increasing value of a peach as it ripens, is boxed, shipped, and sold over the counter, but the change in the *value of the tree*; not the growing value of goods as they move through a plant, but the change in the *value of the plant* itself. The definition of capital gains in taxation and in measurement tends to be a very close approximation to an *increase in the value of fixed capital assets.*

c) *The problem of scarcity values*

One of the most difficult issues is property value appreciation due to natural or man-made restrictions in supply. The first case is illustrated by appreciating land values.[34] So far as an increase in population results in a property value appreciation because of the fixed amount of land, it would appear obvious that the value increase does not represent an increase in social income; a transfer of rights to income has taken place. But there are other causes of land value appreciation, such as the discovery of new resources, the discovery of new production techniques that make resources previously impossible of economic recovery valuable, and improvements in transportation. In all the latter cases the total of utilities has clearly been increased. In the opinion of the present writers, the difficulty of demarking the different kinds of land value appreciation warrants the conventional assumption tnat all such increase are part of social income. Differentiation of value appreciations by source seems a hopeless task; attempts at estimate may increase rather than decrease the error in social income figures. It must be remembered also, that these scarcity value increases will affect the distribution of social income, even if the effect on the total is disputed.

Increases in scarcity arising from the pecuniary activities of individuals present much the same problem. Increases in property values as a result of franchises, patents, copyrights, monopoly, and imperfect competition cannot be construed as additions to

[34] See M. A. Copeland, 'Problems in the Theory of National Income', *Journal of Political Economy*, Vol. XL (1932), pp. 12 and 13.

the 'national heap'; the very intent of each individual act is the restriction of output rather than its increase. In some individual cases property value appreciation of this sort can be isolated, and if this is possible, a deduction should be made before reaching a final estimate of aggregate social income, but such instances are probably few. It must be frankly admitted that the inability to separate out man-made increases in scarcity values gives considerable ammunition to those who object to a definition of social income that requires going behind value items in search of 'real' income. Future experience with actual income measurement investigations may force the conclusion that, with the exception of a few clear-cut income categories, an improved production index is as close as we can get to an accurate measure of the degree of achievement in the production of economic goods through time.

d) *Changes in the rate of capitalization*

Increases in the value of a property asset resulting from a change in the interest rate are not evidences of the creation of income. If, for example, the rate of interest should fall from 10 to 5 per cent, indicating an increase in the valuation of future goods as compared with present goods, property values would tend to increase, that is, the present market value of rights to possess, enjoy, and dispose of goods in the future will have increased. However, no immediate alteration has taken place in the stock of wealth, or the flow of income, and such a value appreciation is therefore not properly classified as an addition to income. To the extent that sales of such property take place, there is a shift of rights to national income rather than a change in its size. The purchaser gives up rights to commodities and services, equal to the gain in such rights obtained by the seller. The real significance of the drop in the rate of interest will be found in its effect upon the future income flow.

e) *Changes in the prospective income stream capitalized*

The reasoning with respect to changes in the rate of capitalization is directly applicable to changes in the prospective income stream to which that capitalization rate is to be applied. When the causes of the appreciation accruing out of shifts in demand or conditions of supply become common elements to all producers,

such value gains will disappear, but for short periods (in the Marshallian sense) or for the life of a patent, copyright, or franchise, considerable value appreciation may arise. As an illustration of such a shift in demand, assume that a machine used in the manufacture of a certain type of hat cost $500. If a marked increase in the demand for these hats developed, raising the price, the machine might be recapitalized at, say $1,000, for a short period at least. The sale of the plant at that moment would bring a higher price because of this increased valuation. Is such an increase to be included as part of social income?

The answer must be in the negative since there has been no change in the quantity of commodities and services; the increased value of future commodities has been capitalized.

From the supply side an interesting problem is presented by changes in the technique of production. Such developments alter the prospective income stream capitalized and may cause an appreciation in the value of property assets.

Let us assume three plants, A, B, and C. Plant A puts one hundred days' labor (we shall ignore other costs) into the making of a machine worth $1,000 on a cost basis. Plant B puts one hundred days' labor into the development of a new (patented) process that will add to the plant output an amount just equal to the increase in output obtained by plant A with the operation of its new machine. Plant C has an engineer who, while engaged in his regular duties, suddenly has an inspiration as to a new (patented) method of production that will, without additional cost to the firm, increase the output of the plant in the future by the same amount as the increase obtained from the new machine in plant A.

We have here three cases: (1) new material producers' goods; (2) a new process developed after considerable research; (3) a new process that is virtually costless. In the case of each plant, has social income been produced, and has individual gain been received that does not represent social income? A variety of answers is presented under different income theories. Under Fisher's definition of income as a flow of services no social income at all has appeared; it will appear in the future as a new flow of commodities and services. If the payment of $1,000 to workers in Plants A and B resulted in a larger flow of consumption, income

to the extent of that flow would appear, but the creation of the machine or process itself would not become income. Under the accounting definition there has been no individual income to Plant A or Plant B, for the capital and process, respectively, have presumably cost all they were worth. However, the $1,000 paid is income to the workers receiving it, so that total income has been increased $1,000 in each case. In the case of Plant C, if unrealized proper value increases are recognized, there has been an income of $1,000 to the plant, while if only realized income is recognized, there has been no income to the plant. Under the commodity and service definition, the value increment due to the production of the machine in Plant A is social income (or rather represents social income). The value increments in Plants B and C are not income. This conclusion follows from the fact that under the commodity and service definition of social income, income must consist of either services or an increase in wealth. Techniques and the state of the arts are not considered capital,[35] and the variations in the capitalized value of the asset are not social income items. Accordingly an improvement in technique cannot be income. The creation of social income in Plant A is not represented by an equivalent individual income received by the plant, but by the $1,000 payment to the workers. In the case of Plant B there also has been the payment of $1,000 to the workers; the result being that the plant has suffered, under the commodity and service definition, a loss in control over existing wealth, which was transferred to the workers as individual income. In the case of Plant C no social income in the net product sense has been added to the wealth of the nation.

If care is taken to write off all cost, whether depreciation or otherwise, no real difficulty should be encountered in theory or in measurement under the commodity and service definition.

[35] An interesting collateral problem is here raised. Should development of technique, business organization, education, a fund of knowledge, be included within the definition of capital? It might well be argued that since in each case labor has been used for more remote rather than immediate ends, the round-about process of production is involved just as truly as in the case of an extension in physical equipment. A good case can be made for defining capital in such a manner as to include such intangible improvements. Thus, Kuznets, Part One, Sec. I, includes human skills in his definition of 'wealth'.

Plant A has invested $1,000 in improvements and betterments, and if the depreciation of the new equipment is deducted by proper accounting methods, the true income, present and future, will be correctly obtained. No net income element will be counted twice. Plant B, on the other hand, can follow either of two accounting procedures. Since no material good has been produced, the additional cost of development can be lumped with general cost, and, since there is nothing to depreciate, no depreciation deduction must be made. Rights to present income have been given up for the privilege of securing future income. The alternative procedure would be to set up a thousand dollar asset on the books as evidence of an investment made in the interests of future production. Here the thousand dollar investment could be liquidated over a period of years by a species of depreciation account. The latter procedure would, however, overestimate the income in early years and underestimate it in later years. Plant C has no cost to write off and, consequently, its true net product is unchanged until the future additional flow of goods and services appears. No deduction for depreciation, or liquidation of investment, is involved.[36]

f) *Changes in the price level*

When the source of a property value increase is a change in the price level, the gain is nominal rather than real, since all prices increase. The owner of property possesses the equivalent of more dollars, but he may be no richer or poorer in command of commodities and services than before the price rise. The variation in the value of money—the counter used in the exchange—must not be mistaken for variation in the values of goods in exchange. Although price level fluctuations are often accompanied by changes in income through a partial redistribution of income

[36] Decreases or in some cases increases, in the value of existing fixed capital due to technological developments also represent a problem of some importance. Is partial or total 'economic destruction' of a machine due to technological improvement analagous to partial or total physical destruction through depreciation? If so, is the possible increase in the productivity and value of a machine due to such an improvement analagous to production? The whole question of obsolescence seems to the writers to be in a somewhat confused state. Cf. Fabricant, *Volume One*, Part Three, pp. 132-4.

among various classes of society, the fluctuations themselves do not constitute income.

It should be noted that if one desires to eliminate from property value changes the effect of a shift in the price level through the application of price index numbers, the desired result will not be achieved by applying an index number to the amount of the change. Rather, an index of prices at the beginning of the income period must be applied to the price of property at that time, an index of prices at the end of the period applied to the then existing price, and the gain or loss between the two calculated.[37] Mere application of an index number to the value change not only fails to adjust the amount of the change for price level variations but such a procedure may show the change as occurring in an erroneous direction.

g) *The special case of corporate securities*

The heat with which the capital gains controversy is debated is undoubtedly attributable in large degree to the special problem presented by corporate securities, principally stocks. These securities, as noted above, fall in the classification of indirect titles. The capital value of such titles will vary with the value of the tangible and intangible property (including the goodwill of the going concern) that they represent, and with the prospect of receiving as dividends the property or the earnings thereon. To the extent that gains in stock prices are due to reinvested earnings, they represent real capital increases. To the extent they are due to the capitalization of expected future earnings the gains do not represent real capital increases.

The difficulties raised by corporate securities are almost entirely in the field of taxation. Individuals are not taxed on the earnings of the corporation or the increase in security values resulting therefrom unless dividends are paid or the stock is sold. Failure to pay dividends may have the effect of postponing the individual income tax, which thus is a motivating factor in determining dividend policies. This problem is discussed in the section on taxation.

[37] See Maurice Leven, *Income in the Various States* (National Bureau of Economic Research, 1925), 'Preliminary Statement' by W. I. King, p. 31; Copeland and Martin, Part Two, Secs. I and II.

In the measurement of national income, double counting may conceivably result if both the income reinvested by the corporation *and* the consequent increase in value of stocks are included. However, by eliminating one of them, usually the latter, the duplication is avoided.

4 SUMMARY

The two questions around which this section has centered are: what is the nature of so-called 'capital gains', and, to what extent are 'capital gains' part of income under the principal income concepts?

The analysis has led to the conclusion that 'capital gains' in the broadest sense are property value changes, realized or unrealized. Although some persons would limit the term gains to include only those on so-called 'capital assets' as distinguished from stock-in-trade, and some would limit the term to realized gains, the present writers consider the broad definition the most useful.

Property value changes are in a different category from true changes in capital, since capital is the total existing stock of wealth, while property consists both of rights to that wealth and intangible rights to future anticipated income.

Property value changes are income under an accounting definition, since accounting deals with property rather than wealth. However, the treatment by accountants of unrealized property gains is not uniform. Under the commodity and service definition, property gains are income to the individual since they transfer control over income. So far as social income is concerned, however, only those gains that reflect production are a part of income. This eliminates property value changes due to variations in (a) the interest rate, (b) the income to be capitalized, (c) the price level. Corporate stocks and other indirect titles are in a special position since changes in their values represent income only to the extent that value changes in underlying property represent income. Under the consumption type of definition of income, property value increases are not income at all; while property value decreases would reflect income to the extent that they yield a flow of directly consumable services.

III The Taxation of Capital Gains

I OUTLINE OF THE PROBLEM

In a broad sense current usage classifies all property value appreciations as capital gains, and all decreases in property values as capital losses. To what extent should these gains or losses be recognized as elements in the determination of taxable income? The tax policy issue rarely arises between the alternatives of complete exemption and of complete taxation. Gains obtained by manufacturers, merchants, dealers in securities, and even professional speculators are all capital gains since they arise from the sale of goods for more than they cost; such gains are taxed as income as a matter of course. It is with respect to gains in the value of property that is not part of one's stock-in-trade held for sale that the issue of taxability comes to the front. Attention will therefore be chiefly centered in this section upon the taxation of capital gains in that more restricted sense.

In the preceding section the relativity of income definitions to the functions they are expected to perform was noted. Now, the objective of the personal income tax is presumably to apportion the tax burden according to personal ability to pay. Among the various taxes in our present system the income tax comes nearest to being a purely personal tax, that is, a tax that measures the personal situations of individuals and imposes burdens in accordance with these situations. Other considerations may require some deviation from the principle of taxation in accordance with personal situation, but to the extent that deviations occur, the personal character of the income tax is reduced.

Accordingly, the concept of taxable income should be one that comes nearest to reflecting ability to pay. For administrative reasons the income concept must also be one subject to reasonably accurate measurement from the financial accounts of the taxpayer. Three substantially different concepts of individual income based on accounts may be distinguished. One is an adaptation of the consumption concept. Professor Fisher has formulated a detailed plan for a tax of this type.[38] In effect it is a kind

[38] Irving Fisher, 'Income in Theory and Income Taxation in Practice', *Econometrica*, Vol. V, No. 1 (1937), pp. 42-53.

of expenditure tax, rather than a tax on earnings or total net gains received. Such a tax must not be confused with a 'sales' tax, for progressive rates can be applied to a spendings tax.

A second concept of income based on accounts is that of individual economic power.[39] Its figures would be drawn from the balance sheet and would comprise the change in net worth (assets minus liabilities) from the beginning to the end of the year plus the expenditures for consumption during the year. Calculation of income according to this concept would require the annual revaluation of all assets on the basis of market value.

A third concept that corresponds more closely to actual accounting practice is the realization concept, in which increases in the values of assets do not constitute income until they are realized by sale or exchange. Income is thus substantially a net flow (after deducting expenses and costs) of purchasing power through the hands of the individual and subject to his disposition.[40]

Increases in property values do not become income until the sale or exchange of the asset. As previously indicated, the emphasis on the realization concept by accountants, who are the custodians of the measurement of individual incomes, is apparently a matter of caution and conservatism. The use of the realization concept helps to protect persons against their own excessive optimism and against the financial manipulations of others. The policy is a pragmatic one based on a balance of considerations rather than on an internally consistent income theory. The attitudes of the courts and Congress in defining taxable income have been affected by and have in turn affected accounting concepts of income.

In some definitions of income for taxation, certain types of realized gain or profit are not included. Frequently the term income has been limited to gains that are recurring[41] and to gains

[39] As previously mentioned, this is R. M. Haig's concept of income as "the money value of the net accretion to economic power between two points of time" (*The Federal Income Tax*, p. 27).

[40] Accounting profit is not always truly realized in the economic sense, in that it is not always in form for free disposition during the fiscal period in which it is recognized. However, these exceptions may be waived for the present discussion.

[41] Recurrence has been emphasized frequently by German writers, beginning with Herman. See Wueller, *op. cit.*, pp. 89 ff. Professor C. C. Plehn made it an element in his income definition. See his article 'Income as Recurrent, Consumable Receipts,' *American Economic Review*, Vol. XIV (March 1924), p. 5. It is part of the con-

that arise from services rendered.[42] The present writers consider these limitations untenable from the viewpoint of individual taxable income. Certainly such gains contribute no less to individual ability to pay taxes than do recurrent, earned gains.[43]

a) *Differences in income concepts*

The principal difference among the three concepts of individual income, and one of vital significance in the taxation of capital gains, concerns whether a person always receives income when he grows rich. Can an individual grow rich without having received income, or does the act of growing rich constitute the receipt of income? Growing rich does not constitute income, however it takes place, according to Professor Fisher's concept. A person can grow rich without having income both by the reinvestment of earnings from whatever source derived and by the unrealized increase in the value of property. Indeed, under this concept growing rich is the negation of income. To the extent that an individual applies his earnings or gains to growing richer he does not have income, while if he consumes them and consequently does not grow rich, he has income. If he grows poorer, owing to consumption, he receives income as a correlative of growing poorer. Under the economic power concept, growing rich in any manner and from any source is income, since economic power is identical with personal riches. Under the realization concept a person may grow rich without income through the increase in the unrealized accrued value of assets, but realized gains are income whether or not they are saved, so that growing rich through saving is not tax free.

In the opinion of the writers, growing rich implies the receipt of income, however the riches are secured. Accordingly, the economic power concept of income seems basically the soundest and the one on which tax policy should rest, except as various

cept of taxable income in the British tax; for example, see *Ryall v. Hoars*, 2 KB 447 (1923).

[42] Income as a payment for services rendered is emphasized in the definitions of Biersack and Schmoller (Wueller, *op. cit.*, pp. 89-93). It appears also to be an element in the British definition (*Ryall v. Hoars*). While not a part of income definition in the American law, it has probably been influential in the distinction between capital gains and ordinary business income.

[43] Except as they are more likely to arise from price level changes. Adjustment of income for such changes is discussed below.

considerations may require departure from it. The consumption concept utterly misses the mark of measuring personal ability, for it taxes a person when he is losing his ability and exempts him when his ability is increasing. The realization concept, although admittedly more practical than the economic power concept,[44] is illogical, in that, whereas the person who owns freely reproducible goods directly must ordinarily realize income and reinvest it to grow rich, the person who owns non-reproducible goods such as land, or who owns indirect titles, such as corporate stocks, may grow rich without realizing income.

b) *Considerations for tax policy*

As previously indicated, the writers believe that, considered purely as a tax on personal situation, the personal income tax should be imposed on all increases in economic power and should allow the deduction as losses of all decreases. However, the determination of policy must rest on a balancing of many considerations and cannot be controlled solely by a theory of personal tax justice. A great variety of considerations have some bearing on the method of taxing capital gains, but among them the ones that seem most important may be summarized in the following questions:

1) To what extent is the tax levied in accordance with principles of justice?
2) In what directions and to what extent does the tax have economic effects, especially with reference to:
   a) The payment of corporate dividends?
   b) The price and volume of sales (and exchanges) of securities and other 'capital assets'?
   c) The proportion of national income saved?
   d) Accounting and business practices?
3) Is the tax feasible to administer?
4) What is the effect on the volume and stability of revenue?
5) Is the tax constitutional?

c) *Possible treatments of capital gains*

Possible treatments of capital gains and losses in taxation are almost infinite in their variety. Gains may not be taxed at all and

[44] See the discussion of administrative feasibility in Sec. 2 (g) below.

losses not be allowed as deductions. Gains may be taxed and losses not allowed as deductions. Conceivably losses may be allowed as deductions and gains not taxed.[45] Taxes may be imposed on property value increases when they occur or only when gains are realized. Realization may be recognized only when a sale is made for cash, or also upon exchange, or, still further, at death or at the time a gift is made. Capital gains and losses may be segregated completely from other income and subjected to some special form of tax, or they may be completely integrated with other income (as they were in effect under the 1918 law), or they may be partly integrated (as they have been since 1921). Partial integration may be by a variety of devices, of which two importantly different ones have been used since 1921. Gains on assets held for a long time may be subjected to a lower tax than gains on assets recently purchased, as is the case under the existing step-scale arrangement; or conceivably the opposite policy might be adopted on the ground that the owner has in effect been 'earning on the tax', as he has had the use of a larger earning asset than if he had been taxed on his accrued gain year by year.

This multitude of ways in which capital gains may be taxed differ primarily in four respects:

1) Extent of taxability,
2) Requirement of realization,
3) Deductibility of losses,
4) Adjustment of rate for time assets are held.

Extent of taxability refers to the degree to which the gains are taxable or exempt. It may range from complete taxability, as in the federal income tax law prior to 1921, to complete exemption, as in the case of some gains under the British income tax law. Requirement of realization concerns whether capital gains are taxable when the increase in the value of an asset takes place, or only when that gain is realized by sale or exchange of the asset. It also concerns whether a realization policy, if adopted, should include the recognition of realization of capital gains by the

[45] Something of this nature occurs (at least temporarily) in the valuation of inventories at 'cost or market whichever is lower' and in allowing obsolescence, etc., while not taxing increases in the values of assets.

donor at the time a gift is made and by the decedent at death. Deductibility of losses concerns whether capital losses should be fully, or partly, deductible from other income, deductible only from capital gains, or not deductible at all. The question of carryover of losses as a deduction against future income is also involved. Allowance for time held relates to whether, if a realization policy is followed, some recognition should be given, in the tax rate, for the period during which the asset has been held, in order to avoid taxing the captial gain in a bracket higher than it would otherwise be taxed. A variety of ways of making this time allowance have been applied or suggested.

2 FACTORS AFFECTING THE POLICY OF TAXING CAPITAL GAINS

In this section the various factors previously mentioned as important in determining the policy of taxing capital gains are discussed with reference to differences of the four kinds just mentioned.[46]

a) *Ability to pay and the taxation of capital gains*

From the viewpoint of tax justice there appears to be little reason for discriminating between capital gains and other income. Capital gains increase the ability to pay taxes, a fact that is frequently recognized by opponents of capital gains taxation.[47] To a public that considers such gains income, which is clearly the situation in the United States, failure to tax them would be a serious departure from the ability standard. To tax them under a separate scheme of taxation, as was practically the case for persons having large incomes from 1921 to 1933, is likewise a departure, since the ability of an individual cannot be broken into pieces if progressive income tax rates are to be applied equitably.

The logical conclusion from the definition of income previously accepted is that ability to pay is not delayed until realization, but arises when the property value increase occurs. However,

[46] The writers are greatly indebted to Carl Shoup for the opportunity to use an unpublished manuscript in the preparation of this report. Many of the ideas are attributable to Professor Shoup or were worked out in conjunction with him. The writers, of course, assume full responsibility for the material as it appears here.

[47] For example, see H. B. Spaulding, *The Income Tax in Great Britain and the United States* (London, 1927), p. 140.

considerations other than the basic income concept are involved. One concerns the existence of a source of tax payment. Under the accrual or realizability standard the funds for tax payment have not passed through the hands of the taxpayer at the time income is recognized and have thus not been made available for tax payment.[48] Although such taxation is of course common with taxes other than the income tax, this fact is often used as a basis for criticising them. From the viewpoint of ability to pay, the seriousness of taxing without a source of payment varies with circumstances. Persons with realized incomes of such size that the portion not spent for consumption goods equals or exceeds the tax imposed would not be obliged to sell any assets to pay the tax. However, where the actually realized income is insufficient to finance consumption and also pay the tax, the sale of assets may be necessary. No injustice need result from this necessity in case the property owned is divisible into relatively small pieces and its sale would not mean loss of control. Where the property is not readily divisible or where the sale of part might result in loss of control over the whole—as might occur in selling corporate securities—the tax may give rise to serious injustices.

An argument made against taxing accrued gains before realization is that they represent merely paper profits and are likely to be wiped out by declines in value. This situation, however, is likely to happen also in the case of realized income. For example, suppose a person owns one share of stock in XYZ Corporation, which he purchased at $75 and which is now selling at $100. Suppose, further, that he takes $75 of savings plus $25 of current income from other sources and buys another share at $100. Since the shares are identical, the $25 gained on the first share is in just as precarious a position as the $25 current income invested in the second share. One gain is just as safe as the other.

Declines in values result in injustices due to incompleteness of loss deductions. If an asset increases in value in one year and de-

[48] It is also true, of course, that under the Supreme Court's definitions of income, some forms of realized income do not carry with them funds for tax payment. Thus, taxable stock dividends and certain exchanges, although producing taxable income, do not give liquid funds for payment; further realization may be necessary to furnish funds for tax payment. This consideration has not deterred either Congress from making such income taxable or the Court from upholding the tax.

clines the next year, there may be insufficient other income in the latter year against which to offset the loss. While the application of an averaging system or of a carryover of losses to future years would remedy the injustice in many cases, it would not do so in all. Furthermore, the tax decrease due to deducting the loss would ordinarily be less than the tax increase resulting from an equal amount of gain, since the gain would be taxed at higher rates than those avoided by the loss deduction.

Somewhat the same difficulties with loss deduction arise when gains are taxed and losses allowed at the time of realization. The provision of the present law, allowing deduction of capital losses only from capital gains (plus $2000 of ordinary income) in the same year, gives rise to serious injustice, since in numerous cases the government in effect taxes the gain but does not allow deduction of the loss. However, recognition of capital gains and losses at the time of realization allows the taxpayer to choose the period during which the income or loss will be recognized for tax purposes, a discretion that he lacks, at least to the same extent, in the case of other income. If the income tax rates remained unchanged from year to year and if the law provided that all property value increases would eventually be taxed,[49] then capital losses should from the viewpoint of justice be deducted from ordinary income as well as from capital gains. The taxpayer could not in general reduce his taxes as much by choosing a particular year in which to take his losses as he probably would if the losses were deducted year by year as they accrued, since the more evenly spread the losses, the higher the tax brackets in which the offset income would fall and the larger the amount of the tax saved. Unfortunately for this argument, property value increases may, at the option of the property owner, never be subject to income tax, while at the same time he has the option of realizing his losses whenever he wishes. Furthermore, income tax rates probably tend to be higher in years of low capital values and lower in years of high capital values, thus allowing in effect an avoidance of part of the tax by paying a

[49] The possibility of entirely avoiding tax on the gain through transfer at death or by gift means that many gains are never taxed. The use of the taxable basis of the original owner, in case of the later sale of a gift of property by the donee, does not ordinarily yield a tax equivalent to the tax avoided.

lower rate on capital gains than is avoided through capital losses. For these reasons justice under the realization system of taxation may require some limitation on the offsetting of capital losses against ordinary income, although the application of specific rules to produce a maximum of justice would appear to be very difficult. More simple would be the extension of realization to include capital gains accrued on assets at the time of gift or of death. This extension, to be sure, rests upon a far-fetched interpretation of realization. It may not be unreasonable to assume that the donor of property realizes the capital gain accrued on it at the time he makes the gift, but applying the same doctrine to property transferred at death would involve a strange notion of gain. However, there is good reason for contending that the injustices that might result from applying such a plan would be more than offset by the increase in justice that it would give to the realization method in general.

As previously indicated, one reason why taxing realized gains and allowing deduction of realized losses in the year of realization does not correspond to the ability standard of tax justice is that an income that may have been earned over many years is concentrated in one year and is thus taxed in higher brackets than it would otherwise have been. Capital gains are not unique in this respect. The concentration in a year or two of royalties on a book that took many years to write, the concentration of the lifetime earnings of an artist or actor in a few years, and the possible concentration of business earnings in relatively few years are in the same category. The problem is the general one of irregular incomes. In all such cases there is a failure to recognize that one year is not a satisfactory income period. The situation is perhaps most acute in the case of capital gains because it probably affects more people. It will be observed that this problem does not arise if gains are taxed when they occur without waiting for realization.

Various methods of adjusting realized gains for the time element have been tried or proposed. Most nearly accurate would be apportioning the income or loss over the period during which the asset was held, calculating the amount of increase or decrease in tax that the receipt of such income or loss would have produced in each year, and collecting the sum (algebraic) of these amounts. The method does not give equitable results in the case

of an asset whose value changed in one or a very few years, and does not change further during the rest of the period. This difficulty might be met by apportioning the realized gain among the years according to the actual change in value during them. The enormous administrative difficulties of such a process will be clear from later discussion.

The application of a moving average of perhaps five years to capital gains and losses, taxing the average amount as part of ordinary income, would perhaps, next to the apportionment just described, reduce most effectively the injustice of taxing realized gain in a single year. Better still, perhaps, would be an averaging of all income, although the resistance of taxpayers to paying a tax in a year of loss has made averaging systems unpopular.

The present step-scale system for adjusting for the period assets are held is less satisfactory than the methods just described from the viewpoint of justice. The amount of reduction granted in the present step-scale system is excessive in most circumstances, and results in unequal treatment of persons with and persons without capital gains. Moreover, the benefits are unequal, being greater to a person with a large volume of capital gains than to one with a small volume, and greater to a person with income in the range of steeply rising surtax brackets than either to persons with low incomes not subject to surtax or to persons with very high incomes at or near the top of the surtax schedule. This inequality could be eliminated by a very complex step-scale system which would take into consideration the amount of ordinary income and the total amount of property gains, as well as the number of years the property was held.

Another possible method involves the following steps: (1) divide capital gains and losses by the number of years the asset was held; (2) determine the difference in tax (either increase or decrease) that the amount of the resulting quotient would make in the tax on the income of the current year; (3) multiply such difference by the number of years held. If the taxpayer's other income and the tax rates were the same for each of the years during which the asset was held, the tax computed by this method would be equal to the tax resulting when the capital gain or loss was divided among the years held and added to the actual incomes of those years. However, uniformity in rates and incomes is not

likely to exist; and of the incomes for the different years only that of the year of realization has any effect on the tax on capital gains under this method. The tax on capital gains will be reduced if the income of the current year is lower than average, and will be raised if it is higher, since the surtax rates applied will vary.

Capital gains or losses that are due to, or accompanied by, corresponding increases or decreases in the general price level do not represent economic power or ability to pay. Bringing capital gains taxation into harmony with an ability to pay principle would require that, in computing such property gains, the values of property involved in the computation should be corrected for changes in the price level.[50]

The problem of price change requires research into its many complications, including the choice of a satisfactory official index of prices. The writers have not gone into the question and accordingly have no recommendation as to method.[51]

b) *Effects on the retention of corporate earnings*

Perhaps no demonstration is needed of the proposition that if taxes can be reduced by retaining corporate earnings rather than paying them out as dividends there will be a tendency to withhold them. That substantial savings are possible, especially to persons whose incomes extend into the higher rate brackets, has been frequently pointed out. The tax saving possible at present is mainly from three sources: (1) permanent avoidance of realization through transfer of capital assets by gift or at death; (2) lower rates on capital gains than on other income; (3) earnings on assets financed by the postponed tax. The third is more precisely a gain from tax postponement than a tax saving.[52]

More debatable is the question of the actual effectiveness of the tendency to withhold corporate earnings. The advantage to the stockholder of not receiving dividends is most likely to result in withholding earnings in closely held corporations where con-

[50] Of course, the problem of price level changes arises in other cases than capital gains. For example, a creditor who receives payment of a debt incurred at a substantially higher price level has increased economic power even though no monetary income is received.

[51] See Copeland and Martin, Part Two.

[52] For greater elaboration of the tax saving through dividend retention, see Carl Shoup, Roy Blough and Mabel Newcomer, *Facing the Tax Problem*, (Twentieth Century Fund, 1937) pp. 160, 170.

trol is direct. In widely held corporations where directors do not represent a single person, or small group, stockholders who would benefit by the withholding of earnings may not be able to impose the desired policy on the corporation. However, the substitution of pressure to withhold earnings for the normal stockholder pressure to distribute them is likely to result in more earnings being withheld than would otherwise occur.[53]

Corporation earnings can be realized by stockholders in two ways: through cash dividends and through sale of stock to others at prices that are higher on account of the accumulated earnings.[54] If everyone desired to realize his earnings currently the method of realization through sale would not be available, since it rests on the existence of a body of persons who have the desire and ability to invest and accumulate rather than to spend. Since such persons would in any case save and reinvest their dividends, the current payment of such dividends—aside from the factor of tax saving—is immaterial, assuming the specific corporation is a satisfactory place for reinvestment.

As previously indicated, high taxes on dividends add to the desirability to persons with incomes in the higher tax brackets, of non-dividend-paying stocks (in strong corporations). The exemption of capital gains or their taxation at lower rates than are applied to dividends makes realization through sale relatively attractive to the stockholder who wishes to spend his share of corporation earnings for consumption goods or to reinvest them in some other concern or industry. Accordingly such exemption or favored taxation would have a distinct tendency to encourage dividend withholding. Other devices could undoubtedly be invented to save by the capital gains route. For example, a corporation might accumulate earnings for some time and then announce that they would be distributed on a certain date. Stockholders in the higher income brackets could then sell, perhaps at a small sacrifice, to persons with smaller incomes who would then receive, subject to little tax liability, the accumulated dividends. Another method would be for a corporation to finance itself by selling bonds bearing no interest or a nominal rate of interest.

[53] *Ibid.*, p. 174.

[54] We are here concerned with *economic* realization. *Legal* realization as interpreted by the courts includes some non-cash dividends such as dividends in bonds or in the stock of a corporation other than that of issue.

Such bonds would sell at a heavy discount. When redeemed at maturity the bonds would give their holders a capital gain representing the interest for the period, but subject to the lower taxes. Redeemable or convertible preferred stock could be sold on similar terms.[55]

Taxation of capital gains when they occur rather than at realization would remove the tendency to withhold earnings, since the increase in stock values due to the accumulation of reinvested earnings would then be taxed as it took place. Indeed, taxation by this method would probably encourage the payment of dividends, at least in a quantity sufficient to pay the tax on the gains.

Removing the incentive to withhold earnings is difficult when only realized gains are taxed. The loopholes of transfer by gift or at death make possible a permanent avoidance. The recognition of realization in such transfers would substantially reduce the incentive to withhold earnings although it would not remove it entirely. Postponement of taxes is psychologically attractive, as the hope is continuous, that future tax rates may be lower than present rates. The opportunity of realizing gains at a time when they will result in the least tax is a factor, as is the opportunity of earning on the postponed tax.

In summary, the present (1937 law) system[56] of taxing capital gains offers substantial inducements to retain earnings. These inducements would be enhanced by exempting capital gains, taxing them at a low flat rate, or reducing the percentages taxed under the step-scale system. They would be reduced by recognizing realization at the time property is transferred by gift or at death, and by increasing the percentage taxed under the step-scale system. They would be eliminated by taxing capital gains at the time the value increases took place instead of at the time of realization.

c) *Effects on security markets*

The actions of buyers and sellers of securities in response to the taxation of capital gains may be rational or irrational. The irra-

[55] For British experience in transforming taxable income into exempt capital gains, see R. M. Haig, *Wall Street Journal*, March 29, 1937. His series of articles in this periodical for March 23, 25, 29, April 2, 8, and 13 comprise a valuable treatment of capital gains in foreign tax systems.

[56] The undistributed profits tax is disregarded here. One of its purposes was to discourage tax avoidance through withholding earnings. To the extent that this tax remains in the tax system it is an inducement to immediate divident payment.

tional actions may be quickly noted. People dislike to pay taxes and often prefer where possible to postpose them to the future regardless of long run interests. Likewise they dislike to see the apparent capital values of the securities they own reduced by sale and tax payment, even when a loss greater than the tax will occur if they do not sell.

There are, however, rational effects also. The capital value of assets remaining to the individual is decreased when he sells a security at a gain and pays the tax. Securities are held both for changes in value and for their annual yield. If assets were held purely for their change in value and yielded no current income the rational action would be to sell when the peak in price is reached. Unfortunately, whether the price of a security has reached its peak is often, perhaps always, uncertain, and when uncertainty exists the tax tends to deter the holder from selling, since after paying the tax his assets for speculation are reduced. Perhaps more important is the fact that securities are held both for changes in value and for their annual yield. When a security is yielding an annual income the effect of the sale of the security on this income must be considered. Reduction in the value of assets due to the tax decreases annual earnings. Such decrease in annual earnings resulting from realization must be offset against the probable loss in the value of an asset if it is retained. The rational action would be to sell when the probable loss in value from failure to sell is greater than the probable loss in income due to the reduction of assets by the tax. The tendency to retain the asset is greater the higher the proportion of capital gains to selling price and the higher the rate bracket in which the person's income falls.

Aside from these basic effects probably associated with any method of taxing realized gains are others growing out of specific methods. When, as under the present law, capital gains are integrated with other income in determining the tax rates to be applied, the taxpayer tends to realize his capital gains in years when his other income is small. When, similarly, capital losses are deductible from other income he tends to realize his losses in years when such other income is large. When capital losses are deductible only from capital gains he tends to realize losses when possible in years in which he has also gains. The step-scale plan of the present law encourages taxpayers to hold securities on

which they have gains for a longer period (up to 10 years) in order to reduce the portion of the income taxable. There is a similar encouragement to sell in an early year securities on which losses would be realized in order to secure the maximum deduction of such losses. Frequent changes in income tax rates also encourage the holding of securities on which capital gains would be realized, since there is hope that the rates may be lowered. The lower the rates applied to capital gains the less the effects.

The taxation of increases in security values when they occur rather than when realized would remove the incentives to hold assets, since the act of sale would have no effect on the amount of the tax. A mild incentive to sell securities that had gained in value would be present since some persons would sell in order to realize funds with which to pay the tax.

Exempting capital gains would remove the effects discussed above, which would, however, be replaced by others. There would undoubtedly be a considerable increase in the amount of selling as a means of realizing income in conjunction with the withholding of corporate earnings discussed in a preceding section.

This is not the place to attempt an evaluation of the social importance of the effects of taxing realized gains. It may be desirable, however, to mention briefly some of the more significant results that are alleged. One is that boom markets are prolonged and intensified because persons with paper profits will not realize them by selling. Another is that falling markets are likewise intensified by the desire to realize losses for tax purposes. Still another is that the securities market is made very thin by the refusal of wealthy individuals to take the risks of loss when so large a tax on gains is imposed and so inadequate a deduction on losses is allowed. Perhaps most important is the contention that the tax on realized capital gains deters the passage of securities from the hand of risk-taking speculators to conservative investors as the securities become sounder and more mature. That is, persons who would otherwise sell seasoned securities that had been purchased when the securities were of a more speculative character cannot, because of the tax, afford to sell them to more conservative investors and reinvest the proceeds in newly issued securities, thus placing new capital in industries. Another, contrary allegation, is that stock speculation is of doubtful value to

the economic community and that a force, such as the capital gains tax, that may decrease the volume of such speculation may help transform American speculators into investors, with desirable social results.

In summary, the taxation of realized gains tends under some circumstances to discourage the sale of securities that have increased in value. Taxation when the increases in value occur instead of at the time of realization would remove the incentive not to sell and replace it with a mild incentive to realize enough profits to pay the tax. Exemption of capital gains from taxation would remove the incentive not to sell and replace it with an incentive to devise ways and means to use sale as a method of realizing current income in the form of capital gains. Partial exemption would have partial effects of both kinds and the net result is perhaps unpredictable. Important alleged social results from the effects of capital gains taxation on security markets are not evaluated here.

d) *Effects on the saving process*

An important question of policy in the taxing of capital gains is the effect of such taxation on saving. The argument is sometimes made that although capital gains are income to the individual they are not to society, so that a tax on such gains must be a tax on capital, which, it is alleged, reduces the volume of saving. Doubtless, as previously explained, to the extent that capital gains represent mere transfers of legal titles they do not represent additions to social income (defined as a social net product), and a tax on such gains is in the social sense a tax on capital. However, the proposition that taxes on capital necessarily reduce the volume of saving cannot be accepted. In general all taxes, whether imposed on individual income or capital are paid out of social income; a so-called capital tax simply utilizes capital as a measure of the tax. Broadly speaking, the effect upon saving of a tax, whether it is imposed on income or on capital, will depend upon the size of the total income from all sources of the individual on whom the tax is imposed. This conclusion rests on the apparently demonstrated fact that the ratio of saving to total income received tends to increase as total income increases. Accordingly, taxes on people in low income groups can have little effect

upon the volume of saving since such persons save little, whether taxed or not. Taxes on people in high income groups, however, tend to reduce the amount of funds available to the taxpayer and therefore total social saving. Where the income is very large, a large percentage of the tax paid (if not the entire amount) will probably come from funds that would otherwise be saved. It is not probable that a taxpayer whose income falls in the higher surtax brackets would diminish his consumption materially to avoid a reduction in his rate of wealth accumulation.

If the individual subject to tax is obliged to sell his capital to get funds for paying the tax, the asset is purchased with funds representing current or saved income.[57] The asset is not destroyed and the real source of the tax payment is social income.

The effect on personal savings of a tax on capital gains is determined by the same factors that determine the effect of an income tax or any other kind of tax. If the capital gains are received by persons with incomes in the higher rate brackets the tax will have a more repressive effect on savings than if the gains are received by persons in the lower brackets. This problem is, however, much broader than the problem of taxing capital gains for it is involved in all progressive taxation. The net effect on saving resulting from tax exemption or a reduction in tax rates depends on the source from which the lost revenue would be replaced. If the revenue losses were replaced by the imposition of increased rates affecting persons with incomes as large as those of the individuals who received the capital gains, there would presumably be little or no effect on saving. If revenues are restored by additional taxation in even higher brackets, presumably saving would be discouraged; if by additional taxation in lower brackets, or by regressive taxes, presumably saving would be encouraged. Available figures present a strong presumption that the rich are the major recipients of capital gains. Accordingly it is probable that complete exemption or a low tax on

[57] Over a period it is immaterial whether the income was received within the current fiscal period or not. No attempt has been made in this analysis to grapple with the problem of whether saving necessarily results in investment and whether various levels of taxation affect the completeness with which this result occurs. This problem is much broader than the question of capital gains taxation. The writers feel that a discussion of arguments such as that made by J. M. Keynes would carry the analysis too far from the central topics.

capital gains would tend to result in a net increase in saving. But, to repeat, this is a problem not so much of capital gains as of the rate of progressive income taxation.

Another way in which exemption or lower taxation of capital gains would probably promote saving is through the incentive, previously discussed, to withhold and reinvest corporation earnings. One result of retaining corporate earnings is that such gains are usually invested in full. If dividends were paid, some would surely be spent, since not all the stockholders would reinvest all dividends in the same or other businesses. Accordingly factors that encourage the retention of earnings in the hands of the corporation tend to increase saving, while factors that discourage retention tend to bring the saving of incomes earned through corporations more nearly in line with the saving of incomes earned through partnerships and proprietorships.[58]

Some observers take the position that regardless of the effects of capital gains taxation upon the volume of saving, it must be admitted that the process of investment is partly disrupted. The argument is based on the idea that different security purchasers desire different types of securities. Some investors buy nothing but thoroughly seasoned securities. Others, more willing to take risks, buy the securities of new and speculative enterprises. Between these two extremes are all varieties of investors. The process of investment involves placing new capital in industries by speculative purchasers of new securities. As the securities become seasoned and their return more certain, they are shifted to the more conservative investors, thus releasing the funds of the speculative purchasers for further new investments. The capital gains tax, as previously pointed out, is believed to impede the passing along of such securities and the reinvestment of the proceeds in new securities by speculative investors, by making it unprofitable for investors to sell securities on which they have made a gain. To the extent that this argument is sound the reduction of capital gains taxation, or the substitution of taxation of the unrealized gains for taxation of realized gains, would reduce the obstacles to a free movement of saving into investment channels.

[58] This statement is subject to the exception that in lower income brackets corporation taxes equal or exceed individual taxes so that the effects on saving may differ somewhat.

To summarize, capital gains taxation apparently does not, so far as individuals are concerned, affect saving any more than would other taxes applying to the same levels of income. The incentive given by capital gains taxation to withhold corporate earnings from dividends probably increases saving. Taxation of realized gains may interfere with the process by which saving is allocated to various industries by investment.

e) *Effects on accounting and business practice*

The generally accepted accounting and business practice at present is to recognize property value appreciations only when they are realized through sale or exchange. Decreases in property values through depreciation are recognized, and inventories are frequently valued at the lower of cost or market. Decreases in the value of capital assets may or may not be recognized on the books when they result merely from changes in market values of such assets.

The opposition to revaluing capital assets when they appreciate in value, or of recognizing such appreciation as income, appears to be based on several considerations. Accrual revaluation produces an income that is not connected with operations of the business, thus giving an incorrect impression of the success of the business. A going concern does not dispose of its assets but keeps them for use. Accordingly, value changes in assets do not produce income that can be paid out in dividends. Also, the calculation of depreciation is greatly complicated by changing the values of capital assets.

Business men are tempted to revalue their assets upward in order to give investors the best possible impression of the business. However, such an impression is misleading since the average investor is interested not so much in the fluctuating value of assets as in the continuity of annual earnings. Income or loss reflecting changes in the values of capital assets does not give the investor a correct impression.

The danger arises that if the government, through its tax laws, made the revaluation of unsold assets part of the common practise, even through a voluntary or optional plan, such action would have a strong enough influence on business practice to make such revaluation common, with possible harmful results to investors.

f) *Effects on Revenues*

The writers have not studied whether the full taxation of capital gains and full deduction of property losses would yield a net income or not, nor have they tried to ascertain the relative productivity of low or high rates.[59] The following appear to be the arguments pro and con on this question. In favor is the record of increasing values of wealth in this country and the fact that substantial amounts of corporation income are reinvested directly without distribution to stockholders, thus increasing the value of the stock and yielding a property gain at its sale. Opposed are the tendencies: (1) to report losses and hide gains, (2) for much of the gain in one asset to be accompanied by losses in others, (3) for both gains and losses to be caused in large degree by changes in price levels, which, theoretically, should be eliminated in computing taxable property gains and losses.

Although the revenue effect of eliminating the taxation of capital gains and losses may be uncertain, some fairly obvious observations on the probable revenue effects of certain methods of taxation may be stated. The allowance of full deduction of capital losses against ordinary income would cause a very serious reduction in the revenue derived from the income tax as compared to the present provisions. The present system of allowing capital losses to be deducted only to the extent of capital gains plus $2,000 virtually ensures a net revenue from capital gains. The tendency to realize during life on assets showing loss and not to realize on assets showing gain is, however, present under the existing law, partly because of the deduction of property losses against $2,000 or ordinary income and partly because a taxpayer in need of cash will likely sell assets showing loss or no gain since his tax liability is thereby not increased. For this reason, the extension of the concept of realization to include transfer at death and by gift would undoubtedly increase the revenue, as would also the substitution of the accrual method of taxation.

Stability of revenue would undoubtedly be increased by abolishing the tax on capital gains.[60] The greatest instability would result from taxing realized capital gains in full and allowing

[59] See in this connection Haig, 'Capital Gains and How They Should Be Taxed', *op. cit.*, p. 137, and Spaulding, *op. cit.*, p. 143.
[60] See Shoup, etc., *op. cit.*, p. 83.

full deduction of capital losses against all income. Experience indicates that in many years very large net losses from sale of capital assets would substantially reduce the total revenue from the income tax. The present system of allowing the deduction of capital losses only against capital gains (plus $2,000) tends to reduce the instability. Methods of averaging gains and losses over a period of years should reduce instability still more, as would to somewhat less degree the carrying forward of excess losses to future years. The plan of taxing accrued gains would no doubt give less instability than full taxation of realized gains and deduction of losses, but whether more than other plans is uncertain. Instability would undoubtedly be reduced if price level adjustments were made in computing property gains and losses.

g) *Administrative feasibility*

The present system of taxing capital gains has proved to be administratively feasible, although numerous detailed provisions in the law and its administration have been necessary to make the system workable. The exemption of capital gains from taxation would eliminate many of the difficult administrative problems of income taxation. Problems of March 1, 1913 valuation, of the determination of taxable basis, of wash sales, and of other exchanges to establish deductible losses would be reduced or disappear. However, the distinction between capital gains and other income would become more important, and the administration of borderline cases correspondingly more difficult. British experience with borderline cases demonstrates the force of this objection.

Inventorying of unrealized property value changes would eliminate many of the present administrative difficulties but other more serious problems would be raised. The wealth of every person subject to tax would have to be appraised every year—a tremendous task. Not only would the kinds of property now subject to assessment for purposes of the general property tax be involved but also patents, trademarks, goodwill, and other intangible property would have to be valued annually. The high rates of the income tax would make accuracy important, and accuracy would be entirely impossible with many types of property. However, in some respects the unavoidable errors would be less im-

portant than the similar errors now existing in assessments for property taxation, since, while errors in property assessment are cumulative, errors in valuation for income tax purposes in any one year would tend to be compensated or corrected in future years. This would be especially true if incomes of several years were averaged.

Greater difficulties would be met in the case of some intangible assets than of others. Listed securities, especially those with an active market, would perhaps not be difficult to value. Unlisted securities, however, especially those of closed corporations, would be virtually impossible to value on a market quotation basis. Patents, trademarks, goodwill, and similar assets would likewise be hard to value. The numerous problems of equitable assessment that have been encountered in the taxation of the more easily discovered real estate and personal property force us to view with caution any extension of property valuation taxation into new and more difficult fields.

The taxation of accrued gains in market values could be avoided by taxing security owners on their allocated shares of the undistributed earnings of the corporation. This method also gives rise to administrative difficulties. Where non-cumulative preferred stock is outstanding it may be impossible to allocate ownership of the equity in corporation earnings. Once allocated, the equities would often have to be traced through intricate holding company arrangements to the final individual shareholders. The obstacles to efficient and equitable administration that would necessarily be encountered are perhaps obvious.

In taxing realized gains the administration is least complicated when the gains and losses are fully incorporated with other income, or are taxed at flat rates. Less simple is the present step-scale system, although the increase in the complexity of computation is perhaps not serious. Other methods of adjusting capital gains, or the taxes assessed against such gains, for the period during which they are held involve much greater administrative problems.

If realization at the time a gift is made were recognized, the taxable basis for every gift of property would have to be determined at the time the gift is made, whereas under the present method the basis need be determined only for the property sub-

sequently sold by the donee. Furthermore, while the evaluation of gifts at the time they are made under the present gift tax reaches only the more wealthy taxpayers, the recognition of realization at the time that the gift is made would necessitate valuing every gift.

Recognition of realization at death would require valuing the property at the time of death and also determining the cost or other basis of the property. An appraisal of property at the time of death must be made for most property under existing death tax laws. The determination of the taxable basis would be an added difficulty of some magnitude. Since the person best able to furnish needed information is the decedent, the problem of determining the proper basis might be difficult.

In summary it appears that: (1) the fewest administrative difficulties are present when there is no tax at all on capital gains, although even then there is a serious problem of distinguishing a capital gain from other income; (2) full taxation at realization is the next simplest method administratively; (3) of the plans requiring adjustments for the period the asset is held, the present step-scale plan is perhaps the most simple; (4) recognition of realization at death and by gift will necessarily involve many administrative difficulties; (5) taxation of unrealized gains is administratively impracticable for most kinds of property.

h) *The constitutionality issue*

In considering the abstract desirability of a tax policy no attention need be paid to its constitutionality. But in practical application unconstitutionality is a very important obstacle, since only the most powerful public demand is likely to result in a constitutional amendment.

The repeal of the tax on 'capital gains' would undoubtedly be constitutional. The 16th amendment makes no requirement of uniformity in taxing income. The Supreme Court has allowed wide latitude to Congress in determining deductions and exemptions. Likewise perhaps any of the plans whereby the tax is adjusted with respect to the time an asset is held would be considered constitutional.

No plan of taxing unrealized property value gains is likely to prove constitutional. The Supreme Court has consistently

stressed the necessity of realization. In the absence of a major change of heart by the Court any hope that compulsory accrual plans would be constitutional seems doomed to disappointment. The same is probably true of any method of taxation that would include within a stockholder's taxable income an allocation of the distributive share of undistributed corporation profits.

There appear to be few cases that can be used as a basis for forecasting the constitutionality of the taxation of gains to the decedent or his estate at the time of death or to the donor at the time of making a gift. The commonsense notion of realization is against it. Realization is what one receives, not what one transfers. With gifts, a defense might be made for the argument that the donor receives the value of the gift in some way or other, otherwise he would not make it. A similar argument seems difficult with respect to transfer of property at death. It is perhaps too much to expect that extending the concept of realization in these ways would be upheld. However, it seems to the writers that the plan is definitely worth trying. There is much to gain if it succeeds and perhaps nothing to lose if it fails.

3 CONCLUSIONS

From the preceding analysis it becomes clear why the taxation of 'capital gains' is a matter of so much controversy. There is no method either of taxing them or of exempting them that is superior in all respects to all other methods. As the emphasis varies from justice to effects on security markets, to non-payment of dividends, to revenue, and so on, the preference for different taxing methods varies. Accordingly, the final choice of policy is clearly a matter of subjective evaluation in which wide differences of opinion even among disinterested students of the subject must be expected. Furthermore, although among the possible alternatives for taxing property gains some may seem more attractive than others, additional study of practical administration is essential before a satisfactory method of taxation can be formulated.

Discussion

I M. A. COPELAND

Messrs. Blough and Hewett state that "the definition of income in terms of the production of economic goods has been generally accepted by the students of social or national income". As they use this definition it stands in contrast with an accounting type definition in terms of "earnings, gains, or profits from any source". There is, I think, some confusion involved in the antithesis so set up. The words quoted in connection with the former of these concepts ('the production of economic goods') characterize the so-called ultimate products method of measuring income. The words quoted to characterize the latter concept of income ('earnings, gains, or profits') might be applied to what has been called the debit net value product method of measuring income. If these two methods are employed consistently they should yield a single result—the total obtained by the debit method should equal the total obtained by the credit ultimate products method. Moreover, the latter is quite as much an accounting concept as the former. Both methods involve consolidation either of the accounts of ultimate income recipients or else of the enterprises employing their labor and property.

The writers seem to offer these two concepts (methods of measurement) of income with the thought that they will yield divergent results. They suggest [in II, 2(g)] that if we are to obtain a correct total of national income from individual accounts it would be necessary for such accounts to show separately "all items of individual gain that do not have their origin in a net increase in economic goods". They further urge that since "in actual practice . . . no such accounting procedure is, or can be, followed . . . the use of individual income accounts in estimating social income must introduce serious errors". I urge that

this statement involves a misconception of the process of estimating national income through the consolidation of the accounts of the various enterprises that compose the economic system or through a consolidation of the accounts of ultimate income recipients. There is no need to identify the contribution to social income made by any laborer or piece of property in order to determine whether to include the item of labor or property income in total national income. Net value products of monopolies and predatory institutions, of factories and churches are all included. The total of primary distributive shares—payroll, interest, profits, etc.—derived from all types of enterprise should equal the total value of goods and services produced after allowance for replacement. If this equality has not yet been fully established empirically there is no reason to assume a discrepancy between the two methods of the sort Messrs. Blough and Hewett seem to assume. The authors are partly right, however, when of "gifts, inheritances, fraudulent or predatory activity, and deliberately created scarcities (e.g., monopoly)" they say: "If such items are considered items of individual income, then it would apparently be impossible to consider social income as equal to the total of all individual incomes, and a statistician making an estimate of the net social product would be unable to utilize individual income totals as acceptable data." Monopoly and racketeering profits should be counted when income is measured in current dollars. But the inclusion of such secondary distribution items (transfer items) as gifts and inheritances would, of course, involve double counting. Admittedly, to draw a sharp line between primary and secondary distribution items involves some problems. There are cases such as WPA wages where it is difficult to determine how far they are primary distributive shares and how far mere transfer payments. But these cases make equal difficulties for the valuation of ultimate products and for the determination of primary distributive shares. I urge, therefore, that the two definitions of income be thought of as yielding identical totals if consistently applied and that distributive share items, such as monopoly profits, and transfer items, such as bequests and gifts, be sharply distinguished.

If this conclusion is accepted, it eliminates the basis for the argument of the authors that some capital gains are unproduc-

tive and, therefore, not part of national income—"only those gains that reflect production are a part of income". The authors have, in any event, fully recognized that there are various capital gains which must be included in national income even if we try to apply a productivity criterion, i.e., to ask whether the distributive shares involve a contribution to the social output.

If it is agreed that (1) some capital gains derive from increases in the known stock of physical wealth and some capital losses derive from decreases therein, (2) the absence of a contribution to the social output is not a basis for excluding, from national income, the individual income from a transaction, we may still consistently hold that practically, because of difficulties in the valuation of capital gains and losses and in assigning them to any particular year, it is wise to set up a concept of national income that excludes all such gains and losses. But clearly for some purposes capital gains must be included in national income. Taxation problems may call for such inclusion; so may other questions involving the distribution of wealth and income.

The authors note that the connection between their examination of capital gains in income theory and their examination of capital gains in the theory of taxation policy is tenuous (I). I think this unfortunate situation results in part from their conception of income just discussed. But even that conception might have suggested one line of investigation that involves a definite connection. The view that some capital gains are unproductive strongly suggests to me a relationship between the concepts of capital gains and losses on the one hand and a pair of concepts that historically have played an important role in taxation theory, namely, unearned increments and decrements. While clearly a capital gain as usually conceived is not by any means the same as an unearned increment even if we exclude 'those gains that reflect production', nonetheless I submit that there is a close relationship between the two concepts and one that might be worth investigating.

Measurements of national income require us to draw a sharp line between the accounts of ultimate income recipients on the one hand and the accounts of business and other enterprises on the other. The accounts of business corporations fall entirely in the second category (accounts of business and other enterprises). A part of the accounts reported on personal income tax returns

fall in the former category (accounts of ultimate income recipients).

There is, I think, some reason to believe that our scheme of taxation would be improved by a sharper differentiation between business accounts and indirect taxes on the one hand and ultimate income recipients' accounts and direct taxes on the other. Most of the discussion of capital gains and taxation policy by Messrs. Blough and Hewett appears to me to contemplate chiefly the taxation of capital gains received by individuals. Thus it is stated in Section III, 2(d) that "all taxes, whether imposed on individual income or capital, are paid out of social income"; as applied to taxes falling immediately on business this seems to me to oversimplify the incidence of taxation. Again, it is argued that taxation of capital gains needs to be integrated with the taxation of other forms of individual income if a satisfactory progressive system of taxation is to be had. It seems to me that in discussing such matters as the advisability of separating taxation of capital gains from taxation of other forms of income a more definite separation of the problem as applied to corporations and as applied to individuals is called for. Differences of administrative problems in the two cases would certainly seem to me to warrant such a separate treatment.[1]

Particularly in the case of the taxation of corporate income it seems to me that it would be worth while to consider the implications of the present definition of capital gains and losses as applied to mineral properties where depletion is reckoned on a discovery-value basis or on a percentage-of-gross basis.[2]

II HAROLD GROVES

The authors conceive of wealth and capital as a stock, and of income as a flow of utilities resulting from production alone. It seems to the discussant that this conception of wealth and income

[1] Mr. Martin calls my attention to the fact that in the taxation of personal incomes the problem of separation of capital gains under the present law is complicated by the fact that partnership income, unlike corporation income, is not subject to separate taxation and consequently that some capital gains on personal income tax returns are included under partnership income.

[2] This question was touched on in Carl Shoup's able paper, *Volume One*, Part Six, pp. 272 ff, but not elaborated because he was not directly concerned with capital gains.

gives inadequate consideration and weight to scarcity as an economic factor. It would be admitted, of course, that the utilities mentioned are not utilities in the abstract, but in relation to scarcities. It could be said, probably, that an individual who reaps a gain by simply holding a commodity until increased demand results in higher prices is producing a time utility. If so, does not the individual who becomes rich by the increase in the value of the land that he owns also render a utility? And if he renders a utility, why is the realized profit from the sale of such land not income?

It seems to the discussant that the authors' treatment of real estate values is unsatisfactory. Apparently unwilling to consider the large part of our national income that flows to the owners of scarce natural resources as mere transfer, they suggest that we cast scruples aside and assume that real estate values are capital values and the receipts therefrom are income. They also consent to the assumption that increases in real estate values are income. Why distinguish in this respect between real estate values and all other values that result from an increased demand? The authors say that some natural resources are discovered and represent a real increase in wealth. Real estate values are but the present estimate of their future income yields. The discovery or the arrival of new significance in a capital good is quite as productive as the discovery of natural resources.

It may be observed also that it is not entirely possible to avoid the economic power concept in the application of the production-of-utilities theory of income. The limitation of output by monopolies and semi-monopolies is a very important element in our economic life and no calculation of income in practice can isolate the reward that flows because of the utilities created and that which flows because of the utilities not created. From the economic point of view and for all practical purposes, a flood or a drought may mean increased income for farmers and possibly for the nation. Has it increased the total flow of utilities?

Goods have value because of both their utility and their scarcity. Values are appropriated as well as created. And when they are created, it is sometimes through the negative channel of restricting output rather than the positive one of augmenting utilities. These scarcity values are in the income and wealth picture.

They are there not because of the production of utilities, but because they give both their owners and the nation some economic power.

It is said that certain capital gains represent the present prospect of future income and that to count both the prospect and the realization is double counting. Smith goes into business and incurs an average annual operating loss of $20,000. But by the end of five years he has built up sufficient business prospects so that the business can be sold to Jones for $100,000 more than Smith originally invested. The layman would certainly conclude that Smith had come out even on his five years' business and that *at the moment of sale*, neither Smith nor Jones nor the country was any poorer as a result of the venture. Yet as I understand it, the authors would consider it double counting to offset Smith's capital gain against his operating loss.

This is the same double counting to which some economists object in treating saving as income. Yet the authors accept saving as income. Suppose Smith saves $100,000 from his salary and buys a factory with it. Jones discovers a mine worth $100,000. Is there any good reason why the first is income and the second is not? Cannot fortune add to economic power as well as labor? And does the fact that present values depend upon future prospects make it objectionable double counting to reckon the acquisition of such values as income?

The authors say that "increases in the value of a property resulting from a change in the interest rate are not evidences of the creation of income". Perhaps such changes in economic power are not creative. Neither is the increased economic power that goes to farmers when a spurt in the demand for wheat occurs as a result of a war. Can we exclude changes in demand from all consideration in calculating wealth and income?

Discovery, appropriation of scarcity values, limitation of output, the current realization of values representing future prospects, fortunate changes in demand, are all important sources of individual economic power. They are also important sources of national economic power. We ought to have definitions of income, capital, and wealth that include these sources of economic power.

Throughout the first half of their paper the authors think of

income as achievement or accomplishment; in the second half they think of income as economic power. Considering the limitations of the market—limitations as to freedom and intelligence—and considering that our economy is more a power-economy than a welfare-economy, perhaps it would be more realistic even in the field of income measurement to think of income as economic power. At the very least, it seems, those measuring national income should recognize that accomplishment under our present institutions is not susceptible to accurate measurement and that both the breakdown and the totals of income contain many elements of economic power.

From the theoretical standpoint there seems to be at least as good grounds for including capital gains in national income and wealth as for excluding them. When it comes to the practical jobs of measuring and taxing national income, major weight should be given to pragmatic considerations. How can the job of measurement be done so as to furnish the most useful data for comparisons? Or in the case of taxes, how can the law be written so that it is most equitable among taxpayers, produces the steadiest and most adequate revenue, encounters fewest difficulties of administration, and so forth?

Among the pragmatic considerations that bear on the inclusion or exclusion of capital gains in income measurement are the following:

1) No adequate data are available to measure changes in capital values (realized and unrealized) from year to year.

2) Realized capital gains and losses often have a longer periodicity than one year; they may have been accruing over a decade or more.

3) Realized capital gains and losses are not regularly recurrent as is most other income. One may have a substantial capital gain or loss this year and never again during one's life. For an owner of many securities, or a group of people, there is some degree of recurrence, but the pattern is far from regular.

4) Realized capital gains and losses are not used (as a rule) to support the standard of living of the recipients.

5) Realized capital gains and losses are artificially manipulated (to some extent) to suit the taxpaying interests of the recipient.

6) Realized capital gains and losses do not figure, I believe, in many of the income calculations made for other countries.

There is little reason to discuss here the relation of each of these points to the problem of measurement, but the bearing is fairly obvious. For example, national income figures are used to compare the economic activity and well-being of the nation from year to year. Gains that have accumulated over a decade, if allowed to enter the picture, may vitiate the basis of comparison.

On the other side of the issue the following may be cited:

1) It is exceedingly difficult to draw the line between business gains and losses and capital gains and losses. Is a man who buys and sells securities for others any more properly considered in business than one who enters extensively into these operations, but only for himself?

2) Is the picture presented not a very partial one when so many of the factors that make men and nations 'wealthy' are ignored?

In the discussant's opinion, this is not a one-sided argument, but the balance on the whole seems to favor ignoring capital gains and losses in the measurement of national income.

The authors have presented thoroughly the pragmatic considerations involved in the treatment of capital gains and losses in taxation. In general, the discussant agrees with their analysis and their conclusions.

It seems that the authors might have given additional consideration to the pragmatic grounds for avoiding the indiscriminate mixture (in the tax base) of capital gains and losses with other income. (In practice this problem takes the form of whether net capital losses should be deductible from other income.) The reasons for avoiding indiscriminate mixture are in the main the ones cited above for excluding capital gains and losses in income measurement: long periodicity, irregular recurrence, artificial manipulation, small reliance as support for the standard of living. In addition, the indiscriminate mixture of these kinds of income results in a very irregular revenue. These differences appear sufficiently important to warrant special treatment.

It would be possible, of course, to set up two entirely separate taxes—one on capital gains and the other on 'ordinary' income. This has much to recommend it. However, there is a general feeling that the two taxes should be integrated to some extent. Otherwise one category of ability to pay is measured without any regard to the status of the other. Some kind of a compromise seems advisable. The present federal law allows capital losses to

be offset only against capital gains (with a minor exception). If the law were modified to permit losses to be carried forward over a considerable period—say three, five, or even seven years—it would, in the discussant's opinion, represent a reasonable compromise between integration and separation.

The discussion of the proposition that taxation of capital gains and losses accentuate stock market booms might call for a supplementary observation. It seems quite plausible to argue that owners of stock are reluctant to sell stocks (especially those held for a relatively short time) because of the heavy tax on the realized capital gain that results. This influence tends artificially to limit the supply of stocks available for purchase. But may not the tax also have a somewhat commensurate effect upon the demand for stocks, especially for those stocks which are expected to yield a quick speculative profit? People will hesitate to buy in anticipation of the tax and there will be fewer people with ready money derived from other sales. Thus the effect of the capital gains tax may be fewer transactions upon the stock exchange. Whether there is a social interest in a large volume of transactions in the securities field is a matter to which the discussant has given no serious study, but on the surface it seems doubtful. Very likely the social interest lies in the opposite direction.

It is on pragmatic grounds that the proposal to disregard saving in income taxation is most open to attack. It will never seem equitable to the average citizen to place a heavier tax on a man with a large family who incurs large expenditure for the education of his children than upon the bachelor who puts his money into bonds. The important fact in income taxation to most people is not what the taxpayer does with his money, but the money he has to do with. The proposal, if adopted, would greatly change the incidence of the income tax and would largely eliminate its use for the non-fiscal purpose of preventing what is regarded as an undue concentration of wealth and power. Whether this is for or against the proposal is, of course, a matter of opinion, but the issue cannot be disregarded.

The authors have discussed thoroughly and ably the proposal to tax capital gains and losses upon an accrual basis. The hazards and difficulties are undoubtedly great. But it should be remembered that a very large part of our income tax problem arises

from the attempt to apply a personal tax to an economic world in which much of the realized economic power is confined to impersonal institutions. The accrual method of taxing capital gains and losses cuts straight through this Gordian knot. Because of this outstanding point in its favor, the proposal should not be dismissed lightly in spite of the overwhelming legal and administrative difficulties that can readily be cited against it.

It will be said, of course, that procedure in the fields of measurement and taxation must be based upon sound theory regardless of pragmatic considerations. But there is no clear consensus of expert or inexpert opinion as to what is sound theory in this connection. For this reason and because the practical problems are so important, income should be given a definition (for measurement and tax purposes) that will lead to the most useful results.

III SIMON KUZNETS

The authors state that "in the taxation of citizens in accordance with the ability to pay principle, the identity of social income with the total of all individual incomes is immaterial and irrelevant" [II, 2(g)], and in the discussion of factors affecting the policy of taxing capital gains, ability to pay is treated exclusively with reference to the individual's rather than the nation's ability. In this connection I should like to raise a question as to the possible relation between social income as a partial measure of the nation's ability to pay and those taxes which, like the one on capital gains, are levied on receipts that constitute transfers rather than items in a properly defined total of social income.

This relation may best be set out in a series of brief statements: 1) Social income, or rather that part of it which is produced in the non-government sector of the economy, is one of the important factors that must be considered by governments in a rational determination of the total that is to be collected as taxes. This does not mean that the volume of taxes collected should bear a constant ratio to the privately produced social income, even though variations in this ratio over short periods would be within fairly narrow limits. But it does suggest that in a rational consideration of taxation policy, the volume of tax collections would

be some clearly formulated function of the volume of social income arising in the economic system.

2) Were the governments so rational in their taxation policy as actually to consider the expected national income (as well as other factors) in determining the amount of taxes to be collected, the fact that such taxes might be imposed upon transfers, such as capital gains, or even upon non-receipt items, such as property, would be immaterial. But so far as such rational consideration of social income expected to originate in the private sector of the economy is absent, the peculiarities of tax administration become a separate factor in determining the volume of tax collections. Under such conditions, governments are likely to adhere to taxes and rates once established and thus permit the administrative system to affect, even if only partly, the amount of taxes to be collected. Consequently, the volume of tax collections might, under such conditions, be in excess or fall short of the amount that would be collected upon a rational consideration of taxation policy, based partly upon a forecast of social income.

3) In the light of the possibility stated under (2), it may make a difference whether taxes are levied on the individual incomes that comprise social income properly defined; or on receipts, like capital gains, that should be treated as transfers. In general, the relation of tax collection to social income is clearly perceptible and determinate within narrow limits when taxes are based upon receipts that comprise the social income total. But if the tax system is largely based upon taxes that refer to transfers and other items that are not part of the social income total, the total of collections bears only a distant and a highly variable relation to social income.

4) If we can assume that: (a) in the consideration of social income in a rational planning of taxation policy the ratio of tax collection to expected social income varies over short time spans only within narrow limits; (b) there is, in actual government policy, lack of rational consideration of this ratio in pre-establishing the total yield of all taxes, no matter how levied—then it is of advantage to have a tax system based almost exclusively upon receipts that comprise the social income total (or are very closley and simply related to them). For under such conditions, basing the taxes upon receipts that comprise the social income total

would limit the extent to which the administrative peculiarities of the tax system might, in the absence of rational considerations, produce a yield that is larger or smaller than that called for by a rational policy.

5) On the contrary, under conditions set forth under (4), it is dangerous to have a tax system that for a large part of its yield depends upon taxes levied on transfers, gifts, and other items that are not part of the social income total and bear a highly variable relation to the latter. For, as a consequence, the tax system might yield a volume of collections greatly in excess or greatly short of the amounts that would be determined by a direct rational consideration.

The point raised above may be too abstract to require serious thought, especially in view of the multitude of factors besides the social income total that should be allowed to determine the volume of tax collections. But the main purpose here is to urge the importance of considering taxable capacity not only of individuals but also of the nation as a whole; and of studying the effects of the administrative features of the tax system on its ability to adapt the volume of government charges to the nation's capacity to pay. Such an analysis would necessitate a careful review of the relation between individual income and social income, since the nation's ability to pay depends in part upon the *social income* total and tax administration relates almost exclusively to the *individual's* ability to pay.

IV GEORGE O. MAY

While I presided at the round table at which Messrs. Blough and Hewett presented their paper, the portion which I then had in mind to discuss has been eliminated and my present comment is, therefore, solely that of a Director of the National Bureau of Economic Research—an accountant interested in taxation, not an economist.[1]

1) I entirely agree with one important conclusion expressed by the authors—the conclusion that the taxation of unrealized capi-

[1] Mr. May's comments were received after the preparation of the reply by Messers. Blough and Hewett to the other commentators, Discussion VI. Their reply thus does not deal with Mr. May's comments (Editor).

tal gains is administratively impracticable. There seem to me to be two other relevant facts of almost equal significance. One is, that the inclusion of realized gains and losses in full in the computation of taxable income is likely to produce results that will be unsatisfactory to the revenue, especially as social legislation tends progressively to limit the opportunities for unearned increment and to restrict the rights attaching to the ownership of property. The other is, that as the authors recognize, taxation of capital gains without equivalent relief in respect of capital losses is unjust. The three facts together seem to me to make the taxation of capital gains as part of an income tax impracticable on any logical basis, and to account for the facts that most countries exclude capital gains and losses from such computations and that we have been forced to adopt empirical methods for including a part of them.

I think treatment of gifts as a deduction from the gross income of the donor and an addition to that of the recipient would not be appropriate in an income tax law and would be unwise.

2) As an accountant, I offer the following comments:

a) In accounting, income is a gain derived from a transaction with a person (natural or artificial) external to the accounting unit. A transaction between two companies may produce income to one of them, but if they are both members of the same group and subsidiaries of a common parent, it cannot produce income to the parent (even though made the basis of a dividend payment by the subsidiary to it) or to the group as a whole. This being so, there is no natural or direct relation between the accounting concept of business income and the notion of social income.

b) Whatever may be the merits of Professor Haig's definition of income as the money value of the net accretion to one's economic power, it cannot properly be presented as an accounting type of definition. The statement made and repeated by the authors, that this is a balance sheet concept, is in my judgment erroneous and based on the common but mistaken idea that balance sheets are intended to represent present values and net worth. When we emerged from the stage of single-entry bookkeeping into the double-entry accounting system which produced the balance sheet, we definitely abandoned the old corner-grocery-store method of determining gains by comparative state-

ments of net worth. As the authors recognize, the application of that obsolete method to individuals and corporations in the present state of society would present great if not unsurmountable administrative difficulties and it would be open to other very great objections even if this were not the case.

While aberrations in practice, especially during the 'twenties, may well have created a different impression, accounting is based (more firmly, perhaps, today than ever before) on cost, amortization of cost and completed transactions, though resort is sometimes had to valuation for purposes of conservatism.

c) The definition of income quoted by the authors from Preinreich is not, in my opinion, a typical or accurate accounting definition, but as they recognize that this definition, as interpreted by them, is not followed in accounting, it is unnecessary for me to do more than note my unwillingness to accept it.

d) When the authors speak [Sec. II, 1 (a)] of an appreciation arising as a consequence of additional equipment purchased out of earnings, and call it a capital gain; when they speak of appreciation of industrial fixed property as the converse of depreciation; and when, as in the illustration on page 222, they assume that part of the money received in an income-producing transaction remains earmarked as income, they indicate that their point of view is remote from that of the accountant, and their exposition of the accounting aspect of any question should be read in the light of this fact.

3) The following comments are offered with the natural diffidence of a layman:

a) I regret the persistent tendency of economists to torture words such as 'income' into meanings at variance with common usage. 'Net accretion to economic power' seems to me too abstract and vague a concept to form the basis of a serviceable definition of income.

b) Upon the question of the inclusion of unrealized appreciation in estimates of national income I desire to express my dissent from Professor King and my agreement with Mr. Soule (*Income in the Various States*, note, p. 38) and Lord Stamp (*Journal of the Royal Statistical Society*, 1934, pp. 449-50).

c) To tax in accordance with ability to pay may properly be the object of a tax system as a whole or of a personal tax, or the

guiding principle in framing an income tax law, but it is not, I think, a legitimate or desirable corollary that the word 'income' should be distorted by definition out of its common meaning in order to make the tax more nearly one on supposed new abilities to pay. This consideration has special weight where the tax is levied under a specific constitutional provision.

d) The authors seem to me to fail to distinguish between a tax levied according to ability to pay and a tax on newly arising abilities to pay—surely two materially different concepts.

e) I think the authors err in regarding the position as being that the ability to pay of an individual is a single thing which "cannot be broken into pieces if progressive income tax rates are to be applied equitably". The position seems to me, rather, to be that abilities to pay exist separately, and that the problem is to aggregate them. The heart of this problem—that of reducing them to a common denominator—seems to me to be almost if not completely ignored by the authors, and this is the more curious in view of their comments on the need of further study of the problem involved in reducing "automobiles, radios, and felt hats" to a common denominator by expressing them in terms of money value. The problem is not merely that of irregular income, which the authors do discuss.

f) I am convinced that the change in the capitalized value of an income stream due to a change in the amount of the expected stream or in the current rate of discount applicable thereto is of a different order from the current income itself, even if both are to be regarded as new abilities to pay, or accretions to economic power, or income. I do not see, moreover, how a widow living on an annuity receives any accretion to her economic power or any income according to common usage when the capital value of that annuity increases as a result of a fall of interest rates (she might, of course, gain in economic power from a fall in prices).

The author's statement regarding capital gains, that "certainly such gains contribute no less to individual ability to pay taxes than do recurrent, earned gains" seems to me to illustrate the common device of asserting as obvious what it is difficult to prove.

g) The authors also seem to me to ignore the problem of the relation between abilities to which a capital value is not commonly assigned—such as the ability to render valuable personal

service—and those which have a recognized capital value—such as ownership of stocks, bonds, annuities, etc. According to them, a person who acquires an ability which has a capital value in connection with the termination of one that has none would apparently receive income to the amount of the capital value of the new ability; thus a disabled young aviator who received under his contract a life annuity of a fraction of his former compensation might find his income multiplied by his disablement (a commoner though less striking case is that of an employee who retires and is granted a small pension).

V H. C. SIMONS

My assignment is to discuss the first part of the Blough-Hewett paper. This part, in spite of the authors' effort "to retain the clash of ideas with the discussants" (footnote 1), has been substantially changed from the original or preliminary draft and has been, I think, greatly improved. The most important of my original objections cannot now be raised; and, relatively minor matters apart, I am now inclined to endorse the authors' general position. In short discussion, however, one may properly focus attention on differences of opinion. So, I shall confine my remarks to matters of disagreement. Actually I thoroughly approve what the authors have said about taxation; and the things I shall criticize in the first part of the paper are distinctly less important than those which on occasion I should warmly commend and support.

I am still dissatisfied with the authors' basic definition of income [II, 2(d)]. The word "flow" is loosely figurative; "available" is ambiguous; "distribution" is more ambiguous; and the last phrase, "maintaining the capital fund intact", introduces a pure value magnitude into an expression whose other terms are treated as physical quantities. Income, in the only meaningful sense, is a mere value fact or value estimate. Schaffle's observation, "Das Einkommen hat nur buchhalterische Existenz", suggets the proper point of departure for definitional inquiry. The authors, like most economists before them, are trying to discuss accounting concepts without recourse to accounting language.

They propose to deduct depreciation from a "flow of commodities and services", and "costs of production" from a "physical heap". Their effort to reify or hypostatize income invites comparison with the common misconceptions about the meaning of the balance-sheet item, surplus. When a concept is really definable only in terms of a complex procedure of calculation, the ends of simplicity and accuracy are ill-served by attempts at definition in terms of concrete denotations. The authors' language is perhaps suitable for defining income in accordance with Irving Fisher's special usage; but it simply cannot be employed in defining a concept that includes wealth changes and connotes measurement of net total production.

There is, I think, no real difference between us as to the real meaning of income. Except for vested interest in an unhappy phrasing, the authors presumably would not object to a definition expressed in terms of consumption and accumulation, i.e., in terms of the total value of goods and services (without double counting) utilized in consumption and (plus or minus) net change in wealth during the period. (The terms of this definition, while connoting inventories of physical things, are inherently value magnitudes—the dividends and equity accretions of national accounting, if you please.) However, while most of the paper is compatible with this definition, the authors time and again resort to expressions in physical terms which, to me, are either meaningless or wrong.

I am exceedingly unclear about the real meaning of social income, wealth, and capital, and of value aggregates generally; and useful discussion must emphasize the inescapable ambiguity of the concepts in question.[1] One readily shares the authors' desire for clearer distinction between mere changes in market values and 'real' changes in wealth; but the criteria they propose for such distinction are seldom satisfactory. The repeated implication that distinction can usefully be drawn between value changes and physical changes is simply mistaken. Wealth and income have no significant physical dimensions. Changes in real

[1] "Nach unserer Ansicht gehört der Einkommenbegriff aber überhaupt streng genommen nur der Einzelwirtschaft an, der Volkswirtschaft nur in bildlich analoger Ausdehnung" G. Schmoller, 'Die Lehre vom Einkommen . . .', *Zeitschrift f.d.g. Staatsw.*, 1863, p. 78.

income and real capital, while different from and transcending market-value changes, are still value magnitudes inherently. Such changes connote movement toward or away from the good life; or perhaps they connote accretions of 'welfare'. Meaning can be given to such terms and to their dimensions (if at all) only by plunging into the (bottomless?) depths of moral, ethical, or esthetic speculation. Granting this, one must regard as naive the attempt to identify real-value changes with changes in "physical quantities" (p. 203, line 33), with "net additions to the flow of economic goods" (p. 204, lines 7 and 22; p. 206, line 15; p. 211, line 12); and the argument in terms of "the total of utilities" (p. 209, line 22) is hardly sophisticated.

Venturing into discussion that better informed students would approach more cautiously, I should suggest that this treacherous business of getting behind money values ought to be limited narrowly to the application of index numbers. The authors, I think, have shown how much confusion can result from looking behind market values, and from introducing physical terms in lieu of pecuniary terms, at many different levels of inquiry. Correction for price-level changes need occasion no serious misinterpretation; but, beyond that, one wisely may avoid promiscuous, casuistic tinkering with original data and then carefully explain the inevitable limitations of the statistical results.

I am especially perplexed by the effort to rule out increases in capital values that arise merely from increases in the prospective 'incomes' (meaning yields or productivities) capitalized. Surely the authors would stop short of including newly constructed capital assets whose future yields promise, as a matter of general consensus, to be zero. It is hard to see why one need worry about including capital appreciation, due to unexpected changes in product-demand conditions, if the corresponding decreases in other asset values also come into the accounting; and the results might be curious if such value changes, in both directions, were disregarded. Moreover, after taking a categorical position about such appreciation, the authors are hardly entitled to the privilege of suspending judgment on the corollary questions of obsolescence (footnote 36).[2]

[2] The issues raised by the three cases discussed in Sec. II, 3(e) are too involved for brief comment. However, I must remark that the last paragraph of this section seems

In the case of land, the authors wisely warn against attempts to go behind the market-value facts and, especially, against "differentiation of value appreciations by source' [II, 3(c)]. It is surprising to find here a sharp distinction between land and capital assets, and especially surprising that the authors should use the distinction as they do. Certainly the considerations that can be urged in support of their position regarding land are as strong, if not stronger, in the case of other capital assets.

I do not see how, as a practical matter, capital value changes could be corrected with any precision for changes in rates of interest or why, in principle, such correction is desirable; and the authors' argument does not get close to the issue. If this were an economy where one might reasonably assume a change in interest rates from 10 to 5 per cent [II, 3(d)], there would indeed be a serious problem here for income estimation. But, by itself, such an assumption is almost meaningless. One must make careful assumptions regarding the basic origins of such change if there is to be any significant discussion; and the authors' suggestion of increase in the relative valuation of future goods merely makes matters worse. Incidentally, one wonders if they seriously mean to propose a twofold correction of data, for interest-rate changes and for price-level changes as well.

Over the short periods for which income comparisons may have meaning, it is to be expected that interest rates and prevailing expectations as to yield or productivity of existing capital assets generally will move in the same direction. The one change will therefore serve in the main to modify the influence of the other upon market values. Thus, one may argue that correction for changes in interest rates would serve to increase, rather than to diminish, the 'fictitious' element in capital-value changes.

In conclusion, I should suggest that discussion of income estimation should be oriented explicitly with reference to the purposes the estimates may serve. We need, first, an index of net 'real' production that is reliable for purposes of year-to-year comparisons. We need, second, for each year separately, a basis

to involve an unannounced and unwitting digression into the Fisher terminology and to introduce arguments that are appropriate only to the Fisher usage of the term 'income'. The statement about overestimating income in the early years simply begs all the questions at issue, here and by implication at the beginning of the section as well.

against which other statistical aggregates (taxes, government expenditures, farm income, dividends, wages and salaries, savings, etc.) may be interpreted. That these two purposes can properly be served by the same kind of estimate is very unlikely. In the one case, our interest is in real income, in the 'material' basis of welfare, and in its changes through time. In the other, we are interested in contemporary distribution and, therefore in property (not wealth) concepts. So, we probably need two very different kinds of estimate. Of these, one would be what is not very happily described as an index of physical production. The other would purport to be nothing but a pecuniary aggregate of net accretions of property rights (including those exercised in consumption). While I have little conception of the problems involved in the more straightforward measurement of changes in real production, I am confident that much might be gained by abandoning the quest for an all-purpose income estimate.[3] Incidentally, neither estimate proposed would be likely to serve its own purposes very well if it were constructed with much regard for its use as a check against the other.

I trust that no one will construe these remarks as an appraisal of the paper by Professors Blough and Hewett. The many important points on which there is no disagreement between us have not been mentioned. Seeking to emphasize differences of opinion, I have not been careful to avoid unfairness to the authors; and it is in the best academic tradition for criticism to be most ungenerous between persons whose fundamental views are nearly identical.

VI ROY BLOUGH AND W. W. HEWETT

We are grateful for the thoughtful comments of Messrs. Copeland, Groves, Kuznets, and Simons.[1] Many of the suggestions we gladly accept; with others we find ourselves unable to agree.

[3] I am also confident that, if the problems discussed in the paper were broken down along the lines here proposed, most of the apparent disagreement between the authors and the discussant would disappear. Indeed, if I were obliged to discuss the problems involved in constructing a production index, I might soon find myself saying things not very different from what I have criticized the authors for saying.

[1] Mr. May's comments, Discussion IV, were received after the preparation of the authors' reply, and are therefore not considered in it (Editor).

Time does not allow an attempt to discuss all the latter, and we shall endeavor merely to state our position with respect to a few.

Though in certain other respects their comments lead to divergent conclusions, Messrs. Simons, Groves, and Copeland apparently agree in attacking our definition of social income on the ground that it attempts to go behind value changes in search of some measure of the productive achievements of the economy. Professor Simons says: "Income, in the only meaningful sense, is a mere value fact or value estimate." Professor Groves, by emphasizing scarcity and demand and by challenging the exclusion from social income of certain types of value change, would seem to reach the same conclusion although he does not state it definitely. Dr. Copeland appears to accept income as a value fact in his statement that "the absence of a contribution to the social output is not a basis for excluding, from the national income, the individual income from a transaction", and by stressing the usability of the definition of income as "earnings, gains, or profits from any source".

To this contention that one cannot and perhaps should not pierce the veil of value to reach a concept more closely related to welfare we can only reaffirm the position taken, namely, that while from the viewpoint of income distribution a definition based solely on value is appropriate, such a definition is not suitable as an instrument for measuring the change in well-being that is achieved through time by the economy as a whole. Perhaps the idea of attempting to make such a measurement is bound to be abortive. Certainly there are aspects of well-being in general, and perhaps even of material well-being, that cannot be comprehended in an income concept. However, we are not ready to accept partial failure as complete failure, or partial results as no better than none at all. Success in measurement is a matter of degree. Failure even to attempt to look behind value facts to something more nearly approaching the welfare concept means surrender. Incomes as pure value facts reflect relative economic powers of persons and groups; the summation of such incomes may be far from representing the economic power of a society either absolutely or relatively through time.

Professor Simons, who makes perhaps the most vigorous attack on the attempt to find income behind value facts, nevertheless

proposes a measurement of 'production' that, we fancy, is not distant in meaning from the social income concept we employed. In his index he would superficially avoid the problem of going behind value facts by starting with physical production, but in reality the problem is not avoided, since the only basis thus far developed for combining physical production of different services and commodities is in terms of their values. We seek substantially the same destination as Professor Simons, but the route is different. He presumably would classify activities into productive and non-productive, construct specific indices of production, and combine these into a final index on the basis of value. We would start with a value sum and seek through the elimination of nonproductive elements and the application of index numbers to arrive at the productive achievement of the economy. We pass no judgment as to which method may prove the more practicable, but we believe the basic theoretical difficulties are unchanged whichever one is followed.

Professor Groves takes the position that, among other items, "appropriation of scarcity values, limitation of output, the current realization of values representing future prospects, fortunate changes in demand" are sources not only of individual economic power but also of national economic power. We would agree that these are significant elements in determining the economic power of the nation over the rest of the world. The nation from this viewpoint is in the same position as a person who has economic power over other persons. However, so far as the internal economy of the nation is concerned, we must disagree. It may be admitted that limitation of output, for example, may, if judiciously employed, lead to a greater balance in the economy and thus may make possible larger employment, greater production and, accordingly, greater social income. However, the increased economic power arising from limitation of output is individual power. It is not in itself increased social power, since the achievement of the economic system consists in its output.

Similarly, we are unable to agree that the appropriation of 'scarcity values' increases the power of the nation as a whole, for the reason that the power one person thereby gains over his fellows is correlative to a loss of power by them, and this loss may not be included in summating national income.

Dr. Copeland seems to have overlooked the distinction between economic power arising from current production and economic power arising from the capitalization of expected future income. He points out that the monopoly profit of a concern is part of national income. With this we agree, since the monopoly profit enters into prices and into the determination of the price index by means of which money income will be deflated. The capitalization of expected future income is quite different. Assume that company X secures a monopoly and that as a result its prospect of future profits is such that its going concern value is increased from $1,000,000 to $2,000,000. This increase due to the capitalization of expected monopoly profits constitutes a capital gain that is not a contribution to the power of the economy to produce. This gain is not, or at least may not be, offset on the accounts, or otherwise, anywhere else in the economic system.

In his discussion of the relation of the volume of social income to the volume of tax collections Dr. Kuznets opens up a new basis for judging the desirability of taxing capital gains. His argument appears to be as follows. Over short periods the volume of tax collections should be a clearly formulated function of the volume of social income arising in the economic system. This function may be expressed as a ratio between taxes and income that should vary only within fairly narrow limits from year to year. In a government that considered the problem of tax policy rationally, the actual bases on which taxes were imposed would be immaterial so far as the ratio of taxes to social income was concerned, since the volume of taxes would be continually adjusted to maintain the desired ratio. In the absence of such rationality, taxes and rates once established are likely to be adhered to and may produce yields in excess or short of amounts that would be collected upon rational grounds. Therefore, runs the argument, the taxation of transfer income and other elements that are not social income presents dangers of variations in volume of revenue that are not present when only items of social income are taxed.

Although we have not given the matter much thought we are inclined to agree that in any particular stage of industrial and governmental development, that is, in the short run, one important consideration in determining the desirable volume of tax

collections should be the volume of social income arising in the economic system. However, we suggest that, concerning the conclusions drawn by Dr. Kuznets, the following difficulties may be met. The proper functional relation may not be the one suggested, that is, the ratio of taxes collected to social income should perhaps not fluctuate within 'narrow' limits (although the question may perhaps be one of defining 'narrow'). Just as an individual can afford to pay in taxes a larger proportion of a large income than of a small income, so a nation can perhaps similarly afford to pay a larger ratio of its income in prosperity than in depression. The result would be deficit financing in depression and paying off of the deficit in prosperity. On the other hand, emphasis on annual budget balancing and the subordination to it of other considerations would lead to a larger ratio of taxes to social income in depression than prosperity unless Dr. Kuznets is prepared to take the position that the volume of government services and costs should vary over the short run in direct (and fairly exact) proportion to the volume of social income. Just what the 'functional relationship' should be is thus questionable: it might be a substantially uniform percentage of social income or a varying one in either of two directions. The rest of his remarks seem to be based on the assumption that the functional relationship should be a uniform ratio of tax collections to social income over business cycles, an assumption we are not willing to make.

Whatever the functional relationship decided upon, the construction of a rate structure that will produce predictable results with merely minor variations of percentage of national income seems difficult. Progressiveness and exemptions in tax rates comprise one problem. The small proportion of taxes imposed on the income base is another. So long as taxes imposed on income constitute as small a percentage of total taxes as at present, the taxation of transfer items, though unpredictable in any given year, may over the period of the cycle actually improve the relationship between tax collections and social income. Whether this would be the result is largely dependent on what functional relationship between the volume of taxes and social income is conceived to be socially desirable.

Part Five

PROBLEMS IN ESTIMATING NATIONAL INCOME ARISING FROM PRODUCTION BY GOVERNMENT

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PROBLEMS IN ESTIMATING NATIONAL INCOME ARISING FROM PRODUCTION BY GOVERNMENT

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This paper is concerned with certain problems of estimating national income that arise because part of the nation's productive activity is carried on by government.[1] Disagreement has arisen as to the treatment of 'government savings' and this in turn resolves itself into a disagreement as to the method for valuing goods[2] produced by government. Dr. Kuznets, in a recent book[3] uses taxes as the 'sales value' of the goods rendered by government to intermediate or ultimate consumers without specific payment. Here it is proposed that a basis of valuation be adopted that rests primarily on costs.

The whole system of concepts employed in estimating national income grows out of the system of concepts built up in the process of business corporation accounting. Corporate accounting concepts are appropriate to the estimation of income produced by corporations, but when applied to income produced by governments they have to be modified or adapted to meet situations

[1] For other discussions of this topic see *Studies, Volume One* (1937): Clark Warburton, Part Two, Sec. IV, and Gerhard Colm, Part Five, discussion by J. M. Clark, Simon Kuznets and Mabel Newcomer, and Dr. Colm's reply.
[2] Throughout this paper, the term 'goods' will be used to connote 'commodities and services' and the term 'wages' will be used to typify both 'wages' and 'salaries'.
[3] *National Income and Capital Formation, 1919-1935* (National Bureau of Economic Research, 1937). See also *Volume One*, Part Five, Discussion II, pp. 233-8.

not met with in business corporation accounting. Before examining these new situations it will be useful to examine the methods of valuation relied upon in estimating income produced by business corporations.

In business corporation accounting, the two most important methods of valuation are (1) the use of the amount of money paid for a good in an actual exchange[4], and (2) the sum of the costs attributed to a particular good. Goods sold to intermediate or ultimate consumers are customarily valued on the first basis. Likewise goods purchased and added to inventory or to capital account that are in the same condition as when purchased are for the most part[5] valued at the amount of money actually paid for them. However, many goods included in the inventory and capital accounts have not entered into an actual exchange that could be used to measure their value in the form in which they currently exist. Inventory of finished goods and capital equipment constructed by the owning corporation have in whole or in part been 'produced' within the enterprise. Their value is customarily estimated by allocating to them certain material, labor, and other costs which in combination measure the value of the product. The latter (with the exception of depreciation where charged) are measured by money payments involved in actual exchanges, but the allocation of these costs to particular items of product is the function of the art of accounting, and the actual figures arrived at have no objective reality such as those referring to a specific exchange. This means that where an item produced has received a valuation in the market subsequent to 'production' it is valued on the objective basis of the money quid pro quo. Where it has not been so valued it is valued for the most part by allocating to it money quids paid for the goods, labor, etc., believed to have contributed to its production.

The rationale behind both methods of valuation is that when an exchange takes place the money exchanged for a good measures its value. It is assumed that no one will sell a good if it is worth more to him than the money he gets for it or than the goods that money will buy, and that no one will buy a good un-

[4] More precisely, the amount of money contracted to be paid.

[5] The formula, 'cost or market whichever is lower', applied to inventory adds a third but minor method of valuation, namely the use of the money paid (or contracted for) in an actual exchange of an essentially similar good.

less it is worth more to him than the money he pays or the other goods that money could buy. The value of the good is thus presumed to be close to the money exchanged for it. The problem of estimating income produced by government is to modify or adapt these basic methods of valuation to the conditions presented by government production.

The analysis and exposition of this problem will be simplified by dealing first with the problem of estimating national income in a pure government economy, i.e., an economy in which all productive activity is carried on by government agencies, and then expanding the discussion to include corporate business. In a pure government economy all the instruments of production would be owned by government units, and individuals would be able to carry on productive activity only if employed by some government unit. The supposition of such an economy does not in any way suggest its desirability. It is created only as a logical aid in analysis and exposition.

I Estimating National Income in a Pure Government Economy

A pure government economy would differ in four important and interrelated aspects from an economy carried on solely by business corporations. First, corporations are presumed to be profit-seeking undertakings. Second, corporations are presumed to be able to make money outpayments only out of proceeds from the sale of securities or the sale of goods, whereas governments are presumed to be able to make outpayments out of the proceeds from taxation as well as from the sale of goods or of securities.[6] Third, transfers of money and of goods as between corporation and corporation, or corporation and individual, are presumed to occur only in quid pro quo *transactions*,[7] whereas transfers of money or goods between government units and individuals may take the form of *transactions* involving a direct quid pro quo or of unilateral *transfers* involving no specific quid for the specific quo

[6] For present purposes the issue of new money can be lumped with the sale of securities, though for many purposes the two should be kept distinct.

[7] Except in the case of dividends which can for some purposes be regarded as involving transactions extending through time and for other purposes should be regarded only as unilateral transfers.

rendered, as in the case of money received as taxes or goods distributed without specific charge. (Whether taxes as an aggregate and goods rendered as an aggregate can usefully be treated as involving 'a transaction' with a specific quid for a specific quo will be discussed later.) Finally, it is presumed that corporations aim to realize, and in the aggregate do realize, something more than their operating costs plus depreciation from the sale of goods produced and handed over to consumers or to one another, whereas government units are not presumed to be subject to such an aim.

The transactions and transfers that could take place in a simplified pure government economy might be limited as follows:

TRANSACTIONS AND TRANSFERS IN THE SIMPLIFIED PURE GOVERNMENT ECONOMY

(capable of being recorded as bookkeeping items)

Transactions

Government units
- hire workers paying cash
- purchase goods from other government units paying cash (can also be stated 'Government units sell goods to other government units receiving cash')
- sell goods to consumers receiving cash
- distribute cash to investors as interest
- sell securities to investors for cash
- retire securities, paying out cash

Transfers

Government units
- distribute goods without any specific item in exchange
- distribute cash without any specific item in exchange
- collect cash as a tax without any specific item in exchange

This simplified pure government economy has the same transaction categories as might be included in a pure corporate economy (interest taking the place of interest and dividends) and in addition three transfer categories not represented in the latter. As we shall see, the difficulties of applying corporate accounting procedures to government production lie, first, in the three

transfer categories which involve no specific quid pro quo, and second, in the fact that even in the case of *transactions* the quid cannot always be valued by the quo.

If we apply the basic definition of national income, 'net value of goods produced by the nation's economic system', to this government economy, the following statement can be made:

Goods produced = Goods produced and handed over to consumers
+ Goods produced and added to government inventories (1)
+ Goods produced and added to government capital accounts.

These three items would make up the sum total of goods produced. As in the case of a pure corporate economy, a figure for national income could be obtained by deducting from the values of these three items that part which should be attributed to the using up, distribution, or sale of items of inventory that were produced in a prior period and to the use of capital equipment produced in a prior or current period (depreciation). The formula for estimating national income would thus become:

National income = Value of goods sold to consumers
+ Value of goods distributed to consumers without specific return
+ Value of goods added to inventory (2)
+ Value of additions to capital equipment
− Value of deductions from inventory
− Total depreciation.

Up to this point there should be no disagreement as to the equation stating the national income for the simplified government economy. The real differences arise in the methods to be used in valuing the different categories. As already indicated, Dr. Kuznets uses taxes as the measure of the value of the goods produced and distributed to consumers without a specific quid for a specific quo. In contrast to this method of valuation, the present paper proposes a method based on the costs of production allocated to goods so distributed.

In the case of both these methods, the effort is being made to adapt one or the other of the two basic corporation accounting

methods to a new type of situation lying outside the logic of corporate accounting. Each is trying to adjust for the fact that three basic assumptions underlying corporation accounting are not met in the case of government: namely, that (1) all corporate transfers are transactions involving a specific quid for a specific quo, (2) goods are sold at neither more nor less than they are worth, (3) when wages are paid they are neither more nor less than the labor obtained is worth.

In the following pages the adaptation of the cost basis of accounting valuation will be discussed first, and then the adaptation of the sales basis, using taxes as the purchase price of goods rendered. In each case the analysis will first be made on the assumption that the transfers not involving a specific quid pro quo constitute the only significant factor in the government economy that is not a characteristic of a corporate economy, and then on the assumption that, in addition, the transactions are not all of such a character as to allow the money quid to be used as the value of the specific quo.

I THE COST APPROACH TO VALUATION

An examination of formula (2) given above for estimating national income in the simplified government economy will show that, with the exception of goods distributed without specific return, the items included are identical with those which might be included in the corresponding formula for a simplified corporate economy. If we regard all sales of goods as correctly recording the value of such goods and all wages paid as correctly recording the value of the labor given in exchange, then all the above items except 'goods distributed' could be valued in the manner employed in corporate accounting and the income formula would be:

National income = Sales to consumers
+ The value of goods distributed to consumers without specific return
+ Additions to inventory[8]

[8] The simplifying assumption is introduced that all inventory is in the form originally purchased and that therefore the value of the items in the inventory at the end of the accounting period and not in it at the beginning can be measured by their purchase price.

+ Purchases charged to capital account + Wages charged to capital account + Depreciation charged to capital account	Value of goods charged to capital account	(3)
− Deductions from inventory − Total depreciation.		

Each item in (3) is either a report of a transaction or an easily made accounting allocation, except the value of 'goods distributed' which stills remains to be measured. A possible method of measuring this item would be to treat the goods produced and distributed without specific return in the same manner that goods produced for a corporation's own account are treated, since in neither case is there a specific exchange to measure the value of the good produced. This would mean setting up a new account, which we shall call the 'distribution account', and charging to it all purchases made, wages paid, and depreciation properly allocated to the goods distributed without specific return. This would mean three instead of two accounts—an operating account, a capital account, and a distribution account. Adopting this procedure the above formula would become:

National income = Sales to consumers		
+ Purchases charged to distribution account + Wages charged to distribution account + Depreciation charged to distribution account	Value of goods distributed without specific return	
+ Additions to inventory		(4)
+ Purchases charged to capital account + Wages charged to capital account + Depreciation charged to capital account	Value of additions to capital goods	
− Deductions from inventory − Total depreciation.[9]		

[9] It would be possible to cancel out depreciation charged to the distribution and capital accounts, leaving only the negative item, depreciation charged to operating account.

Except for the problem of profits and interest, (4) would seem to be a satisfactory formula for estimating national income in the simplified pure government economy in cases where sales and wages could be relied upon to measure values. If the identical productive activity were carried on by a corporate economy in one case and by a government economy in a second case, and all transactions common to both occurred at the same prices, the estimates of income would be the same except for any profits made in the corporate economy on goods that in the government economy were distributed without specific return. If a closer agreement between the two estimates were desired it would be possible to impute interest to the capital goods used in producing such goods as governments distributed without specific return in lieu of business profits. This possibility will be discussed later.

Formula (4) is based on the assumption that the money paid for goods or as wages represents the value of the goods or labor rendered. Actually governments may sell goods at prices far below what the goods cost and below what common parlance would call their worth. Thus a nominal charge only is made for many books published by the government. Likewise government may intentionally pay more in wages than the results from the labor are expected to be worth, as is probably the case with much of the WPA wage payments. This valuation weakness affects, directly, sales, purchases, and wages and, indirectly, the other items in the formula.

A step toward simplifying the problem can be made by valuing sales to consumers on the basis of cost instead of on the basis of selling price. In this case, the value of goods sold to consumers would include all costs charged to the operating account, plus the items in inventory that were used or sold, minus any addition to inventory resulting from operation or purchase, and less any goods sold to other government units. It could be represented in the following formula:

Value of sales to consumers = Purchases charged to operating account
+ Wages charged to operating account
+ Depreciation charged to operating account (5)

— Sales to other government units
— Additions to inventory
+ Deductions from inventory.

When these items are inserted in the national income formula in place of sales to consumers it takes the following form:

National income =	[Purchases charged to operating account]	Value of sales to consumers
	+ Wages charged to operating account	
	+ [Depreciation charged to operating account]	
	— [Sales to other government units]	
	— [Additions to inventory]	
	+ [Deduction from investory]	
	+ [Purchases charged to distribution account]	Value of goods distributed without specific return (6)
	+ Wages charged to distribution account	
	+ [Depreciation charged to distribution account]	
	+ [Additions to inventory]	Value of goods added to inventory
	+ [Purchases charged to capital account]	Value of goods added to capital account
	+ Wages charged to capital account	
	+ [Depreciation charged to capital account]	
	— [Deduction from inventory]	Value of above items attributed to prior production
	— [Total depreciation].	

In this formula the total of purchases charged to operating, distribution, and capital accounts just cancel 'sales to other government units'; 'total depreciation' just cancels the depreciation charged to the separate accounts and the inventory items cancel each other. The items that cancel are enclosed in brackets. Only the three items of wages remain. These could be lumped together into a single item to give the formula for a pure government economy:

National income = Total wages paid out. (7)

In such a formula, the same method of valuation is being used throughout that is used in the case of the corporate economy in obtaining the net value of new capital goods produced for a corporation's own account. Since the production of capital goods for a corporation's own account is presumed to involve no profits, so, when the method is applied to total government activity and intergovernment transactions are canceled out, the net value of goods produced, whether the goods are sold, distributed without specific return, added to inventory, or added to capital account, would be measured by wages alone. These are presumed to reflect the value of a basic cost of production.

Two objections to formula (7) arise: first, wages may be an inadequate measure of the value of the labor exchanged; second, it takes no account of the contribution to national income made by the roundaboutness of production, i.e., the contribution made by the capital assets owned by government which is treated in theoretical economics under the heading of interest.

In normal times the great bulk of wages (or salaries) paid by government in our actual economy are paid for value received, and the wage (or salary) rates have a fairly close relation to wage rates in other parts of the economy. In depression times a fairly significant part of wage (or salary) payments may be in excess of value received. There is probably no way out of an allocation of such wage (or salary) payments into wages proper and relief payments paid out as wages. Only the former would then be included in the estimate of national income.

The question of interest will be taken up after the alternative method of valuing goods produced by government has been discussed, since it is not a basic element in the disagreement as to method but involves an additional problem.

2 THE SALES APPROACH TO VALUATION

The second approach to the valuation of goods produced in the simplified pure government economy is that which treats taxes paid by consumers as the price paid by them for the goods obtained without specific payment plus that part of the value of goods obtained with specific payment not covered by the specific payment. In using taxes in this way it would be appropriate to deduct from taxes the *money* distributed without specific returns. The valuation of inventory and additions to capital equipment would presumably follow the same techniques as in the case of corporate accounting. By this method the formula for income might be as follows:

$$\begin{aligned}\text{National income} = {} & \left.\begin{array}{l}\text{Sales to consumers}\\ +\ \text{Taxes}\\ -\ \text{Money distributed}\\ \quad\text{without specific return}\end{array}\right\}\begin{array}{c}\text{Total payment}\\ \text{for goods}\\ \text{rendered}\\ \text{to consumers}\end{array}\\ & +\ \text{Additions to inventory}\\ & +\ \text{Purchases charged to capital account}\\ & +\ \text{Wages charged to capital account}\\ & +\ \text{Depreciation charged to capital account}\\ & -\ \text{Deductions from inventory}\\ & -\ \text{Total depreciation.}\end{aligned} \tag{8}$$

As will be seen presently, this formula has only limited application. A more general formula will be developed after examining Dr. Kuznets' method of handling production by government.

In dealing with government production Dr. Kuznets has taken over the distribution formula which he employed quite properly in estimating income produced by corporations. As applied to the simplified economies, the corporate economy formula:

$$\text{National income} = \text{Wages} + \text{Dividends} + \text{Net corporate savings,} \tag{9}$$

is paraphrased to become for the pure government economy

$$\text{National income} = \text{Wages} + \text{Interest} + \text{Net government savings.} \tag{10}$$

At first glance the government formula (10) appears to be quite as valid as the corresponding corporate formula (9). Also at first glance it appears to have no connection with the treat-

ment of taxes as the purchase price of goods obtained by consumers without equivalent specific payments. Careful analysis will show, however, that as the formula has been interpreted by Dr. Kuznets it does rely on the assumption about taxes, as he well recognizes, and that it yields results in a government economy quite different from those produced by the corresponding formula in a corporate economy.

Dr. Kuznets measures government savings by taking the expenditure on new capital equipment (and presumably that on net additions to inventory) and deducting all funds expended that were derived from sources other than 'government saving', including funds corresponding to depreciation, and funds obtained from the net sale of securities (and presumably any net reduction in money holdings).[10] On this basis Dr. Kuznets' formula would be:

National income =	Wages		
	+ Interest		
	+ *Value of additions to inventory*		Net government (11) saving
	+ *Purchases charged to capital account*		
	+ *Wages charged to capital account*		
	+ *Depreciation charged to capital account*		
	− *Value of deductions from inventory*		
	− *Total depreciation*		
	− Receipts from sale of new securities	Minus net new securities issued	
	+ Securities retired		
	− Cash in hands of government at beginning	Minus Net reduction in money holdings	
	+ Cash in hands of government at end.		

[10] It is not clear that Dr. Kuznets includes 'net additions to inventory' and 'net reduction in money holdings' as indicated above. Logically they should be included.

The basic formula for government produced national income has already been given as equation (2), and is repeated below for comparison with Dr. Kuznets' formula (11).

National income = Value of goods sold to consumers
+ Value of goods distributed to consumers without specific return
+ *Value of goods added to inventory* (2)
+ *Value of additions to capital equipment*
− *Value of deductions from inventory*
− *Total depreciation.*

It will be seen that the items italicized in (2) correspond with the italicized items in (11), Dr. Kuznets' formula ('value of additions to capital equipment' being broken into its constituent items in the latter). This means that if (11) fits the basic definition (2) the items not underlined in (11) must in combination measure the value of goods handed over to consumers, whether sold or distributed without specific return. Setting these items against each other, we have:

Value of goods handed over to consumers = Wages
+ Interest
− Receipts from sale of new securities
+ Securities retired (12)
− Cash in hands of government at beginning
+ Cash in hands of government at end.

But in the simplified pure government economy, the items at the right of the equation must be just equal to total taxes collected

The inventory item would be of little importance in practice, though change in money holdings might be quite important. Presumably any *new* issue of money could be treated as a new security issue for purposes of estimating income and perhaps Dr. Kuznets would treat any money received by government as a security retired.

plus money paid by consumers for goods purchased from government. This can be shown by putting down first the equation:

Money receipts by government = Money disbursements by government (13)
+ Net addition to government holding of money (±).

Going back of the particular items we have:

Taxes + Receipts from sale of goods + Receipts from sale of new securities } = Money distributed without specific return
+ Wages paid by government
+ Interest paid by government
+ Securities retired (14)
− Cash in hands of government at beginning
+ Cash in hands of government at end.

By transferring the last item on the left hand side of equation (14) and the first on the right, the equation takes the following form, in which the right hand side is identical with the right hand side of equation (12):

Taxes + Receipts from sale of goods to consumers − Money distributed without specific return } = Wages
+ Interest
− Receipts from sale of new securities
+ Securities retired (15)
− Cash in hands of government at beginning
+ Cash in hands of government at end.

Substituting from (15) into (12), we have[11]

[11] It should be noted that in all the preceding cases in which a formula has been transformed, it has been solely through (1) displacing items by more basic items in terms of which they are *defined*, and (2) canceling out overlapping items. In this case there is the substitution of one set of items having a *numerical value equal* to that of another set of items.

Value of goods handed over to consumers = Taxes
+ Receipts from sale of goods to consumers (16)
− Money distributed without specific return.

It should be clear then that in using government savings in estimating national income and defining it as he does, Dr. Kuznets must be implying that taxes other than those corresponding to money distributed without specific return can be used as a measure of that part of the value of goods handed over to consumers which is not covered by specific payments. Substituting this measure of value of goods handed over to consumers in the income equation (2), we get

National income = Taxes + Receipts from sale of goods to consumers − Money distributed without specific return	Value of goods handed over to consumers
+ Additions to inventory	Value of goods added to inventory
+ Purchases charged to capital account + Wages charged to capital account + Depreciation charged to capital account	Value of goods added to capital account (17)
− Deductions from inventory − Total depreciation.	Value of goods derived from prior production

When Dr. Kuznets uses his formula for estimating income produced by government and measures government saving as he does, he must be implying that the above formula holds.[12]

[12] Except as the above formula introduces a different treatment of depreciation charged to capital account.

It is a peculiarity of the above formula that the item 'taxes' stands unrelated directly to any other item in the formula. The amount of taxes could be altered without necessitating any other alterations in the formula. It is this fact that leads to the basic criticism of the method.

The first criticism of the above formula has to do with the effect on national income of the collection of taxes and the use of the proceeds on new capital equipment or additions to inventory. By Dr. Kuznets' formula, national income would be greater if new capital equipment were financed out of taxes than if it were financed through the net sale of securities. Thus if the productive activity in two economies were identical and the only difference was the financial one that in the first economy all net new capital equipment was financed by borrowing, whereas in the second it was financed by taxing, the national income would be greater in the latter by the amount of the net new capital equipment constructed. This arises because by Dr. Kuznets' formula, the taxes spent on net new capital goods are involved in national income twice, once in the extra value attached, because of the extra tax collections, to the goods handed over to consumers, and a second time in the value of the new capital goods created. In the case of a corporate economy, the action corresponding to the financing of new capital equipment out of taxes would be the sale of stock to finance capital equipment. But in the valuation of corporate production, when the proceeds from the sale of stock are used to finance the creation of new capital equipment, they are not *also* used in measuring the value of goods produced and handed to consumers.

Furthermore, if the construction of new capital equipment financed from taxes is going to increase the value attributed to goods distributed to consumers, consistency requires that when the new capital equipment is used in producing goods the reverse deductions be made. This means that if the new capital equipment is used to produce goods that are rendered to consumers without specific charge, then depreciation must be deducted from current taxes to arrive at the value of goods currently produced; or if the goods are sold to consumers, depreciation would have to be deducted twice from sales in order to arrive at the

value of goods currently produced and sold. The basis for these statements can be seen more clearly in the following simple example.

In one year let government collect $2 billion of taxes, spend $1 billion in producing goods which are distributed without specific return and the other billion to construct new capital equipment. Income produced, by Dr. Kuznets' formula, would then be $3 billion, since the new equipment produced would be valued at $1 billion and the value of goods distributed without specific return would be $2 billion, since it is measured by the taxes collected. Then in the next year let government collect $2 billion in taxes and use the proceeds to operate the new capital equipment, rendering the goods produced to consumers without specific charge and using up the entire capital equipment in the single year. If the depreciation of the capital equipment is not deducted from current taxes in measuring income in the second year, income produced would be valued at $2 billion, with the result that income produced during the whole period would be valued at $5 billion ($3 billion the first year and $2 billion the second). Yet, if both years were lumped together as a single accounting period, income produced would amount by Dr. Kuznets' method to only $4 billion. In order to obtain essentially the same result regardless of the accounting period chosen, a deduction from taxes would have to be made in the second year for the using up of the capital equipment. If this were done, total income produced in the second year would amount to only $1 billion and income produced during the whole period would be $4 billion ($3 billion the first year and $1 billion the second). Likewise, if in the second year, no taxes were collected, but the goods produced were sold to consumers at cost including depreciation, ie., $3 billion, it would be necessary to deduct depreciation twice to obtain the figure of $1 billion income in the second year and that of $4 billion for the two year period.

There would seem to be no reasonable justification for making income in the first period large and that in the second small simply because taxes were used to finance the new capital construction. This particular objection to Dr. Kuznets' formula could, of course, be met by measuring the value of goods ren-

dered without specific return on the basis of only those taxes *not* used to finance new capital equipment. But this would radically alter the character of the formula as will be shown below.

The second criticism has to do with the effect on national income of the financing of the production of goods handed over to consumers out of funds other than taxes. By Dr. Kuznets' formula, national income would be less if goods produced and handed over to consumers were financed by borrowing, through a reduction of cash balances, or by failing to collect funds to cover depreciation, than if they were financed from tax collections. This result has been defended on the ground that, if people were not willing to pay in charges or taxes for the full cost of goods handed over to them by government, then the goods were not worth as much as they cost and should be valued on the basis of the charges and taxes that people were willing to pay for them.

This agreement could be interpreted in either of two ways. Either it is referring to the wills of individuals who are willing or not willing to make a specific payment or payments for a specific rendering of goods or it refers to some more generalized or socially complex concept. So far as it refers to purchases by individuals it can appropriately be applied when the purchases are made from government. Presumably few people will purchase goods from government when the government charges more than the individual is willing to pay.

But when applied to taxes and to goods obtained without specific payment, this thesis involving individual wills certainly does not and should not apply. The specific individual is not in a position to determine how much taxes he will pay. To the extent that he can control his use of the goods offered by government without specific charge, the individual would be making ineffective use of resources available to him if he conditioned his use on the taxes he as an individual was called on to pay either directly or indirectly. It is common knowledge that individuals seldom even compare the goods they as individuals obtain from government with the taxes they as individuals pay, let alone limiting their use of such goods in the light of the comparison. Presumably the above argument, so far as it applies to taxes and goods distributed without specific charge, is using the term 'people' in some social group sense.

When consideration is given to the process by which taxes are

determined and the way in which government decisions to supply particular goods are made, it must be clear that the matter is much more complex than that of balancing the willingness of a group of individuals to pay for goods with the goods they obtain. Taxes are for the most part decided on by people who do not pay them but who are subject to more or less influence from individuals who do pay them. But this influence is as a rule so uninformed, except perhaps as it comes from the high income brackets, that little reliance can be placed upon it in arriving at the value of goods produced by government.

The determination of the goods to be produced by government is a still more complex process, involving in most cases both legislative and administrative, and in some cases judicial, decisions. While the individuals participating in the process of decision are under the influence of the ultimate users of the services there is nothing as specific as would seem to be implied in giving one value to a supply of goods whose production costs were financed by taxes and quite a different value when the identical goods are financed in part by borrowing.

A second point against this argument is that many people believe that at times it may be desirable for government to finance current operations by borrowing as a matter of national economic policy, balancing operating costs with charges and taxes over a longer accounting period than is customarily (and quite arbitrarily) adopted in corporation accounting. If this principle becomes well established it would clearly make unjustified any evaluation of goods distributed without specific charge on the basis of annual tax payments.

Finally, if the financing of current production by borrowing is going to reduce the value of goods currently produced and distributed to consumers, consistency requires that the repayment of such debt from taxes in a subsequent period should add to the value of the goods produced in the latter period. Thus according to Dr. Kuznets' formula, the more debt that is retired from taxes, the greater the national income. The productive activity in two government economies might be identical, the only difference being the financial one that in the first economy no alteration in government debt took place whereas in the second a special additional tax was levied to retire debt so that total taxes were very much greater than in the first, the additional funds obtained

being used to retire part of the government debt. In such a situation the goods rendered to consumers by the two economies might be identical in physical characteristics, in the satisfactions obtained from their use by consumers, and in the taxes consumers were willing to pay for them, yet because in the second case consumers were willing to pay extra taxes to reduce government debt, national income in the second economy would be greater than in the first by the amount of the extra taxes. Just why a purely financial transaction in which special taxes are collected and used to retire an outstanding debt should add to the value of goods produced is not at all clear. This collection of taxes might be regarded as parallel to the purchase of new stock by stockholders of a corporation so that the proceeds might be used to retire corporate bonds outstanding. Such action would not affect national income. Thus it would seem that, in order for Dr. Kuznets to justify the method he uses, the burden of proof rests with him to show that national income, i.e., 'the net value of commodities and services produced', is increased by the collection of extra taxes to pay off a previously incurred debt just as it was lowered by the financing of current production from taxes.

If Dr. Kuznets' formula were to include adjustments for the taxes used to finance the production of new capital equipment and for the taxes used to finance current consumption, its character would be radically altered and it would become essentially a 'cost' formula. The adjustment for these other items could be made by the following formula:

Taxes not used to finance operations[13] = Additions to inventory
+ Purchases charged to capital account
+ Wages charged to capital account
+ Depreciation charged to capital account
} New capital equipment

[13] The assumption is made here that 'receipts from sales' is less than operating costs.

— Deduction from inventory (18)
— Total depreciation
— Receipts from sale of new securities
+ Securities retired
— Cash in hands of government at beginning
+ Cash in hands of government at end.

When this item of taxes not used to finance operation is deducted from total taxes in formula (17) derived from Dr. Kuznets' equation (11) we get:

National income = Taxes
+ Receipts from sale of goods to consumers
— Money distributed without specific return
— [Additions to inventory]
— [Purchases charged to capital account]
— [Wages charged to capital account]
— [Depreciation charged to capital account]
+ [Deductions from inventory]
+ [Total depreciation]
+ Receipts from sale of new securities
— Securities retired
+ Cash in hands of government at beginning
— Cash in hands of government at end

} Taxes not used to finance operations (19)

+ [Additions to inventory]
+ [Purchases charged to capital account]
+ [Wages charged to capital account]
+ [Depreciation charged to capital account]
— [Deductions from inventory]
— [Total depreciation].

But the items remaining after cancelation, those not bracketed, just equal wages plus interest as indicated by formula (15), the expanded form of equation (13) equating all money receipts with all money disbursements plus a net change in money holdings. Dr. Kuznets' formula after adjustment then takes the form for the simplified pure government economy:

National income = Wages + Interest. (20)

The same result can be arrived at by taking Dr. Kuznets' initial formula:

National income = Wages + Interest + Net government savings. (10)

The adjustments called for and represented by 'taxes not used to finance operations' are identical with net government savings [see equation (11)] and cancel that item, leaving only wages and interest.

This formula differs from that derived directly by the cost method of valuation presented at the beginning of this section only in the item of interest. It was suggested in that analysis that the most desirable measure of national income produced by government would be

National income = Wages (7)

or

National income = Wages + Imputed interest. (21)

In the adjusted Kuznets formula

National income = Wages + Actual interest. (20)

If interest is to be included at all in the estimate of national income for the simplified government economy, a good case can be made for the thesis that imputed interest is a more valid addition than actual interest. In corporate enterprise, interest and dividends for large groups of corporations bear a fairly consistent relation to the value of the instruments of production used or available for use in productive activity. In the case of government no such assumption can be made. At present the federal government pays interest on an appreciably larger volume of debt than is represented by the value of the instruments of production it possesses. More than half of its assets consist of loans and investments. For this reason the smaller figure arrived at by imputing current rates of interest paid by government to the value

of the instruments of production owned by government would seem to give a more accurate basis for valuing goods produced and handed to consumers or added to inventory or capital account than would the interest actually paid.

One final criticism needs to be made of the adjusted formula derived from that of Dr. Kuznets. No account is taken of wages paid in excess of the value of services rendered as a form of relief. Presumably Dr. Kuznets had this end in mind in attempting to eliminate that part of operating wages and interest which was paid through deficit financing. It seems preferable to take account of this factor directly by making a crude estimate of that part of wages which should be attributed to relief instead of to production. This would give the following formula for income in the simplified pure government economy:

National income = Wages paid by government (salaries)
− Wages attributed to relief (22)
+ Interest imputed to the instruments of production.

II Estimating National Income in a Compound Corporate-Government Economy

When the preceding analysis is applied to a simplified economy in which production is carried on both by corporations and by government units additional problems arise, though of a relatively simple character. All the transactions that can take place in the simplified pure corporate economy can occur in the corresponding compound economy. So also can all the transactions and transfers of the pure government economy. In addition, two new types of transaction and two new types of transfer can arise between government units and corporations of which account must be taken:[14]

Sale of goods by corporations to government units for cash
Sale of goods by government to corporations for cash
Taxes collected by government from corporations
Goods rendered to corporations by government units without specific return.

[14] Other transactions such as interest payments by government to corporations are excluded by the simplifying assumptions.

The first two of these items introduce no serious problem since each cancels out when sales and purchases of government units and sales and purchases of corporations are combined in a single formula. Likewise if taxes paid to government by corporations were to be just equal in value to the goods rendered by government to corporations no problem would arise, since the two in combination could be treated as 'sales of goods by government to corporations'. However, to the extent that the amount of taxes paid by corporations cannot be used as the value of goods received without specific payment, a real problem of valuation arises.

This problem can be clearly seen by taking an extreme case in which a corporation receives a significant volume of goods from government but pays no taxes. The value of the goods produced by government would be included as part of the income produced by government. They might also constitute a part of the value of goods sold to consumers by the corporation. If the price of the goods sold to consumers was determined in a highly competitive market so that the value of goods obtained free from the government by a corporation was wholly passed on to consumers in the form of lower prices, there would be no double counting. But to the extent that any corporation's profits were greater because of the receipt of free goods from government, there would be double counting. A reverse condition would, of course, arise when taxes paid by a corporation were greater than the value of the goods received from government without specific charge.

In modern industry there must be many occasions when taxes collected from corporations do not reflect accurately the value of the goods rendered and when the prices of goods sold by corporations to consumers do not fully reflect this difference. This means that the amount of taxes paid by corporations cannot be taken as the measure of the value of goods that are provided by government without specific charge but are charged by corporations to consumers.

As a practical matter, the correction of this error would involve a highly involved if not impossible task of measurement,[15]

[15] See, however, R. W. Nelson and Donald Jackson, Part Six, for an attempt quantitatively to allocate government expenditures between expenditures for services rendered to business enterprises and those for services rendered ultimate consumers.

and it is likely that the error to be corrected would be small. For this reason, there is ample justification for treating the amount of taxes paid by corporations as the value of the goods received from government without specific charge.

The error involved in adopting this method of valuation is set forth here to indicate that the use of this method in the case of corporations does not necessarily justify its use in the case of individuals. It can be used as a measure of the value of goods received without specific charge from government by corporations only because (1) to a considerable extent the value of the goods is passed on to consumers without charge, and (2) the remaining error is likely to be not significant. For these reasons, the use of taxes as the basis for valuing goods received from government without specific charge in the case of corporations cannot be used to justify the adoption of the same procedure in the case of individuals, unless it can be shown that the error in doing so would not be significant. Reasons have already been given in Section I as to why the error arising from the use of this method in the case of individuals is likely to be large.

No effort will be made to carry the line of analysis adopted in this paper beyond the simplified corporate-government economy. While great complexities would be introduced by making the assumed economy more realistic, we believe that the conclusions arrived at in analyzing the simplified economy would hold without essential modification in the more complex realistic economy.

Discussion

I SIMON KUZNETS

It would perhaps clarify the problems incident to measuring income originating in government activity if we begin with (1) an operational definition, one that describes what to us is the most suitable statistical measure of that income. Once this operational or statistical definition is clearly formulated, its implications become apparent and (2) can, in their turn, be set forth. The paper under discussion criticizes some of these implications and suggests an alternative basis of valuation. We proceed then (3) to deal with the several criticisms of the procedure described under (1) and analyzed under (2). Finally, the comments conclude by (4) indicating more specifically the disadvantages of the alternative procedure suggested.

I THE OPERATIONAL DEFINITION

We propose to measure income originating in government activity (or income produced by the government industry) as the algebraic sum of (a) all income payments made by government agencies to individuals as individuals, and (b) net savings of government agencies.

The first item comprises payments (in either money or kind) to government employees, disbursements to individuals that are not necessarily related to services currently performed by individuals employed by government (pensions, relief payments, etc.), payments to individuals and associations of individuals of interest on government securities. The only receipts by individuals from government agencies excluded from item (a) are such receipts as accrue to individual entrepreneurs in their capacity as representatives of separate business enterprises (payments to farmers, individual contractors, etc.). These disbursements rep-

resent activities of business enterprises not belonging to the government industry proper; are similar to payments by government agencies for material and supplies bought from business enterprises; and are taken into account most properly under the various industrial branches of the national economy, outside of the field of government industry itself.

The measurement of payments to individuals by government agencies, covered under item (a), is strictly parallel to the measurement of payments to individuals by other industrial branches of the national economy. For private business also these payments include not only compensation for the current services of individuals or of individuals' capital (wages, salaries, dividends, interest), but also disbursements that have no direct relation to these current services (pensions). However, non-service payments may be absolutely and relatively larger for government agencies than for private enterprises.

Net savings of government agencies are the disparity between their total receipts for current services to individuals and to business enterprises and the outlay for these services. These outlays or costs comprise the value of materials and of durable equipment consumed in the production of the services, and the payments to individuals (the latter being identical with item (a) above). Were the accounts of government agencies set up in a way similar to those of business enterprises, so as to emphasize the determination of costs chargeable to the final products sold, it would have been possible to measure net savings of governments directly. But in the absence of the profit motive, which, for business enterprises, compels the proper measurement of costs chargeable to current returns, government accounts fail to reveal such costs and make impracticable any attempt to determine government net savings directly. An alternative procedure that appears somewhat more practicable is to measure net savings by a comparison of changes in the net obligations of government agencies with changes in their tangible assets.

This substitute procedure, although somewhat more practicable, suffers from two disadvantages. First, it requires the most comprehensive coverage of both sides of the comparison. The measure of net obligations should be based upon a complete consideration of all gross debts, reduced by all obligations due the

government; include short term as well as long term debts and claims; and cover both direct and contingent debts and claims. The tangible assets should comprise not only durable equipment of most obvious social utility (highways, bridges, parks, etc.), but also goods of less apparent utility (battleships, tanks, etc.); not only durable goods but also inventories of materials and supplies. In the practical task of statistical measurement such completeness is impossible with the present data.

A second and perhaps more important difficulty is that not all changes in the comparison suggested above can be interpreted as a proper measure of net savings. If government agencies change their net position by canceling some of the debts due them or by deriving some improvement in their claims position by taking a profit on a change in the value of a capital asset, the resulting decline or rise in the results of the comparison is not part of net savings: the latter are, and should be treated as, shares of value of current production of commodities and services. With business enterprises, we try to exclude from net savings any elements that are due to upward or downward revaluation of capital goods; and if such revaluations as are represented by bad debts in excess of the usual amount interpretable as current production costs are included, such inclusion is due largely to the difficulties of the necessary adjustment. With government agencies, any measure of change in net obligations, used in determining net saving, should be adjusted to exclude changes due to revaluations or other modifications of capital values not associated with the current production of commodities and services.

In the light of these statements, the crudity of the approximation to net savings of government agencies which was used in *National Income and Capital Formation 1919-1935*, is obvious. This approximation was obtained by a comparison of the gross volume of public construction reduced by the current consumption of this type of public goods (as the net change in tangible assets) with the change in total long term debt of all governments (as the change in net obligations). We are now engaged on a revision and refinement of this approximation, attempting to take more complete account of both assets and net obligations; and to exclude from the latter changes not due to diversion of current income. But the results of this attempt are still problematical.

These statistical difficulties need not, however, affect the theoretical argument at hand. From the viewpoint of the latter, the use of the indirect procedure of measuring net government savings is a statistical accident: the attempt is to measure indirectly the same theoretical concept that is measured for business enterprises in direct fashion. The identity of the concept of net savings of government agencies with that of net savings of business enterprises is obvious. And as a result of the strict conceptual identity of items (a) and (b) for governments on the one hand, and for business enterprises on the other, the measure of income originating in government activity (or income produced by the government industry) is strictly consistent with that of income originating in or produced by the various branches of the private sector of the national economy.

Finally, this procedure of measuring income originating in government activity is used conjointly with the following treatment of payments made to government agencies by business enterprises and by individuals. Payments to governments by business enterprises are considered production expenses and are, therefore, excluded from the net income orginating in the payer-industries. Payments to governments by individuals, as individuals, are treated as payments for services rendered by governments to individuals as individuals, and are therefore not deducted from the income receipts of the individuals comprising the nation.

2 IMPLICATIONS

The assumptions implied in the statistical procedure described above can now be set forth.

a) The first and foremost assumption is that the net value of the current services of government agencies is equal to the total receipts for these services minus the current value of commodities (raw materials, semifinished goods, or durable equipment) consumed in the process of producing these services. The corollary assumption is that the total receipts, i.e., the various payments to government agencies by individuals and business enterprises, are analogous to prices paid in the market place for the final products of the various enterprises in the private sector of the national

economy. It is this assumption that is criticized in the paper; and these criticisms are discussed in Section 3 of the present comments.

b) Because of the insistence that it is not total *costs* of government activity that represent the value of the current services of government to the individuals and enterprises of the nation, the procedure proposed emphasizes that government activities result in two types of net product: current services to ultimate consumers and to enterprises, and capital formation. Capital formation, in this connection, comprises both additions to or drafts upon the stock of commodities in the hands of government agencies and such of the net changes in claims by these agencies against units either within or without the country as result from the disposition of the current income produced. As will be pointed out below, this distinction between current services and capital formation tends to be neglected in the approach where costs of government activity are taken as the value of its current services.

c) It is further assumed that the distinction between current services of government agencies rendered to business enterprises and those rendered to ultimate consumers is impracticable;[1] and that, similarly, it is impossible to allocate as between business enterprises and ultimate consumers the part of income originating in government activity that represents capital formation. A corollary of this assumption is that when governments show positive or negative net savings, i.e., disparity between costs and receipts, such net savings cannot be segregated into those originating in the transactions of the governments with business enterprises and those originating in the transactions with ultimate consumers.

The paper under discussion does not deal with assumption (c) except incidentally; and since this assumption was discussed in connection with Dr. Colm's paper in *Volume One*[2], it does not seem necessary to consider it in the present connection. The critical comments in the paper deal primarily with assumption

[1] See, however, Nelson and Jackson, Part Six, for an attempt to make such an allocation of government expenditures.
[2] Part Five, pp. 234-36.

(a); and we may now pass to a direct consideration of these comments.

3 THE CRITICISM CONSIDERED

Since in the measurement of national income the general basis of valuation of commodities and services is the price they fetch in the market, it would seem that the services rendered by government agencies should be valued on the same basis. Where the results of activities are as yet not ready to appear on the market, and no comparable prices can be found, the cost of these activities is perhaps the best possible substitute basis of valuation. Hence, as the paper under discussion properly points out, business enterprises value the products sold on the market at the market price, and activities whose product has not yet been tested on the market at the current cost of these activities. Assumptions (a) and (b) of the procedure suggested follow exactly the same methods of valuation. The payments by individuals and enterprises to government agencies are taken as the market values of current services rendered to the former by government. The activities of government that represent capital formation are evaluated on a cost basis.

In discussing this procedure, the paper makes two cirtical comments; and we proceed to treat the two separately.

a) The first criticism advanced is that "national income would be greater if new capital equipment were financed out of taxes than if it were financed through the net sale of securities". And this result is attributed to the fact that in the formula used by us "the taxes spent on net new capital goods are involved in national income twice, once in the extra value attached, because of the extra tax collections, to the goods handed over to consumers, and a second time in the value of the new capital goods created". It is also contended that "in the case of a corporate economy, the action corresponding to the financing of new capital equipment out of taxes would be the sale of stock to finance capital equipment. But in the valuation of corporate production, when the proceeds from the sale of stock are used to finance the creation of new capital equipment, they are not *also* used in measuring the value of goods produced and handed to consumers" (I, 2).

This seems a misstatement of the case. It is true that when new capital construction is carried on by government agencies out of taxes, the amount is counted twice; but the same holds for the corporate economy. The parallel case in a corporate economy is not capital construction financed by sales of securities, but capital construction financed from funds obtained as a differential between total expenses and the receipts from the sale of products, i.e., from the net savings of the corporation. In this case obviously the same amount is counted twice: first as net savings, i.e., as part of the price of goods to consumers, and second as the wages, salaries, etc., disbursed to the producers of the capital equipment. Only when the government finances its net capital additions out of the proceeds of security sales is the parallel case in a corporate economy capital investment from proceeds of security issues, and then in both cases the amount is counted only once.

The difference in the source of financing net capital investment by the government does affect national income, even though the volume of productive activity may be the same. This is for the reason that national income is not a measure of productive activity solely, productive taken to mean the quantity of commodities and services at a constant valuation. National income varies with the valuation, i.e., with the prices charged for the various commodities and services. The fact that in one case net capital investment is financed from taxes and in the other case by borrowing can mean one of two things: either that in the first case the quantity volume of services rendered by the government directly to ultimate consumers and other agencies is smaller than in the second; or that with the quantity of these direct services the same, the price is higher in the first case than in the second. In either interpretation, national income measured in current prices should be affected.

It should also be noted that the analysis requires deductions for the use of new capital equipment in direct services, as the paper claims. Such deduction is actually provided for in the proposed procedure as described in Section 1. The cost of current services, as indicated there, is assumed to include current consumption of durable equipment used by government agencies; and, practically, this allowance is expressed in the consideration

of the *net* change in tangible assets, i.e., the change after deduction for depreciation, etc., incurred during the current time unit.

b) The second criticism suggests that there is no basis for assuming consent on the part of the would-be consumers of government services to pay the price represented by the taxes. Granted that no such consent on the part of specific individuals or business enterprises can be claimed, unless the whole matter of tax collection is conceived as an irrational procedure, one cannot but interpret taxes as a price that society as a whole puts upon government services. That in the case of such prices society acts through the constituted authorities rather than through the free market on which the purchasing power of individuals and business agencies is allowed full sway does not constitute a difference sufficient to put government services completely outside a process of social valuation, similar, if not identical, with that of the market.

This interpretation of government taxes is applicable to a variety of prices charged by monopolistic agencies subject to public supervision. The price of electric current is not the result of the consent of individual purchasers. It is true that these purchasers have the alternative of using more or less current or abstaining from using it completely. But such alternatives are open also in connection with government taxes. Where the tax is collected upon certain commodities, the would-be consumer has the choice between using these commodities or abstaining from their use. Where the tax is on income, there is the alternative of remaining a member of a given community or not. There are cases of people leaving this country because they think the price of government services too high. Indeed, the assumption of social consent is so clearly implicit even in the private market structure, in the sense that freedom of determination of the market price is contingent upon the existing social structure, that it appears illogical to consider government charges as belonging to a category entirely different from market prices.

As to the decision of people to finance a part of government services by borrowing (I, 2), it is difficult to see how it alters the case. Such decisions are only a roundabout indication of the people's opinion that the price of the needed government services would be too high if covered completely by taxation. This is

clearly suggested by the terms in which taxation and government expenditures are discussed in legislative bodies. The constant reference to tax burdens is but another way of weighing *prices* of government services and setting a valuation upon them that is more flexible, more responsive to current economic conditions than are the *costs* of these services.

c) A third criticism of the sales approach may, however, be suggested. One can accept the notion of consent by society as a whole and of its evaluation of government services, but go further and claim that in this consent and evaluation a segregation is made between payments destined to cover current services by government and those made to government in order to make possible capital investments or pure transfer disbursements, such as relief to individuals or bounties to certain industries. Thus it may be said that when society, represented by the constituted authorities, decides upon taxes whose volume exceeds the cost of current services by government to the total body of payers, this excess payment is approved not in recognition of the corresponding value of current services but in recognition of the advisability of: (a) the government's adding to the stock of public goods; (b) the government's acting as an income-redistribution agency and paying relief to individuals or enterprises that the private business system appears incapable of supporting. In such cases, the taxpayers, as represented by the constituted authorities, decide that, instead of distributing bounties or relief on their personal initiative and in their individual capacity, they prefer to make a larger payment to the government than is warranted by the value of the latter's current services; or that instead of making private investments in certain types of capital goods, they prefer to pay the government a sum that will leave a positive net saving available for financing such capital formation.

To the extent that this viewpoint is valid, the sales approach cannot, obviously, be retained. For then relief or bounty payments would have to be considered pure transfers, similar to gifts by one group of individuals and/or enterprises to another group of individuals and/or enterprises; and any other excesses of government receipts over cost of current services would have to be treated on a par with invested savings of individuals or enterprises, and hence could not appear as positive net savings in

income originating in government activity. It therefore is in order to consider this viewpoint in detail, first with reference to the excess intended for public capital formation and then to excesses intended for transfer payments.

In the case of public capital formation, the basis for the interpretation just suggested seems weak. For the choice is obviously open to the constituted authorities between financing such capital formation by taxation and financing them by borrowing. If additions to the public stock of commodities seem warranted and if the value of the current services to the taxpayers is not sufficiently high to provide a net savings margin for financing such capital formation, the natural result would be to finance it by the issue of government securities. If, therefore, the taxes are sufficiently high to allow government positive net savings available for financing capital formation, there seems little ground for assuming a direct intent of demanding payments greatly in excess of value of current services. The same argument holds even where this excess is applied toward a reduction of the outstanding government debt: the indispensable permissive condition of such a policy is that the value of the current government services is sufficiently high to allow this excess of charges over costs. Perhaps the only cases where the viewpoint is valid are 'special assessments' with a direct connection between payments and capital construction by public agencies for the special benefit of payers.

The case for the interpretation under discussion is much stronger with reference to relief, bounty, and other purely transfer payments: it may be claimed, on reasonable grounds, that the constituted authorities of the body social recognize that these payments do not constitute direct current services to taxpayers; that the case for financing such expenditures by borrowing is much weaker than with substantive additions to the stock of public capital goods; and that the excessive charges made to taxpayers are distinctly recognized and consented to as measures of income-redistribution.

But even in this case three circumstances qualify the bearing of this interpretation upon the sales approach. First and foremost is the one just mentioned, viz., that any decision to keep government charges at high levels is necessarily based upon a recognition that the value of government services justifies such levels;

that, in other words, the level of valuation set upon government services is not so high as to become intolerable. For when the limits of tolerance are exceeded, it would obviously be more practicable to finance even pure transfer payments by borrowing. Second, when such transfer payments are financed by borrowing, the statistical procedure based on the sales approach remains valid. Third, when relief payments to individuals are financed from taxes upon business enterprises, the statistical procedure described in Section 1 still leads to a correct national income total (even though to a wrong industrial apportionment), since the failure to include taxes paid by business enterprises under net income originating in the respective private industries makes it necessary to cover these taxes at points where they are disbursed without any services being rendered directly to the payers. The same is true of bounties paid to some industries and financed from taxes paid by other industries. The only cases where, with the interpretation under discussion valid, the statistical procedure described in Section 1 would distort the national income total are those of relief payments to individuals financed from taxes on other individuals; and bounties to industries financed from taxes on individuals.

There is thus some validity to the criticism under discussion in that the financing of a limited group of government expenditures from current charges to the body of taxpayers cannot be interpreted as net savings by government industry; in other words, the taxes in this case are somewhat more than the current value of current government services to society at large. But the segregation of this group of expenditures, and especially the collating of expenditures with sources of funds, is exceedingly difficult. And if, in the attempt to adopt practicable if crude procedures, one has to choose between the cost and the sales approaches, it would seem more realistic to treat payments to government as the most nearly valid measure of the current market value of their services.

One final observation with reference to the interpretation just discussed: such an interpretation is not without validity even in the case of market prices, whether the market is regulated or free. In the case of regulated markets (public utilities) the prices charged and permitted quite often include a provision for a rea-

sonable amount of net savings to finance a reasonable expansion of the capital plant of the enterprises; or a reasonable amount of certain types of transfer expenditures (private relief, pensions, etc.). And even for the free market or the purely private sector of a given national economy, the preferential treatment given to domestic industry through tariffs, or to local units by various devices intended to favor them as over against 'foreign' units, is really a consent on the part of the payers to a charge higher than would otherwise be required, this excess being intended to favor local capital formation or disbursements to the 'native' population of payments not dissimilar to relief or bounty payments by the government. In the case of private industries or public utilities we do not, in measuring income originating, assume that the prices paid by consumers for the products may be in excess of the value, this excess being intended by consumers as a substitute for gifts, charity, or investments of their own. And the real question is whether government charges are so greatly different that, if a consistent procedure is to be applied, the sales approach is invalid. This question is answered here negatively. But it is recognized that further analysis of government expenditures and revenues, and especially the improvement of the data on government receipts and disbursements, might make it possible so to classify them and so to correlate significant classifications that the modifications of the sales approach, suggested by the criticism, might become practicable.

4 DISADVANTAGES OF THE COST APPROACH

The serious disadvantages of the cost basis of valuation in its application to income originating in government activity should already be apparent. But it may be useful to state them more explicitly.

Foremost is the inconsistency of this basis with that employed for the other branches of the nation's economic system. This inconsistency, admitted by the advocates of the cost approach, is justified by saying that the government industry is essentially different from other industries, specific reference being made to the compulsory character of its charges and the absence of the profit incentive. But these differences recognized, it still does not follow that the services of government agencies cannot be evalu-

ated in a way analogous to that of the market place. And while one cannot say 'triumph consistency, perish commonsense', it does seem that a consistent principle of valuation should be maintained as far as possible, in order to prevent a serious distortion of weights in the national income total. A national income measure follows of necessity a consistent principle of weighting; and it necessarily overlooks substantial differences in the character of the markets for the various industrial branches, on the assumption that such disregard is unavoidable if comparisons and additions into totals are to be made. Granted that there is some value in doing most logically such an essentially illogical thing, can it be said that the difference between government activity and the activities of some public utilities are more cardinal than, let us say, between these public utilities and farming? Considering that the payment of the buyers is the most efficient available method of valuing the final product of the sellers, is there sufficient basis for exempting government activities from this criterion? It is in this exemption of government activities, combined with the application of the criterion to all other activities, that the basic disadvantage of the cost approach lies.

From this basic disadvantage there flow others, which may be treated as so many specific aspects of one and the same difficulty. Two have been mentioned in the paper itself: "first, wages may be an inadequate measure of the value of the labor exchanged; second, it takes no account of the contribution to national income . . . made by the capital assets owned by government" (I, 1). The magnitude of these disadvantages is, however, insufficiently stressed. The first is particularly important and cannot be dealt with satisfactorily by excluding relief payments. An adjustment limited to such an omission would overlook the fact that with changes in economic conditions, the cost value as measured by wages lags appreciably behind the market value. For business enterprises this lag is adjusted for by the item of net business savings, and the inclusion of this item would perform the same service for activities of government agencies. It may be conjectured that the distortion implicit in this lag of costs is more appreciable than that of relief payments, and that the removal of the latter takes care of the smaller part of the necessary adjustment.

The second difficulty of the cost formula mentioned, the failure to take account of the contribution of capital equipment, is likely to become more serious as a result of the rapid increase in the amount of capital equipment in use by government agencies. This striking upward tendency is one of the conclusions of the National Bureau's study of the volume of capital formation, and is so pronounced as to be observable even with the naked eye. Under such conditions it becomes all the more important, both for the government agencies themselves and for students of economics, to take cognizance of the extent of current consumption of capital equipment, both in the evaluation of the net product of government activity and in the intelligent consideration of present and prospective capital investment by government and by the national economy.

Another difficulty of the cost approach is that it requires segregation between current services of government agencies to business enterprises and to individuals; and correspondingly, a segregation in the capital formation by government agencies between that accruing in favor of business enterprises and that in favor of individuals as individuals. The necessity of this distinction is a direct consequence of refusing to accept payments as the measure of the value of current services, and is recognized in the paper (II). The distinction seems to me impracticable, on both theoretical and statistical grounds, for it is based on disregarding the most essential characteristic of government activity, namely, that its services are destined for society at large.[3] It is difficult enough to apply this distinction to industrial production in which the locus of immediate use can, in most cases, be clearly defined. But in government activities, of which such a large part represents intangible services and capital formation destined for use by the body social as a whole, the distinction seems to me neither possible nor fruitful.[4]

On the other hand, the cost approach tends to overlook one distinction that does appear important. The approach applies the same basis of valuation to the current services of government agencies and such of their activities as represent capital formation. It therefore provides no incentive for a study of the results

[3] See discussion in *Volume One*, referred to above, and Nelson and Jackson, Part Six.
[4] With the exception of the areas discussed in Sec. 3, (c) above.

of government activities that would lead to a distinction between current services and capital formation; although, of course, there is nothing in the approach to bar such a distinction. It seems to me to be a significant advantage of the statistical procedure described in Section 1 that it requires a more detailed study and appraisal of the results of government activities as between present and future. In view of the increasing importance of these activities, the need for evaluation of their results on a basis comparable with that of the private sector of the economy becomes more and more pressing. The consideration of government agencies as institutions unto themselves, that cannot be appraised with the yardstick applied to other parts of our economic system, could be tolerated so long as the economic activities of the government were minor in scope. The persistence of this viewpoint, embodied in the cost apprach, threatens, with an increase in government activities, to introduce a serious distortion in our measurements of the national product.

II G. C. MEANS; LAUCHLIN CURRIE AND R. R. NATHAN, CONCURRING

The two preceding papers have outlined alternative approaches to the estimation of government produced income and have served to clarify the assumptions underlying each.

The procedure advocated by Dr. Kuznets rests on two independent assumptions, the first of which he states clearly as follows: "The first and foremost assumption is that the net value of the current services of government agencies is equal to the total receipts *for these services* minus the current value of commodities (raw materials, semifinished goods, or durable equipment) consumed in the process of producing these services."[1] The second assumption is not explicitly stated by Dr. Kuznets but appears to be as follows: "The total receipts *for these services*" is the sum of total government receipts from actual sale of goods plus total tax receipts.[2]

[1] Sec. 2(a), italics ours.

[2] Taxes being defined broadly to include tariff receipts, etc., but to exclude government borrowing and interest or dividends on securities held by government.

The procedure advocated by us likewise rests on two assumptions. The first is that the net value of the current services of government agencies is equal to the total current expenditure *made in rendering those services*, minus the current expenditure on commodities (raw materials, semifinished goods, or durable equipment) made in rendering these services. The second assumption is that the expenditure *made in rendering these services* is the total of government expenditures[3] less expenditures adding to the capital assets[4] of government and less direct relief expenditures.

Presumably neither protagonist accepts the basic assumptions of the other. Possibly Dr. Kuznets would accept our second assumption, though rejecting the first. With respect to his assumptions, he implies that we have accepted his first assumption and overlooked the second. Actually neither assumption seems to us acceptable for reasons that will be indicated below.

In practice the difference between the two procedures is significant only when there is a difference between (1) tax receipts and (2) expenditures on current operations. In a situation not involving specific sales of government services, the two procedures would give identical results (except for interest) if (1) all taxes were used to finance current services, and (2) if all current services were financed from taxes. A difference in result would arise when taxes were used either to add to capital assets or to finance relief and when borrowings were used to finance current services.

Dr. Kuznets' argument in support of his procedure seems to consist of two major elements: (1) an appeal to an analogy between business and government; (2) an analysis of the social consent involved in the determination of taxes and the expenditure of government funds. We would support our procedure (1) on the basis of the lack of analogy between profit-seeking business and non-profit-seeking government, and (2) on the basis of a different analysis of the social consent implicit in government taxation and expenditures.

[3] Expenditures are being defined broadly to include direct and work relief payments but not to include retirement of debt or interest on debt. (The problem of including actual or imputed interest as part of the cost of rendering current services is disregarded here for simplicity.)

[4] Including both fixed capital and inventory.

I THE BUSINESS CORPORATION—GOVERNMENT ANALOGY

On the analogy with business, as a basis for justifying his two basic assumptions, Dr. Kuznets says he is making the assumption "that the total receipts, i.e., the various payments to government agencies by individuals and business enterprises, are analogous to prices paid in the market place for the final products of the various enterprises in the private sector of the national economy". He further recognizes that this line of argument is being criticized. Unfortunately he makes no reasoned defense along this line, nor does he seek to rebut directly the argument that the collection of taxes and rendering of services by government does not exactly correspond to the quid pro quo of a business transaction. Since he has introduced the analogy the burden of proof rests with him to establish that there is sufficient analogy to justify the treatment of the taxes collected (or any part of them) as analogous to prices paid.

In justifying the analogy there appear to be two points that Dr. Kuznets must establish. First, he must justify the treatment of government on a profit and loss basis. When he treats taxes as though they were payment for services rendered in analogy to the specific quid pro quo of a business transaction, he is, by implication, treating any taxes collected in excess of costs of rendering services as 'profits' and any deficiency of taxes as 'losses'. This conception of government as 'operating at a profit' by collecting extra taxes used to retire debt or to finance addition to capital assets, or of government as 'operating at a loss' when it finances current operation from reserves or by borrowing is quite foreign to the usual conception of government activity.[5]

Second, even if there is agreement to treat government on a profit and loss basis, Dr. Kuznets must justify the use of the difference between tax collections and the amount necessary to finance current consumption (including a depreciation allowance) as the 'profit' made or the 'loss' incurred by government.

In contrast to Dr. Kuznets' position on this point we hold the view that government is essentially a non-profit-seeking organi-

[5] Dr. Kuznets' conception of government as operating at a profit or at a loss should not be confused with the current conception of surplus or deficit operation. Borrowing to add to capital assets might reflect a deficit in the current sense but not an operating loss in Dr. Kuznets' sense.

zation and there there is no analogy *significant for the evaluation of government services* between the specific and clearly defined meeting of minds presumed to exist in the individual business transactions of the market place, which are used as the basis for valuing the business contribution to national income, and the two general and vaguely related activities of taxation and the enjoyment of often ill defined and sometimes unrecognized services rendered by government.

If Dr. Kuznets insists on maintaining an analogy between corporate activity and government activity, there is still serious question whether taxes should be regarded as the 'price paid' for current services. This arises because a corporation has bondholders, stockholders, and customers whereas government has only two groups, bondholders and the public or 'customers'. The question must be raised—who are the stockholders of government? If government activity is treated on a profit and loss basis, who is to be regarded as deriving the profits or who incurs the losses? To validate Dr. Kuznets' position, the bondholders would have to be regarded as also equity holders, i.e., as summating all the interests of the bondholders and stockholders in the corporation whereas the public would have to be regarded solely as consumers. Then the total receipts obtained in the form of taxes could be allocated to consumption and treated as the price paid by consumers for the services rendered by the bondholders' government while services financed by further borrowing would involve a loss to the bondholders and taxes collected in excess of the cost of services could be regarded as a profit to the bondholders. If, on the other hand, the people of the United States were to be regarded as not only consumers of the services rendered by government but also as corresponding to stockholders, i.e., being the general beneficiaries of the government's activities, then taxes collected would have to be allocated between taxes corresponding to the price paid for current services and taxes corresponding to the price paid for new stock issues.

The corporate-government analogy appears to break down when applied to the financing of current consumption through borrowing. Business corporations are neither ultimate consumers nor associations organized to service their members. It is contrary to their function to borrow and use the proceeds to finance

consumption. If, through error or force of circumstances, a business corporation renders commodities or services to consumers at less than cost and makes up the difference through borrowing, the accountant must perforce say that such action was contrary to the functions of the corporation and register the difference as a business loss, indicating that the goods rendered were worth less than they cost.

To find activity analogous to government financing of consumption through borrowing one must go to other non-profit associations such as the family. If a family borrowed $100 to employ a doctor to treat one of its members, Dr. Kuznets would take the payment received by the doctor as the measure of the services rendered. He would not say that the family suffered a business loss of $100, and in estimating national income, offset this loss against the doctor's productive contribution. In the same way, when government borrows to employ workers, who render services to consumers or to business, it would seem appropriate to value the services rendered to members of the community on the same basis as the family doctor's services, i.e., at their cost to the association obtaining services for its members. It is primarily because of the lack of any analogy between the business corporation and government on this important point that we reject Dr. Kuznets' analogy.

2 SOCIAL CONSENT

The second line of argument by which Dr. Kuznets seeks to validate his procedure turns on the question of consent by the taxpayers. He makes much of the idea that the financing of government services from taxes shows that the taxpayers think them worth that much as current income whereas their financing through borrowing shows that the taxpayers do not consider their present value equal to their cost.

In following this line, Dr. Kuznets builds up a concept of social consent to which no one can take exception. At the same time, he fails to face the question—to *what* do the taxpayers consent? Do they consent to be taxed only to the extent of consumption or do they consent to be taxed in order both to consume currently and to build capital equipment to facilitate future consumption?

Dr. Kuznets arbitrarily assumes that general taxation is consented to only for the purpose of current consumption, thus begging the basic issue. In this connection, however, Dr. Kuznets makes two admissions that clearly indicate the weakness of his position. He says, "perhaps the only cases where the viewpoint [regarding the payment of taxes that are used in capital formation as involving social consent to capital formation] is valid are 'special assessments' with a direct connection between payments and capital construction by public agencies for the special benefit of payers" [3(c)]. This concept, even as it stands, undermines Dr. Kuznets' most absolute thesis, that taxes in toto constitute the price paid for current services, and necessitates a significant qualification at every point in his analysis. In addition, he accepts the thesis that taxes collected with the explicit purpose of making purely transfer payments may properly be excluded from taxes used in valuing current services, thereby further modifying his former position.

The logic of these two admissions should lead to agreement on the basic issue. Assume a stiuation in which all taxes are specially assessed and earmarked at the time of collection so that the taxpayers are aware of the destination of each of their several tax payments. In such a case, Dr. Kuznets would agree that the taxpayers had consented to the specific use of each part of taxes and that to the extent that taxes were earmarked and used either to redistribute buying power or to finance capital formation, they should be excluded from the taxes used in valuing current services. We should agree that the taxes specifically raised and used to finance current consumption could be used to measure the value of the current services rendered since they would exactly correspond to the expenditures made in rendering such services. Thus if all taxes raised by government were earmarked in this fashion and no production of current services were financed through borrowing (or use of reserves), there would be no issue between Dr. Kuznets and ourselves.

This leaves two situations in which there appears to be disagreement—unearmarked taxes and financing current activity through borrowing. In the first, the problem is to determine what the taxpayers have consented to in paying unearmarked taxes. Dr. Kuznets assumes that in the case of unearmarked

taxes the taxpayers necessarily consent only to the use of taxes for consumption. He gives no reasons for this arbitrary assumption, yet it implies that when Congress, an integral part of the consent process, levies unearmarked taxes and applies the proceeds to the creation of new capital equipment, it is acting contrary to the consent of the taxpayers.[6] This presumption is so contrary to the generally accepted conceptions of government processes that it seems open to serious question. On this point we take the position that the actual use to which unearmarked taxes are put is, on the whole, the best and perhaps the only available guide to the directions of use to which taxpayers both direct and indirect have consented.

On the remaining point at issue, that of financing the production of current services by borrowing, there seems to be no less reason for assuming consent to such financing than for assuming consent to the financing of capital formation from taxes or to the financing of consumption from taxes. Could the authorization and raising of funds by liberty loan bonds have been accomplished without the general consent to finance the current consumption of the War on the basis of borrowing? Does the incurrence of a debt in a depression period, to finance current consumption, involve no element of social sanction? Just as the family can, under particular circumstances, feel that it is appropriate to finance current consumption by borrowing, so the people of the country, acting as a social unit through government, can finance the production of current services with borrowed funds. Thus our whole analysis of social consent points to the conclusion that the prices paid or the costs incurred by the government in obtaining services for the public constitute the nearest economic measure to their value that is likely to be obtained. The problem of allocating actual expenditures between those involving (a) capital formation, (b) redistribution of income, and (c) the production of current services would still remain, but would seem to be implicit in any realistic approach to the estimation of government produced income.

[6] The alternative is for Dr. Kuznets to assume that taxpayers consent to the levying of heavier taxes than are necessary to finance current operations so as to create a 'profit' and, in addition, consent to the use of this 'profit' to finance capital formation.

In attempting to clarify the issue further we have not dealt with specific points raised by Dr. Kuznets except as they seemed basic to the furtherance of the discussion. It does seem important, however, to point to the frequency with which he assumes the point at issue. Thus he says: "The identity of the concept of net savings of government agencies with that of net savings of business enterprises is obvious." Yet implicit in the point at issue is whether there is such a thing as government savings. Such savings would appear to arise only if government is treated as making profits, part of which can be saved. Again Dr. Kuznets says: "There are cases of people leaving this country because they think the price of government services too high." Had he said that they left because taxes were too high his statement would be acceptable, but to make taxes synonymous with the 'price' of government services is to prejudge the issue. The same prejudgment is involved when he says: "The second criticism suggests that there is no basis for assuming consent on the part of the would-be consumers of government services to pay the price represented by the taxes"; when he says: "Unless the whole matter of tax collection is conceived as an irrational procedure, one cannot but interpret taxes as a price that society as a whole puts upon government services"; and when he says: "The constant reference to tax burdens is but another way of weighing *prices* of government services and setting a valuation upon them that is more flexible, more responsive to current economic conditions than are the *costs* of these services." These assumptions of an identity between taxes and the value of government services do not help to clarify the discussion since they assume away the point at issue, while the assertion that any other interpretation implies an irrational tax procedure is simply a denial that the point at issue is moot and not an argument in support of Dr. Kuznets' procedure.

Part Six

ALLOCATION OF BENEFITS FROM GOVERNMENT EXPENDITURES

R. W. NELSON

UNITED STATES FOREST SERVICE

AND

DONALD JACKSON

UNITED STATES BUREAU OF AGRICULTURAL ECONOMICS

ALLOCATION OF BENEFITS FROM GOVERNMENT EXPENDITURES

R. W. NELSON AND DONALD JACKSON

Last year Dr. Stine discussed the broader aspects of the problem with which he and his Committee on Farm Income have been wrestling—estimating farm or farmer income.[1] Conception and definition of the problem naturally have not remained fixed; they have evolved in the minds of the persons working with them, and latterly have been sharply modified by Congressional mandates contained in the Agricultural Adjustment and later agricultural assistance laws. Tax and government service aspects of the situation have long been recognized, but, like various other items concerned, their positive recognition in estimating farm income depends in large degree upon the precise definition and delimitation of the problem. The shift in objective from income of agriculture to income of persons on farms, as required in the Act of 1936, has seemed to point to the usefulness of a supplementary estimate of non-monetary, and in a sense non-economic, income which farm persons receive from the various units of government. The revision in the language of the governing statutes, as contained in the Agricultural Act of 1938, may have removed the immediate necessity for such a computation; we are assuming, however, that this type of estimate is made no less valuable for related purposes. For instance, it is significant to an interpretation of the farmers' taxation problem.

We do not believe that our work on the problem at hand has been productive of any contributions of a theoretical nature to the treatment of fiscal data in the measurement of national income.[2] Rather, such interest as students may have in it will per-

[1] See *Studies, Volume One* (1937), Part Eight.

[2] For discussions of the theoretical aspects of this problem see G. C. Means, Part Five, discussion by Simon Kuznets, and Dr. Means' reply; also, *Volume One*, Parts One, Two, and Five.

haps be generated by regarding it as a case study of the problems encountered in connection with a very practical task of a pioneering character. Our job was to prepare, within six months and with stenographic assistance only, an estimate of: (1) the real income received in the form of final utilities from all units of government by farm residents during the fiscal year 1936; (2) corresponding aids to the productive activities of farmers during the same period. We did come up with such an estimate, but it is hardly necessary to emphasize that the resulting figures are subject to revision!

Our first major decision was that it was inadvisable—indeed, virtually impossible—to make an integrated, or joint, analysis of farm benefits and farm taxes. For most of the major taxes paid by farmers, it was found impossible to offset particular tax payments against particular benefits received. Nor did it appear that there would be any gain in either accuracy or understanding if an artificial tie-up of taxes and benefits were to be established by some statistical *tour de force*. Therefore the analysis of benefits has been quite independent of the treatment of taxes; the one is regarded as inflow and the other as outflow in relation to the farmers' 'balance of payments'.

It seemed unwise to attempt an estimate of benefits received by farmers without regard for the entire or over-all pattern of government expenditures. The estimate would be more arbitrary and less subject to check and verification if isolated from other fiscal data. Therefore all government expenditures, except those occasioned by the handling of trust funds or by government activities of commercial character, were analyzed and distributed among five major categories.

These categories reflect the location and character of the impingement of government expenditures upon persons, in accordance with the classifications peculiar to the problem at hand. First, expenditures were divided, with respect to incidence of benefit, as between farm residents and urban residents. Next, both farm and urban benefits were divided as between final utilities and aids-to-production. If final utilities, they constitute additions to the net incomes of the recipients, and are added, together with other net income items, to arrive at a national 'income sum'. If expenditures are classed as aids-to-production,

they need not be considered further in the computation of national income, since they presumably contribute to the processes of production, thereby increasing the value of the goods and services that reach the market; hence expenditures of this type do not have continuing identity, and are not eligible for summation with items of net income.[3] Finally, we recognized 'transfers' as a fifth class of expenditures. This class includes all disbursements made by government that do not represent costs of activities which serve to enhance the production of economic values or create utilities; in such transactions, government serves merely as a conduit for the flow of purchasing power from one economic group to another, the transfer neither adding to nor detracting from the national income sum. Thus our five distributive categories are: (1) final utilities to farmers, (2) production aids to farmers, (3) final utilities to non-farmers, (4) production aids to non-farmers, (5) transfer items. This classification, therefore, comprehends all government disbursements except those arising in connection with trust funds and commercial activities. Items (1) and (3) alone are eligible for summation with other net income items in arriving at the national income sum.

All expenditures were accepted at 'face value' in terms of dollars when translated into terms of benefits; i.e., the costs incurred by government in performing a function were viewed as the most reasonable measure, in monetary terms, of the benefits conferred by the performance of that function. Although the recipients might regard the benefits received as being 'worth' either more or less than they cost, any attempt to reduce such discrepancies to quantitative terms would be arbitrary and devoid of objective content.

Figures relating to federal expenditures were taken or adapted

[3] Aid-to-production expenditures, if worthy of social approval, presumably will eventually fructify into *more* goods and services, i.e., utilities available to final consumers. Obviously, however, the task of tracing and measuring the manifold repercussions of such expenditures throughout the economic system, in order to identify the recipients of such added final utilities, is beyond the scope of present possibility. Of necessity, our assumption was that aid-to-production expenditures serve either (1) to reduce costs to the producers who are the immediate recipients of such benefits, thereby increasing their net incomes, or (2) to reduce the prices and increase the quantity of goods flowing to consumers generally; in either case, the resulting additions would appear in non-government categories of national income.

from the 1936 Annual Report of the Secretary of the Treasury. All general and special and all recovery and relief accounts were included, and all trust accounts excluded. So far as time allowed, advice was sought from responsible officials of those departments or units the expenditures of which seemed to call for explanation or interpretation.

Because of the availability of a reliable figure, furnished by the United States Office of Education, all state and local expenditures for education were treated as a unit, and handled on a nation-wide or over-all basis, instead of an attempt being made to allocate benefits by states. A like policy was adopted with repect to emergency state and local relief expenditures, on the basis of data supplied by the Works Progress Administration. This over-all figure for relief is conceded to be much less reliable than that for education; nevertheless, it was regarded as involving a smaller probable error than would have been present in any estimate we might have made on the basis of available records of individual states. For a time we hoped that a nation-wide figure for highway expenditures might be obtained, but eventually we were obliged to discard the idea, because of glaring deficiencies in available data.

Of all basic data, state and local expenditures, exclusive of education and emergency relief figures, were the most difficult to obtain. Detailed statements of expenditures of state governments for the fiscal year 1936 were available for less than half of the states. Similar data for local units of government were available for about 10 states. From necessity, therefore, we resorted to sampling and adjusting in order to arrive at estimates of the needed figures. Eight sample states were selected, one in each census division, except the East South Central. These selections were based on the importance and representativeness of each sample state with respect to its own geographic division, and also on the relative adequacy of its fiscal records. The eight states selected were Massachusetts, New York, North Carolina, Indiana, Iowa, Oklahoma, New Mexico, and California. The North Carolina local expenditure figures were particularly suspect, but even so, North Carolina was the only one of the larger states in the South Atlantic group for which any such data were available. No one of the four states in the East South Central

group could furnish reports covering local government expenditures, and therefore these states were divided among the contiguous geographic groups. Effort was made, of course, to delete all education and all emergency relief expenditures from the total expenditure figures of the sample states. Likewise, corrections were made for all inter-government grants and exchanges of funds that could be identified, but we concede it to be improbable that a complete adjustment was made for such items. In the case of two sample states for which the basic data were for fiscal years prior to 1936, adjustments were made to bring the figures up to the 1936 level.

The ratio of the 1936 state total figure to the parallel 1931 figure, as derived from *Financial Statistics of State and Local Government—1932*,[4] was computed for each of the eight states. Then it was assumed further that the ratio of totals for each sample state (1936 to 1931) held for the other states in the geographic division. Thus by use of these sample state ratios and reference to the 1931 totals, an estimate of the 1936 total expenditure figure was obtained for each of the 40 non-sample states. Next, the arbitrary assumption was made that each sample state was representative of the other states in its group with respect to the character of the allocation-of-benefit patterns existing therein. In order to bridge the gap, as between a sample state and the other states in the division, arising from variations in the percentage that farm population was of total population, an adjusting formula was developed that took cognizance of the underlying relationships that exist among the variables in question.[5] The formula was solved for each of the 40 non-sample states, and thus the percentages were provided in accordance with which total state expenditures were allocated as among our five distributive categories. Transfer items

[4] U. S. Department of Commerce (Washington, 1935).

[5]

$$\frac{X\ (\%\ \text{farm benefits})}{\%\ \text{farm pop. of total pop. in Y state}} \times \frac{\%\ \text{non-farm benefits of tot. exp. in A state}}{\%\ \text{non-farm pop. of total pop. in A state}}$$

$$= \frac{1\text{-}X\ (\%\ \text{urban benefits})}{\%\ \text{non-farm pop. of total pop. in Y state}} \times \frac{\%\ \text{farm benefits of total exp. in A state}}{\%\ \text{farm pop. of total pop. in A state}}$$

were subtracted from the sample state totals prior to these computations, in order that the interrelationships of state allocation patterns should be based only upon expenditures that represented consumption benefits or production aids. It may be of interest to note that the total state and local expenditure figure obtained in this manner was within the range of the 1936 estimates offered by Dr. Shoup and associates in *Facing the Tax Problem*,[6] although no attempt was made to bring this to pass. Finally, the four sets of totals (federal, education, state and local emergency relief, and other state and local) were summated. The grand total figure of about $18 billion is more in the nature of a 'working sheet' total than a figure of intrinsic importance. Our method of handling intergovernment transfers was modified during the process of computation, with the result that some such exchanges were included under the 'transfer' heading, and others were not; then it appeared a poor investment of time to make the changes that would have been needed to attain complete consistency in this respect. The figure of almost $11 billion that represents all benefits in the form of final utilities and aids-to-production was the total with which we were primarily concerned.

Dr. Kuznets has expressed the opinion that "no classification of government activities and expenditures by business or ultimate destination can properly be made".[7] We are inclined to regard this position as unnecessarily extreme. If we were to perform the particular task in hand, it seemed unavoidable that we undertake to do that which Dr. Kuznets maintains cannot properly be done. We are in hearty accord, however, with a related statement that he made on the same occasion: "These functions [distinctive functions of government] have such a broad reference to the needs of society at large that it is difficult to say that they serve business or that they serve individuals as members of the community. If a definite answer is provided it usually results from the application of some clear-cut position in social philosophy but one that does not necessarily have general validity".[8] It quickly became apparent that some definitive position or 'philosophy' with respect to the broader phases of the problem was

[6] Twentieth Century Fund, 1937.
[7] *Volume One*, p. 235.
[8] *Ibid.*, p. 234.

requisite if we were to avoid erratic dogmatism in the handling of heterogeneous classes of expenditure. The theoretical credo to which we have subscribed can perhaps be explained most easily by reference to a few of the more controversial issues that we faced.

How should the costs of the Army and Navy, of Congress and other legislative bodies, of the courts and the judiciary, and other expenditures for general government, be apportioned, either as among population groups or as between final utilities and aids-to-production? The answer that seems most satisfactory to us, and which has been used as a guiding principle in this tabulation, is that all such 'general benefit' expenditures should be divided among population groups on a per capita basis, and split 50-50 as between consumption and production.[9] In defense of this position it may be argued that costs of this type are incurred in the interests of the entire body politic, regarded as an organic entity, and that each member stands on an equal footing with every other member in this social whole; and, further, that every person constitutes a dual personality with respect to his relations with the economic system—that is, he exists both as a consumer and as a producer. Even the infirm, the aged, and the children, although they may not be engaged currently in productive activities, are dependent for their real incomes upon the productive activities of others, and have as great an interest as do active workers in making production processes as efficient as possible.

Questions of another type arose in the treatment of expenditures for highways and streets. Who receives the benefits when roads are used by commercial vehicles? Does a system of farm-to-market roads represent aids to agricultural production, aids to urban commercial interest, or consumer benefits to urban resi-

[9] The uniform distribution of benefits within either the production or consumption category undoubtedly merits further consideration. Conceivably, it might be argued that income or wealth or some other factor is a logical basis for determining the relative extent to which an individual or a group benefits from general government activities. An equal division between the production and consumption categories, however, is less subject to challenge. In a fundamental sense social production and consumption must be roughly equal. Economic realism or idealism may make one of the two contributory to the other, but the interpretation of one as the more fundamental is insufficient reason for modifying the allocation of the general government services offered to both indiscriminately.

dents in the form of better and less expensive garden produce? And does introduction of a higher standard of urban living, as represented by driving to work in one's own auto, rather than using a street car, call for an apportionment of the costs of city streets as between aids-to-production for office workers and final utilities accruing to these persons? Despairing of arriving at any satisfying answers to these questions, we took a wide detour around them. We made the simple but arbitrary assumption that highway benefits are proportionate to highway usage, in both volume and type (i.e., either for pleasure or for commercial purposes). Gasoline consumption was accepted as the measure of use. If 20 per cent of all gasoline consumed was by farmers' cars, 20 per cent of the benefits of highway expenditures were allocated to farmers; and if 60 per cent of farmers' gasoline consumption was attributable to trips made for business purposes, then 60 per cent of these benefits were classed as aids-to-production.

Emergency relief expenditures, and particularly those made by the Works Progress Administration, presented a serious and unique problem. If cash payments are made to recipients of relief, the expenditure represents a simple transfer item. But if a work relief program is adopted, question arises as to the social and economic value of the work done. If a dispassionate judgment is that the results are one-half 'boon-doggling' and one-half activities of real value, there should be an allocation of 50-50 as between transfer payments and genuine benefits. The solemn assurance of WPA officials, plus the absence of any responsible higher court of judgment, caused us to adopt the position that all WPA expenditures for the 1936 work program were made in connection with projects of real economic merit, and benefits were allocated in accordance with the character of the projects involved.

The treatment of school expenditures presented several unique problems, the most elusive of which was, what portion of benefits, if any, should be classed as aid-to-production. Eventually we adopted a course that an unfriendly critic might insist is merely a weak compromise—assigning 1 and 3 per cent, respectively, of farm and urban total school benefits as aids-to-production, and the balances as final utilities. We are not disposed to challenge the popular doctrine that 'culture' and 'good citizenship' are and

should be the primary objectives of education in a democratic society; the small percentages assigned to the production categories, however, in addition to representing the approximate importance of vocational schooling, are in part gestures to indicate recognition of the fact that some of our school costs are directed toward purely utilitarian goals.

Probably the most controversial issues with which we grappled were those arising in connection with the treatment of government funds invested currently in property and durable assets, and the benefits received currently from previous investments of like character. We concede that the most logical and comprehensive method of handling this problem would be that suggested by Dr. Copeland—to set up a government balance sheet that would cover all government assets, and reveal net changes in capital accounts during each fiscal period.[10] The flow of services from this stock of assets would be appraised annually, and added to the national real income of the year;[11] current government investments in capital goods would have the status merely of transfer items. Logical though this method may be, it was obviously hopeless to contemplate using it in connection with our immediate problem, because of the lack of any inventory of government property. Considerations of expediency, however, ultimately caused us to adopt a position that is equally extreme, but which faces in the opposite direction; that is, we classed all current capital outlays as current benefits, and disregarded entirely the flow of benefits from past investments. A correlated procedure was to treat all payments of both interest and principal on government debt as transfer items, without any attempt to inquire into the purposes for which the debts had been contracted. We recognize that this method may result in an overstatement of benefits received during a period of expanding government investments and in an understatement of benefits during periods of meager

[10] *Volume One*, pp. 27-8.

[11] The interest or earnings rate appropriate for the determination of the annual productivity of such an inventory of government's physical assets would still present a knotty problem. Does government accumulate durable assets only to an extent that equates marginal productivity of its capital with that of private investment? Or, on the other hand, should it be assumed that the least significant government capital expenditures produce economic returns only at the low rate the government now pays for the use of borrowed funds?

capital outlays by government; and also that it may introduce a bias in the allocation of benefits for any year in which the pattern of government outlays departs sharply from the patterns of previous years. Although our scholarly conscience continues to suffer twinges of remorse in the face of the logical imperfections of this method, it has been solaced in some part by an abiding faith in the compensating character of random errors!

As a final example of a complex and baffling special problem, let us consider the expenditures made for the management of national forests. Should these be treated as costs of 'the government in business'—the business of growing timber? This would mean treating the national forests the same as municipal waterworks, a port authority, or any other government owned public utility; in that case, these costs would not enter into our tabulation, since the costs of all goverment industries have been omitted on the assumption that they are recouped through the related 'public prices'. Or, on the other hand, should outlays for national forests be regarded as current outlays in aid of non-agricultural production? That is the position we have adopted (with allowance for the recreational and other incidental services performed by the Forest Service) on the assumption that during the long period that must intervene before these investments are liquidated there may be a fundamental reorientation of the place of national forests in our social economy.

It is admitted frankly that the results of this study are characterized by great inexactitude. Further, it is our belief that any attempt to calculate the character and incidence of the benefits of government expenditures will be subject inevitably to a wide margin of indeterminateness. Sources of almost certain difficulties are found in connection with the size of the task, the deficiencies in available data, and the necessity of resting major decisions upon nothing more tangible than personal judgment and an individual philosophy of government. There was no escape for us from the necessity of foregoing exactness and accepting a wide margin of possible error in order to conserve time, and hoping for approximate accuracy in billions of dollars in the face of many misallocated millions. The seeming precision of the figures in the appended tabulation should not be interpreted as denoting razor edge accuracy; it simply results from the absence of any

adjustment of figures obtained in applying distribution ratios to official data.

The inadequacy of basic data is an old story to every person working on practical statistical problems, and perhaps difficulties of this sort are no greater here than those encountered on other statistical battlefronts. It is probable, moreover, that time will bring an improvement in the character of basic fiscal data, and thus the objective hurdles may be lowered. It is with respect to the fundamental principles, or 'philosophy', of allocation, that the opportunities are greatest for major divergencies of opinion concerning procedures. It is the subjective barriers that threaten to remain insurmountable for a long time to come—so long, indeed, as individuals differ in their theories of the relationship between government and the governed. If the principles of allocation we have adopted should be challenged by persons who make radically different basic assumptions, or who have contrary philosophies of government, it is likely that a hopeless impasse must ensue—an impasse from which there is no escape either by compromise or by appeal to any objective standards. In the face of a challenge to our own position, we can only say in its defense that to us it seems logical and reasonable—a contention, however, that is not likely to convince the critic. Some compromise may be made, but in the final analysis there is no entirely satisfying compromise as to what constitutes 'reasonableness'. Nevertheless, we feel that the task merits a brave attack, in the hope that patience and openmindedness may in the end be productive of valuable results.

Appendix

Table 1 is a summary covering the expenditures of all government units. Sources of the basic data on which this table is grounded have already been indicated. Also, as stated previously, figures appearing in the 'transfer' column are more heterogeneous and therefore less significant than are the figures appearing in other columns. For obvious reasons, 'transfer' items are excluded from the computation of percentages.

Table 2 is presented in order to show distribution of federal expenditures in considerable detail. The listing of items follows closely the order and phraseology found in the Report of the Secretary of the Treasury. Explanation of the treatment accorded individual items, and the reasons, would require too voluminous notes for inclusion here. The alternative extreme of showing summary figures for departments and agencies would conceal the method of analysis. Even the figures used here in some cases do not reveal the subsidiary breakdowns what were necessarily made in the calculations.

TABLE I

DISTRIBUTION OF GOVERNMENT EXPENDITURES, FISCAL YEAR 1936

(absolute figures in dollars)

ORGANIZATION UNIT OR APPROPRIATION ITEM	EXPENDITURES DIRECTLY PRODUCTIVE OF FINAL UTILITIES AVAILABLE TO:		EXPENDITURES FACILITATING PRODUCTIVE ACTIVITIES OF:		TRANSFERS OR LOANS WITH RECOVERY EXPECTED
	Farm population	Non-farm population	Farm enterprises	Non-farm enterprises	
(1)	(2)	(3)	(4)	(5)	(6)
Federal[1]	494,648,364	1,955,412,431	644,676,781	1,265,233,668	4,488,632,142
Education, state and local[2]	365,346,740	1,488,323,954	3,703,674	46,025,632	346,600,000
Emergency relief, state and local[3]	68,536,290	377,777,120	35,207,545	133,981,300	364,293,093
State and local, all other[4]	248,969,743	2,366,594,679	246,596,279	1,061,493,927	1,957,050,314
Grand total	1,177,501,137	6,188,108,184	930,184,279	2,506,734,527	7,156,575,549
Per cent	10.90	57.28	8.61	23.21	

The footnotes to this table are on pp. 330-1.

Notes to Table 1

[1] See Table 2 for detailed breakdown of component items.

[2] Total expenditures estimated as $2,250 million, on basis of information furnished by United States Office of Education. Payments of principal and interest on bonds, loan repayments, refunds, etc., are not included in the apportioned benefits, but are treated as transfer items. All expenditures for institutions of collegiate rank and special schools (blind, delinquent, etc.) are divided, as between farm and non-farm, on the basis of total population. Expenditures for primary and secondary schools are allocated on the basis of per pupil costs, with allowance for difference in cost per pupil as between farm and non-farm children. Cost per farm child estimated as 95 per cent of average cost per *rural* child ('rural' is broader than 'farm', as the terms are used by the Office of Education). Cost computations are based on number of pupils enrolled, not on basis of average daily attendance. One and 3 per cent, respectively, of farm and non-farm allocated benefits, have been assigned to the 'production' category. This distribution reflects roughly the relative importance of costs of specialized vocational training.

[3] Based on data and interpretive information furnished by Statistics and Research Division of the WPA. Does not include 'outdoor' relief from local funds, or expenditures for poor farms and other eleemosynary institutions. All direct relief payments treated as transfer items. The allocation of benefits is based on an analysis of the types of work relief project. It has been assumed that the benefits are received by persons who utilize the services from the completed projects rather than by the persons who perform relief labor; for example, benefits from a highway project are assigned to the users of the highway, not to the relief laborers who worked on its construction. It is impracticable to show herewith any detailed breakdown of expenditures by types of project.

[4] As explained in the text, these state and local totals have been built up by a sampling and adjusting process. Space does not allow presentation of the working sheets for each of the eight sample states. Since the methods and logic employed in the analysis of state and local figures are identical with those employed in relation to federal data, an exhibit of detailed figures

for one or two of the sample states would be of negligible value as a supplement to Table 2. Furthermore, among the data for any individual state certain items will appear eccentric, in part because of conditions peculiar to the state and in part because of the methods of analysis. The influence of the second factor, methods of analysis, may be illustrated by a reference to the treatment of highway expenditures. It was decided that 80 per cent of the benefits of highway expenditures should be allocated to non-farm and 20 per cent to farm residents, as a pattern of distribution for the country as a whole. The application of this 80-20 formula to the highway expenditures of an individual state may result in a distorted picture; these distortions are offset in the aggregate, however, and the final results are believed to be representative of the over-all situation.

TABLE 2

DISTRIBUTION OF FEDERAL EXPENDITURES, FISCAL YEAR 1936[1]

(in dollars)

ORGANIZATION UNIT OR APPROPRIATION ITEM	EXPENDITURES DIRECTLY PRODUCTIVE OF FINAL UTILITIES AVAILABLE TO: Farm population	Non-farm population	EXPENDITURES FACILITATING PRODUCTIVE ACTIVITIES OF: Farm enterprises	Non-farm enterprises	TRANSFERS OR LOANS WITH RECOVERY EXPECTED
(1)	(2)	(3)	(4)	(5)	(6)
A ASSIGNED ENTIRELY TO FINAL UTILITIES: DIVIDED BETWEEN FARM AND NON-FARM ON POPULATION BASIS					
Legislative, Botanic Garden	27,029	81,957			
Independent Offices					
Amer. Battle Monuments Comm.	53,445	162,061			
Cal. Pacific International Exposition	40,506	122,825			
Chicago World's Fair Centennial Celebration	5,868	17,793			
Fed. Alcohol Control Adm.	24,338	73,800			
Fed. Deposit Insurance Corp.	348	1,057			
George Washington Bicentennial Comm.	4,327	13,122			
Great Lakes Exposition	15,120	45,846			
Smithsonian Institution	339,929	1,030,754			
Texas Centennial Exposition	217,181	658,548			
War Finance Corporation[2]	21,849	66,252			
Celebration of Bicentennial of Patrick Henry	2,480	7,520			
D.C.-Va. Boundary Comm.	1,525	4,624			
Investigation of enforcement of prohibition, etc.	8	25			
Operations under Mineral Act	27,087	82,136			
Protection of U.S. in oil leases	11,401	34,572			
Jefferson Memorial Comm.	3,594	10,896			
U.S. Constit. Sesquicentennial Comm.	2,472	7,494			
Social Security Bd., adm. exp.	146,845	445,270			
Veterans' Administration					
General overhead	275,182	834,423			
Hospitals, burials, etc.	20,108,672	60,974,681			
Hospital & domiciliary facilities & service	468,527	1,420,696			

Emergency Relief, Vet. Adm.				
Administrative expenses	2,489	7,549		
Construction & improvement of bldgs.	226,616	687,159		
Nat. Ind. Recovery, Vet. Adm.	249,133	755,434		
Printing and binding	30,893	93,675		
Department of the Interior				
Comm. of Fine Arts	2,438	7,394		
G. R. Clark Sesquicentennial Comm.	7,641	23,168		
Mt. Rushmore Nat. Mem. Comm.	12,120	36,753		
Perry's Victory Mem. Comm.	500	1,516		
War Minerals Relief Comm.	5,013	15,200		
Office of Education	218,171	661,549		14,466,067
Department of Justice				
Office of Attorney General				
Bureau of Prohibition	294	892		
Tax and Penalties Unit	54,311	164,683		
Veterans' Insurance Litigation	186,857	566,599		
Department of Labor				
Children's Bureau	92,318	279,930		
Treasury Department				
Public Health Service	3,343,436	10,138,161		
Treasury, misc., to promote education of blind	18,600	56,400		
Adm. exp., Adj. Comp. Act of 1936	345,483	1,047,595		
Emerg. Relief, Treas. Adm. Exp.	5,462,036	16,562,301		
War Department				
Nonmilitary activity, Quartermaster Corps., cemetarial exp.	182,274	552,702		
Total	32,238,356	97,755,012		14,466,067
B ASSIGNED ENTIRELY TO PRODUCTIVE ACTIVITIES: DIVIDED BETWEEN FARM AND NON-FARM ON POPULATION BASIS				
Department of Labor				
U.S. Employment Service			3,465,642	10,508,720

[1] Totals for individual items based on report of the Secretary of the Treasury, 1936.

[2] Overhead of liquidation expenses.

TABLE 2

DISTRIBUTION OF FEDERAL EXPENDITURES, FISCAL YEAR 1936 (Cont.)

(in dollars)

ORGANIZATION UNIT OR APPROPRIATION ITEM	EXPENDITURES DIRECTLY PRODUCTIVE OF FINAL UTILITIES AVAILABLE TO: Farm population	Non-farm population	EXPENDITURES FACILITATING PRODUCTIVE ACTIVITIES OF: Farm enterprises	Non-farm enterprises	TRANSFERS OR LOANS WITH RECOVERY EXPECTED
(1)	(2)	(3)	(4)	(5)	(6)
C ASSIGNED 50 PER CENT TO FINAL UTILITIES, 50 PER CENT TO PRODUCTIVE ACTIVITIES: DIVIDED BETWEEN FARM AND NON-FARM ON POPULATION BASIS					
Legislative	2,848,641	8,637,814	2,848,641	8,637,814	
Executive Office	52,648	159,641	52,648	159,641	
Independent Offices					
Advisory Comm. on allotments	2,123	6,439	2,124	6,440	
Board of Tax Appeals	63,983	194,014	63,983	194,013	
Central Statistical Board	16,944	51,379	16,944	51,379	
Civil Service Commission	305,910	927,597	305,909	927,596	
Employees Compensation Comm.	354,294	1,074,311	354,295	1,074,312	3,553,781
General Accounting Office	985,142	2,987,203	985,141	2,987,203	
National Archives	43,375	131,527	43,376	131,526	
National Emergency Council	183,505	556,433	183,504	556,433	
Special Adviser to President on Foreign Trade	678	2,058	678	2,058	
U.S. Supreme Court Building	85,296	258,638	85,295	258,637	
U.S. Tariff Commission	116,964	354,665	116,964	354,665	
Export-Import Banks of Wash.	10,558	32,013	10,558	32,013	
Department of the Interior					
General Land Office	188,027	570,147	188,027	570,148	1,757,590
Geological Survey	408,602	1,238,988	408,602	1,238,988	
Department of Justice					
Office of Attorney General					
Salaries and expenses	269,185	816,240	269,186	816,241	
Misc. Objects	78,829	239,029	78,829	239,030	
Bureau of Prisons	29,913	90,705	29,913	90,704	
Division of Accounts	841	2,549	840	2,548	
Fed. Bur. of Investigations	665,747	2,018,714	665,746	2,018,715	
Alcohol Beverage Unit	1,587	4,813	1,587	4,813	

The Judiciary	68,558	207,886	68,558	207,887	
Sal. & exp., Supreme Court	288,498	874,800	288,498	874,799	
Sal. & exp. of judges	14,378	43,583	14,378	43,584	
Court of Customs & Patent Appeals	30,687	93,050	30,687	93,051	
U.S. Customs Court	29,112	88,275	29,112	88,275	
Court of Claims	1,768,249	5,361,789	1,768,249	5,361,789	
Expense, U.S. courts	1,284	3,893	1,284	3,894	
Judicial, misc.	1,368,895	4,153,876	1,368,895	4,153,875	
Penal & correctional institutions					
Department of Labor					
Immigration & Naturalization Serv.	1,206,752	3,659,186	1,206,753	3,659,186	
Navy Department (all except private relief acts)	65,480,164	198,552,756	65,480,164	198,552,757	
Post Office Department					
Post Office deficiency	10,668,819	32,350,612	10,668,819	32,350,611	
Department of State					
General	2,167,659	6,572,902	2,167,660	6,572,903	40,350
Foreign Serv. Retirement Fund	20,137	61,062	20,138	61,063	
Tresury Department					
Office of the Secretary, etc.	10,512,536	31,876,723	10,512,537	31,876,724	
Bur. of Engraving & Printing	667,561	2,024,215	667,560	2,024,215	
Secret Service Division	106,767	323,745	106,767	323,746	
Bur. of the Mint	146,399	443,919	146,399	443,920	
Treasury, misc.[3]	38,483	116,691	38,484	116,692	
Special Deposit Accts.	5,850	17,737	5,849	17,737	
Misc. Accts: Exp., Emg. Banking, Gold & Silver	239,053	724,869	239,053	724,870	
Procurement Division					
Sal., exp., repairs, etc.	854,794	2,591,956	854,794	2,591,956	
Construction & sites	8,296,874	25,158,263	8,296,873	25,158,262	
War Department					
Nat. expense, direct expenses	42,237,726	128,075,685	42,237,726	128,075,685	
Nonmilitary activities, misc.	9,655	29,278	9,656	29,278	
Rivers & harbors, flood control and relief	14,789,877	44,846,726	14,789,878	44,846,726	
Special Accounts, D.C.	707,001	2,143,808	707,001	2,143,809	
Total	168,438,560	510,752,202	168,438,562	510,752,211	5,351,721

D ASSIGNED ENTIRELY TO FARM INTERESTS

Independent Offices					
Farm Credit Adm.					
Salaries and expenses			5,998,743		
Fed. Farm Mortgage Corp.			2,395		
Miscellaneous			9,015		

[3] Character of items not ascertained.

TABLE 2

DISTRIBUTION OF FEDERAL EXPENDITURES, FISCAL YEAR 1936 (Cont.)

(in dollars)

ORGANIZATION UNIT OR APPROPRIATION ITEM	EXPENDITURES DIRECTLY PRODUCTIVE OF FINAL UTILITIES AVAILABLE TO: Farm population	Non-farm population	EXPENDITURES FACILITATING PRODUCTIVE ACTIVITIES OF: Farm enterprises	Non-farm enterprises	TRANSFERS OR LOANS WITH RECOVERY EXPECTED
(1)	(2)	(3)	(4)	(5)	(6)
D ASSIGNED ENTIRELY TO FARM INTERESTS (cont.)					
Department of Agriculture					
Experiment Stations			5,206,448		
Special research fund			112,194		
Extension Service	150,000		2,689,497		
Coop. Agri. Extension Work	4,665,842		11,997,881		
Bur. of Agr. Engineering			453,124		
Conservation Service			20,688,113		
Agriculture, misc.			696,296		
Special Deposit Accts.			346,296		
Conservation & use of agr. land resources			490,014		
Agricultural Adjustment Adm.					
Adm. of Cotton Act of 1934			3,746,299		
Exp. & dom. cons. of agr. commod.			1,000,000		31,241,789
Salaries and general expenses			32,092,780		
N.I.R.A., codes, etc			50,344		
Department of the Interior					
Bureau of Reclamation			2,129,060		23,805,938
Treasury Department					
Fed. Land Banks, payts, to Fed. Land Banks, int. reduced			29,064,981		
Total	4,815,842		116,773,480		55,047,727
E ASSIGNED TO NON-FARM INTERESTS					
Independent Offices					
Fed. Home Loan Bank Bd.		386,979		386,979	
Nat. Mediation Bd.				343,833	
R.R. Retirement Act, adm. exp.		350,825			
Federal Housing Adm.		138			
Savings & loan promotion, Fed. Home Loan Bank Bd.		313,698			

Department of Commerce				
Fed. Employment Stabilization Bd.				1,304
Bureau of Lighthouses	5,264,755			5,264,755
Patent Office				4,639,077
Soc. Security Act, adm. exp.	62,453			
Department of the Interior				
Nat. Bituminous Coal Comm.				199,311
Department of Justice				
Territorial Courts				88,500
Panama Canal Zone, court sal.				45,164
U.S. Court for China				43,861
Department of Labor				
Bituminous Coal Labor Bd.				16,694
Nat. Steel Labor Rel. Bd.				14,322
Textile Labor Rel. Bd.				81,388
Social Security Act, adm. exp.	84,611			
Total	6,463,459			11,125,188
	F	ASSIGNED VARIOUSLY, ACCORDING TO SPECIFIC EVIDENCE BY ITEMS		
Independent Offices				
Elec. Home & Farm Auth.[4]	123,196	97,958	21,741	
Fed. Communications Comm.[5]	341,039	1,034,120		916,773
Fed. Coordinator of Trans.[6]	53,463	162,113	40,097	283,266
Fed. Power Comm.[7]	127,577	386,848	63,789	450,635
Fed. Trade Comm.[8]	228,867	693,982		922,849

(Key to abbreviations: C = Consumption; P = Production, F = Farm; NF = Non-Farm)

[4] 60% F, 40% NF; both 85% C and 15% P.

[5] 40% P, all NF; balance per capita.

[6] 60% P, of which 50% is directly to railroads; balance of P and all C per capita.

[7] 50% P, of which 50% is directly to industry; balance of P and all C on population basis.

[8] 50% P, all to NF; C on population basis.

TABLE 2

DISTRIBUTION OF FEDERAL EXPENDITURES, FISCAL YEAR 1936 (Cont.)

(*in dollars*)

ORGANIZATION UNIT OR APPROPRIATION ITEM	EXPENDITURES DIRECTLY PRODUCTIVE OF FINAL UTILITIES AVAILABLE TO: Farm population	Non-farm population	EXPENDITURES FACILITATING PRODUCTIVE ACTIVITIES OF: Farm enterprises	Non-farm enterprises	TRANSFERS OR LOANS WITH RECOVERY EXPECTED
(1)	(2)	(3)	(4)	(5)	(6)
F ASSIGNED VARIOUSLY, ACCORDING TO SPECIFIC EVIDENCE BY ITEMS (cont.)					
Interstate Commerce Comm.[9]	602,388	1,826,597	451,791	3,191,687	
Nat. Advisory Comm. for Aeronautics[10]	185,997	563,990		499,992	
Nat. Banking Emer. Act[11]	5,790	17,556		23,346	
Nat. Capital Park and Planning Comm.[12]	79,559	562,047			
Nat. Labor Relations Bd.			32,612	619,625	
Nat. Resources Comm.[13]	38,364	116,330	153,456	465,318	
Office of Coordinator for Ind. Cooperation[14]	1,626	4,932		26,270	
Prison Industries Reorg. Adm.[15]	9,470	28,716		25,458	
R.R. Adm. & Trans. Act[16]					6,805,938
Securities & Exchange Comm.[17]	517,281	1,568,529		893,919	
Civ. Serv. Retirement and Disability Fund					40,000,000
Canal Zone Retirement Fund					500,000
Social Security Board					
Grants to States					29,361,369
Veterans' Administration					
Adj. serv. & dependent pay					1,088,167
Military & naval ins.					94,154,808
Emer. Relief, Vet. Adm.					
Army & Navy pensions					399,065,694
Private relief acts					6,536
Adj. Serv. Fund & approp. from Vet. Adm.					1,773,544,440
Farm Credit Administration					
Agr. marketing revolving fund					6,617,547
Emer. relief, F.C.A. crop loans					12,204,061
Emergency Cons. Work (CCC)*	37,427,296	108,706,940	162,944,384	273,387,790	11,000,000
Fed. Civ. Works Adm. (CWA)					702,744
Fed. Emer. Relief Adm. (FERA)*	26,248,210	137,124,266	10,724,556	29,050,030	290,239,303

Fed. Emer. Adm. of Pub. Wks.					
Administrative expenses[18]	2,974,957	14,804,973	1,687,819	6,875,619	
Loans and grants					61,087,090
Rural Electrification Adm.[19]	259,186	120,954	259,186	51,837	733,796
Works Progress Adm. (WPA)*	160,397,174	837,698,956	65,509,610	177,633,971	64,562,871
Fed. Emergency Housing*	286,000	9,282,000	182,000	3,250,000	9,307,823
Subsistence homesteads & Resettlement Adm.*	13,422,278	9,833,433	18,480,297	5,127,914	109,873,583
Nat. Ind. Recovery Adm.[20]	273,805	1,551,559		2,738,047	
Tennessee Valley Authority*			3,000,000	150,000	45,579,696
Department of Agriculture					
Office of Secretary, Office of Inf. & Lib.	852,525	3,248,120	2,762,181	1,662,424	
Weather Bureau[21]	425,847	1,291,279	858,563	858,563	
Bur. of Animal Industry	50,000	50,000	9,860,367	1,000,000	
Meat Inspec., Bur. of Anim. Ind.	20,000	100,046			
Bur. of Dairy Industry			550,000	76,798	

[9] 60% P, of which 50% is directly to railroads; balance of P and all C per capita.
[10] 40% P, all to industry; all C on population basis.
[11] 50% P, all to banks; all C on population basis.
[12] 50% directly to Washington, D. C. area; balance on population basis.
[13] 20% C, 80% P,; both C and P on population basis.
[14] 80% P, all to NF; C on population basis.
[15] 40% P, all to NF; all C on population basis.
[16] All payments for damages suffered 20 years ago.
[17] 30% P, all to NF; C, 15% F and 85% NF.
*Distributed by special advice.
[18] According to type of project.
[19] Administration expense; 75% F.
[20] 60% P, all NF; 15% of C to F.
[21] 50% P, half to F.

TABLE 2

DISTRIBUTION OF FEDERAL EXPENDITURES, FISCAL YEAR 1936 (Cont.)

(in dollars)

ORGANIZATION UNIT OR APPROPRIATION ITEM	EXPENDITURES DIRECTLY PRODUCTIVE OF FINAL UTILITIES AVAILABLE TO: Farm population	Non-farm population	EXPENDITURES FACILITATING PRODUCTIVE ACTIVITIES OF: Farm enterprises	Non-farm enterprises	TRANSFERS OR LOANS WITH RECOVERY EXPECTED
(1)	(2)	(3)	(4)	(5)	(6)
F ASSIGNED VARIOUSLY, ACCORDING TO SPECIFIC EVIDENCE BY ITEMS (cont.)					
Bur. of Plant Industry	100,000	200,000	3,978,956	225,000	
Forest Service	815,000	945,000	2,635,000	20,246,098	2,500,000
Payts. to States from N.F. funds					837,730
Acq. of land for watershed & stream protection					19,582
Bur. of Chemistry & Soils	5,500	16,500	1,091,007	154,000	
Bur. of Entomol. & Plant Quar.	1,000,000	4,500,000	9,278,690	1,500,000	
Bur. of Biological Survey	851,555	2,582,134	350,000	350,000	
Bur. of Agr. Economics	51,000	76,000	3,830,218	1,655,000	
Bur. of Home Economics	87,995	100,000			
Enforcement of Grain Futures Act			88,406	100,000	
Food and Drug Adm.	377,514	1,144,720	100,000	300,000	
Public highways (all items)[22]	19,647,850	143,429,308	29,471,775	53,049,196	
Agricultural Adjustment Adm.					
Payts. for Agr. adjust.[23]					160,387,216
Purchase of sugar from processing taxes[24]	25,000	85,951			
Elimination of diseased cattle	125,000	375,000	465,044		
Refunding processing tax					9,063,435
Relief in stricken agr. areas		80,000	2,474,382		50,000
Department of Commerce					
Office of Secretary (prorated)	105,231	690,317	52,616	1,256,462	
Bur. of Air Commerce	200,000	1,800,000		4,978,192	
Bur. of For. & Dom. Commerce	100,000	300,000	150,000	2,336,770	
Bur. of Nav. & S.S. Inspec.	75,000	1,122,253		600,000	
Nat. Bur. of Standards	382,548	1,159,986		300,000	
Coast & Geodetic Survey	372,000	1,128,000		1,689,233	
Bur. of Fisheries	60,000	340,000		1,239,471	
Private Relief Acts					15,696
Commerce, misc. (prorated)	3,985	26,144	1,993	47,586	
Bur. of Census	935,300	2,836,072	935,300	4,336,072	

Department of the Interior					
Office of Secretary (prorated)	700,274	1,716,708	404,829	214,356	
Petroleum Administration	51,577	156,395		400,000	
Puerto Rico Reconstruction Adm.					6,452,535
Nat. Park Service	5,191,629	15,742,360	907,432	2,751,568	
Gov. in the Territories	305,496	926,344	305,497	3,390,027	
Beneficiaries	100,000	2,943,208			
Bur. of Mines	12,000	668,000		1,544,352	
Private Relief Acts					29,445
Interior, civil, misc.	9,542	17,862	6,191	5,836	
Special Deposit Accts.					605,708
Indian Affairs*	10,015,050	7,828,623	6,882,237	3,378,742	771,020
Boulder Canyon project					23,772,035
Department of Justice					
The Judiciary, priv. rel. acts					135,355
Department of Labor					
Office of the Secretary (prorated)	70,746	226,388	239,250	749,909	
Bur. of Labor Statistics[25]	75,000	472,481	75,000	472,482	
Private relief acts					18,662
Women's Bureau		20,000		133,454	
Labor, misc.					87,236
Soc. Sec. Act, Grants to States					2,162,111
Navy Department					
Private relief acts					308,293
Post Office Departments					
Private relief acts					88,770

[22] F portion 40% C, NF 73% C.

[23] Cotton adjustment payments.

[24] Relief distribution of surplus commodities.

* Distributed by special advice.

[25] $150,000 to F.

TABLE 2

DISTRIBUTION OF FEDERAL EXPENDITURES, FISCAL YEAR 1936 (Cont.)

(in dollars)

ORGANIZATION UNIT OR APPROPRIATION ITEM	EXPENDITURES DIRECTLY PRODUCTIVE OF FINAL UTILITIES AVAILABLE TO: Farm population	Non-farm population	EXPENDITURES FACILITATING PRODUCTIVE ACTIVITIES OF: Farm enterprises	Non-farm enterprises	TRANSFERS OR LOANS WITH RECOVERY EXPECTED
(1)	(2)	(3)	(4)	(5)	(6)
F ASSIGNED VARIOUSLY, ACCORDING TO SPECIFIC EVIDENCE BY ITEMS (cont.)					
Treasury Department					
Fed. Alcohol Adm.[26]	17,289	52,425		69,715	
Bur. of Narcotics[27]	183,334	555,916		492,834	
Coast Guard[28]	1,451,319	13,178,912	1,451,319	13,178,912	
Private relief acts					112,779
Payts. of int. on Phill. Dep.					1,100,000
Other items					5,079
Refunds of receipts					45,214,766
Soc. Sec. Act, Pub. Health Serv.					2,451,141
Misc. accts., subscriptions to paid-in surplus					32,467,995
Subscriptions to preferred shares, Fed. savings & loans					16,836,000
War Department					
Nonmilitary activity, Signal Corps	13,599	41,235	13,599	88,237	
Bur. of Insular Affairs	14,880	45,117	14,879	118,043	72,924
War claims & relief acts					526,784
Rivers & harvors, improvements[29]			12,000,000	94,403,940	
Panama Canal[30]	671,498	2,036,155	1,213,028	6,909,931	
Special Accounts					
Int. on Public Debt					747,896,614
Public debt retirements					403,342,250
Total	289,155,606	1,340,441,758	355,999,097	732,847,549	4,413,766,627
Grand total, Fed. exp.	494,648,364	1,955,412,431	644,676,781	1,265,233,668	4,488,632,142
Grand total, all columns $8,848,603,386					

[26] 50% P to NF; balance per capita.

[27] 40% to NF; balance per capita.

[28] 60% to NF; balance per capita.

[29] Allocation to F is arbitrary.

[30] 50% P, of which one-tenth to F; balance per capita.

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