STUDIES IN

Income and Wealth

VOLUME ONE

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Income and Wealth

VOLUME ONE

BY THE CONFERENCE ON RESEARCH

IN NATIONAL INCOME AND WEALTH

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

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PREFATORY NOTE

In 1935 the National Bureau of Economic Research invited the Departments of Economics in six universities to join with it in developing a program of cooperative research. The acceptance of this invitation led to the forming of a Universities-National Bureau Committee to consider plans and procedures. To make a practical trial of what might be accomplished, this Committee selected two fields of research that can be cultivated most efficiently through the systematic cooperation of numerous agencies. Accordingly two 'Conferences' were organized, one on Price Research, the other on Research in National Income and Wealth. Both were set up as independent bodies that should seek to enlist the individuals and organizations, public or private, that are contributing most to knowledge in their respective fields.

The cordial participation by many active workers in these two experiments, the readiness with which they pooled their several contributions, and revealed their future plans, their eagerness to achieve a common understanding on matters concerning which they had held conflicting opinions have been most gratifying to all concerned. Among the tangible results has been the planning of certain researches that are now in progress and that promise to substitute definite data for guesswork on fundamental issues. Not less necessary for the growth of knowledge, though perhaps less easy for laymen to grasp, have been the efforts of the cooperating specialists to clarify the concepts with which they work and to define their technical terms in ways that are precise on the one hand and on the other hand are adapted to practical work with the available materials.

This volume presents the Income Conference's striving for clarification of working ideas. Every candid investigator who has

tried to make, or to use properly, estimates of national income realizes how difficult it is to know just what the results mean. Those who have not wrestled long with the highly technical problems that crop up in such work can scarcely appreciate their intricacy, or how considerable are the differences in results that are produced by the use of slightly different definitions. No step toward the improvement of income estimates in this country and abroad is more important than the efforts made by the writers of the following papers to reach a common understanding of their concepts and their statistical operations.

WESLEY C. MITCHELL
DIRECTOR OF RESEARCH

FOREWORD

THIS volume is the first in a series of studies by the Conference on Research in National Income and Wealth. The Conference held its first meeting in January 1936, at the invitation of the National Bureau of Economic Research; and became a permanent body by its own decision, to pursue the following aims:

(1) To exchange information among the various organizations and individuals carrying on or planning studies in the field, to prevent overlapping, to establish conditions for more intelligent division of work, and to facilitate cooperative activity;

(2) To agree upon the most appropriate concepts, terminology and methods of exposition;

(3) To work out plans for research, calling attention to the particular segments of the field that demand more primary data or more analytical study;

(4) To stimulate cooperative research in the field by initiating and sponsoring cooperative studies, and by using the facilities of the Conference to assist in their prosecution.

At its first meeting the Conference included representatives from the Departments of Economics of the following universities; Chicago, Columbia, Harvard, Minnesota, Pennsylvania and Wisconsin; from the Research Divisions of the United States Bureau of Foreign and Domestic Commerce, and the United States Bureau of Agricultural Economics; the Division of Research and Statistics of the United States Treasury; the United States Bureau of Labor Statistics; the Industrial Section of the National Resources Committee; the Central Statistical Board; the Division of Research and Statistics, Board of Governors of the Federal Reserve System; the National Industrial Conference Board; Dun and Bradstreet; and the National Bureau of Economic Re-

search. The Conference was later joined by representatives from the United States Bureau of the Census, the Brookings Institution, the Research Division of the Federal Deposit Insurance Corporation, the American Statistical Association, and the Department of Economics of the University of Cincinnati.

This volume contains the reports presented, under arrangements made through the Conference, at the meetings of the American Economic and American Statistical Associations in December 1936 at Chicago, as well as the reports presented at the second meeting of the Conference in January 1937 at New York. It includes also the discussion to which these reports gave rise, both at the Association and Conference meetings and subsequently by correspondence.

From time to time the Conference will probably find it advisable to publish the studies growing out of its activity. Such studies may be in the nature of reports on various problems in the field prepared by individual students; tabulations and analyses of new primary data prepared at the initiative of the Conference; or cooperative studies undertaken or sponsored by the Conference.

The editing of the reports and the discussion was done by Milton Friedman, and was reviewed by the editorial committee of the Conference: Simon Kuznets, Chairman; M. A. Copeland and A. W. Marget.

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Part One

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CONCEPTS OF NATIONAL INCOME

M. A. COPELAND

I National Income and Social Income

THE PURPOSES of this memorandum are first, to indicate the present status of concepts of national or other social income, and to outline the most useful types of income breakdown; second, to consider some of the questions that are now particularly moot with respect to concepts of national income, and to suggest possible answers.[1] It should be fully recognized that this procedure involves taking sides on issues that are necessarily controversial and that may well continue to be controversial for some time.

In the following discussion references will be made to social income and social wealth. For the world as a whole and for parts of it either smaller or larger than an entire nation there may be need for measures corresponding to those designated as national wealth and national income. The terms 'social wealth' and 'social income' are intended to include both these cases and cases of national wealth and national income.

While this memorandum is focused on concepts of social income, some discussion of social wealth is unavoidable. The writer believes that several moot questions respecting concepts of social income can be discussed adequately only when their relations to questions concerning social wealth are recognized. Indeed, the world's social income may perhaps best be defined briefly as the total value of goods and services entering ultimate human consumption plus the increase in social wealth.

[1] For other discussions of this general problem from somewhat different points of view see Clark Warburton, Part Two, and Gerhard Colm, Part Five.

For the purposes of defining social wealth and social income precisely a society should be conceived as consisting of two parts: (a) a producing organization or 'economic system'; (b) the families or individuals who contribute their labor or the services of their property to the economic system, and who receive the benefits of its operation. The concepts of wealth and income are essentially accounting concepts, or more precisely, financial statement concepts. Statements of wealth and income for an economic system correspond closely to the balance sheet and the revenue-income-and-profit statement for any single business enterprise. Indeed, existing methods of estimating social income consist in consolidating or putting together either (a) the financial statements for the businesses and other enterprises of which the economic system consists, or (b) the financial statements for families or individuals conceived as consumers, investors, savers and workers. In estimating social wealth all balance sheets are consolidated simultaneously.

In the consolidation of all balance sheets, assets that are in the nature of claims by one set of parties upon another are canceled by the corresponding liabilities of the second set of parties, so that the vast bulk of remaining assets (or social wealth) at least for the entire world, consists of tangible assets. It is convenient to group these assets under two heads: (1) durable goods for which depreciation or depletion accounts may be assumed to be maintained; (2) short-lived goods which are inventoried annually. Against these assets stand the various accounts held by individuals —bonds, stocks, mortgages, bank deposits, insurance policies, direct investments, etc. The balance sheet may be set up thus:

SOCIAL (OR NATIONAL) BALANCE SHEET

ASSETS	EQUITIES
(1) Durable goods	(11) Bonds and mortgages held by individuals
(2) Inventories	(12) Stocks held by individuals
(3) to (8) All other assets _____	(13) Bank deposits of individuals
(9) Total wealth	(14) Insurance policies for the benefit of individuals
	(15) Direct investments, etc.

SOCIAL (OR NATIONAL) BALANCE SHEET—*Cont.*

	EQUITIES
	(16) to (18) All other equities _____
	(19) Total individual equities in social (or national) wealth

The process of consolidating income statements is more complicated and calls for fuller discussion. It is well to recognize that social income estimates may be made by attempting to consolidate either the income statements of the businesses and other enterprises of which the economic system consists, or the personal income and expenditure statements of families and individuals.[2]

(1) The commonest method of estimating social income in this country uses the income statements of businesses and other enterprises, putting them together by a process that is known as the net value product method.

a) For most industry groups this method consists in determining and adding up those items which may be regarded as distributive shares originating in the enterprises of which the industry group consists: [i] payroll and other labor income; [ii] interest and cash dividends paid, less interest and cash dividends received, plus additions to corporate surplus; [iii] entrepreneurial profits; [iv] other distributive shares.

b) The net value product of an industry may also be estimated as follows: [i] gross revenues other than interest and dividends received, less [ii] the cost of those goods and services (purchased from other enterprises) which have been used or sold during the year; less [iii] depletion and depreciation.

(2) A short cut for the second form of the net value product method is sometimes attempted. This consists: [i] in identifying those gross revenues derived from goods and services going to ultimate consumers, and those revenues derived from new wealth produced, whether as replacements or as additions, and [ii] in subtracting depreciation and depletion, as measures of the old durable goods used up during the period under consideration.

[2] Cf. Warburton, Part Two, Sec. I; Colm, Part Five, Sec. I, 3.

(3) Social income may be estimated by adding together the incomes received by families and individuals chiefly in return for the services of their labor and property to the economic system.

(4) Social income may be estimated by adding up the expenditures of individuals for consumption goods and services and the increase in their holdings of equities in social wealth.

It is assumed that in consolidating the accounts of families and individuals for methods (3) and (4) transfer payments (or secondary distribution items) such as gifts are canceled out.

In the existing state of accounts it is inevitable that these different methods of estimating should yield different results, each purporting to be total social income. An ideal system of keeping the various types of income accounts can be conceived, such that if followed, it would ensure that the measurements of social income by the several methods would yield a single unambiguous result. In applying the several methods of estimate to existing records, corrections may be attempted to offset the difficulties due to the divergence between ideal and existing accounting practices, so that the results of the different estimates may approximately agree.

The main purposes of social wealth and income estimates are to provide a summary picture of the condition of an economic system or an exhibit of the value of non-human resources available for its use, to portray the changes in this stock of wealth and to set forth the values of goods and services produced by the economic system during the period under consideration, and to indicate the various distributive shares going to families and individuals for the services of their labor and property. Estimates of wealth and income should show not only the totals for a society, but also a variety of breakdowns that will reveal, on the one hand, the shares derived by the various participants in the economic system and their industrial sources, and, on the other hand, the uses to which their respective shares are put. So far as the value of products or the values of consumption goods and services provide measures of public well-being, social income estimates with appropriate breakdowns afford such general measures of public well-being.

For the economic system of the world as a whole social income measures: (a) the value of goods and services produced or the

value of goods and services entering into human consumption plus the net increase in wealth; (b) the distributive shares or the costs of operating the system under existing methods as measured by the current hire-costs of labor (including entrepreneurial labor) and of wealth.

Because for the world as a whole total social income represents both (a) the value of products 'turned out', 'produced' or 'contributed' by all participants or factors of production taken together, and (b) the total of distributive shares, it is too often assumed that the share in the social income derived through any one industry or by any one group of laborers or property owners represents a contribution to the output of the economic system equal in value to the share received. Thus, Simon Kuznets tells us: "any payment for productive services contributes just as much to the national income total as it takes away from it". He also refers repeatedly to the total income *produced* in the various industry groups, including all legal enterprises but excluding illegal enterprises.[3] Thus, if monopolies, shyster lawyers and fly-by-night promoters who have been careful to keep within the law are classed together as an 'industry group' he would logically speak of the share of national income produced in it. Such statements, in their implication that our existing economic system is fair and just, are strongly reminiscent of the productivity theory. When applied to the shyster lawyer, the lobbyist regardless of what he lobbies for, and the fly-by-night promoter, this view of national income requires us to conclude that, provided these gentlemen are careful to stay within the law, they make contributions to the social income as valuable as the claims upon it that they derive from the practice of their callings. In the writer's opinion such assumptions of equality between contribution and remuneration are gratuitous and entirely unwarranted.

[3] For such ethical implications see *National Income, 1929–1932* (73d Cong., 2d Sess., Senate Doc. 124, 1934), especially pp. 5, 7 and 10.

II Distinctions among Income Concepts

Before proceeding to a consideration of the chief types of breakdown used for social income and of various moot questions in the concepts of social income, we may consider three main types of distinction among income concepts.

1 INCOME 'DERIVED FROM' VS. INCOME 'RECEIVED OR RECEIVABLE IN' AN AREA

For any area short of the entire world, it is important to distinguish between income 'derived from' the wealth and labor employed in it and income 'received or receivable' in it. In the United States since the War the national income received or receivable has been larger than the national income derived from persons and resources employed. The difference, or net income derived from abroad, can be estimated from the balance of international payments statement and certain related information in a manner analogous to that used in estimating the net value product for any individual enterprise.

The distinction represented by the exclusion or inclusion of the item 'income derived from other areas' is usually referred to as 'income produced' vs. 'income received' in an area. Neither term is entirely accurate. 'Income produced' by a nation is open to the productivity theory implication just mentioned, and 'income received' in a nation may not include all income accruing to the inhabitants during the period. The item 'income derived from other areas' may, of course, be either positive or negative.

2 THE RECEIPT AND ACCRUAL BASES FOR REPORTING INCOME

A good many items of income may be reckoned on either of two bases, receipt or accrual. For some items, e.g., payrolls, no substantial difference is involved, at least when the social income for a year or longer period is under consideration. For a good many other items there is, or may be, a considerable difference. Thus, we may consider either actual pension payments or credits to the accounts of prospective pensioners. Again, in connection with interest payments and receipts, allowance may or may not be made

annually for the accumulation of bond discount or for a reserve for bad debts.

Dr. Kuznets' distinction between 'income produced' and 'income paid out' might be conceived as a partial application of the distinction between the receipt and accrual bases, since the income paid out excludes the addition to corporate surplus that accrues to individual equity holders without being received by them. However, 'income paid out' is partly on an accrual basis because it considers banks and certain financial enterprises (e.g., life insurance companies) as agencies receiving incomes for the account of individuals.[4] It is probably better, therefore, to consider 'income paid out' as an item in a breakdown of 'income produced'.

For some income items, for example, some employee pension and benefit items, it may be desirable to present income on both accrual and receipt bases. For various items, for example, interest paid, it is probably not worth while in annual estimates of income to attempt anything but a receipt basis. For incomes derived by corporate proprietorship equity holders some effort should surely be made in the direction of estimating them on an accrual basis.

In general the accrual basis, where it differs appreciably from the receipt basis, represents an increase in the accuracy of apportionment of income between different accounting periods, and the question as to which basis to use is partly one of how great a degree of refinement is warranted and partly one of how wide a deviation from common sense usage any given refinement requires.

3 BASES OF VALUATION

Income estimates may be presented on any of several bases of valuation for the various constituent items. Three principal types of valuation bases may be suggested: (a) current prices; (b) stabilized prices; (c) valuations that attempt to correct existing data for various distortions they are assumed to involve.

[4] *National Income in the United States, 1929–1935* (Bureau of Foreign and Domestic Commerce, 1936) overlooks these accruals. It says, p. 1: "The National Income paid out may be defined as the sum of payments to or receipts by individuals as compensation for economic services rendered."

a) Current prices and values. For most items in a social income estimate the application of current prices and values raises few problems. For two types of items, however, there is ambiguity involved in the application of this basis: [i] imputed or non-money income items, and [ii] incomes accruing to the owners' proprietorship equities.

[i] Imputed items. When imputed items are included in an estimate of social income what prices should be used? Thus, in estimating the value of farm produce consumed on home farms, should realization prices at farms or retail prices in adjacent communities be used? The latter alternative has the advantage of facilitating geographical comparisons of income.

Another important imputed item involving a difficult valuation question is that of net income derived from home ownership. Should the gross rental used for such an estimate be varied from year to year with the year-to-year fluctuation in rents? In general it would seem that this item should be more stable than rents.

[ii] Proprietorship equity items. The ambiguity in the case of incomes accruing to the owners of proprietorship equities may be illustrated for owners of common stock. The owner receives in addition to cash dividends an item represented by the increase in the value of his equity during the year or other period. The three bases chiefly used in determining this income are: the book value of the equity, assuming standard accounting procedure; the value of the equity on the security markets; and an adjusted book value of the equity, assuming that both opening and closing inventories are valued at an average price for the year and that a kind of replacement accounting is used instead of depreciation accounting. If security market value is used, the question arises whether to use the price at a particular instant or the average of several quotations. Even when an average is used, variations in market values are so eccentric as to lead to bizarre results. The use of the adjusted book value basis, in the writer's opinion, should properly be considered as a partial stabilization of prices of the general type considered under (b) below.

b) Stabilized prices. Variations from period to period in social income as measured in current prices reflect in part changes in the physical volume of production of the economic system (or

else in the physical volume of the wealth and labor used in production) and in part changes in prices. For many purposes it is desirable to attempt to correct dollar volume variations in income measured at current prices in such a way that they shall reveal only variations in physical volumes. This may be accomplished by estimates of what social income would have been, had one fixed set of prices prevailed throughout the various periods to be compared.

Theoretically, similar corrections might be applied in making comparisons of social income between communities. Practically, differences in the physical items included in social income in different communities are likely to be greater than are the corresponding differences in any two nearby periods of time for the same community. Hence, such corrections for geographic comparisons offer difficulties so great that no comprehensive attempt to make them has yet been offered, to the writer's knowledge. Even corrections for time comparisons are in a very elementary stage, and one might rightly hesitate to describe as 'comprehensive' any existing attempt to make corrections for price changes in the estimates of the national income of any nation for any two years.

c) Corrected valuations. Conceivably a great variety of corrections of income estimates may be attempted through adjusting valuations in individual items. Actually it may be easier to agree upon the existence of difficulties in the individual income items than upon the corrections to apply to them. Thus, some prevalent accounting practices may be regarded as undesirable, and various efforts might be made to estimate what would have been shown by the records had better accounting practices been followed. Somewhat the same thing may be said with respect to corrections for the eccentricities of government fiscal policy. Again, existing prices may be felt to reflect monopoly conditions, the unequal distribution of wealth and income, the failure to outlaw certain socially undesirable practices, etc. Efforts might be made to make corrections upon the assumption that each of these conditions in turn is replaced by a condition deemed preferable. But such corrections are so fraught with difficulty and so likely to prove arbitrary that there is a strong presumption against making any of them.

III Main Breakdowns of Social Income

Five principal types of breakdown of social income may be considered: by type of payment, industry, area, income class, and object of expenditure.

1 BY TYPE OF PAYMENT OR DISTRIBUTIVE SHARE

Total social income may be conceived as consisting of three main types of income—employee labor income, property income and entrepreneurial profits. These correspond roughly to the wages, interest and profits of classical economic theory. For present purposes pensions and certain other types of compensation may be included under employee labor income along with payrolls. And in addition to interest and accruals pertaining to the holding of bonds or other forms of indebtedness the income that accrues to owners of corporate proprietorship equities may be considered property income. Entrepreneurial profit is a hybrid type of share, including both labor and property income. These three broad classes of income—employee labor income, property income and profits—constitute the chief primary distributive shares in the national dividend.

Classical economic theory would add a fourth—rent. Actually it is better to consider rents and royalties as gross income, since in most cases depreciation and various expenses paid to other enterprises (taxes, repairs, etc.) must be deducted from rent and royalty incomes. Moreover, interest and wage payments, as well as payments to other enterprises, may be made out of gross rent and royalty incomes. The residual after these deductions is more aptly described as net entrepreneurial profit from the ownership and management of properties than as a fourth main type of distributive share.

In addition to the primary distributive shares various redistributions of social income and the ownership of wealth may be made. The chief of these are considered below.

2 BY INDUSTRY

Social income may be broken down according to the industries from which primary distributive shares are derived. Such a break-

down can be made in more detail and on a clearer basis for payroll income than for some of the other distributive shares. Were dependable basic data for entrepreneurial profits available, a detailed industrial breakdown for this type of income could also be made fairly satisfactorily. Difficulties arise, however, in the industrial apportionment of property incomes, owing both to the vertical integration of the large enterprises from which much of this type of income is derived, and to the fact that property income, instead of going directly to individuals, may first pass through the hands of various equity 'holding' companies (including banks and insurance companies).

It should be emphasized that the income derived from an industry does not necessarily represent the industry's contribution to the aggregate social income. Nor can any distributive share derived from any industry be assumed necessarily to represent the contribution of the factor of production renumerated thereby to aggregate social income or aggregate social production. If we question whether the contribution of monopolies to aggregate social income is accurately measured by the income derived from them, we question also whether the contributions of employees and owners of and of investors in those monopolies are measured accurately by the incomes derived from them.

3 BY AREA

When social income is apportioned geographically, we need to distinguish between the income derived from an area and the income received or receivable in it. Thus we may speak of the national income derived from the wealth and people of the United States or the national income received or receivable by the people of the United States. Similarly, we may speak of the income derived from farms and persons working on them, or of the income received or receivable by the farm population. The former is sometimes referred to as the income derived from agriculture and the latter as the income of the farm population.

4 BY INCOME CLASS

While existing data for the United States provide far from satisfactory information for the allocation of social income by income classes, the nature of this type of distribution is in some ways

simpler than that of any of the three preceding types. Classes in the total population, or in families and single persons, or in income recipients may be set up either by establishing absolute class limits in terms of dollars of income per annum or by the use of the quartiles, deciles or percentiles in the frequency distribution, and total social income received or receivable may then be apportioned among the classes so set up.

5 BY OBJECT OF EXPENDITURE

The apportionment of social income by object of expenditure may, as Dr. Warburton points out,[5] provide very illuminating information concerning cyclical variations in the operation of the economic system, particularly if the social income to be distributed is enlarged to represent what may be called the gross value product or the net value product plus depreciation and depletion. We would have then three main types of expenditure: (a) replacements of wealth, (b) savings invested in new wealth, (c) goods and service consumed by ultimate consumers.

It scarcely need be added that various crosses of the five types of breakdown discussed above are both possible and useful.

IV Chief Items of Estimate

As a guide in discussing some of the moot questions in the definition of national income it is helpful to have before us a statement of the main items of estimate, using the net value product method.

For this purpose we may use a form of income statement that can be applied somewhat generally to the various types of enterprise involved, including business corporations, farms, and conceivably even governments. For simplicity we neglect several possible debit and credit items arising in connection with the attempt to put the items here presented upon an accrual basis. We may distinguish six main credit or revenue items and ten main debit items which show either expenses or distributive shares. It is assumed, of course, that the sums of debits and of credits will balance so that by a rearrangement of these items we

[5] Part Two, Sec. II.

may obtain two estimates of the national income derived from the operation of the nation's economic system. The six credit items are:

(1) *Gross revenues from operations not elsewhere specified.* For enterprises other than banks and certain other financial institutions this item will consist chiefly of operating revenues. As noted above, all rents and royalties will be included here as the operating revenues of businesses devoted to the ownership and management of properties. So far as imputed or non-money income items are to be included in the national income estimates, they will presumably be included under this item unless they can be treated directly as distributive shares. For the government, taxes and other revenue receipts would be included under this item.

(2) *Interest income.* This includes all interest income. For banks and certain other financial institutions it will, of course, represent the main item of operating income.

(3) *Cash dividends received.* This item is self-explanatory.

(4) *Increase in tangible assets during the period.* Increases in tangible assets should be included as a credit item when they are due to expenditures noted below under items (10) payrolls; (11) purchases of materials and supplies; (13) taxes, including special assessments. For short-lived assets that may be treated on an inventory basis item (4) will represent a figure which, when deducted from purchases of merchandise and materials and direct labor, will give the expense figure, 'cost of goods sold'.[6] Accountants hesitate to treat item (4) as a revenue item, preferring to treat it as a deduction from purchases in order to give a net expense item for the period, thus: purchases plus opening inventory minus closing inventory equals cost of goods sold. From the point of view of the economic system as a whole, however, it is important to recognize item (4) as a revenue item or addition to the gross value product of the industry. This is true of additions to the long-lived tangible assets as well as of additions to inventories. This item represents force-account additions

[6] It may be noted that item (4) may include income from appreciation of inventories; but such an item would exist if inventories were accumulating, even if prices remained constant. With declining inventories and falling prices this item would assume a negative value.

as distinguished from additions of long-lived assets purchased complete from contractors or other separate enterprises.

(5) *Subsidy revenues derived from government.* This item is self-explanatory.

(6) *Valuation readjustment gains from balance sheet items other than inventories.* Such gains may be shown either (a) through the sale of an asset at a figure above its book value or the retirement of a liability at a figure below its book value, or (b) by virtue of a decision to make an adjustment in the book value other than that provided for by following the established arrangement for writing off an asset or a liability during its life through charges to depreciation or for the accumulation of bond discount, the amortization of a bond premium, etc.

The ten debit items are:

(10) *Payrolls and other forms of employee labor income.* In employee labor income should be included wages, salaries, bonuses, commissions, etc.; also, either the employers' contribution to employees' pensions and other benefit funds or the pensions and other benefits paid from employer-contributed funds directly during the period. Compensation for damages should be excluded [see item (16) below].

(11) *Purchases of merchandise, materials and supplies, and of the services of other enterprises.* Purchases will include payments for a great variety of things—freight, communication, advertising, insurance premiums not elsewhere specified, legal and medical services, electricity, contract repairs, etc.

(12) *Depletion and depreciation of tangible assets not treated as inventories.* It is assumed that except for the short-lived tangible assets depreciation and depletion accounting procedure is followed. Item (12) may be thought of as the decrease in a previously established valuation of any piece of tangible wealth (other than the short-lived goods) due to its use during the years or to the passage of time. Downward readjustments in an established valuation, on the basis of which depreciation or depletion is computed, are included elsewhere [see item (18)].

(13) *Taxes paid, including special assessments.* This item may be thought of as a special case of item (11), but it raises peculiar problems which merit separate discussion below. The line between those taxes paid by individual entrepreneurs which are to

be regarded as paid by enterprises and those which are to be regarded as paid directly by families and individuals will necessarily depend in part upon the national income estimator's decision as to what items of imputed income he will recognize. Thus, if gross rental value of owned homes is included above under (1), taxes on these homes may properly be included here as a business cost.

(14) *Interest paid.* This item and item (15) are self-explanatory.

(15) *Corporate cash dividends paid.*

(16) *Damages to employees and others.* Business compensation expense for damages to all persons should be included here either on an outlay basis or as public liability damage insurance premiums paid.

(17) *Gifts and charitable contributions.* Business contributions to charity and, in the case of the government, certain so-called transfer payments belong here.

(18) *Valuation readjustment losses.* This item is the converse of item (6). It may represent either actual realizations or adjustments in established book valuations. It may arise in connection with durable tangible assets, with receivables and investments, or with liabilities.

(19) *Additions to corporate surplus and (for individual business enterprises) profits.* For any enterprise this item should be equal to the balance remaining after deducting the above nine debit items from the total of the six credit items. For corporations this item plus item (18) minus item (6) corresponds to 'additions to surplus', in Dr. Kuznets' usage.

The above list of items is not intended to be exhaustive but rather to indicate the main types of income statement item that may be used to estimate the net value product derived from any enterprise or industry group. The advantages of setting up, in accounting form, the net value product method of estimate, using such a list of items, include: first, the possibility where adequate data are available of making two estimates that should check with each other; second, the possibility of using different kinds of items for estimating the net value products of different industry groups; third, the avoidance of oversights of important considerations in making estimates for any industry group even

where data are not adequate for a double estimate; fourth, the recognition of the full logical implication of making an assumption or decision respecting the handling of any one moot item. Thus, the bearing of the decision to include or exclude the rental value of owned homes upon the handling of taxes has just been noted. In the writer's opinion, it is not adequate to say that this accounting form has advantages. It is wise to recognize that failure to use such a double entry approach is almost certain to lead either to counting items twice or to important omissions, or both.

Since the net value products of all enterprises may by their very nature be added together to give us a consolidated picture for the entire economic system, we can rearrange the sixteen items discussed above in such a way as to show an outline of an estimate of national income:

(1) gross revenue from operations not elsewhere classified,
plus (4) increase in inventories and force-account additions to durable goods,[7]
plus (5) subsidy revenues derived from government,
less (11) purchases of merchandise, materials, and supplies and services from other enterprises, and
less (13) taxes paid, equals

(20) *The gross social value product derived from the economic system before taking into account valuation adjustments.* Dr. Warburton has called this 'the gross national product' or 'value of final product'. Except for the fact that item (20) deducts 'taxes paid' and broadens the meaning of item (11), by analogy to Census parlance we might also call item (20) 'value added by the year's operations'. It represents a concept whose usefulness has hitherto, in the writer's opinion, received inadequate attention. It will be further discussed below. If from the gross social value product, item (20), we deduct item (12) depreciation and depletion of durable goods, we have

[7] This formula does not involve any commitment on the question, raised by Dr. Kuznets in Part Four, as to whether inventory appreciation should count as income.

The significance of items (1), (4) and (11) in the formula can be more easily visualized if we consider its application to a merchandizing enterprise where force-account additions to plant and equipment are zero: (1) + (4) — (11) = gross profit. The accountant prefers to write this formula (1) — [(11) — (4)] = gross profit.

(21) *The net social value product derived from the operation of the economic system before taking into account valuation readjustments.* In the writer's opinion, this concept should be regarded as the basic national income concept. We have reached it by deducting two items from the increase in inventories and force-account additions to plant and equipment, plus the gross revenue from general operations and from subsidies—first, interenterprise purchases of goods and services, and second, the wealth used up by the year's operations. This may be called the credit or revenue net value product method of estimate.

We can also reach this total by the debit or distributive-share net-value-product method of estimate. In other words, item (21), net social value product derived from the operations of the economic system during the year, equals the sum of the following items:

(10) payrolls, pensions, etc.,
plus (14) minus (2) interest paid less interest received, or 'interest originating in' each enterprise or industry group,
plus (15) minus (3) cash dividends paid less cash dividends received, or cash dividends originating in each enterprise or industry group,
plus (16) damages to employees and others.
plus (17) charitable contributions, transfer payments, etc.,
plus (19) minus the difference [(6) minus (18)] i.e., additions to corporate surplus and individual business profits before taking account of valuation readjustment gains and losses.

For the sake of simplicity we are assuming that a *consolidated* statement for the item [(19) — {(6) — (18)}] can be accomplished by a simple summation. The questions raised by this assumption are too involved to discuss here. Their existence is particularly important for the income concept next considered, item (22).

If to item (21), the total of the items just listed, or the social income derived from the year's operations, we add the difference [item (6) minus item (18)], the net gain from valuation readjustments, we have

(22) *Total social income including net valuation readjustment gains.* National income may be either larger or smaller ac-

cording to this concept than is national income as represented by item (21) although in a sense this concept is the more inclusive one. It is suggested, however, that this total be given a place subordinate to total (21) for two reasons: first, because the net valuation readjustment gains and losses represent transactions that are not necessarily directly attributable to the year's operations; and second, because the amounts involved in these transactions are to a much greater degree matters of judgment, upon the part either of the estimator or of those responsible for the accounting records that constitute his basic data, than are the amounts involved in other items included in the income total.

Since we have elected to treat total (21) as the basic concept for social income derived from the operations of an economic system, we shall use it rather than total (22) in computing the total national income received or receivable. Thus,

(21) total national income derived from the country before taking account of valuation readjustments,
plus (23) *net income received from abroad,* equals
(24) *total national income received or receivable in the country.*

V Some Moot Questions

On the basis of the above outline we may consider several moot questions:

1 THE GROSS VALUE PRODUCT

The concept of gross value product derived from the operations of the economic system may for the world as a whole be thought of as the sum of three items: (a) the value of goods and services consumed during the year by ultimate consumers, (b) net additions to the dollar value of inventories, and (c) the value of new durable goods produced, including both replacements of and additions to the stock of durable wealth. For any single country or other area an adjustment item must be added to take account of the fact that item (a) is a constituent of income received or receivable, while items (b) and (c) are on the basis of the wealth located in or the income derived from an area. In

spite of this complication, and we need not here go fully into the nature of the necessary adjustment, the item 'total gross value product' is particularly useful in connection with a breakdown of income by objects of expenditure, since the total new durable goods produced, including not only the saved income invested in new durable goods but also the new durable goods produced to replace those used up during the year, can be presented.

Two additional features of the total gross value product may be noted. First, it can be measured independently of the determination of the amount of depreciation and depletion. Since determination of these two items involves an element of judgment, there is a sense in which gross value product is less influenced by the diverse judgments of the several estimators than is the concept net value product. Second, when we attempt to correct the total gross value product for changes in prices we shall get a result that in some respects is more nearly comparable to existing production indexes than is the deflated net value product, for existing production indexes include the production of durable goods without regard to whether they are in the nature of replacements or in the nature of additions.

2 ADDITIONS TO SURPLUS

Dr. Kuznets has made the item 'additions to business surplus' the basis of establishing two income concepts: (a) 'income produced', here referred to as item (21) the net value product; and (b) 'income paid out', which is substantially the net value product less his estimated additions to business surplus.[8] (If corporations only were involved this would be (21) minus [(19) — { (6) — (18)}].) In his tables the concept 'income paid out' is treated more nearly as basic than is the concept 'income produced'. In defense of this procedure he notes certain difficulties in estimating satisfactorily the item 'additions to business surplus'. So far as there are difficulties in estimating this item for non-corporate forms of enterprise, the argument is clearly one for including additions to surplus in the total income item, which is regarded as basic. The difficulties mentioned in connection with estimating additions to business surplus for non-corporate enterprises clearly show that the process of estimate is first, to determine individual busi-

[8] *National Income, 1929–1932.*

ness profits, and second, to attempt to divide this item into two parts—entrepreneurial withdrawals and additions to surplus. In the writer's opinion, such a breakdown is arbitrary and should not be attempted in basic tables either for agricultural profits or for the profits of any other group of entrepreneurs.[9] The estimates of such an item as entrepreneurial withdrawals are substantially as subjective as are estimates of the value of housewives' services.

For the purpose of estimating additions to corporate surplus there are definite available sources of information. Earlier objections to the use of this item were on the ground that actual accounting practices deviated extensively from what was regarded as sound and desirable. The corporate income tax has done a good deal to prevent eccentric book valuation adjustments from affecting the reported item 'additions to corporate surplus'.[10] Dr. Kuznets now objects to this item because he disagrees for purposes of national accounting with what accountants consider good practice for the accounts of each enterprise considered separately. The writer does not share his objection to the computation of depreciation on a straight line basis. But even if he did, the writer would feel that objections to existing practices are not grounds for singling out the item 'additions to corporate surplus' for treatment that gives it a status inferior to that of other items which are at least as controversial (for example, interest paid on government debt). If indeed a bias is present, it is sufficiently stable so that allowance may be made for it.

In view of these considerations there seems no good reason for a concept 'income paid out'. It might be useful to set up a concept 'income actually received by individuals'. To estimate this it would be necessary to allow for 'income paid out' by industrial enterprises to banks and insurance companies and not passed on to individuals in the same year. Such an estimate has not been attempted on a serious scale for the United States, so far as the writer is aware.

[9] Cf. O. C. Stine, Part Eight, Sec. I.

[10] Strictly, this item is not reported, but it can be directly computed from three reported items.

3 DAMAGES TO PERSONS

The item 'damages to persons', whether reckoned on a receipt or on an accrual basis, occupies a somewhat paradoxical position in income estimates. The corresponding item for tangible assets, although not separately mentioned, represents substantially the same kind of a deduction from the gross value product of industry as depreciation and depletion. The payment of damages to persons, however, has been treated as a distributive share. This implies that, other distributive shares remaining fixed, the larger the number of people who are hurt the larger will be the national income. One may question whether it would not be better to treat this item in the same way as damages to property are treated. However, since the value of the services of human beings is not capitalized as a form of wealth, there is no capital sum to depreciate. And more important, money spent for repairing such damages is ordinarily treated as a part of consumer expenditures.

If personal damages were to be regarded as a deduction from the gross value product instead of as a distributive share, it would be necessary to treat the ownership and management of a human being (considered as a sum of wealth) as a business, much as the ownership and management of an owned home may be treated. Doctors' bills for repairs of personal damages could then be treated as an expense deductible from the gross value product of this business of owning human beings. It seems simpler and more in accordance with common sense to treat damages to persons as a distributive share.

As a corollary of this position, of course, expenses for medical care are to be treated as a consumer expenditure although such treatment also involves a paradox; namely, the more medical care the population requires in a given year, the larger the net value product of the medical profession, and so, ceteris paribus, of social income. But one may well question whether other things could remain the same.

4 NET VALUE PRODUCTS OF FINANCIAL ENTERPRISES

According to the distributive share application of the net value product method of estimate for national income,

to item (10) payrolls,
item (16) damages to persons, and
item (17) charitable contributions, we should add the interest and cash dividends originating in each business, and the net residual item (19) minus [(6) minus (18)], additions to corporate surplus and individual profits before net valuation readjustments.

For certain financial enterprises, commercial and savings banks, holding companies, insurance companies, building and loan associations, etc., the item 'interest originating' will, according to this formula, in general be negative. Two possible objections may be lodged against adherence to the net value product formula in such cases. First, a negative net value product may result, which runs counter to common sense. Second, the several net value products may be conceived as measures of the labor and property costs of doing the nation's business through the several existing units of organization of the economic system. If so, a negative cost for an industry group is not reasonable.

What is involved in the case of such financial enterprises may be stated thus: farms and industrial enterprises have been treated as originating interest payments, only a part of which represents actual distributive shares. The rest of such interest payments is properly an expense paid to financial enterprises, and should therefore have been deducted from the gross value products of farms and industrial enterprises, instead of being treated as a distributive share derived from these enterprises. In order to split the interest payments of farms and industrial enterprises into two elements: (a) distributive shares proper; (b) expenses paid to other enterprises, something like a cost accounting technique is required. However, if our concern is only to obtain a correct total net value product of the economic system, such a split in the interest payments of farms and industrial enterprises is unnecessary. The rigid application of the net value product formula to the item 'interest originating' for both savings banks and industrials involves neither omissions nor double counting and gives a correct total for their consolidated operations.

Following the general procedure outlined by W. I. King, Dr. Kuznets has attempted to make peace with common sense by

treating various financial enterprises as 'associations of individuals'. In effect he assumes that the difference between interest income and interest payments for these 'associations of individuals' is equal to the net debit total for non-financial enterprises of those interest income and expense items which he simply neglects (chiefly short term interest and interest on non-government obligations held by industrials). Thus his net interest derived from 'associations' is somewhat larger than total interest originating in these enterprises (i.e., it is zero instead of being negative) while the interest item for industrials, farms, etc., is somewhat smaller than interest originating in these enterprises because of the omission of short term interest. The two errors are presumably assumed to cancel out. This procedure eliminates some of the double counting involved in Dr. King's earlier procedure, but the making of assumptions is still hardly an adequate substitute for a factual inquiry.

It is recommended that the net value product formula be rigidly adhered to. Unless the income estimator desires to attempt a cost-accounting reallocation of interest items, strict adherence to the net value product formula for interest originating will have the advantage of running counter to common sense [11] at the precise point at which common sense appears to espouse the theory that the several distributive shares are equal to the contributions made by their respective recipients to the total value product of the economic system.

What has been said about the elimination of double counting through strict adherence to the net value product formula for financial enterprises of the savings bank and holding company type needs some modification when we come to enterprises of the investment banker type. Without going fully into the complex nature of this modification the writer will attempt briefly to indicate its nature. Such financial middlemen create a divergence between the bond liability item of an industrial corporation and the cost to the original ultimate investor of acquiring this equity. This difference may, for purposes of society's accounts, be considered a deferred promotion expense to be amor-

[11] But the estimates need not be presented in a way obnoxious to common sense. See M. A. Copeland 'Some Problems in the Theory of National Income', *Journal of Political Economy*, Vol. XL, No. 1, February 1932.

tized over the life of the bond, or the entire amount may be deducted from the corporation's net value product in the year in which it is incurred without the attempt being made to establish this type of item on an accrual basis. The net value product formula outlined under (19) to (22) above did not provide for such a deduction and unless it is made there is some double counting in the total net value product determined by following it.

5 INCOME FROM ABROAD

It has been customary to estimate income from abroad as the net receipts of cash dividends and long term interest payments into the United States. There is no logical basis for the omission of short term interest payments in computing this item. The omission is presumably due to the difficulties discussed above in reconciling the item 'interest originating' in the financial institutions with the expectations of common sense.

Both a debit and a credit estimate of income from abroad are possible and consideration of the two methods calls attention to three other types of items that have commonly been omitted from estimates of net income derived from abroad.[12]

a) Income may flow into or out of the country through migration of the owners of wealth. The capital of immigrants entering the United States during the year brings about an increase in the wealth owned in the United States. This increase in wealth is an income item. The 'dowry drain' represents an item operating in the opposite direction.

b) Various types of secondary distribution items or transfer payments may affect the net income received from abroad; for example, immigrants' remittances and expenditures abroad by the American Red Cross.

c) Additions to corporate surplus may accumulate to the account of American investors in foreign corporations. Conversely, downward valuation readjustments may become necessary in the wealth item 'foreign bonds held in the United States'.

Although the balance of international payments provides most of the data needed both for the debit and for the credit methods

[12] *Ibid.*

Payroll income may also flow from one area to another. This possibility becomes more important as we deal with smaller areas.

of estimating net income received from abroad, some items that need to be taken into account in estimating net income from abroad do not enter into the balance of international payments; e.g., (c) above. Other illustrations may be afforded by payments of reparations in kind, by tied loans, etc.

6 THE GOVERNMENT NET VALUE PRODUCT

Important questions arise in determining the net value product of government, in connection with both payroll items and items of property income. Some have questioned the inclusion of Army pay during the World War on the ground that the expenditure is destructive rather than productive. More recently WPA payrolls have been questioned on the ground that they represent transfer payments or redistributions of income rather than primary distributive shares. War pensions have been questioned on the same ground, as has the interest on that part of government debts which represents deficit financing.

The revenues that governments derive from taxes have not in general been used directly in estimates of the government net value product and so have not come in directly for much questioning. However, the corresponding expense items have been questioned extensively. The chief problem is the apportionment of the total between (a) expenses paid by other enterprises, and (b) consumer expenditures (i.e., between (a) deductions from the gross value product of other enterprises, and (b) consumer expenditures). In part this apportionment depends, especially in estimating the income derived from agriculture, upon the judgment of the income estimator. But this apportionment depends also upon the judgment of legislatures in levying taxes. The total of these two types of expenditure has been questioned on the ground that levies do not necessarily fall in the period in which the corresponding benefits are received.

In the writer's opinion full answers to the questions concerning government property income and tax revenue call for an attempt to set up a business-like system of accounts for various branches of government, and in the case of taxes, for some statistical experimentation with the benefit theory of taxation through the application of cost accounting technique in apportioning government costs as between enterprise costs and consumer expendi-

tures. It is doubtful whether such inquiries or any other device can fully eliminate the subjective element in distinguishing between those government payrolls which are properly distributive shares and those which are mere transfer payments.

Many writers have urged that the item 'property income from government' should be so defined as to be independent of government fiscal and financial policy. However, neither the National Bureau of Economic Research nor the Department of Commerce has accepted this view. Moreover, Gerhard Colm's proposal [13] to count only state and local government interest payments in national income does not succeed in achieving independence of government fiscal policy in a period in which Federal debt has in some measure come to take the place of state and local debt. In the writer's opinion property income derived from government should, for purposes of estimating the social net value product, be put on an imputed basis (e.g., a constant rate of return should be applied to the estimated value of the tangible wealth owned by the government). Although this proposal necessarily represents a rough procedure in the present stage of our information, none the less it is less arbitrary than either existing American practice or Dr. Colm's proposal. It is admitted that data for estimating the value of government tangible assets are poor and that difficult valuation problems are involved. But the possibility of making accurate estimates of a theoretically untenable item is not an argument for substituting it for a tenable item that can be estimated only roughly. The imputed interest item here proposed is largely independent of the eccentricities of government fiscal and financial policy and of any particular division of functions between national and local governments. Moreover, it probably more closely approximates what a full balance sheet and income statement type of government accounting would show than does either the item used in the National Bureau and Commerce Department estimates or the item proposed by Dr. Colm.[14]

Several questions respecting government income, such as those pertaining to WPA payrolls and soldiers' bonuses, may perhaps

[13] Part Five, Sec. V.

[14] Actual government interest payments might still be used in estimating income received by individuals, if such an estimate were attempted.

best be considered in the discussion of transfer payments below.[15]

7 SECONDARY DISTRIBUTION AND TRANSFER ITEMS [16]

Four main types of items involving questions related to the secondary distribution of income may be distinguished:

a) those which effect a transfer of net value product from one enterprise to another;

b) those which effect a transfer of income from one individual or family to another individual or family;

c) payments by an enterprise to an individual or family not on the basis of a *quid pro quo;*

d) payments by an individual or family to an enterprise not on the basis of a *quid pro-quo.*

Strictly speaking, only items of types (a) and (b) should be called secondary distribution items since these have no effect upon the social net value product. The absence of a *quid pro quo* for items of types (c) and (d) does not, in itself, justify any special treatment of the items involved. Thus, items of type (c) should be treated as a distributive share in the same manner as item (10), payrolls and other forms of employee labor income, and items (14) minus (2), interest originating in an enterprise (see Section IV above).

The four types of items may be illustrated simply. If the government pays a subsidy to a particular industry this may be regarded as a transfer payment of type (a), decreasing the net value product of the government by the amount of the transfer payment and increasing the net value product of the industry subsidized.[17] When a father pays an allowance to a son at college we have an instance of type (b). An item of type (c) occurs when a business

[15] In the earlier form of this paper a paragraph in this section considered Dr. Colm's treatment of relief payments financed by borrowing. This paragraph has been omitted here as not fully recognizing the significance of Dr. Colm's distinction between 'disposable income' and "national income . . . as the computable part of the social product". His distinction appears to be substantially that here drawn between 'social net value product' and 'income received by individuals' (Part Five, Sec. I, 4; III, 2; and IV).

[16] This section has been rewritten partly in order to conform to Dr. Warburton's suggestions.

[17] Attention is once more called to the fact that 'net value product' is not a dependable measure of an industry's contribution to social output.

enterprise makes a gift to charity. Conversely, when the government levies a direct tax that is entirely dissociated from any benefit that the tax-paying individual receives from the government, we have an instance of a payment of type (d).

These simple cases involve no great difficulty for the income estimator. However, combinations of these four types of item are possible. Thus if the government pays relief and supports this payment by direct and indirect taxes upon individuals, we have a type of item which formally is a combination of types (c) and (d), but which may have substantially the same effect as an item of type (b). If we treat this type of item as equivalent to a type (b) item, the amount of the social net value product will be smaller by the amount of the item than it would be if we were to treat the item as a combined (c) and (d) type item. The situation may be made even more complicated if the relief payment is supported immediately by borrowing, so that it is difficult to tell what means of ultimate financing will be resorted to.

Unfortunately, between direct relief payments on the one hand, and payrolls to policemen, firemen and school teachers on the other, there are a variety of intermediate cases, including WPA and PWA project payrolls. Since in this continuum it appears impossible to draw a sharp line that is not arbitrary, it seems desirable to continue the Department of Commerce practice; namely to present estimates of national income in such a way that users may make more than one possible interpretation for themselves, where the more doubtful items are concerned. However, the writer ventures the suggestion that benefits under Titles VIII and IX of the Social Security Act, being largely on a pay-your-own-keep basis, should be treated as distributive shares in good standing.[18]

8 DEFLATION

Various suggestions have been made for methods of deflating national income.[19] In the writer's opinion any attempt to deflate national income should be closely tied to a definite physical volume concept that it is desired to approximate by the deflation.

[18] This assumes that the employee contribution is deducted from the distributive share 'wages', so that the two items may be added without double counting.
[19] See Solomon Fabricant, Part Three, Sec. V; Simon Kuznets, Part Four, Sec. IV.

If income received, conceived of as a physical volume of consumption plus a physical volume of savings, is to be deflated, indexes of the cost of consumption goods and services should be applied to the volume of consumed income, and wealth indexes to the opening and closing inventories of wealth, and the difference in the deflated valuations of wealth should be used to measure deflated savings. Such a procedure leads to a conclusion diametrically opposed to that which W. L. Crum draws with respect to the relative magnitudes of additions to corporate surplus during the 'twenties and withdrawals from corporate surplus since 1929.[20] Dr. Crum has in mind the general type of deflation employed by Dr. King.

Income derived from an area may be deflated to show changes in the physical volume of services of labor and wealth employed by the economic system from time to time. If we may neglect net income from abroad as relatively small, the deflated distributive shares may be compared with the deflated consumed and saved income to show changes in the efficiency of operation of the economic system.

A part of the argument usually given against including valuation readjustment gains in total national income in current dollars is that such items add nothing to the physical volume of national output. The writer has criticized elsewhere the unqualified proposition "that appreciation of a fixed amount of 'land' due to increasing scarcity is not a real item of income". After distinguishing scarcity appreciation from appreciation due to discovery or technological change, this criticism runs:

> "Even scarcity appreciation clearly is a real factor in the *distribution* of wealth and income. The objection to including it as an item in *total* income appears to be valid or untenable according to the type of total income under consideration. It appears valid if we are considering total accrued income in *deflated* dollars; mere scarcity appreciation (as distinguished from technological appreciation) is not properly an item of total real or deflated income. For income in current dollars, however, scarcity appreciation must be included, both because it is

[20] 'The National Income and Its Distribution', *Journal of the American Statistical Association,* March 1935, p. 41.

needed to obtain accurate distribution estimates even for deflated income, and because it is an essential item if we are to follow good accounting practice and define income so as to make possible a check with initial and terminal balance sheets, i.e., if saved income is to equal increase in national wealth." [21]

Indeed, if a policy of refusal to incorporate such valuation readjustment gains in income [22] were pursued from the beginning of time, current site valuations of real estate would necessarily all be zero.

VI Summary

1. National income is a special case of social income.

2. Social income = the value of goods and services consumed by ultimate consumers plus savings (or plus the increase in social wealth).

3. Social wealth and social income are estimated by consolidating balance sheets and income statements of separate enterprises and/or of individuals. Social wealth and income are accounting concepts, the validity of which may be checked by accounting techniques.

4. The income derived from an enterprise or calling should not be interpreted as a measure of the contribution made by the enterprise or calling to social income (i.e., to the value of goods and services consumed plus the increase in social wealth). Such a view would consider legal high finance as socially productive.

5. Social income derived from a community (inaccurately called 'income produced' in it) plus the *net* social income derived from elsewhere by its population equals social income received or receivable in the community.

6. Social income may be valued either in current dollars or in dollars reckoned at a constant set of prices. Special valuation problems arise in connection with various items of income, particularly additions to corporate surplus, individual profits, and imputed incomes.

7. There are five major types of breakdown of social income:

[21] *Journal of Political Economy,* Vol. 40, p. 13.

[22] Unless the refusal marks merely a proposal to substitute some other term for the word income as here used.

by (a) type of payment or distributive share (payrolls, interest, etc.); (b) industries; (c) areas; (d) income classes; (e) objects of expenditure.

8. There are two 'net value product' methods of estimating social income: (a) revenue from sales, etc., less payments to other enterprises and less depreciation, etc; (b) the sum of the net distributive shares.

9. The 'gross value product' of a community ('net value product' plus depreciation and depletion), if deflated, would give a broad production index number.

10. Estimates of additions to corporate surplus are no less dependable than some of the other items in the social net value product, though this view seems implied in treating as basic the questionable concept 'income paid out'. 'Income actually received by individuals' might be a useful concept—hitherto it has not been seriously attempted for this country.

11. Estimates of 'entrepreneurial withdrawals' and 'individual business savings' are as subjective as are estimates of the value of housewives' services.

12. To treat banks and other holders of 'earning assets' as 'associations of individuals' and to neglect short term interest items is to substitute an arbitrary guess for the measurement of important income items. For estimating 'total social income received or receivable' the net value product formula should be rigidly adhered to, even though some enterprises show negative net value products.

13. 'Social net income from abroad' includes other items in addition to net in-payments of interest and dividends; e.g., (a) immigrants' entrance capital, (b) immigrant remittances (a negative item), (c) additions to foreign corporate surpluses owned here.

14. Under present conditions government interest, in estimating the social net value product, should be conceived as imputed net income from government-owned tangible wealth.

15. No sharp line can be drawn between government payrolls, which are distributive shares to be added to other shares to give the social net value product, and those relief payments which are mere transfer payments and are not to be added in.

16. Consumed income should be 'deflated' by an index of the

costs of consumer goods and services. Saved income in current dollars cannot be directly deflated. Instead the wealth on January 1 and the wealth on December 31 should be deflated by an appropriate index of the prices of items of wealth.

17. Scarcity appreciation should be included in income measured in current dollars, because of its bearing on income distribution and because it allows us to equate 'saved income' with the increase in wealth in current dollars. Mere scarcity appreciation does not affect the total of deflated social income.

Discussion

I SIMON KUZNETS

1 THE PRODUCTIVITY BASIS OF NATIONAL INCOME ESTIMATES *(see point 4 of Dr. Copeland's Summary)*

Whether national income be defined as the net value of commodities and services produced during the year; or the value of commodities and services consumed during the year plus savings; or the sum of income shares received by ultimate income recipients plus net savings of business and other enterprises, the criterion of productivity is applied in deciding what elements should be included in the totals just described. When national income is defined as the net value of commodities and services produced, this criterion is used to decide what commodities and services are to be included. If one deals with the consumption of commodities and services, the same question arises, i.e., we ask whether the services rendered to individuals by shyster lawyers, experts in high finance, or gamblers are to be included among services consumed. Similarly, when savings are estimated—and they have to be measured by a comparison of wealth at the beginning and end of the year—what should be included in wealth? Finally, when one deals with income receipts by individuals there is the ever present question whether a given receipt constitutes a genuine income share, or a mere transfer from shares of other individuals. There is no way of escaping this productivity basis of national income computations, and it seems to me preferable to have this inescapable basis definitely recognized than to deny it. For by recognizing it, we substitute conscious for unconscious assumptions and are in a better position to state these assumptions, thus allowing the user of the estimates to consider them in his interpretation of national income measures.

The usual national income estimates are grounded upon two

fundamental sets of assumptions: (a) They accept the current notions of social productivity as the guide to their estimates. This assumption is chosen from a whole set of possible alternatives; and the justification of this choice is that national income estimates, being destined for use by society at large, should be based upon what appear to be society's general notions of social productivity. (b) They accept market valuation as the available measure of social productivity. Here again the investigator follows, often unconsciously and sometimes consciously, the yardstick by which our economic society at large tends to be guided.

With these assumptions defining productivity as the capacity of fetching a price on the legally recognized markets of society, income derived from an enterprise or calling is *ipso facto* a measure of the contribution that this enterprise or calling is conceived to be making to the nation's total income. If this were not so, i.e., if the enterprise or calling in question were not making a contribution at all, or were making a smaller or larger contribution, it would not be assigned any income in the calculation, or a smaller or larger one, with corresponding changes in total national income. This is true with one possible exception. When a given enterprise or calling derives its income from business enterprises, there may be reason for including its income even when we do not consider it productive, i.e., if we have subtracted its income as a cost from other, productive, business enterprises. In that case, unless we include this income, total national income is undervalued. But in such cases it is the gross income of the enterprise or calling in question that is to be reincluded—and there is the proper alternative of not showing the income of the enterprise or calling at all. In all other cases, the inclusion of the income of a given enterprise or calling in the national income totals is itself evidence that this income measures what is conceived to be its contribution to the national total.

The recognition of the productivity implications of national income estimates is important, both to prevent misuses of current figures and as an incentive to a reinterpretation and modification that would be in conformity with sets of assumptions different from those currently employed. This writer, for one, would like to see work begun on national income estimates that would not be based upon the acceptance, prevailing heretofore, of the mar-

ket place as the basis of social productivity judgments. It would be of great value to have national income estimates that would remove from the total the elements which, from the standpoint of a more enlightened social philosophy than that of an acquisitive society, represent dis-service rather than service. Such estimates would subtract from the present national income totals all expenses on armament, most of the outlays on advertising, a great many of the expenses involved in financial and speculative activities, and what is perhaps most important, the outlays that have been made necessary in order to overcome difficulties that are, properly speaking, costs implicit in our economic civilization. All the gigantic outlays on our urban civilization, subways, expensive housing, etc., which in our usual estimates we include at the value of the net product they yield on the market, do not really represent net services to the individuals comprising the nation but are, from their viewpoint, an evil necessary in order to be able to make a living (i.e., they are largely business expenses rather than living expenses). Obviously the removal of such items from national income estimates, difficult as it would be, would make national income totals much better gauges of the volume of services produced, for comparison among years and among nations.

But to repeat, this would substitute a different productivity concept for the one used in present estimates. And this suggestion only affirms the point made above, viz., that the income assigned in a national income estimate to a certain enterprise or calling measures its contribution to national income. This contribution is a measure of the productivity of the enterprise or calling, as productivity is understood in the assumptions underlying the national income estimate.

2 INCOME PAID OUT, INCOME PRODUCED AND BUSINESS SAVINGS

(see points 10, 11 and 12 of Dr. Copeland's Summary)

In the issue arising from the distinction between income produced and income paid out, we must clearly distinguish the substantive and the terminological aspects. The first question, summarizing the substantive aspect of the issue, concerns the significance of the distinction between the total we attempt to measure under income produced and the total we attempt to

measure under income paid out. The second question, referring to the terminological issue, is whether the titles attached to those two totals convey the correct impression or whether they tend to mislead rather than to inform.

To begin with, the presumptive lack of reliability in measuring business savings played and plays an insignificant role in our distinction between the concepts of income produced and income paid out. It is true that the estimates of additions to corporate surplus or, as I would call them, net business savings, as now measured are subject to more distortion by the peculiarities of business accounting than any income item of which I can at present think. In this writer's report on the revaluation of business inventories [1] as well as in Mr. Fabricant's paper,[2] it was shown what striking changes are produced in this item when a correction is made to bring its measure in line with a logical definition of national income. Of course Dr. Copeland disagrees with the necessity for this correction [3]; and to the extent that such disagreement exists, the statement concerning the lack of reliability of our current measures of business savings is contingent upon the viewpoint presented in my paper.

However, this susceptibility of the item of business savings to the vagaries of accounting procedures is of no significance from the analytical standpoint, and is no basis for declaring income produced a concept inferior in analytical status to that of income paid out. Certainly no such intention was pursued in the discussion and presentation of the national income estimates either in the Senate report or in the publications of the National Bureau of Economic Research. The worst sin that could perhaps be charged is that the two concepts of national income were treated as equal in analytical significance. But even this does not express accurately my position on this question.

This position may be described briefly as follows: National income produced, being the most inclusive national income total and measuring, as it does, the net product of the economic system, is from the standpoint of economic analysis, the basic concept. On this point I agree fully with Dr. Copeland, for his report

[1] Part Four, Sec. V.

[2] Part Three, Sec. V, 1.

[3] See his comments on my paper, Part Four, Discussion I.

likewise makes social income (another term for what we call national income produced) the basic concept. But national income paid out, or the total that we attempt to measure under that name, is an important subdivision of national income produced. In estimating national income paid out we have attempted to obtain an approximation to income shares received by the individuals who comprise the nation. The objection Dr. Copeland raises to the treatment of the circuitous flow of income through banks and life insurance companies is fully granted. It was a practical compromise forced by lack of data. Were data available so that we could, for banks and life insurance companies, establish the *income* share paid to individuals, we would have treated banks and life insurance companies in the same way that we treated manufacturing or mining establishments. Perhaps, in the future, data will become available that will allow a distinction between interest payments by banks to individuals and to business depositors; or which, for life insurance companies, will make it possible to estimate in each year what share of the payments on insurance policies represents a net income payment to the individual investor and what share represents a return of payments made in the past. For lack of such data we had to have recourse to the practical compromise that Dr. Copeland justly condemns as a departure from the true line of measurement. It is this writer's opinion, however, that Dr. Copeland exaggerates the effect of this departure in making our measure of income paid out differ from the combined total of income shares received by individuals.

If we agree on the importance of the national income produced concept, and if we conceive national income paid out as the aggregate of income payments to individuals during any given year, the importance of measuring those two totals separately will be denied by few students of economic problems. This statement does not imply that the component of the national income produced total designated income paid out is necessarily the only important one, or even the most important. In agreement with most students of the problem, I would say that the further segregation of the total amount consumed by the nation's ultimate consumers is a highly important step; and to those who are interested in that segregation, income paid out represents only a first step

towards that ultimate objective. But recognizing the importance of measuring income consumed does not justify denying the importance and usefulness of national income paid out as a measure of the total income stream flowing to individuals and representing that part of the nation's net product whose value is placed in the hands of the nation's ultimate consumers.

We can now turn to the terminological question. Calling the two totals national income produced and national income paid out is said to be misleading. Some objections have been raised to the adjective 'produced' as indicating that the national income total thus designated is really a measure of the social productivity of the economic system. This point was discussed above. Other objections were to the fact that since the two income totals are treated conjointly, undue emphasis is laid upon the discrepancy item, namely business savings, and an impression is created that business savings, when negative, represent actual payments by the business system undertaken to sustain the flow of incomes to consumers.

Most of these criticisms, valid though they may be, do not appear especially weighty. However, the designation of both totals as national income is confusing, especially as it leaves the impression that one national income total is as inclusive as the other. In order to avoid this difficulty it may perhaps be advisable, from the practical standpoint, to reserve the term national income for what we have heretofore designated national income produced. This is in line with the usage common in the economic literature of other countries, and would properly emphasize the primary importance of the concept of national income produced. What we have heretofore designated national income paid out may perhaps in the future be designated the aggregate income payments to individuals. The item business savings will of course still appear in the functional distribution of national income, being the element which, added to aggregate income payments to individuals, yields national income. And of course if we do, as we now can, correct this item for revaluation of inventories, the difference between the cost and reproduction bases for depreciation and depletion deductions, and for gains and losses on sale of capital assets, this item will represent an actual net draft upon the capital of the business system in order to sustain income pay-

ments, or an actual net addition to business capital from current income. It is greatly to be doubted that misinterpretations of this item, no matter how correctly measured, can be avoided. But the danger exists for almost all national income and wealth measurements.

3 ENTREPRENEURIAL WITHDRAWALS AND SAVINGS
(see point 11 of Dr. Copeland's Summary)

Provided we agree about the importance of the distinction, which Dr. Copeland emphasizes, between "a producing organization or 'economic system' " and "the families or individuals who contribute their labor or the services of their property to the economic system, and who receive the benefits of its operation" (Section I) it is obvious that the difference between what we may now call national income and aggregate income payments to individuals is important. If it is important, then the national income investigator should make an effort to distinguish between entrepreneurial withdrawals and entrepreneurial savings, namely, between the part of entrepreneurial net profit that has been made available as means of purchasing ultimate consumers' goods and the part that has either been added to business capital or withdrawn from it. The fact that in the case of the individual entrepreneur, as distinct from the corporation, there is an identity of the ultimate consumer and of the person in charge of the business unit, while important, does not justify the removal of the distinction between withdrawals and savings. In measuring aggregate income payments to individuals we aim to gauge the flow that can appear on the market of ultimate consumers' goods or on the market of investments by individual investors. If we include the entire entrepreneurial net income in this total, we obviously exaggerate the volume of funds which, as a result of the functioning of the business system, is being made currently available for this purpose.

This discussion does not mention the difficulty of carrying through the distinction because of lack of data. As a matter of fact, this difficulty is present with reference to not only the distinction between entrepreneurial withdrawals and entrepreneurial savings, but also the whole item of entrepreneurial net income itself. In several branches of industry there is a large group

of entrepreneurs who not only do not report on their net incomes but are themselves vague as to what their net incomes during any given year actually are. Nevertheless the national income estimator, and, for that matter, the primary data collecting agencies, such as the Census, make an effort to evaluate this magnitude of which the individual entrepreneur himself is not well aware. There is, therefore, no objection to the national income investigator going farther in trying to establish a dividing line between entrepreneurial withdrawals and savings, provided he has some logical and reasonable basis for doing so, and provided he states explicitly the shaky basis on which these estimates have to be made.

It is only to the extent that such data are not available that one could agree with Dr. Copeland in designating the estimates of entrepreneurial withdrawals and business savings by entrepreneurs as subjective. They are subjective in the sense that data are not available to make a reliable estimate, and hence another investigator with greater ingenuity or with a more powerful censor on his imagination might well produce substantially different estimates. The measures are not subjective, however, in the sense in which estimates of the value of housewives' services are. Concerning the latter, the main question is whether they represent economic activity proper or part of life in general. For entrepreneurial withdrawals and savings, both parts are necessarily income in the strictest sense of the word, and the distinction between the two is of quite obvious bearing upon the measure of the flow of means of purchase to ultimate consumers and individual investors.

4 IMMIGRANTS' ENTRANCE CAPITAL AND REMITTANCES *(see point 13 of Dr. Copeland's Summary)*

Dr. Copeland suggests that social net income from abroad should include not only the net in-payments of interest and dividends but also (a) immigrants' entrance capital; (b) immigrants' remittances (a negative item); (c) additions to foreign corporate surpluses owned here. While one can agree to the inclusion of (c), the suggestion to include (a) and (b) appears to obliterate the important distinction between social income and changes in capital. It is the purpose of social income measurements to

evaluate the net product of the nation's economic activity and not any and all additions to the stock of capital goods at the disposal of the nation. Any changes in this capital stock, before qualifying for inclusion in national income totals, should be subjected to the test that would show that they are a result of the net commodity and service flow resulting from the nation's economic activity. Neither immigrants' remittances nor immigrants' entrance capital qualify.

If we are to include items such as immigrants' remittances abroad or immigrants' entrance capital, there is no reason why we should not include in social income from abroad many other items; for example, the amounts brought by tourists into the United States (positive addition) or the amounts expended by American tourists abroad (negative item). Just as the capital brought in by an immigrant represents an addition to the capital stock of the nation, or, rather, to the command over capital stock belonging to other nations, so does money brought by a foreign tourist into this country increase the command of America's economic system over the capital stock of other nations. It might be replied that the immigrant who brings in capital spends it here and his consumption enters the total stream of domestic consumption. The same is of course true of the foreign tourist. A similar argument can be made with reference to expenditures by American tourists abroad and any other economic transaction in which one of the locus points is outside American territorial limits. Obviously, so far as the social income of this country is a measurement of the net product of its productive resources, it would be inappropriate to include in it the net product of economic resources of another country, or to exclude from it any parts of the net product of this country that happen to be spent abroad.

5 INTEREST ON GOVERNMENT DEBT

(see point 14 of Dr. Copeland's Summary)

Dr. Copeland suggests that in estimating the social net value product, interest on government debt should be conceived as imputed net income from government-owned tangible wealth. This solution raises two difficulties, one of which is partly practical and therefore could perhaps be overcome in the future. This

practical difficulty is that we have no reliable measures of the tangible wealth owned by the government. The absence of such data, however, does not necessarily arise from deficient statistics. We lack data also because it is almost impossible to evaluate a number of tangible items owned by the government. What value should be put on public highways, streets, etc? We deal here with a market, if it may be so designated, in which valuation could not be left to the free play of the forces of demand and supply. Do we solve the difficulty by putting what is necessarily an arbitrary value on tangible items owned by the government, and then computing interest on it?

The second difficulty is still more formidable. A number of government expenditures that may be covered by borrowing are of a type that result not in an increase of the government's tangible wealth, but rather in the preservation or increase of the tangible wealth of business enterprises. Consider, for example, the government's expenditures in connection with the War. As far as can be ascertained, no increase in the government's tangible wealth has resulted from them, but it might be said that they served to preserve the tangible wealth of the nation's economic system—in other words, very largely the wealth of the business system. The government is still paying interest on the debt contracted during the War. Can we logically substitute for these interest payments the imputed interest payments on government-owned tangible wealth?

6 ADJUSTMENT FOR PRICE CHANGES
(see point 16 of Dr. Copeland's Summary)

The suggestions that Dr. Copeland makes in connection with adjusting income for price changes seem to me correct, except for the statement that saved income cannot be directly deflated. This statement is consistent with Dr. Copeland's viewpoint, which allows total social income to include items resulting from changing valuation of wealth. If such items are included, saved income cannot be deflated directly. But if we hold to the viewpoint expressed in Mr. Fabricant's and my papers, namely, that income can include accretions and depletions of wealth only to the extent that they result from actual income flows and not from revaluation of assets, then, of course, saved income can be de-

flated directly. If we have an index showing changes in prices of investment goods, and are able to segregate income consumed from income saved, saved income can be deflated by this price index of investment goods.

Even if it is impossible to segregate income consumed from income saved, this writer would still suggest that total social income, provided it properly excludes any effects of revaluation of assets, can be deflated by a combined index of the cost of consumers' goods and services and the cost of investment goods. Such deflation, rough as it may be and neglecting as it does the possible shifts in weights between the two component elements of the general price index, would seem to me to be better than leaving the income totals in current dollars.

II CLARK WARBURTON

1 USE OF TERMS 'INCOME PAID OUT' AND 'INCOME PRODUCED'

Dr. Copeland is especially to be commended for his emphasis upon the fact that the term 'income paid out', as used in the Department of Commerce reports, is a subtotal of items included in 'income produced' and should be presented as such.

Dr. Copeland is to be commended also for his suggestion that the term 'income derived from' an industry or area should be substituted for the term 'income produced by' an industry or area. His objection to the phrase 'income produced' is stated in terms of the ethical implications as to social productivity that may be connoted. The term is objectionable, however, not only on this ground but also because it carries inaccurate implications as to the process of market valuation.

The phrase 'income produced by' an industry carries the implication that not only the product, but also the value of the product, was brought into existence by that industry. This is not true. The value is the result of the market situation—the fact that someone is willing to purchase or use the product. We can speak accurately about the value of the product of an industry, but not about the value produced by that industry. The income derived by participants in one industry from the production and sale of

that industry's product is equal to the value of the product merely because one of the items in the computation of the income derived from the industry is a residual between the remaining items and the value of the product.

2 TERMINOLOGY FOR METHODS OF MEASUREMENT

The phrase 'net value product method' as a description of the most common method of estimating social income seems quite inappropriate. Any of the methods Dr. Copeland describes can be used, with suitable treatment of depreciation and depletion and certain other items, to obtain either the 'net social value product' or the 'gross social value product', as these terms are defined by him in Section IV, (20) and (21). The ineptness of the phrase 'net value product method' is illustrated by the fact that Dr. Copeland himself modifies it in (21).

One of the modifying phrases that Dr. Copeland uses, 'distributive-share', provides a clue to a suitable terminology for designating the various methods. Following this clue, it is suggested that designations of the various methods be descriptive of the items that are summed, as follows: [1]

Summation of distributive shares;
'Value added' summation;
Summation of value of final products;
Summation of income received;
Summation of consumer purchases and savings.

The summation of the value of final products, which Dr. Copeland considers a short cut for the summation of distributive shares or of 'value added', should be considered a primary rather than a substitute method of measuring 'national income'. In fact, this is the method that most closely corresponds to most definitions of 'national income', and measurements of national income by this method would be more useful, as an aid in the formulation of national economic policies, than the measurements hitherto available. In making such measurements, as Dr. Copeland has indicated, the 'gross social value product' should be given as much emphasis as the 'net social value product'.

[1] See my paper, Part Two, Sec. I.

3 RELIEF PAYMENTS

Further consideration may profitably be given to the character of taxation in connection with the question whether relief payments should be treated as type (b) or type (c) secondary distribution items (Section V, 7).[2] If it is assumed that relief payments are financed from taxes levied directly upon individuals, then it is most appropriate to consider such payments as type (b). If, however, it is assumed that relief payments are financed from taxes levied upon business enterprises, then it is appropriate to consider such payments to be of type (c) and to include the taxes paid to meet these payments among the distributive shares. The fact that the recipients of relief, or the recipients of direct contributions by business enterprises to charity or to community chests, have made no contribution, of either labor or property, to the enterprise is not a valid reason for failure to recognize such taxes or contributions as distributive shares. If such a criterion were used, some portion of dividend payments and wages should also be excluded from consideration as distributive shares.

The financing of relief payments by borrowing introduces further complications that need exploration. Certainly when national income is measured by either of the methods based on the consolidation of individual income and expenditure statements it appears necessary to consider relief payments financed by borrowings to be of type (c), since there is no offsetting tax payment by individuals. But if the accounts of individuals are combined with the accounts of governments the net borrowings of governments for relief financing, or for any other purpose, may be treated as negative savings.[3]

This line of reasoning leads to the suggestion that in national income estimates government deficits should be treated like corporate deficits (negative business savings). How would this affect national income estimates for 1919–35? Also, if relief payments in cash are treated as an item in the measurement of national income, should relief in kind be treated differently? Further, why not evaluate (perhaps at cost) education and other

[2] A question may be raised concerning the propriety of including type (c) as a secondary rather than a primary distribution item.

[3] Cf. Colm, Part Five, Sec. IV.

services furnished by governments and treat such services as income drawn from governments in kind, like the rental value of a home occupied by its owner?

III M. A. COPELAND

Dr. Kuznets' comments on my paper have, I believe, served to clarify a number of the issues between us. I hope that what follows will add further clarification. In one important respect I offer a modification of my position as set forth above; viz., in the handling of market appreciation and depreciation of inventories. For convenience I shall, with two exceptions, use section titles identical with those used by Dr. Kuznets.

1 THE PRODUCTIVITY BASIS OF NATIONAL INCOME ESTIMATES

Dr. Kuznets finds that what he calls the "criterion of productivity" is involved where the national income is conceived:

a) As a summation of distributive shares, and

b) As a summation of the values of ultimate products (both his "net value of commodities and services produced" and his "the value of commodities and services consumed during the year, plus savings" appear to employ this same concept).

As applied to the latter or ultimate products concept, his "criterion of productivity" appears to be marketability, at least so far as the issue under consideration is concerned. Thus, he includes in the products and services turned out during a given period marketable illth and marketable disservices to individuals. With this inclusion I entirely concur. The productivity issue between us does not involve any difference in what is included in national income.

To say that shoddy goods and shoddy services are included in the list of ultimate products whose market values are summed to give one estimate of national income does not seem to me the same as saying that the distributive shares accruing to various income claimants are ipso facto *measures* either (a) of the contributions to the total income of the community made by various income claimants, or (b) of the contributions made to total income by the enterprises employing them or their capital.

Again, one may admit (and I have elsewhere both admitted and insisted) that for the world as a whole we may properly say that the entire economic system operating during a given year has *produced (contributed)* the world's social income for that year. But it does not follow that any single claimant to a distributive share in that income *produced (contributed)* a portion of that income *equal* to his distributive share.

Dr. Kuznets' "criterion of productivity" appears to have a connotation when applied to income conceived as a summation of distributive shares that is different from its connotation when applied to income conceived as a summation of ultimate products; viz., it implies in the former but not in the latter connotation that a claimant's share in social income is equal to his contribution to it.

The question here at issue between Dr. Kuznets and me is solely one of the interpretation to be put upon the distributive shares, which, when added together, make up the total social income, and not at all one of the amount either of the total or of any distributive share.

I agree with Dr. Kuznets that in determining whether a given individual income item is (a) a distributive share or (b) a mere transfer from the distributive shares of other individuals, it will be necessary to ascertain whether the income item in question can, without duplication, be added to other distributive shares to make up a net value product total that will equal the total of ultimate products. If this were all that Dr. Kuznets means by his distributive "criterion of productivity", I should take no issue with him. But he chooses to call a given primary distributive share or a given net value product a *measure of the contribution* that a given income claimant or enterprise makes to social income. I urge that in so doing he is using misleading language and language that involves a gratuitous ethical implication.

2 INCOME PAID OUT, INCOME PRODUCED AND BUSINESS SAVINGS

Dr. Kuznets contends that his treatment of the flow of income through banks and insurance companies and various other financial enterprises was forced upon him by a lack of data respecting their operations.

This statement I find difficult to understand, particularly as it

applies to commercial and savings banks. It is not a lack of data necessary to estimate total interest and cash dividends received by individuals, but rather a lack of data necessary to make such an estimate according to a particular formula which calls for a break between interest paid by banks to individuals and interest paid by banks to business depositors. Contrary to the implication of his statement, such a break was not made by Dr. Kuznets for manufacturing establishments, and data are not available for such a break. I pointed out some years ago that such a break was unnecessary in the case of banks for estimating total interest and dividends received by individuals, and illustrated in detail how existing data could be used to estimate total interest and dividends received by individuals.[1]

Admittedly, information on insurance companies and, a fortiori, on certain other financial institutions is less satisfactory than is information on commercial and savings banks. However, it is little worse than information on some kinds of labor income. Surely an estimate of interest and dividends originating in each of these groups can be so made as to decrease the error of estimate of total social income involved in regarding these financial enterprises as 'associations of individuals'. The interest- and-dividends-originating formula should be used consistently throughout if its results are to be valid.

Dr. Kuznets refers to business savings as *the* element which, added to the aggregate of income payments to individuals, yields the national income. In addition to raising a question whether entrepreneurial savings are to be called "not paid out" and a further question whether interest accruing on an insurance policy is "paid out", I should like to repeat the suggestion made in my paper to the effect that the reckoning of government property income as consisting exclusively of interest on outstanding government indebtedness may be appropriate for computing aggregate income payments to individuals, but that some type of accrual estimate should be substituted in computing total national income. Thus it is not clear that "[corporate?] business savings" can be regarded as the one element of difference between income payments to individuals and total national income.

1 *Journal of Political Economy,* Vol. XL, No. 1, February 1932.

We may summarize suggested differences in these two concepts as follows:

	Net Social Value Product (before taking into account valuation readjustments)	Aggregate Income Payments to Individuals
Individual Businesses:	Payroll, interest originating, profits	Payroll, interest originating, profits
Business Corporations: (including banks and insurance companies)	Payroll and interest and dividend payments originating Additions to surplus of business corporations Additions to insurance policy holders' reserves	Payroll and interest and dividend payments originating
Governments:	Government payroll, imputed income on government-owned wealth	Government payroll and interest paid on government debt

3 ENTREPRENEURIAL WITHDRAWALS AND SAVINGS

When I suggested that estimates of entrepreneurial withdrawals are substantially as subjective as estimates of the value of housewives' services I had in mind partly that users of the term "entrepreneurial withdrawals" have failed to distinguish several different concepts and partly that the problem of imputing valuations in determining entrepreneurial withdrawals (in at least some of the meanings of this term) is likely to involve as wide a range of results as it is in the case of housewives' services.

In order to facilitate further discussion of this term and the corresponding term, 'individual business savings', I wish to ask which of the four following definitions of 'entrepreneurial withdrawals' Dr. Kuznets and others prefer:

a) Imputed entrepreneurial labor income (both wage income per wage earner and salary income per salary earner have been suggested as valuations appropriate to this definition);

b) Imputed entrepreneurial labor income plus 'imputed dividends' to the entrepreneur on his proprietorship equity (dividends are sometimes assumed to be at the same rate as for corporations in the same or some similar line of business);

c) Total entrepreneurial profits less the net increase during the year in entrepreneurial proprietorship equities;

d) Gross withdrawals from proprietorship equity accounts by entrepreneurs during the year.

Several compromises between (c) and (d) might give rise to additional definitions.

Dr. Kuznets appears to hold that the concept 'individual business savings' and the concept 'corporate business savings' are strictly analogous and that therefore 'individual business savings' as well as 'corporate business savings' should be excluded from the item 'aggregate income payments to individuals', and similarly, that 'entrepreneurial withdrawals' as well as 'corporate cash dividends' should be included in the item 'aggregate income payments to individuals'.

In general, the analogy between individual business savings and additions to corporate surplus is closest if definition (b) above is adopted for the concept 'entrepreneurial withdrawals'. The valuation question is particularly acute for this concept. It does not appear to be the concept that Dr. Kuznets advocates.[2]

Dr. Kuznets appears to prefer definition (c) for 'entrepreneurial withdrawals'. However, if it is intended that 'entrepreneurial withdrawals' shall be that part of entrepreneurial profits which should be included in 'aggregate income payments to individuals', definition (c) for entrepreneurial withdrawals is clearly inappropriate. New investments by individuals in a new line of business in which they are starting as entrepreneurs might make this alleged 'income payment' a negative quantity.

One might seek to distinguish between those 'business savings' in an individual enterprise which involve the actual investment of new money and those savings which arise merely from the failure to withdraw the additions to the proprietorship equity that are derived from profitable operations during the year. This criterion would suggest that definition (c) for 'entrepreneurial withdrawals' be adopted for those enterprises in each of which the increase in proprietorship equity during the year is less than the year's profits and that for all other enterprises entrepreneurial withdrawals should be assumed to be zero. While this definition would not provide a close analogy between the concept 'entrepreneurial withdrawals' and the concept 'corporate cash dividends', the corresponding concept of 'individual business savings'

[2] However, concept (a) is employed in several industry groups in the 1929–32 study.

would, in one respect, be closely analogous to the concept 'additions to corporate surplus'—the individual would be somewhat passive in respect to the savings involved.

We may, however, define 'aggregate income payments to individuals' as consisting of those income items over which individuals acquire a fair measure of control and discretion. If this view of 'aggregate income payments to individuals' is adopted, and I think it should be, the entire item 'entrepreneurial profits' should be included in the item 'aggregate income payments to individuals'.

4 IMMIGRANTS' ENTRANCE CAPITAL AND REMITTANCES

Dr. Kuznets suggests that in determining whether an item should be included in the net national income received from abroad, we should consider whether it results from the nation's economic activity. It is not clear to me that interest on foreign investments owned by nationals of the United States results from economic activity in or of the United States. I had supposed that net income received from abroad was to be distinguished from net income derived from the operation of a nation's economic system as being clearly in the class of incomes not produced by that economic system.

So far as secondary distribution items affect the difference between income derived from wealth and labor in the United States and income received by the United States population, it would seem appropriate to include secondary distribution items in the net income received from abroad.

Dr. Kuznets' argument against so including one secondary distribution item, 'immigrants' entrance capital' received during the year, emphasizes the resemblance between 'immigrants' entrance capital' and what by analogy we may call 'tourists' entrance capital'. Whether this resemblance should lead us to treat the two items in the same way in computing net income received from abroad will depend upon what population we have in mind as receiving the income. If, when we speak of the income received by a country, we mean the income received by all persons in that country, excluding residents of that country who are visiting abroad, obviously we should treat the entrance capital of foreign tourists entering the country in the same way in which we treat the entrance capital of immigrants. However, the usual concep-

tion of community used in defining the 'income received by a community' embraces its residents, including immigrants after their arrival and also including its own residents who may be visiting abroad, but excluding foreign tourists within its borders. Using this conception it is clear that 'immigrants' entrance capital' should be treated in one way and 'tourist entrance capital' in a quite different way. 'Immigrants' entrance capital' received into the country during the year represents a part of the income received from abroad, while 'tourist expenditures' represents a service export and therefore a deduction to be made from the country's gross imports of goods, services and equities in estimating the net income received from abroad by the credit or revenue-from-sales method.

Dr. Kuznets' argument involves a further point which is pertinent not only to the question of income received from abroad; he alleges that certain items are not properly called 'income' but rather 'changes in capital'. This point is reserved for subsequent consideration.

5 INTEREST ON GOVERNMENT DEBT

Dr. Kuznets finds it difficult to estimate the item, government property income, when defined as 'imputed net income from government-owned tangible wealth'. I have attempted a rough estimate of the wealth of the country at various dates and I am convinced that the difficulty is not appreciably greater than in the case of a number of other items in national income. If the theory underlying the proposal to substitute this concept for 'interest on government debt' in estimating total social income [3] is correct, the error of a rough estimate would surely be appreciably less than the error involved in using an incorrect item, however correctly estimated.

But Dr. Kuznets' first objection is theoretical as well as practical. He tells us that only an arbitrary valuation of government-owned tangible assets is possible because their valuation "could not be left to the free play of the forces of demand and supply". So far as I can see, present difficulties in valuation of government

[3] Note that I do not propose to substitute 'imputed net income from government-owned tangible wealth' for 'interest on government debt' in estimating 'aggregate income payments to individuals'.

assets according to accepted accounting practices are due chiefly to the failure of governments to install business-like accounting systems. Whether a business-like system of government accounting (including balance sheet accounting) can be developed, time alone can tell. However, I had not supposed that the free play of economic forces was necessary to the development of such an accounting system for a private business.

Dr. Kuznets' second objection to the use of the item 'imputed net income from government-owned tangible wealth' is that "a number of government expenditures that may be covered by borrowing are of a type that result not in an increase of the government's tangible wealth, but rather in the preservation or increase of the tangible wealth of business enterprises". He next simply cites the war debt, on which interest is still being paid, as an instance, and then without any mention whatever of the relevance of these non-controversial considerations to the question at issue between us he asks that question rhetorically. I shall be glad to attempt an answer to this second objection to imputed interest when it is adequately stated.

Meantime, the proposal to substitute 'imputed net income from government-owned tangible wealth' for 'interest on government debt' in estimating total national income may be made more plausible if we consider two cases in which for the sake of simplicity the amounts of government wealth and government debt are assumed to remain constant for an entire year. If in Case I the wealth exceeds the debt, imputed interest on the residual equity (wealth less debt) may be thought of as an income in kind received by the nation in addition to the money value of government services purchased through taxation. If in Case II the debt exceeds the wealth a proportionate amount of the interest upon the debt, corresponding to the amount by which the debt exceeds the wealth, and an equal amount of taxes paid during the year may be thought of as complementary secondary distribution items which jointly transfer so much income from tax-payers to bond-holders.

This view of property income derived from government is in effect the one commonly taken by economists when they urge that a nation cannot borrow from the future of itself but that government borrowing may effect a change in the distribution of owner-

ship of national wealth and so in the distribution of national income at least throughout the life of the indebtedness. By implication this view of government property income is also implicit in the distinction between an internal and an external debt.

6 ADJUSTMENTS FOR PRICE CHANGES WITH SPECIAL REFERENCE TO INVENTORY VALUATIONS [4]

In order to narrow the area of disagreement between Dr. Kuznets and myself (which I think for the whole field of wealth and income is already very small) I offer the following modification of my position as set forth above.

First, let that part of item (4) 'increase in tangible assets during the period' (Section IV), which has reference to inventories, be called item (4a) 'saved income invested in additions to the dollar-value of inventories during the year', and let item (4a) be further broken down into (i) 'the current value of the physical increments in inventories' and (ii) 'the increments in the values of inventories' which may be measured as (4a) minus (i). Second, let item (i) be included in what I have called item (21) 'the net social value product derived from the operation of the economic system before taking into account valuation readjustments', and let item (ii), which I have heretofore included in (21), be treated as a valuation readjustment and therefore be transferred to (22) 'total social income including net valuation readjustment gains' (Section IV).

The question as to what basis of valuation should logically be applied to a physical increment in inventory to give (i) 'the current value of the physical increments in inventories' probably offers no major issue between Dr. Kuznets and myself. While I do not agree that logic uniquely determines the ideal valuation basis, the actual basis is likely to be determined somewhat largely on pragmatic grounds.

It is still, in my opinion, also important that wealth and saved (i), item (ii) 'the increments in the values of inventories' is at present a form of income important in considering both the geographical and the personal distributions of income.

It is still, in my opinion, also important that wealth and saved

[4] This section was added to my reply in July 1937.

income should be defined on a consistent basis so that any year's saved income will equal the wealth as of December 31 of that year minus the wealth as of January 1. Under the modification in my position here offered this will of course continue to be true of total saved income including net valuation readjustment gains (item (22) minus consumed income).

Dr. Kuznets proposes, as I understand him, to substitute item (i) alone for item (4a) in the national income statement. The omission of item (ii) involves a criticism of now prevalent accounting practices which is both valid and important. In elaborating his position, he has called attention to an alternative accounting technique, known as 'the last-in, first-out' method of inventory valuation.[5] This method of handling inventories gives values for the income item (i) that are identical with those yielded by Dr. Kuznets' own proposal when the physical increment in inventory is positive, and that are approximately the same for other periods. According to this method, each year-end inventory is conceived as the sum of all previous annual physical increments, each positive annual increment being separately valued at a price appropriate to the year in which it occurred and each negative increment being conceived as a withdrawal of previous positive increments in the order of their recency. The adoption of such an accounting technique would probably have the effect of putting gains and losses from inventory revaluations on a par with gains and losses from the revaluations of other balance sheet items in that losses would be promptly and gains tardily recognized. Item (ii), as shown on a book value basis under these conditions, would be defined as the additional net loss (or net gain) during the year from such revaluations. Failure to recognize a temporary gain would obviate the necessity for subsequently recognizing subsequent losses up to the amount of the unrecognized gain. Hence (ii) would, I believe, ordinarily be small under the

[5] See his reply to my comments on his paper, Part Four, Discussion IV. His algebraic notation in his original presentation, Part Four, Sec. I and II, misled me, since on the one hand this notation necessarily implies that in valuing a homogeneous physical inventory as of a given date, any two units of the stock must in every instance have the same value; while on the other hand the last-in, first-out method, with fluctuating inventories and fluctuating prices, in general requires differences in the unit-book-values as of any given date for the various increments of which a homogeneous commodity stock is assumed to consist.

conditions assumed. Under present conditions, as Dr. Kuznets himself emphasizes, (ii) is an item of considerable size.

But the theoretical desirability of reforming inventory accounting practices is not a reason for overlooking the importance of the now prevalent cost-or-market rule in determining present market values and hence income distribution in our present society. I believe, therefore, that income estimates should for the time being continue to provide a figure that will make it possible to show item (4a), or (i) plus (ii), on substantially the present book value basis.

7 INCOME AND CAPITAL CHANGES

Wealth is a magnitude that has an instantaneous time reference. Income is a magnitude that has a periodical time reference. Thus we refer to the wealth of the United States at the close of the calendar year 1936, but to the income of the United States during the year 1936. A change in wealth is a magnitude that has the same kind of time reference as income. Thus we may refer to the appreciation of real estate during the year 1936. Saved income, indeed, may be defined as a change in wealth.[6]

Accountants draw a distinction between other income items and credits to proprietorship equity % valuation adjustments of various balance sheet items on the ground that the assignment of the latter type of item to a given accounting period is on a much less secure basis than is the assignment of the former type of item.[7] Thus, accrued interest income is felt to be clearly assigned appropriately to the period in which it accrues, while the

[6] Compare also the following definition of income in *Accounting Terminology,* Preliminary Report of A Special Committee on Terminology of the American Institute of Accountants, 1934, p. 68. "Income is increase in wealth measured in terms of money, accruing or received during a given period. . . . It includes earnings, gains and profits from any source."

[7] I have suggested two criteria for excluding valuation readjustment items from the basic concept, total social income: (a) the arbitrariness of the assignment of such transactions to a given accounting period, (b) the subjective character of the amount of the transaction. The second criterion reinforces the first. For the sake of brevity its consideration will be largely omitted here. The first criterion also reinforces the second. Thus if one waits long enough to recognize an item of appreciation, its recognition may become unnecessary by virtue of a subsequent depreciation.

appreciation of a tangible asset (when the accountant is prevailed upon to recognize it) appears to be somewhat arbitrarily assigned to the period in which the recognition takes place. This is true whether the appreciation is purely the result of a market change or whether it represents a definite change in the physical inventory known to be the property of the enterprise involved. Thus an accountant would ordinarily designate as an adjustment item a credit to proprietorship % the increase in value of a piece of real estate due either to a favorable legal decision or to the discovery of previously unknown subsoil mineral deposits.

As I understand Dr. Kuznets' position, appreciation due to discovery is an income item; appreciation due to a market change is a capital adjustment item. Just how he construes changes in the legal situation is not entirely clear, but apparently when an immigrant joins the population of the United States and his property rights are thus transferred to that population, the result is, according to Dr. Kuznets, a capital adjustment item and not an income item. This item should clearly not be classified as a valuation readjustment item in the accountant's sense for there is no substantial room for doubt as to the time at which the transaction takes place. Moreover, the item in balance of payments estimates 'immigrants' entrance capital' (and this represents the bulk of all such 'entrance capital') is a cash item. Accounting theory might justify treating the entrance capital of each immigrant, on arrival, as a 'deferred credit' to be apportioned over several years, but the effect of this treatment would be substantially the same as the effect of treating the item directly as income.

There is one type of case in which, as I understand it, Dr. Kuznets would treat market appreciation as an income item, namely, the case in which a realtor makes a margin on the handling of real estate. This margin or gross profit would be treated as a gross income item in the same way that the margin on the sale of a commodity would be treated. In this treatment I concur. I believe that the criterion of reasonably secure assignability to a definite accounting period offers a logical basis for treating this kind of market appreciation as contributing to total social income.

Thus in excluding asset adjustments from total social income

as a basic concept I seek to follow approximately the accounting practice.[8] Accordingly, I treat the 'immigrants' entrance capital' which becomes a part of our wealth during the year, and the 'margins realized by realtors on the merchandising of real estate' as gross items, the net items corresponding to which are included in the total social income received by a country before taking account of valuation readjustments.

Dr. Kuznets makes reference to "the important distinction between social income and changes in capital". Strictly speaking he should refer to those credit-changes in capital equities which are by definition saved income, and other credit-changes in capital equities. While it may be convenient to distinguish (i) credits to proprietorship equities % asset valuation readjustments from (ii) saved income which is securely assignable to a given year, they are, in my opinion, clearly like such saved income (a) in being assignable on a periodical basis (although with less precision) and (b) in the favorable economic effect which they specify as accruing to the recipient. Indeed, were we to talk about income in centuries instead of in years, they would for the most part be as clearly a part of the income received during the century as are payrolls.

Dr. Warburton suggests that what I have characterized as type (c) secondary distribution items are properly to be treated as part of the primary rather than the secondary distribution. His contention is entirely warranted and I am happy to accept this correction.

Dr. Warburton also suggests that government deficits should be treated like corporate deficits in national income estimates. As an objective towards which to work I concur in this suggestion. But government accounts would have to be put on a thoroughgoing accrual basis before one could determine a government deficit in a sense analogous to a corporate deficit. This would involve inter alia:

[8] However, it is realized that accountants distinguish those valuation readjustments which represent realized capital gains from those which represent mere paper profits. Ordinarily accountants do not recognize the existence of the latter type. This distinction on the basis of realization may be urgent for individual business accounts; its significance for social income estimates is less fundamental.

a) Establishment of a complete balance sheet (instead of a mere cash balance sheet);

b) Establishment of depreciation and depletion accounting;

c) Distinguishing between expenses for repairs, replacements, etc., and expenditures for additions to and betterments of government assets;

d) Establishment of adjustment accounts for all important inter-period revenue and expense relationships (i.e., deferred charge, deferred credit, accrued charge and accrued credit accounts).

The corollary of recognizing government deficits is, of course, recognizing government additions to surplus.

Dr. Warburton also suggests that relief in kind should be treated similarly to cash relief. Again I concur.

Finally, Dr. Warburton repeats the suggestion that education and other services furnished by the government should be evaluated and treated as income drawn from the government in kind. In his earlier and fuller statement of this suggestion I understand his view to be that all government services rendered directly to ultimate consumers should be evaluated upon a cost basis, and that the amount by which the value of these services exceeds the charges (taxes, etc.) levied directly against individuals should be treated as an income in kind to be added to the total social income as determined by the application of the net value product formula.[9] There is a close similarity between this suggestion and that of Dr. Colm.[10] Both attempt to contrast a split of government revenues into those derived from (a) businesses, and (b) individuals, with a split in the costs of government operations as between those serving businesses and those serving individuals. Both believe that our existing tax system, as far as this split goes, deviates a long way from what would be called for by the principle of cost of service or the benefit theory. Both estimate the excess charge against businesses for a recent year at about $7,000,000,000. Both authorities conclude from the overcharge against businesses that we should add to national income substantially the amount of this overcharge. (Dr. Colm makes a deduction from the seven billion-odd dollars for subsidies.)

[9] Cf. Part Two, Sec. IV.

[10] Part Five, Sec. II, III and V.

As I understand it, Dr. Colm looks upon the addition (i.e., the taxes upon business in excess of the cost of government service to business) as a distributive share derived from business, a share which is on a par with interest and wage payments made by business. Dr. Warburton would leave the estimate of income derived from business substantially unamended and would add to government interest and payroll an income in kind representing free services provided to individuals by the government out of the profit on the government's dealings with business enterprise. The two resulting industry distributions differ, but total social income is the same from either viewpoint.

Both Dr. Colm and Dr. Warburton recognize that the case for making this addition to the social income total determined by the net value product formula rests upon an assumption regarding the incidence of taxation.[11] That assumption is that the taxes levied upon businesses to support that part of the services to ultimate consumers not supported by direct taxes on individuals have the effect of decreasing the total of distributive shares rather than the effect of increasing the charges by businesses for their products. Presumably this means that a part only of the excess of the value of government services to consumers over government charges to individuals should be added to the net value product estimate of social income, if only a part of the supporting taxes and other charges represents a deduction from the total of distributive shares.

If it turns out that a detailed analysis of government accounts leads *unambiguously* to the conclusion that, for any branch of government, services to ultimate consumers are supported to a given amount by taxes which have the effect of decreasing one or more of the distributive shares by a like amount, then it seems to me to follow that the proposal of Dr. Colm and Dr. Warburton to add such an amount to the total social income determined by the net value product formula should be accepted.

To my mind such a conclusion would require not only a detailed study of existing data on government finances, but also an attempt (a) to reconstruct government accounts upon a thoroughgoing accrual basis, and (b) to apply cost accounting technique on the basis of the accounts so revised.

[11] Warburton, Part Two, Sec. IV, 4 and Colm, Part Five, Sec. II, 3.

In this connection I would urge again that interest on government bonds as an item of estimate in total social income be replaced by imputed property income on the value of government wealth. Employment of such an imputed item for local government might yield an increase which would serve, for purposes of Dr. Warburton's ultimate product approach, as a partial substitute for the recognition of the income in kind proposed by Dr. Colm and himself. (In some years recognition of an addition to surplus might yield a further increase; in others recognition of a deficit might yield an offsetting item.)

In January 1936 I wrote:

> "May I offer some suggestions regarding possible lines of inquiry which I believe would be profitable? Several of these emphasize the need for studying wealth and income together, setting up what amounts to a consistent scheme of social capital and income accounts for each major industrial grouping in our economic system.
>
> "(1) National resources employed by governments and the incomes derived therefrom. This should be an experimental study for sample years, which would attempt to work over available data into the form of a double entry system of accounts on a rough accrual basis appropriate for use in national wealth and income measurements. Such a study should throw light on a number of problems—the handling of government interest, relief payments, government budget deficits, etc., in national income estimates; valuation bases for non-business wealth; the part of government value-product saved and consumed, etc. It should also provide suggestions for improving the basic data."

I now wish to urge this proposal again.

Part Two

ACCOUNTING METHODOLOGY IN THE MEASUREMENT OF NATIONAL INCOME

CLARK WARBURTON
FEDERAL DEPOSIT INSURANCE CORPORATION

ACCOUNTING METHODOLOGY IN THE MEASUREMENT OF NATIONAL INCOME[1]

CLARK WARBURTON

I Terminology and Inclusiveness of Items

1 RELATION OF TERMINOLOGY TO THE CHARACTER OF ITEMS LISTED AND EVALUATED

A SOLUTION of the vexatious problem of terminology in measurement of national income may be found by applying the principle that the terms used should be descriptive of the items listed and evaluated rather than of the total value obtained.

Balance sheet terminology may be used as an illustration. Accountants do not describe the listing and evaluation of the items on the liability side of a balance sheet as a method of estimating the value of the assets, or attach the title 'total assets' to the total of the items on the liability side. Such a procedure would be more confusing than the present practice of using separate terms which are descriptive of the items listed, and of saying 'total assets equal total liabilities' when the measurements have been made in such a way as to produce equality of totals.

No less than five separate groups of items may be evaluated in

[1] This paper, except for the first two sections, is an adaptation of several memoranda prepared in connection with the Brookings Institution's study of the distribution of wealth and income in relation to economic progress. The first two sections are an adaptation of comments made in connection with a meeting of the Washington chapter of the American Statistical Association in June 1936.

For other discussions of concepts of national income see M. A. Copeland, Part One, and Gerhard Colm, Part Five.

obtaining what is now commonly called 'national income'. If in evaluating these groups of items we use a procedure analogous to that used in balance sheets, we have a set of terms such as those listed in Table 1. The specific terms used in this table are unsatisfactory in some respects, and more appropriate terms can probably be found to substitute for some of them.

TABLE 1

METHODS AND TERMINOLOGY FOR MEASUREMENT OF NATIONAL INCOME

CHARACTER OF ITEMS LISTED AND EVALUATED	PROPOSED DESIGNATION OF ITEMS	TOTAL VALUE	METHOD
Wages, salaries, dividends, interest, etc., paid by business enterprises, governments, etc., to individuals	Distributive shares, or income derived from (a) industries, (b) regions, (c) types of payment	Total income distributed by, or derived from, business and social enterprises	Summation of distributive shares
Selling value of each industry's output less purchases from other industries	Value added by manufacturing, mining, etc.	Total value added by production	Value added summation
Sales to ultimate consumers and for capital expansion by (a) industries, (b) types of goods	Final products by (a) industries, (b) types of goods	Total value of final products [2]	Summation of value of final products [2]
Income received by various classes of individuals, or from various sources, including income received by business and social organizations on behalf of individuals	Income received by (a) sources, (b) classes of recipients	Total income received	Summation of income received
Expenditures for consumption and savings by families, individuals and social groups	Consumer purchases and savings	Total value of consumer purchases and savings	Summation of consumer purchases and savings

[2] The writer has at various times used the terms 'end-products' and 'ultimate products' to designate the items here called 'final products'. None of these terms is entirely satisfactory, since physical and psychological satisfactions, rather than the goods and services included in this concept, may be considered the ultimate products of economic activity. Food, clothing, additions to capital facilities, etc., however, may be considered the final products of business enterprises.

In making compilations of these five types it may be desirable to select items in such a way that, except for errors due to inadequate information, the five totals are all equal. On the other hand, the various purposes for which the compilations are desired may be best served by selections of items in ways that do not yield uniform totals. However, it should always be possible to identify causes of differences among the totals, and thus to compare them with one another and to use them as mutual checks on the accuracy of the figures obtained.

2 USE OF TERMS 'NATIONAL INCOME' AND 'NATIONAL PRODUCT'

The term 'national income' is not used in Table 1 to designate any of the various totals, and it may be suggested that this term be retained only as a general designation of a field of study without specific attachment to any of the various types of aggregate. However, attention may be called to the fact that the definitions of national income made by various writers are such that this term may more appropriately be applied to the total value of sales to ultimate users by types of goods (adjusted for depreciation and depletion) than to any of the other totals listed in the table, though no investigation of national income in the United States has ever been made by the process of listing and evaluating the items constituting such ultimate sales. The term 'national product' is more descriptive than 'national income' of the concept described in most definitions of national income.

3 INCLUSIVENESS OF ITEMS

It will never be possible to establish a definitive list of items of which the total is to be regarded as the true value, or closest approximation to the true value, of national income for two reasons. (a) At any given time certain items may or may not be desired, depending on the purpose of the evaluation and the use to be made of the data. (b) Evaluation of various items necessarily depends in part upon the social and economic arrangements under which goods and services are produced. As such arrangements change, methods and totals formerly appropriate may become inappropriate.[3]

[3] Further discussion of these points will be found in Sec. III; cf. also, Colm, Part Five, Sec. I, 2.

It may be possible, nevertheless, to develop a group of modifiers so that workers in the field of national income will have at hand a uniform set of terms for each of the five types of total mentioned above, each set consisting of a series of terms more or less inclusive of the controversial items. For example, the sum of incomes received by personal income recipients, designated above as 'total income received', might be represented by several standard forms, such as the following:

Total current cash individual income;

Total current individual income (current cash income plus imputed value of food used by producers thereof, rental value of owned houses, etc.);

Total realized individual income (current individual income plus realized capital gains);

Total realized and accrued individual income (realized income plus changes in market or book value of property owned);

Total realized individual and collective income (realized individual income plus corporate surplus, and plus income of governments and philanthropic institutions utilized for the benefit of individuals);

Total realized and accrued individual and collective income (realized individual and collective income plus changes in market or book value of properties owned).

In developing such a set of standard terms for each of the five types of total, careful attention should be given to those already used, so as to cause as few conflicts as possible.

II Measurement of the Value of Final Products

1 FINAL PRODUCTS IN DEFINITIONS OF NATIONAL INCOME

The term 'national income' has in the past been so defined as to suggest that the measurement of the total value of the economy's final products has been pursued more intensively than actually has been the case.

In his book, *The Wealth and Income of the People of the United States,* published in 1915, Willford I. King made the following statement (p. 124):

"From our farms and forests, out of our mines and rivers and lakes, from our shops and factories, and from our theatres, our schools, and our churches flows forth a constant stream of finished commodities and services ready for consumption by the people. . . . In addition to this stream, whose annual flow constitutes the national dividend, there is produced, each year, a quantity of new capital goods, much greater than that used up by the industrial processes. This additional capital represents the savings of the nation. These savings, together with the national dividend, constitute the national income—the total product of the efforts of the citizens."

Simon Kuznets, in summarizing the national income study made jointly by the National Bureau of Economic Research and the Department of Commerce, gave a similar definition of national income produced:

"If all the commodities produced and all the direct services rendered during the year are added at their market value, and from the resulting total we subtract the value of that part of the nation's stock of goods that was expended (both as raw materials and as capital equipment) in producing this total, then the remainder constitutes the net product of the economy during the year. It is referred to as the national income produced, and may be defined briefly as that part of the economy's end product that results from the efforts of the individuals who comprise a nation." [4]

This definition of national income produced was repeated by R. R. Nathan in presenting the estimates of the Department of Commerce for 1934:

"The *national income produced* represents the aggregate value of all commodities produced and services rendered, less the value of raw materials depleted and capital equipment worn out in the processes of production. More briefly it may be defined as the net product of the national economy." [5]

Maurice Leven, who prepared estimates of national income

[4] *Bulletin 49,* National Bureau of Economic Research (January 26, 1934).
[5] *Survey of Current Business,* November 1935.

used by the Brookings Institution in *America's Capacity to Consume,* uses substantially the same definition:

> "The national income may . . . be defined as the money equivalent of the goods and services produced within a given period of time." [6]

Again, in a chapter in which Mr. Leven is co-author with H. G. Moulton, it is stated:

> "The national income may be defined as the *net* volume of goods and services produced by a nation within a given period —a year." [7]

From these definitions it might be supposed that the process of measuring national income, or value of the net product of the economy, would comprise the listing and evaluation of the various commodities and services acquired by consumers, and of additions to capital acquired by business concerns with allowance for changes in inventories. In fact, however, none of the persons whose definitions of national income I have quoted has used this direct process. They have evaluated a different list of items.

2 USEFULNESS OF MEASURING THE VALUE OF FINAL PRODUCTS

Several important purposes would be served by an estimate of the value of the national product, or amount of the national income, built up by the process of listing and evaluating the various items of consumption and of additions to capital facilities. First, measurement of national income in terms of the items of final products shows more clearly than any other method the essential characteristics of business fluctuations. It reveals clearly what segments of the economy have failed to produce their accustomed quotas of commodities and services. Have we curtailed our production of houses and furniture more or less than education or recreation? Have we retrenched more on the making or cleaning of clothes?

We do know, in a general way, what types of industry have been most depressed. More precise measurements, however, would lead

[6] Maurice Leven, H. G. Moulton and Clark Warburton (Brookings Institution, 1934), p. 137.
[7] *Ibid.,* p. 9.

directly to the question: Have we ceased to produce these things because we want no more than we have made, or because we have produced them in excess relative to other final products? If the former, to what other items should the nation's productive efforts be directed, and how can our productive energies be shifted to them? If the latter, what can we do to restore production to the pre-depression level?

Second, measurement of national income in terms of final products will show not only the essential characteristics of business fluctuations but also the more gradual changes in the character of the economy. As time goes by, what types of commodities and services absorb larger or smaller proportions of the income of the population? Larger or smaller proportions of the nation's productive energies? Do we spend relatively more, or less, for tobacco, for recreation, for religion, than we did a few years ago? Are expenditures for these items increasing more, or less, rapidly than expenditures for dairy products, citrus fruits, or education?

Third, measures of the value of the various commodities and services used by the population and of additions to productive facilities are needed in connection with studies of productive capacity. A recent costly investigation in this field was distorted, and its results made unreliable, because of failure to relate productive capacity to consumption. *Per se* capacity to produce black powder, steel or bituminous coal is of no particular importance—no more important than capacity to blow soap bubbles or to place pins in pin cushions. Measurements of capacity have substantial significance only when capacity to produce is related to the end-products that men want.

The fourth and most important reason for advocating direct estimates of the value of the various types of final product is that they emphasize the fundamental aspects of the economic system and provide a coordinated view of the national economy. The basic purpose of all economic activity is to provide commodities and services for the use of human beings, and the chief public purpose of government regulations of or interference with economic life is to furnish the people more abundantly with the commodities and services they desire. This is especially true when productive facilities are being operated far below normal capacity.

This purpose needs emphasis. Had we kept it before us, we

would have asked, what is the best method of providing the population with food, shelter, education, recreation, mobility, rather than asking, how can we save property values or how can we provide jobs for all the unemployed? Property values, money incomes and jobs are means to an end. As a nation we have tried to make them ends in themselves, and for this the economists and statisticians must take a fair part of the responsibility. For decades economists and statisticians have emphasized the gathering of statistics on property values, money incomes and employment. We need such statistics—more of them and better than we have—but we should place the greater emphasis on the commodities and services furnished the people of the nation.

3 TECHNICAL PROBLEMS

Brief mention may be made of a few of the technical problems encountered in this type of measurement of national income, or national product.

a) It is apparent that estimates of retail values of most items are difficult to make on account of the great variations in prices and in price margins. However, from the 1929 census of distribution and the 1933 and 1935 censuses of business, together with other data made available in recent years, we can prepare estimates of about the same order of accuracy as well-known estimates of national income by other methods. With respect to most items various methods of estimation may be used to check one another. In the case of total food costs for the nation in 1929, for example, five methods of estimate have been used, largely independent of one another.[8] Three of these methods yielded estimates between 19½ and 20½ billion dollars, and there are reasonable explanations why the other two estimates come out respectively at about one billion dollars above, and two billion dollars below these limits.

b) It is necessary to make arbitrary assumptions as to the proportions of some items purchased by consumers and by business enterprises. The most conspicuous case of this difficulty relates to transportation. How much of the passenger revenue of railroads and of other common carriers is derived from tickets purchased

[8] Unpublished estimates prepared by the writer in connection with the Brookings Institution's study of the distribution of national income in relation to economic progress.

by individuals out of their personal incomes, and how much from tickets purchased by business concerns and other organizations? How large a proportion of new automobiles, and of the cost of operating automobiles, is personal and how much is charged to business costs?

c) Peculiarly intricate problems are encountered in evaluating the various services such as education, medical service, and relief, provided by government agencies. These problems relate both to the difficulty of separating government services to persons from government services to business concerns, and to problems of accounting in relation to taxation.

d) Illegal goods and services cannot be ignored, and such items are especially difficult to evaluate.

e) We must distinguish between the gross and net value of additions to capital facilities, and segregate capital funds derived from capital gains and depreciation allowances from those derived from savings out of current income.

III Influence of Accounting Methods and Social Arrangements upon the Measurement of the Income and Expenditures of a Community

Both accounting methods and the economic and social arrangements under which goods and services are produced affect measurements of the money value of the total income of the people in a given community.

To illustrate the effect of accounting methods, let us consider first two cases from accounting practice with respect to statements of assets and liabilities.

(1) A manufacturer's statement of assets and liabilities may be made up in either of the following forms:

Method A

ASSETS		LIABILITIES	
Plant and equipment (cost or book value)	$500,000	Capital stock and surplus	$500,000
Current assets	300,000	Bonds and current liabilities	200,000
		Reserve for depreciation	100,000
Total	$800,000		$800,000

ASSETS			LIABILITIES	
		Method B		
Plant and equipment (cost or book value)	$500,000		Capital stock and surplus	$500,000
Less depreciation	100,000	$400,000	Bonds and current liabilities	200,000
Current assets		300,000		
Total		$700,000		$700,000

(2) The statement of a Federal Reserve member bank which has sold United States government bonds to a Federal Reserve bank under a re-purchase agreement may be prepared in either of the forms below.

ASSETS		LIABILITIES	
	Method A		
Loans and discounts	$500,000	Deposits	$700,000
United States securities (in own vault)	300,000	Capital stock and surplus	350,000
Other assets	300,000	Other liabilities	50,000
Total	$1,100,000		$1,100,000
	Method B		
Loans and discounts	$500,000	Deposits	$700,000
United States securities (in own vault)	300,000	Capital stock and surplus	350,000
United States securities (at Federal Reserve Bank)	100,000	Due Federal Reserve Bank	100,000
Other assets	300,000	Other liabilities	50,000
Total	$1,200,000		$1,200,000

In these cases the method of accounting (that is, the method of evaluating assets and liabilities) makes a difference in the figures obtained as the value of total assets, and of total liabilities. It cannot be said that either method is wrong or inaccurate. For a particular purpose, however, one method may be more appropriate than the other. It may also be noted that in either of these cases a third figure for the value of total assets or total liabilities would probably be obtained by an appraisal of the assets, and still another by the price that could be obtained if the assets were sold.

Let us now proceed to a few illustrations of statements of income and expenditures, taking the case of a consumers' coopera-

tive society operated on English lines. Many consumers' cooperatives in England supply to their members various free services, such as the use of libraries, education, recreation. Let us assume, for the sake of clarity in the illustration, that there are no taxes to be paid, and that the cooperative pays a separately operated company (or companies) for the various services (education, recreation, etc.) that it furnishes free to its members. Under these circumstances a statement of the receipts and disbursements of the cooperative might be made up as follows:

RECEIPTS		DISBURSEMENTS	
Sale of goods	$10,400,000	Paid to business concerns (designated as Group X) for supplies purchased	$6,000,000
		Paid to business concerns (designated as Group Y) for services furnished free (1/3 to employees, 2/3 to members)	900,000
		Wages and salaries paid to own employees	2,000,000
		Interest on stock (paid to members)	500,000
		Dividends (balance of earnings) paid to members (stockholders)	1,000,000
		Total	$10,400,000

The income paid out by (drawn from) the cooperative may be stated in more than one way. Whatever method is used with respect to income, there is a corresponding method that is appropriate with respect to expenditures.

Method A

INCOME PAID OUT BY THE COOPERATIVE		EXPENDITURES MADE FROM THIS INCOME	
Cash wages and salaries to employees	$2,000,000	Food, etc., paid for in cash, purchased by	
		employees	$2,000,000
Cash payments (interest and dividends) to members or stockholders	1,500,000	stockholders	1,500,000
		Education, recreation, etc., at cost to recipients	0
Total	$3,500,000		$3,500,000

Method B

INCOME PAID OUT BY THE COOPERATIVE		EXPENDITURES MADE FROM THIS INCOME	
Cash wages and salaries	$2,000,000	Food, etc., paid for in cash, purchased by	
Cash interest and dividends	1,500,000	employees	$2,000,000
Income disbursed in kind to		stockholders	1,500,000
employees	300,000	Value of free services utilized by	
stockholders (members)	600,000	employees	300,000
		members	600,000
Total	$4,400,000		$4,400,000

Method A may be defended by saying that the education, recreation and other services furnished free to members and employees of the cooperative are a 'free deal' thrown in with the purchase of food and other commodities sold by the cooperative. Of course, the customers pay for this 'free deal' while the employees and members (constituting only a part of the customers) receive it. Method B, on the other hand, may be defended by saying that the income received in kind by the employees and stockholders (members) is just as truly a part of their income as their cash wages and dividends. In fact, the employees and stockholders (members) may have requested payment of a part of their income in this form instead of in cash.

Let us now assume that the employees and members of the cooperative, together with the employees and stockholders of the concerns designated as Group X and Group Y, constitute the entire community. Further, to simplify the situation, we assume that: (a) there are no savings or investments during the year; (b) the receipts of Group X and Group Y business concerns are disbursed wholly in salaries, wages and dividends; (c) the recipients of these salaries, wages and dividends spend them for goods purchased at the cooperative. Then we have the following statements of the aggregate income and expenditures of all the members of the community.

INCOME OF COMMUNITY		EXPENDITURES OF COMMUNITY	
Method A			
Cash income		Food, etc., purchased from the cooperative	$10,400,000
Employees of cooperative	$2,000,000	Education, recreation, etc., at cost to recipients	0
Stockholders of cooperative	1,500,000		
Employees and stockholders of Group X concerns	6,000,000		
Employees and stockholders of Group Y concerns	900,000		
Total	$10,400,000		$10,400,000
Method B			
Cash income		Food, etc., purchased from the cooperative	$10,400,000
Employees of cooperative	$2,000,000	Value of free services utilized by employees and stockholders of cooperative	900,000
Stockholders of cooperative	1,500,000		
Employees and stockholders of Group X concerns	6,000,000		
Employees and stockholders of Group Y concerns	900,000		
Income received in kind			
Employees of cooperative	300,000		
Stockholders of cooperative	600,000		
Total	$11,300,000		$11,300,000

We may now consider several variations in this situation.

(1) The cooperative eliminates the free services to employees and stockholders, using the money thus released to increase their wages, salaries and dividends. The employees and stockholders use the additional cash income to purchase the education, recreation and other services they formerly received free. Then the community income and expenditures are as follows:

INCOME		EXPENDITURES	
Employees of cooperative	$2,300,000	Food, etc., purchased from the cooperative	$10,400,000
Stockholders of cooperative	2,100,000	Education, recreation, etc., purchased from Group Y concerns	900,000
Employees and stockholders of Group X concerns	6,000,000		
Employees and stockholders of Group Y concerns	900,000		
Total	$11,300,000		$11,300,000

(2) The cooperative eliminates the free services and reduces the prices of the goods it sells. This enables the members of the community (including the employees and stockholders of Group X and Group Y concerns) to purchase the education, recreation and other services supplied by the Group Y concerns. The community income and expenditures are now as follows:

INCOME		EXPENDITURES	
Employees of cooperative	$2,000,000	Food, etc., purchased from the cooperative	$9,500,000
Stockholders of cooperative	1,500,000	Education, recreation, etc., purchased from Group Y concerns	900,000
Employees and stockholders of Group X concerns	6,000,000		
Employees and stockholders of Group Y concerns	900,000		
Total	$10,400,000		$10,400,000

(3) Group Y business concerns are absorbed by the cooperative, so that their employees and stockholders become employees and stockholders of the cooperative. Dividends formerly paid stockholders of the Group Y concerns are abolished and the money used to increase the wages of their former employees. Again we have the two methods of stating the total income and expenditures of the community.

Method A

INCOME		EXPENDITURES	
Employees of cooperative, in cash	$2,900,000	Food, etc., purchased from the cooperative	$10,400,000
Stockholders of cooperative, in cash	1,500,000	Education, recreation, etc., at cost to recipients	0
Employees and stockholders of Group X business concerns	6,000,000		
Total	$10,400,000		$10,400,000

Method B

INCOME		EXPENDITURES	
Employees of cooperative, in cash	$2,900,000	Food, etc., purchased from the cooperatives	$10,400,000
Stockholders of cooperative, in cash	1,500,000	Value of free services used by employees and stockholders of cooperative	900,000
Employees and stockholders of Group X concerns	6,000,000		
Employees and stockholders of cooperative, in kind	900,000		
Total	$11,300,000		$11,300,000

(4) Group Y business concerns are abolished, but instead of being absorbed by the cooperative, control over the schools, etc., is taken over by a committee of the community elected by popular vote. At first the cost is still met by the cooperative, but it is decided to open the schools, recreation facilities, etc. to employees and stockholders of Group X concerns as well as to those of the cooperative, and to transfer half the cost to the Group X concerns. Group X concerns add this sum to the prices charged the cooperative for supplies. Again there are the two methods of stating the total income and expenditures of the community.

Method A

INCOME		EXPENDITURES	
Employees of cooperative, in cash	$2,000,000	Food, etc., purchased from the cooperative	$10,400,000
Stockholders of cooperative, in cash	1,500,000	Education, recreation, etc., at cost to recipients	0
Employees and stockholders of Group X concerns, in cash	6,000,000		
Employees of government	900,000		
Total	$10,400,000		$10,400,000

INCOME		EXPENDITURES	
Method B			
Employees of cooperative, in cash	$2,000,000	Food, etc., purchased from the cooperative	$10,400,000
Stockholders of cooperative, in cash	1,500,000	Education, recreation, etc., (evaluated at cost to the community in taxes)	900,000
Employees and stockholders of Group X concerns, in cash	6,000,000		
Employees of government	900,000		
Income disbursed in kind, through the medium of taxes paid by			
the cooperative	450,000		
Group X concerns	450,000		
Total	$11,300,000		$11,300,000

The foregoing cases represent five different types of social arrangement to provide education, recreation, etc. The total production and income of the community, in terms of goods and services, is the same in all; although there are some differences in the distribution of these goods and services among the various members of the community. In one case the appropriate method of measuring in dollars aggregate income and aggregate expenditures of the members of the community gives a figure of $11,300,000. In another the appropriate method gives a figure of $10,400,000. In the remaining three, however, the total may be stated to be either $10,400,000 or $11,300,000, according to the method of accounting.

If it is desired to choose one or another of these figures, this must be done on the basis of which method seems the more convenient for the purpose for which the statement of income and expenditures is desired. Choice cannot be made on the ground that the larger figure involves 'duplication' or 'double counting'. It may with equal logic and accuracy be claimed that the smaller figure omits important types of income received in kind.

IV Treatment of Government Revenues and Services in the Measurement of National Income[9]

Governments are social organizations performing various types of function. They are business service organizations, providing aid to business operations; personal service organizations, collecting fees to meet, in whole or in part, specific services rendered individuals; and collective agents of the population to which the public turns over a portion of its income to provide free education and other services.

The services rendered by governments to individuals, whether free or for fees, are a part of the final product of economic activity. As such, they should appear among the items of consumption. Moreover, though provided free of charge to the public, they are not costless; and if we wish to compare what the nation spends for education with what it spends for communication or transportation or tobacco, it is necessary to take into account the amounts spent by public authorities. It appears reasonable, therefore, in listing the various types of final products and their values, to assign to the free services of governments a value based on the cost of rendering them. Government expenditures for buildings, land and waterway improvements, and other capital goods must also be included and evaluated in any list of final products. They are as much a part of the national product as are additions to the plant and equipment of business concerns.

However, the assignment of values to free government services, and the inclusion of government services and capital improvements among final products, lead to a number of difficult problems in national income estimating. These difficulties arise primarily in the separation of the cost of services rendered to individuals from the cost of services rendered to business enterprises, and in the treatment of government revenues utilized in meeting the cost of capital improvements and of services to individuals.

1 VALUE OF FINAL PRODUCTS PROVIDED BY GOVERNMENTS

Both the character of government accounting and the nature of government services make impossible an accurate separation of

[9] For a more extensive discussion of this topic see Colm, Part Five.

the cost of services rendered to individuals from the cost of services rendered to business enterprises. Some services, such as education and recreation, can be assigned completely to the former group, and some, such as economic development, to the latter. Others, however, notably general administration and the protection of persons and property, can be allocated only arbitrarily.

Such an allocation of government expenditures between services to business and to persons has been made in connection with an estimate of the value of the various constituents of the national product in 1929 and selected prior years.[10] In this estimate the total amount spent by governments for education, health and recreation, and a part of their expenditures for sanitation, protection and general administration were included among the items constituting the national product. Other government expenditures upon behalf of consumers, such as food and shelter furnished to special groups in the population—aged, poor, blind, delinquent, criminal, and the personnel of the army and navy—and government expenditures for buildings and other capital equipment were also included in the national product.

Government expenditures for services to persons in 1929, according to this estimate, amounted to more than five billion dollars, and for buildings and other capital goods, to more than two billion. Governments spent approximately 7 per cent as much for consumers' goods as did individuals, and 20 per cent as much for buildings and other capital goods as did business concerns (excluding housing companies). These percentages were much larger during the last five years than in 1929.

2 COLLECTIVE INCOME OF GOVERNMENTS

If government expenditures for consumers' goods and for capital goods are included in a summation of the value of final products, then the government revenues absorbed by them must somehow be included in a summation of incomes received. One method of doing this, and from some points of view the most satisfactory, is to treat certain government revenues as collective income and to add their amount to the sum of individual incomes.

'Collective income' may be defined as income received by of-

10 See Clark Warburton, 'Value of the Gross National Product and Its Components, 1919–1929', *Journal of the American Statistical Association*, December 1934.

ficers of social and business organizations on behalf of groups of individuals and spent on their behalf. Three chief forms of collective income exist in the United States: (a) part of the revenue of governments; (b) interest and dividends received by educational and other philanthropic institutions providing services to consumers free of cost or at less than cost; (c) corporate surplus. Of these, the collective income of governments is the most important.

Not all government revenue is collective income as that term is here used. In fact, government revenue may be divided, logically, into four parts, of which only one part is collective income.

One part of the revenue of governments consists of specific fees and charges made to individuals and business concerns for particular services rendered to those individuals or business concerns. Payments for postal service, for water or other utilities furnished by municipalities or local governments, for licenses, and fees for recording deeds and other records are of this sort. These fees and charges are essentially similar to payments made to public utility corporations or other business concerns for the services purchased from these concerns. As agencies providing particular types of services, governments constitute one class of producing concerns, like farms, mines, factories or hospitals.

A second part of government revenue consists of taxes levied upon business to meet the cost of protecting property and of furnishing other services to business enterprises. These taxes may not be, and commonly are not, levied upon the various business concerns in direct proportion to the amount of service rendered to each. They are, however, essentially fees paid for services rendered. They have the same essential characteristics as the advertising expenses of one corporation paid to another corporation.

The third part of government revenue consists of levies upon individuals to meet the costs of services rendered to persons. Here also governments are acting as producing concerns or, one might say, as purchasing agents for consumers. Such taxes have the same essential characteristics as postal charges, water rates and fees for marriage licenses. In essence they are fees charged for services rendered, even though the charge may be based, as surgeons' fees are sometimes based, on the income of the individual rather than on the service rendered to each person.

In all three of these types of government revenue there is nothing that partakes of the character of collective income. Collective income arises only when levies made upon business enterprises, or profits obtained from government owned industries, are utilized to furnish education or other free services to the public, or to consumers, or for capital outlays. This is a part of the income of the nation, just as though the amounts had been drawn by individuals from business concerns and spent for education and other services, or invested. In a sense, such revenue might be regarded as a profit the government makes in furnishing protection and other services to business and disperses to the 'owners' of the government in kind rather than in money. This 'profit' of government, or sum levied upon business in excess of the cost of services rendered business, is what we have here termed collective income.

The collective income of governments, thus understood, may consist either of direct business taxes, such as property taxes or corporation income taxes, or of taxes usually known as indirect consumption taxes. True, taxes that are obviously consumption taxes (such as the tax upon tobacco or gasoline) but for convenience are collected from business enterprises may be considered to belong to the third sort of government revenue mentioned above, that is, revenue collected from individuals. On the other hand, these taxes are not, from the point of view of the purchaser of the products taxed, payments for services rendered by the government. While consumers may know that the tobacco or gasoline tax is used to furnish government services, what he buys when he pays the tax is, so far as his own choice is concerned, merely tobacco or gasoline. Family and individual choices as to their purchases are influenced by the total cost of various articles available, but only slightly, if at all, by the part of the total cost that is collected by the government.

It is impossible to ascertain just how much of the revenue of the various governments in the United States belongs in the category of collective income as here defined. Two methods of estimate may be used. In one the cost of services rendered business enterprises is deducted from the total net earnings of government enterprises and revenues collected from business enterprises, the difference being considered 'profit' or collective in-

come. In the other method the amount of taxes collected directly from individuals is deducted from the total cost of capital improvements and of services rendered individuals. Estimates made by both methods indicate that the collective income of governments in the United States in 1929 was at least five billion dollars, which is 6 per cent of the income received directly by individuals (excluding capital gains). This percentage has been greatly increased in recent years, so that collective income is now a substantial part of total national income.

3 EFFECT OF METHODS OF HANDLING GOVERNMENT REVENUES AND SERVICES UPON ESTIMATES OF TOTAL NATIONAL INCOME

It is recognized that the method of handling government services and revenues suggested in the foregoing paragraphs differs from the practice of economists and statisticians in measurement of national income.[11] If the capital outlays of governments and their free services to persons are evaluated and added to the value of goods and services purchased by individuals when measuring national income by the method of summation of value of final products; and if the collective income of governments is added to the income of individuals when measuring national income by the method of summation of individual incomes, a figure for total national income will be obtained that is several billion dollars larger than the figures published by the National Bureau of Economic Research or the Department of Commerce.

The traditional method of treating government services and revenues in measurement of national income is usually defended on the ground that the value of free government services, as a result of the process of taxation, is included in the value of goods purchased by individuals. The free services of governments, and the items taxed to provide them, may be treated as a joint market —the government services being a 'free deal' thrown in with the purchase of gasoline, tobacco and other items subject to indirect taxation. From this point of view it may be said that the method of treatment of such services discussed above involves duplica-

[11] Simon Kuznets has recognized the validity of the method with respect to relief expenditures of governments (*National Income, 1929–1932,* 73d Cong., 2d Sess., Senate Doc. 124, p. 12). There is no difference in principle between government cash payments to individuals for the purchase of food and lodging, and government provision of food, lodging, education or other services.

tion of the value of free government services and 'inflates' national income.

Choosing between the two methods is not a matter of deciding which is 'right' and which 'wrong', but rather of deciding which of two alternative methods of accounting is the more appropriate in view of the uses that are to be made of the estimates.

If the purpose of the estimates is to determine the value of the various types of final products and the proportions of national income devoted to each—and this is one of the major purposes of estimating national income by the method of summation of the value of final products—the traditional method is inadequate. It may possibly be followed for commodities subject to specific taxes, such as gasoline and tobacco, by considering their true market value to be the actual sales receipts minus the tax. It becomes impossible to use, however, when the cost of education, or other free service, is met by a general property or general business tax. To say that the true market price of each of the various commodities sold is the actual market price minus an unascertainable amount of taxation is meaningless. In fact, abolition of the tax might not affect the market price of some commodities. To say, under these circumstances, that the market prices of commodities produced by business enterprises paying taxes include the market value of free government services is merely an inaccurate way of saying that the market prices under the existing social arrangements differ from what those market prices would become under other social arrangements.

If, on the other hand, the purpose of preparing national income estimates is to obtain a series of figures over a period of years that may be reduced to a common price level and used as indicators of annual changes in the 'real income' of the people, serious objections may be raised to both methods—particularly in periods when the amount of indirect taxation and of governmentally furnished services fluctuate from year to year or are gradually increasing or decreasing over long periods. When indirect taxes used for furnishing free services to persons and for capital outlays are levied in such a way as to increase the market prices of goods sold, then the traditional method of treatment will reflect the transfer of the use of this income from goods chosen directly by individuals to those furnished by governments,

while the alternative method of treatment discussed above will show an increase in value of the items taxed as well as the value (cost) of the free services. The latter method 'inflates' national income in the same way as certain other changes in the manner of obtaining goods and services, such as the growing custom of eating meals in restaurants rather than at home. When, however, indirect taxes used for furnishing free services to persons, and for capital outlays, are levied in such a way as to decrease the income drawn by property owners or by employees of business enterprises, the traditional method of measuring national income will show a decline that is not a reality. Under this circumstance, the alternative method discussed above reflects the true situation; namely, that income formerly received by individuals has been transferred to the government as an agent for the general population.

4 INCIDENCE OF TAXATION AS A CRITERION OF METHODOLOGY IN NATIONAL INCOME ESTIMATES

The foregoing discussion suggests that incidence of taxation may be used as a criterion of methodology in the treatment of government revenues and services when estimating national income. If the cost of free government services is met from a tax levy of such a sort that prices of certain products are thereby raised, and no change is made in the money incomes received by people producing and selling those products, then it is more appropriate *not* to add the cost or value of the free service to the value of other products. If, on the other hand, the cost of this free service is met by a tax levy of such a sort that the money incomes of persons engaged as workers or owners in the production and sale of certain products are reduced below what they otherwise would be, and there is no change in the prices of the products they are selling, then it is more appropriate to add the cost of the free service to the value of other products. On the income side of the computation, this is done by adding the amount of the taxes collected to the wages of workers, dividends of stockholders, etc., in calculating the income drawn from industry.

When this principle, which is fairly clear in theory, is applied, difficulties ensue because of the complexities of the incidence of taxation. Certain types of taxes offer little difficulty. Taxes col-

lected from individuals appear in personal and family income accounts. In itemizing final products these taxes are merely replaced by the services for which they are used. Taxes paid by business enterprises for specific services rendered do not enter into the picture. Taxes constituting income drawn directly from industry by government (specifically, the corporation income tax) should be added to the sum of individuals' incomes, in estimating national income.[12] The services rendered to individuals from the proceeds of these taxes then appear in the appropriate category among final products.

General property taxes presumably affect to some extent the prices paid by purchasers of the products sold by the enterprises taxed. Yet there is no direct relationship between the taxation and the prices. The taxes are merged with numerous other costs of doing business, and have only an indirect and variable effect upon the prices paid by consumers. It may be said, of course, that even if this is the case, the cost of the services rendered free by governments to individuals and paid for out of the receipts from general property taxes has been included in the prices purchasers pay for the commodities sold by the enterprise paying the tax. This is not, however, wholly true, and the extent to which it is true is unknown. It is not known, for example, how much of the general property tax paid by railroads is included in the price paid by consumers of railroad service. A considerable part of the tax constitutes a reduction in the income of stockholders. This certainly is true as long as the railroads are not earning what is considered a fair return, and the elimination of taxes, or of any other expense, is not considered sufficient reason, until a 'fair' return is reached, for rate reduction.

This same consideration also applies, though in less degree, to consumption taxes, such as the tobacco tax, that are not specifically passed on to the consumer; and in fact, even to those, like the gasoline tax, where the tax and the price of gasoline are quoted separately. Of all taxes collected from business enterprises

[12] Corporation income taxes, which are definitely income diverted from stockholders to the government, and in the author's opinion should be included in national income under any circumstances, are not so included in the estimates of the National Bureau of Economic Research and of the Department of Commerce. I have never been able to learn on what grounds they are omitted. (Ed: see Dr. Kuznets' comments on the paper by Dr. Colm, Part Five, Discussion II, 4.)

and used to meet the cost of free services to consumers, only a part can be considered, theoretically, as duplicated in the prices paid for the items sold by business enterprises. The remainder is a collection by the government of part of the income that would otherwise go to investors, proprietors or employees.

In theory, the appropriate evaluation of national income, for the purpose of annual comparisons, lies somewhere between (a) the value obtained by omitting the cost of free services met by taxes other than direct income and poll taxes, and (b) the value obtained by including the cost of these services (that is, the amount of revenue other than direct taxes used in this way). Practically, however, it is not possible to apply this principle of incidence of taxation in detail, since the two types of taxation cannot be separated. Almost any tax falls to some extent on owners or other income-receivers and to some extent on consumers, though some fall predominantly on one group and some predominantly on the other. Practically, therefore, it seems necessary to use either (a) or (b), recognizing that the former will give a figure that is smaller than the 'true' figure, and the latter one that is larger than the 'true' or most appropriate figure.

It is possible, however, to make a crude judgment as to which of the two figures is more nearly correct, without going into the precise incidence of each kind of tax. The revenues of the governments (Federal, state and local) involved in the discussion approximated in 1929 the amounts indicated below (in billions of dollars).

Rents, fees and earnings of property	1.0
Federal corporate income tax	1.2
Licenses (largely business)	1.5
Special property taxes	1.0
General property taxes	6.0
Customs, tobacco and other consumption taxes	1.5
Total	12.2

The first of these items consists mainly of income from ownership, the same sort of income as that received by individuals in the form of rents, dividends, etc. The second, Federal corporate income tax, clearly falls on owners (stockholders) rather than on customers. The third, licenses, probably also falls chiefly on owners rather than on customers. These three items, totaling

about 3 billion dollars, or one-fourth of the total, may safely be assumed to fall chiefly on owners in the form of reduced money incomes. The last item (customs, tobacco, etc.) is the only one that falls almost wholly on customers, and this amounts only to 1.5 billion, or about one-eighth of the total. The remaining two items (special and general property taxes) constitute about five-eighths of the total. The incidence of these taxes is a matter of considerable debate, but there are excellent grounds for believing that a large percentage falls on owners in the form of reduced incomes from the ownership of property rather than on customers in the form of higher prices for the products with which the property is associated.

About half of the twelve billion under consideration is used to furnish services to business enterprises, according to the allocation of government expenditures, more or less arbitrary, made by the author. This amount is a proper item of business expense, entering into the cost of the products sold by business enterprises, like materials and services purchased from other business enterprises, and should be assumed to be paid out of the taxes collected from business enterprises.

But even after making allowance for services to business enterprises, it appears that at least half of the revenues used by governments in the United States in 1929 was raised by methods that had the effect of reducing the money value of incomes drawn by individuals from business rather than of raising the prices of commodities purchased by consumers. Since 1929 this proportion has increased. If the criterion of incidence of taxation is used to decide which of the two methods gives a figure more closely approaching the 'true' value of national income, it may be concluded that the procedure of including the 'collective income of governments' yields a figure at least as close as and perhaps closer than that given by the traditional method.

V Available Income and Its Relation to National Income

National income estimates are used not only to compare from year to year the value of the economy's net product but also to note changes in the flow of funds available for acquiring the final products as they emerge from business concerns. For the latter purpose, however, traditional concepts of national income are inadequate, since funds derived from other sources than the items usually included in computations of national income are regularly used in purchasing final products.

The term 'available income' is used here to designate the total sum actually received by or made available to individuals, and to governments and other organizations on behalf of individuals, during a given period, for the purpose of acquiring final products. Thus defined, available income includes some funds that are not considered income in modern accounting. It seems appropriate, however, to apply this term to a concept covering the flow of funds that 'come in' for disposition in the purchase of goods for consumptive or capital purposes.

Available income should not be confused with the current income of individuals, with national income defined as the value of the net product of the economy, or with purchasing power. The first two concepts are less inclusive than available income; the third is an immeasurable potential, while available income is a measurable flow.[13]

While the major part of available income consists of the current income of individuals, available income derived from other sources is of sufficient importance to make the total substantially larger than the total current income of individuals.[14]

[13] Purchasing power, or ability to purchase, is as much a matter of wealth as of income or of cash receipts. However, the term 'purchasing power' is often used to designate the concept here called 'available income'.

[14] 'Current income of individuals' is used here to include the payments of business enterprises, governments, other social organizations, to individuals for the services of persons or property, together with the value of goods utilized by the producers thereof and the net rental value of houses occupied by their owners.

It may be said, with accurate logic, that the money value of the use of durable consumers' goods, such as automobiles, clothing, household furniture and works of art, should be included in current income along with the rental value of owned homes. Also, it may be argued that it is as logical to include the money

Apart from the current income received by individuals, some income is drawn from business concerns by officers of social and business organizations on behalf of groups of individuals and spent on their behalf. Such institutional or collective income is as real a part of available income as that drawn directly by individuals. The three chief forms of institutional or collective income are: (a) a part of government revenue; (b) income from investments of educational and other philanthropic institutions; (c) corporate surplus.

A third type of available income consists of capital gains, or profits from the sale of securities or other property. Realized capital gains may be merged by the recipients with their current incomes and are, in fact, reported on income tax returns along with current income. Capital gains realized by corporations are commonly added to other earnings and retained as surplus or distributed as dividends.

A fourth type of available income consists of business allowances, or charges to current operating expenses for services rendered free to employees, for gifts and entertainment of prospective customers, officers, etc. The chief items of this sort consist of free medical service to employees, allowances for meals of salesmen and other persons traveling for business and social organizations, and the provision of tobacco, alcoholic beverages and other items to prospective customers and other persons with whom business is transacted.[15]

A fifth type of available income consists of depreciation and depletion allowances of business concerns. Such allowances may be set aside for use, along with those obtained from the sale of new securities and other sources, in purchasing new buildings,

equivalent of housewives' services, and of numerous personal services, such as the care of clothing, which individuals perform for themselves, as the dairy products, potatoes and other food obtained by farm families from their own farms. In the absence, however, of market appraisals or of some fairly satisfactory substitute for market appraisals of these items, they may be excluded on pragmatic grounds.

[15] Expenses of salesmen other than for food—such as allowances for hotels, automobile operation, railroad, steamship and airplane fares—are not included in these business allowances, because these items should be eliminated, so far as possible, from estimates of the value of final products. This line of demarcation is not entirely satisfactory but the items here included as business allowances approach more closely the character of final products, and less that of intermediate products, than do allowances for transportation and rooms.

machinery or other equipment, or they may be paid to stockholders or other owners as liquidating dividends. Along with the current income of individuals, institutional income, capital gains, and business allowances, they constitute funds available for the purchase of consumers' goods or new capital facilities.

Such depreciation and depletion allowances must be taken into consideration not only for corporations, but also for other business concerns and for home-owners, whether or not home-owners' depreciation accounts are actually set up, since the funds that would go into such accounts, if set up, are available for the purchase of final products.[16]

A sixth type of available income, somewhat similar in character to depreciation and depletion allowances, consists of payments to beneficiaries of life, health and accident insurance policies. Such payments are clearly available income and in fact, when paid in instalments, may be merged with the current income of individuals and spent as though they were current income.

As final elements in available income, we must take into account the sale of assets and the extension of credit. The ability of an individual, family, corporation, government or other social

[16] In order to see how the depreciation on a house occupied by the owner can be spent for consumption, or invested, we may consider two families, one renting the house in which it dwells, the other owning its house. The family that rents has a cash income of $6,000 a year and pays $75 a month, or $900 a year, for house rent. Of this amount received by the landlord, we may assume $200 reimburses him for taxes, insurance and maintenance; $200 is his allowance for depreciation, and the remaining $500 constitutes the income he derives from his investment. The $200 for depreciation is available to him as an individual proprietor for a new investment to offset the decline in the value of his house.

The second family owns a house of the same value as that leased by the first family, and has a cash income of $5,500. The income of this family, when the income derived from home ownership is included, is equal to that of the first family. Each family spends $900 a year for house rent, the first in the form of cash, the second in the form of rental value. If, now, we compute the cash available for other purposes we find a difference between the two families. The family that rents its house has $5,100 to spend after paying rent. The family that owns its house has to pay out $200 for taxes, insurance and maintenance. When this is deducted from the $5,500, $5,300 remains to be spent. The $200 difference represents the depreciation on the house, a cash realization from the depletion in its value. If the family spends this $200 for other consumer goods, it may be said to be 'living on its capital'. If the $200 is invested, the capital assets of the family remain intact—but there is no saving out of income. The $200 has not been included in estimating the current income of the family. Yet it may be used either for consumptive or capital purposes, and is thus a part of available income.

or business concern to purchase final products may be far in excess of current income, or of current income augmented by capital gains, depreciation and depletion allowances, or insurance benefits. The chief reason for this excess of purchasing power over the flow of income, capital gains, depreciation and depletion allowances, and insurance benefits lies in the possession of wealth and of prospective future income. Persons and concerns with valuable assets or with prospective future incomes may utilize these assets or future incomes in making purchases of final products in either of two ways: by the sale of assets or by using credit.

It is impossible to estimate the total purchasing power of the nation at any time, when these types of potential purchasing power are considered. It would be necessary to include not only what individuals, business concerns and governments actually borrow or realize from the sale of assets, but also all that they could have borrowed or realized. Every actual and potential line of credit, the value of all existing wealth, and the maximum amount of credit expansion possible under the banking system and other credit mechanisms would all have to be considered. It is not, however, this potential purchasing power but that actually utilized which concerns us when we are considering available income.

The first of the two methods of utilizing purchasing power inherent in existing assets or prospective incomes—the sale of assets—may be of great importance to many families and business concerns. Since, however, (aside from the gains or losses incident to the sale, taken into consideration above under the term capital gains) the purchasing power obtained by one person, family, business or social concern is offset by an equal reduction in the purchasing power of another person, family or concern, the sale of assets neither adds to nor subtracts from the real flow of available income. It does, however, greatly alter the distribution of available income among the individuals in the population, shifting it from some persons to others.

When, however, credit is extended, the situation is different. The flow of available income is augmented. Two types of credit are of special significance: credit extended by banks, and credit extended by business concerns to individuals and other business

concerns for the purchase of final products. Both types may account for relatively large additions to the flow of available income, though both have definite limits: the former, limits set by law and banking practice; the latter, limits set by the profits that business concerns are willing to leave in the form of accounts receivable.

Again, it may be emphasized that it is not the limits of credit expansion, but the actual expansion or contraction of credit, that constitutes an element in available income. We wish to estimate not how much could have been added to the flow of income available for purchasing final products, but how much was actually added to that flow by the operation of credit institutions. The difficulties of making such an estimate are exceedingly great, with respect both to banks and other credit institutions and to the credit extended by business concerns.

A special type of credit expansion consists of the bad debts of business concerns resulting from the sale of final products. The bad debts of retail merchants are in reality an addition to the current incomes of individuals and families, though not included in their income accounts. The goods and services that are in this way 'given' by business enterprises to persons are, however, included in an itemization and evaluation of final products. Business allowances for bad debts involved in the sale of final products should therefore be included in the total flow of available income.

VI Treatment of Capital Gains in the Measurement of National Income[17]

Capital gains, whether realized or merely accrued as a result of changes in market values, are commonly excluded from the concept of national income and hence excluded from the items listed and evaluated in its measurement. It is desirable, however, to include realized capital gains among the items listed and evalu-

[17] For discussions of this problem by other contributors to this volume see Copeland, Part One, Sec. IV and V, 8, discussion by Simon Kuznets, and Dr. Copeland's reply; Simon Kuznets, Part Four, discussion by M. A. Copeland, Milton Friedman and A. W. Marget, and Dr. Kuznets' reply.

ated if national income is measured by a process involving the consolidation of income and expenditure statements of families, individuals and social groups.[18]

(1) If, in the process of summation of incomes received by individuals, it is desired to obtain subtotals of the income received by families and individuals in various income strata, it is necessary to include capital gains. This is because of the character of the summaries of income tax returns in *Statistics of Income,* virtually the only source of information on incomes of individuals in the higher income strata.

The total amount of income derived from capital gains by individuals in each income class is set forth in *Statistics of Income.* This does not, however, suffice for the determination of a frequency distribution of income excluding capital gains among those making income tax returns, or for estimates of changes from year to year in the number of individuals in each income class, because information is not given as to the distribution of the capital gains reported for each income group. In the issue for 1928, for example, we are informed that 68,048 individuals reported 'net income' between $25,000 and $50,000, and that they received 22.2 per cent of their total income from capital gains (on assets held both less than and more than two years). We are also given the total number of individuals reporting specific amounts of income from capital gains. We do not know, however, how many of the 68,048 received part of their income from capital gains. That is, we do not know, were capital gains excluded from the tabulations, whether there would be 50,000, 60,000, 65,000 or some other number of individuals reporting incomes from $25,000 to $50,000. We are also informed that in 1927 there were only 60,123 individuals in this class. But, so far as we know, there may have been as many individuals with in-

[18] As Dr. Copeland has pointed out in Part One, Sec. I, the first three methods of measuring national income listed in Table 1 involve the consolidation of selected items from income and expense statements of business and social enterprises, while the last two methods involve the consolidation of income and expenditure statements of families, individuals and social groups.

The term 'income of social groups' as used in this Section may be considered synonymous with 'collective income' as used in the preceding discussion. Analogously, the utilization of collective income, here called 'expenditures of social groups', may also be called 'collective expenditures'.

comes between $25,000 and $50,000 in 1927 as in 1928, were capital gains excluded from income. In brief, the statistics in *Statistics of Income* are virtually worthless for use in building up frequency distributions of income for any one year or for a series of years unless capital gains are included in income received.

(2) Unless capital gains are included, the frequency distribution curve is seriously distorted. A frequency distribution of income among individuals should show their relative ability, as a result of the operation of the nation's productive and distributive mechanism, to claim the products of the system. For use, either for consumption or for fresh investment, capital gains are as significant to the recipients as any other form of income, and stock market speculation has in fact become one of the important methods of distributing, or redistributing, national income. Occupancy of a strategic trading position in the security markets and diversion into individual incomes, in the form of capital gains, of changes in the values of capital assets is essentially the same type of economic phenomenon as the occupancy of a river crossing and diversion into individual income, in the form of tolls, of changes in the values of commodities as they are moved in space; or the occupancy of titles to natural resources and the diversion into individual incomes, in the form of rents and royalties, of changes in value resulting from the exploitation of such resources.

In fact, a strategic position in the security markets and diversion into individual incomes of changes in the value of capital assets has become one of the chief sources of large incomes. In 1928, for example, 511 individuals reported incomes of $1,000,000 or more. Of their aggregate total income of $1,226,000,000, $729,000,000, or approximately 60 per cent, was derived from profits on sales of capital assets (of which part was held less and part more than two years). In the same year 49 individuals reported profits of $1,000,000 or more each from sales of capital assets held less than two years, and 204 individuals reported capital net gains of $1,000,000 or more from sales of assets held more than two years. That is, at least 253 individuals (the number would certainly be larger if the two categories of such gains were tabulated together) reported capital gains amounting to $1,000,000 or more each. Practically all these 253 persons must be in-

cluded among the 511 reporting net incomes of $1,000,000 or more, and most of the capital gains of the 253 individuals, amounting to $568,000,000, are included in the $729,000,000 of such gains reported by the 511 persons.[19] Approximately half of those reporting net incomes of $1,000,000 or more received practically their entire income from capital gains, while the other half received practically their entire income from other sources. The proportion of large incomes derived chiefly from capital gains was, of course, exceptionally large in 1928, but capital gains would still remain one of the chief sources of large incomes if all the years in a business cycle were considered together.

(3) In estimating the total amount spent by families and individuals for consumption, or for various types of commodities and services, it is necessary to use samples, and apply averages derived from such samples to the estimated number of families and individuals in each income stratum. It is reasonable to assume that a substantial portion of capital gains is diverted to consumption; consequently, estimates of the amounts spent for consumption out of other forms of income understate the real totals, particularly in years such as 1928 and 1929 when capital gains are large.

Virtually no data are available on the actual use to which capital gains are put by the recipients, and opinions probably differ on the question whether capital gains are usually spent in the same way as other income. Will a family with a $20,000 income, of which half is derived from capital gains, spend for consumption an amount similar to that spent by families with $10,000, no part of which comes from capital gains, or similar to that spent by families with $20,000, no part of which comes from capital gains? My own opinion is that the latter is more likely for the following reasons. First, capital gains are in large part either a species of professional gain (that is, gains of persons who devote a substantial part or most of their time and capital to speculation rather than to other forms of business) or a species of gain closely akin to gambling. Professional speculators presumably derive the main part of their livelihood from capital gains, and thus

[19] Because of the distribution of deductions among individuals making income tax returns, some of the 253 reporting more than $1,000,000 total income from one of the two categories of capital gains may not have appeared among the 511 reporting net incomes of $1,000,000 or more.

presumably spend their incomes derived from capital gains much as other persons spend similar money incomes derived from other sources. As to capital gains approaching those of gambling in character, I would not suppose that any unusual percentage would be saved. Second, the only sample study of family expenditures and savings with which I am acquainted covering families having an appreciable amount of capital gains does not show that capital gains were disposed of differently from other types of income.

(4) Though it is both necessary and desirable to include capital gains among the items listed and evaluated when national income is measured by the method of summation of incomes received, or by the method of summation of consumer purchases and savings, an adjustment may be made, if desired, in the total thus derived. That is, after obtaining the sum of the incomes of families, individuals and social groups in the various income strata by a process that includes capital gains, the total amount of such capital gains may be deducted to obtain a value for national income comparable to that derived by other methods. If, however, it is desired to make statements to the effect that certain percentages of national income are received by individuals or families in specified income strata, or that certain percentages of all consumptive expenditures are incurred by individuals or families in specified income strata, the computation of such percentages should be based on the relation of the incomes of the individuals or families within the specified income strata to the total incomes including capital gains of all families, individuals and social groups.

VII Relation of Total Savings of Individuals and Social Groups to Capital Formation

If national income, or available income as defined in Section V, is measured by the method of summation of value of final products, and also by the method of summation of consumer purchases and savings, and both measurements are made on a transaction rather than an accrual basis, the total value of consumers' goods obtained by the two methods should be identical,

except for errors due to inadequate information. However, the value of items representing additions to wealth, or the value of capital formation, obtained by the method of summation of value of final products, may differ from the aggregate savings of individuals or social groups obtained by the method of summation of consumer purchases and savings. There are at least four sources of this difference: (1) commissions and other expenses connected with the transmutation of savings into capital, (2) sales of fraudulent securities, (3) profits on the sales of capital assets, and (4) the handling of life insurance premiums and benefits.

1 COMMISSIONS

Let us first consider commissions on sales of securities. Assume that of 100 men, each enjoys a current income of $10,000, spends $9,000 for living and invests $1,000 in his own business or in the direct purchase of stock from other business concerns. The aggregate savings of the 100 men amount to $100,000, and if none is wasted, the value of the capital assets obtained thereby may also be assumed to amount to $100,000. But after a few years these men have invested all they need in their own enterprises and those of their friends. So they hire an agent to make investments for them, offering a 5 per cent commission. The agent invests $95,000, takes his commission of $5,000, and spends it for his own living. Or perhaps the agent is hired by business concerns wishing to raise capital, and receives a commission for the stock sold.

There are several ways of treating the situation. (a) If the 100 investors consider the commission a personal expense, like paying a servant, the aggregate income of the 101 persons, including the agent, is $1,005,000, of which $95,000 is 'saved'. The same sum is to be considered the amount of addition to capital assets. (b) If the investors treat the commission as a business expense, they may deduct it from their income, so that the 101 persons report $1,000,000 income, of which $95,000 is saved and added to capital. (c) If the investors consider the commission a part of their investment or savings, the 101 persons have an aggregate income of $1,005,000, out of which $100,000 is saved. The increase in capital assets on the books of business enterprises is, however, only $95,000, and there is a permanent discrepancy between the

two valuations of what is presumably the same property. (d) If the commission is paid by the business concerns, it may be considered an expense of operation, or amortized, and not put into the capital accounts. In that case the aggregate income of the 101 persons is $1,005,000, with $100,000 saved. The increase in capital assets on the books of the business enterprises is, nevertheless, only $95,000 and there is again a permanent discrepancy between the two valuations. (e) The business enterprises, again paying the commission, may consider it a part of the capital assets of the concern, on the ground that it is a part of the cost of obtaining the machinery purchased with the remaining $95,000—like the cost of delivering and setting up the machinery. Again, the aggregate income of the 101 persons is $1,005,000, with savings of $100,000. But the increase in capital assets on the books of the business enterprises is also $100,000. (f) The merchandising of securities may be treated as a separate business enterprise, especially if the commission agent incorporates his activities. In that case the investors would very likely value their savings at $100,000, but the business enterprises using these savings as capital would enter only $95,000 on their books. This is especially likely to be the situation if the intermediary acts as an investment trust or savings bank rather than as a commission merchant.

Thus, so far as the amount of saving and capital formation is concerned, there are three possibilities. The amount of both may be considered to be $95,000, or the amount of both may be measured as $100,000, or the aggregate savings may be $100,000 and the value added to capital assets only $95,000. So far as the percentage of the aggregate income saved is concerned there are also three possibilities: $95,000 out of an income of $1,000,000, or 9.50 per cent; $95,000 out of incomes amounting to $1,005,000, or 9.45 per cent; or $100,000 out of incomes amounting to $1,005,000, or 9.95 per cent. So far as the proportion of the aggregate income that is devoted to capital formation is concerned, there are the same three possible percentages.

When the percentage of both income saved and income devoted to capital formation are considered, there are four possibilities: both may be 9.50 per cent of income, 9.45 per cent of income, or 9.95 per cent of income, or savings may be 9.95 per cent and capital formation only 9.45 per cent of income. In actual

life there may be still further possibilities, for both the enterprise selling securities and the investor purchasing them may pay commissions, and there are various combinations of the above ways of handling the situation.

Further light may be thrown on the problem from the social point of view by considering the human effort represented by the $5,000 of commissions. The commission paid certainly represents human effort connected with the process of capital formation, just as much as the labor that went into machinery purchased with the net proceeds of the issue. That is, it is effort exerted in making arrangements for the future rather than for the present production of goods. On the other hand, if we attempt to measure the volume of capital formation from the value of enlargements of physical plant, that is, from the excess of building, machinery, etc. produced over replacements, we are not likely to include the value of the services of investment bankers, expenses of operation of savings banks, etc. Thus even from the social or national point of view, we may wish to distinguish between the amount of 'savings' and the value of 'capital formation' resulting from those savings.

2 FRAUDULENT SECURITIES

Sums paid for fraudulent securities, like commissions on the sale of legitimate new securities, constitute individual expenditures for investments, or a part of individual savings, without any corresponding element in the value of capital formation. They may be treated as savings completely absorbed by commissions.

3 CAPITAL GAINS

Let us suppose that A, B, C and D each has $25,000 worth of investments and $5,000 cash at the beginning of the year. Each has a regular income of $10,000, and commonly spends $7,000 for living expenses, and has savings of $3,000, which is placed in new security offerings. At the end of the year each has the same amount of cash as before, and $28,000 of investments. Both cash receipts of this group from other persons and cash disbursements to other persons total $40,000. The group of four spends $28,000 for living and $12,000 for new investments.

Now suppose that A, instead of buying new securities, spends his $3,000 of savings in purchasing investments from B, which have cost B and are still carried on his books at $2,000. B thus makes a profit of $1,000 which he can use either by spending more on living or by increasing his annual savings. (a) Suppose he saves it: that is, he invests not only the $3,000 from his regular income, but also the entire $3,000 received from A. Let us assume that he spends the entire $6,000 for new securities. This is the condition where the stock market acts as a sieve, with the money absorbed by speculators passing through them to the capital market. C and D invest their $3,000 each for new stock issues as before. It is clear that the total amount invested in new securities, which presumably measures the volume of capital formation, is unchanged, remaining $12,000. However, B has saved $4,000 out of an income of $11,000, and the group of four men have saved $13,000 out of incomes amounting to $41,000.[20] B has $29,000 of investments at the end of the year, and the others only $28,000 each as before. (b) But suppose that B spends his $1,000 profit for living, saving $3,000 as before but spending $8,000 for consumption goods. There is now $12,000 of savings, $3,000 from each of the four men. A has bought no new securities, B purchases $5,000, and C and D $3,000 each of new securities, a total of only $11,000 actually reaching the new capital market. The aggregate savings of the four men amount to $12,000 out of $41,000 income, with $29,000 spent for consumption goods. In neither case are the incomes of persons other than these four affected. The four persons still pay out to and receive from other persons $40,000. The type of economic activity of someone else is, to be sure, affected, if B spends his $1,000 profit for consumption goods instead of for new securities.

To summarize this situation, the funds set aside by individuals for the purchase of new investments, or the aggregate savings of individuals, may include an element representing a mark-up in the value of existing capital goods, or their representative, securities. This occurs whenever such a mark-up comes into an individual income account through the sale of existing assets at a

[20] The chief reasons for including capital gains in the sum of incomes received have been discussed in the preceding Section.

profit, or through the raising of investment valuations on an individual's balance sheet and the transference of the difference in net worth resulting therefrom to his income account.

This increase in the value of existing assets also appears in the figure for aggregate individual incomes. Moreover, it makes the aggregate consumption expenditures plus new investments (savings) of individuals greater than the total value of current output of consumption goods plus additions to capital. To produce an equality between aggregate current income and aggregate current consumption expenditures plus savings or new investments, we must include in savings or new investments not only the value of new capital goods, but also the increase in the value of existing investments, so far as the latter has been brought into individual income accounts through profitable sales of investments or revaluation on the books of individuals.

Speculative losses and write-downs of investments may be treated like speculative profits and write-ups of the value of investments, being negative instead of positive.

4 LIFE INSURANCE PREMIUMS AND BENEFITS

Life insurance premiums paid, at least on policies of the endowment type, consist essentially of two different parts, one representing savings of policyholders and the other a redistribution of income from policyholders to the beneficiaries of those who have died prior to the maturity of their policies. In theory therefore, life insurance premiums should be divided into two parts, when estimating the aggregate savings of individuals, and only that part which represents the net increase in the 'equity' of the policyholder (perhaps measured by the change in cash surrender value) included in savings. Practically, such a division is almost impossible to make, at least when estimating the aggregate savings of families and individuals in the various income strata. Because of difficulties in obtaining information concerning the character of insurance held, length of time held, cash surrender value, or other essential information, surveys of family expenditures rarely contain the necessary data for dividing life insurance premiums paid into these two parts.

One method of handling this situation is to include all life insurance premiums paid in the 'savings' of families and individ-

uals in the various income strata, and then adjust the aggregate savings for benefits paid to beneficiaries.

5 GROSS VS. NET SAVINGS AND CAPITAL FORMATION

One of the chief differences between national income as ordinarily defined and available income as defined in Section V is the inclusion in the latter of depreciation and depletion allowances of business enterprises. It may be advantageous also to include depreciation and depletion allowances when estimating the total funds available in any year for the acquisition of additional investments or other forms of wealth. This procedure has the advantage, in comparisons of estimates of total savings with total capital formation, of avoiding an estimate of actual depreciation on capital facilities, particularly structures. When the gross total of savings and of capital formation have been compared, the estimated depreciation on structures and other capital facilities not met by replacements charged to current operating expenses of business enterprises may be deducted to obtain estimates of net total savings and net capital formation for use in estimating national income.

6 SAVINGS AND CAPITAL FORMATION IN 1929

For the reasons enumerated above, the total amounts set aside by families, unattached individuals, corporations, governments and other business and social enterprises for the acquisition of additional investments or other forms of wealth may in some years exceed by a large margin the amount of capital formation, as measured by the value of new structures and other capital goods produced. Such was the case in 1929, and estimates relating to that year may be given here as an illustration.

Estimates of gross savings and gross capital formation in 1929, with the major components of each, are given in Table 2. Net estimates may be obtained by omitting the depreciation and depletion allowances from gross savings, and a corresponding figure from capital formation. The same figure is deducted from both totals on the assumption that the allowances for depreciation are a moderately reliable estimate of the actual depreciation. Total net savings in 1929 may thus be estimated at approximately 23 billion dollars, net savings available for purchase of capital

items at 11 billion dollars, and the value of net additions to capital (net capital formation) at 10 billion dollars. The difference between the latter two figures is small enough to be accounted for by errors of estimate.[21]

The significance of the difference between total savings and capital formation is frequently misunderstood. In fact one prominent writer on economic problems has grossly misrepresented the character of the relation between estimated total savings and the estimated value of additions to productive plant and equipment. In *The Formation of Capital,* H. G. Moulton writes:

> "What became of the money savings which did not eventuate in new plant and equipment? The answer is that, aside from that portion which went into foreign issues, the excess savings were absorbed, dissipated, in bidding up the prices of outstanding securities. Money savings were thus transferred increasingly into speculative profits rather than into productive plant and equipment" (p. 151).
>
> "The capital gains were thus largely the result of an antecedent and growing disparity between the volume of money flowing into investment channels and the volume being currently required by corporations for productive purposes" (p. 149).

The causal relation between capital gains on the one hand and the difference between gross savings and the volume of capital formation on the other is exactly the reverse of that stated by Mr. Moulton. The difference between gross savings and the value of additions to plant and equipment is primarily the concomitant result, and in no sense the cause, of rising security prices and capital gains.

[21] A somewhat smaller figure for net additions to capital will be obtained if allowance is made for depreciation of government owned structures and equipment. All these estimates of savings and capital formation were prepared in 1934 in connection with the Brookings Institution's study of the distribution of wealth and income in relation to economic progress. Later investigations made by the National Bureau of Economic Research provide more accurate estimates of the value of most capital formation items. The National Bureau figure that is roughly comparable in scope to the one given in Table 2 is approximately 2.5 billion dollars larger. The most important difference between the two estimates is in the item of increase of business inventories, which is estimated by the National Bureau as 2.4 billion in contrast to the estimate of 0.2 billion in Table 2. See Simon Kuznets, *National Income and Capital Formation,* 1919–1935 (National Bureau of Economic Research, 1937), Table 10.

TABLE 2

ESTIMATES OF GROSS SAVINGS AND CAPITAL FORMATION IN 1929
(billions of dollars)

A. GROSS SAVINGS

Savings of families out of current income and capital gains [1]		15.1
Savings of unattached individuals out of current income and capital gains [1]		2.6
Savings of families and unattached individuals out of insurance benefits received [2]		0.7
Corporation income reinvested [3]		2.3
Depreciation and depletion allowances of corporations [4]		4.4
Depreciation and depletion allowances of other business enterprises, including home owners [5]		3.3
Government expenditures for permanent public improvements made from tax receipts [6]		1.9
Estimated total gross savings		30.3
Returned directly to the income stream in		
Commissions on sales of property and interest on speculative loans [7]	1.0	
Purchase of fraudulent securities [7]	1.0	
Payments to life insurance beneficiaries [8]	2.1	
Profits on the sale of property [9]	7.5	11.6
Estimated gross savings available for purchase of capital items		18.7

B. VALUE OF GROSS CAPITAL FORMATION [10]

Buildings	6.6	
Transportation and public utility structures	4.1	
Machinery and equipment	5.7	
Miscellaneous improvements and construction	1.0	
Increase in inventories	0.2	
Increase in investment abroad	0.2	
Estimated total value of additions to capital, excluding changes in holdings of durable or nondurable consumption goods by individuals		17.8

[1] Maurice Leven, H. G. Moulton and Clark Warburton, *America's Capacity to Consume,* pp. 95–7. Estimates include full amount of life insurance premiums paid. Since estimates of expenditures for durable consumers' goods, except homes, were made on a purchase rather than on an accrual basis, savings in the form of increased holdings of such goods by individuals are not included.

[2] Based on the assumption that insurance beneficiaries utilize life insurance benefits in the same way as individuals spend current income.

[3] Compiled net profits minus cash dividends, *Statistics of Income, 1929,* p. 268.

[4] *Ibid.,* p. 267.

[5] Crude estimate on basis of: (a) estimated relative volume of non-farm corporate

and non-corporate business; (b) Department of Agriculture estimates of depreciation on farm property; (c) 15 per cent of estimated rental value of homes.

[6] Estimated total government cost payments for structures and equipment, minus net borrowings.

[7] Crude estimates based on limited information, such as the volume of sales on stock exchanges, and operations of 'blue-sky' laws.

[8] Estimated from data reported in the *Insurance Yearbook.*

[9] Profits from sale of real estate, bonds and stocks, and other capital assets reported by corporations (*Statistics of Income, 1929,* p. 267), and similar profits by individuals (estimate of Maurice Leven, in *America's Capacity to Consume,* p. 163).

[10] Value of new capital goods acquired by business concerns, including all home-owners as business concerns, without allowance for depreciation of existing capital (*Journal of the American Statistical Association,* March 1935, Supplement, p. 179).

Part Three

ON THE TREATMENT OF CORPORATE SAVINGS IN THE MEASUREMENT OF NATIONAL INCOME

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ON THE TREATMENT OF CORPORATE SAVINGS IN THE MEASUREMENT OF NATIONAL INCOME

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I Nature of the Problem

OUR PROBLEM is part of the general problem of determining the accuracy with which the sum of personal incomes and business savings measures national income produced. More specifically, we are interested in the extent to which the concepts underlying current accounting estimates of corporate savings are congruent with the concepts of national income. The desirability of including any savings at all in the measurement of national income will not be discussed here. Since our point of view will be primarily that of national income as a measure of the productivity of an economic system, we shall be concerned only with national income produced.

One purpose of our analysis is to suggest that diverse treatment of corporate savings in the measurement of national income is desirable. The limitations of a general-purpose measure of national income, even of national income produced, must be recognized. Further, we wish to indicate the lines that such alternatives might take. Whether any particular modification of the accounting figures is desirable depends also on its relative importance and statistical practicability, concerning neither of which can much be said here. But the following discussion will, it is hoped, bring into the open the characteristics of the data with which we must

work, and thus the assumptions implicit in using the available figures.

Certain characteristics of the available data on net business savings or losses, which condition their interpretation, have already been mentioned by earlier writers.[1] Among these characteristics are the practice of including some profits and losses on the sale of capital assets in business savings, the estimation of depreciation charges on the basis of original cost, and the valuation of inventories at the lower of cost or market. These and other practices will concern us here.

First, we shall be concerned with the reasons for segregating corporate savings from other elements in national income. Second, we shall consider the fiscal period and the manner in which its choice is related to many of the difficulties encountered in the use of business data in the measurement of national income. Next we shall discuss in detail some of the difficulties arising from the use of an annual accounting period. These difficulties revolve about the time-allocation of revenue and cost, the fact of price changes, and the distinction between capital and revenue items. Finally, certain incidental problems of duplication and omission will be examined. Throughout, the discussion will deal with savings by private business only; no consideration will be given to the savings of public and semi-public bodies.

II Segregation of Corporate Savings

Before discussing the difficulties encountered in the utilization of business data, it is desirable to point out the characteristics that distinguish corporate savings from other business savings and make it worth while to present them apart from other savings.[2] These are first, that corporate savings are computed on the basis of a relatively sophisticated accounting technique; second, that

[1] See Simon Kuznets, 'National Income', *Encyclopedia of the Social Sciences*, XI, pp. 205–24. See also W. C. Mitchell and Simon Kuznets, 'Current Problems in Measurement of National Income', XXIIe Session de L'Institut International de Statistique, London, 1934 (La Haye, 1934).

[2] R. R. Nathan has presented the two groups of savings separately in the Department of Commerce estimates, *National Income in the United States, 1929–1935* (Washington, 1936).

they are controlled by individuals only indirectly related to the legal owners of the savings.

The form of corporate accounts, more than that of the records of other activities, is dictated. State corporation laws demand the maintenance of capital and prescribe certain records. Regulations as to liability of directors induce care in accounts. The ever-present need for arbitration among the interests of groups with diverse rights and claims to corporate income requires adequacy of records. The stock exchanges, and more recently the Securities and Exchange Commission, enforce minimum accounting requirements. With the resulting accounts may be contrasted the average records kept by small business men, professional workers, and farmers.

There is even reason for distinguishing between small concerns and large, regardless of the fact of incorporation, because of the vaguer line drawn between profits and officers' compensation in the small concerns.[3] Somewhat similar is the lack of distinction in the accounts of single proprietorships, between personal and business transactions.[4]

The point made by Simon Kuznets that net business savings or losses "can hardly be classified as a current income share of any individual member of the various (economic) groups" [5] is reason for distinguishing all business savings from other savings. The savings of a business are largely determined by the financial exigencies it encounters and by the character of its assets, rather than by any individual's personal desire to save or consume in-

[3] Even in the case of large companies, officers' salaries and other compensation possess certain entrepreneurial characteristics. It would be desirable to segregate officers' compensation in presenting data on salaries in estimates of national income.

[4] Cf. R. F. Martin, *Survey of Current Business,* January 1935. The lack of such a distinction does not mean, however, that the economist cannot or should not impose one of his own. As we shall see, even in corporate accounting, where an elaborate body of technique is well established, it is necessary to make many adjustments before the data that are the product of this technique are suitable for use in estimates of national income or wealth. These and other adjustments are also required in the case of entrepreneurial savings and income. We cannot accept, from either corporations or individual entrepreneurs, their own estimates as to their status. Not that these estimates are irrelevant to an analysis of the factors affecting economic behavior. But as measures from a national point of view, they are simply rough materials requiring adjustment.

[5] *Bulletin 59,* National Bureau of Economic Research (May 4, 1936), pp. 11–12.

come.[6] The *de facto* separation, in corporations, of the decision to save from the legal claim to the savings is reason for the further step of subdividing all business savings into corporate and other business savings. The dictated character of business savings and the separation of ownership from control are both reflected in the lack of stability of dividends during the last few years, despite the presence in many corporations of adequate balance-sheet surpluses and undivided profits.

None of these characteristics of corporate savings separates it clearly from other business savings. Thus, large partnerships may possess the attributes of corporations so far as their savings are concerned, and logically the savings of these two groups should be combined. The legal status of a group is not the prime consideration. Certain types of trust, joint-stock companies, associations and other 'quasi-corporate' bodies belong within the category of corporations, and are so regarded by the Treasury Department.[7] On the other hand, closely held corporations should, from an economic point of view, be omitted from the category with which we are dealing.

Nor is the characteristic of profit-making controlling. For example, the reserves of life insurance companies are not entirely subject to the call of individual policy holders; therefore any changes in their volume might conceivably be included with corporate savings or at least segregated from individual savings. These considerations apply especially to the annual earnings of these so-called 'associations of individuals', which are only partly credited to the individual accounts of members. All this is true of most of the tax-exempt corporations listed in the income tax law.[8]

We now pass to a discussion of the fiscal period and its relation to the available data on corporate savings. The distinction between corporate and other business savings raised above is not involved in the succeeding discussion, except that a certain level of adequacy of accounting records is taken for granted.

[6] To some extent this is true even of individual investments, the status of which affects further decisions to save. But a going concern is subject to a different order of financial pressure than any individual holder of securities.

[7] *Regulations 86, Income Tax, Revenue Act of 1934* (Washington, 1935), pp. 372–5.

[8] *Ibid.*, Section 101.

III The Fiscal Period

The first problem in the periodic determination of income is the appropriate allocation, over time, of revenues and costs. This implies the selection of a fiscal period. The difficulties and principles of allocation are dependent on the length of this period. Thus, while actual allocations are usually made forward in time, not backward, and involve some foresight, even current allocations may be made with the benefit of hindsight, to an extent limited of course by the length of the accounting period. The length of the fiscal period is intimately bound up not only with the problem of allocation, but also with the problems of price changes and of credits and charges on capital as against revenue account. Except for certain incidental problems of duplication and omission, the proper definition and measure of corporate (and other business) savings is made difficult by the use of an annual fiscal period by business men. Many of the difficulties involved in the pricing of inventories and capital goods, in the choice of a straight line depreciation formula as against a unit of production formula, and in the question of capital gains and losses, vanish when a proper accounting period is selected.[9] These problems are but detailed aspects of the general problem of the fiscal period. We therefore turn to it first.

The difficulties involved in the selection of a suitable fiscal period are illustrated by the apparent effect of crop variation upon the real national income. Is an ordinary variation in size of crops due to the usual natural elements to be considered as properly reflecting the annual efficiency of the economic system? It is arguable that a better measure of the economic machine's efficiency is the volume of crops available for consumption. A more 'natural' fiscal period than the year, one long enough to smooth out ordinary fluctuations in yield, would seem to be called for.

The same argument applies also in the case of 'purely' economic fluctuations. If business and industry are subject to sys-

[9] Many difficulties arising out of price changes may eventually be solved by the process of deflation in arriving at the 'real' national income. In measuring income in 'current' prices, however, the fiscal period must be considered. But even the deflation process implies a consideration of the fiscal period and its related problems. See the discussion in Section V below.

tematic fluctuations, movements that are cumulative connected processes persisting over periods longer than a year, the efficiency of output of the economy is most accurately measured not by ordinary annual accounts but by accounts covering a complete cycle. Once the cyclical movements of industry and business are recognized as characteristic of a modern economy, national income annually produced does not represent the fruit of that year's activities any more than does the crop reaped on a farm in a given month measure that month's income.

It is not essential that the theory of fluctuations implied be of the type in which depression leads to prosperity without any discontinuity between successive cycles. When a given cyclical process extends over a period longer than twelve months, *ordinary* annual estimates cannot be accepted as direct measures of national income. Measures related to periods shorter than the 'natural' economic fiscal period are merely raw material for the appraisal of results and the analysis of processes. We can understand the seasonal character of plant growth by monthly observations and thus construct a theory of crop growth from which we can get an inkling of the size of the final crop by monthly inspection. But the results can be accurate only to the extent of the adequacy of the theory. And they are always subject to correction when the crop matures.

Owing to irregularities in the duration and amplitude of cyclical movements, the accounting of economic processes is extremely difficult. We are never quite sure when our 'natural' fiscal period has ended! But despite the difficulties involved, this view of economic accounting as related to an organic process seems more satisfactory than any based on an arbitrary time period. A period covering a whole cycle is a more natural economic 'year'.

In much of what follows we shall usually assume the existence of a single, rhythmic type of economic fluctuation. Since our concepts of national income produced must be related to a theory of economic change, it is to be expected that they will improve as our theories gain in comprehensiveness and detail. No final definition of national income is possible in the present state of our knowledge. Or perhaps more correctly, concepts of income may be considered to be tools from which is selected the one best

suited to the occasion. And like most tools, improvements in them may be expected to arise as a consequence, to some extent, of their own continued utilization.

Of course, business cycles do not describe the entire organic movement of the economy. Longer cycles and secular movements are also involved. For this reason a fiscal period based on the ordinary business cycle will not remove all our difficulties. Complications arising out of the longer movements remain when we cut across long cycles. For a thoroughgoing concept of national income we need a complete theory of economic development. Thus, in judging the ultimate efficiency of capitalism in relation, for example, to the conservation of natural resources, the business cycle period is clearly inadequate. In this case, a measuring period of secular length might prove more useful. Usually, however, treating the ordinary business cycle as the unit would probably be adequate. The longer cycles seem less relevant to most of the purposes of our records.

A way of overcoming the difficulties associated with an annual fiscal period would thus be to restrict our measures to those relating to entire business cycles. But the advantages of a shorter fiscal period cannot be denied, and need not be lost. We may break down our time unit by eliminating the cyclical fluctuations as a whole by means of some sort of a moving average, or more accurately by a correction analogous to that for seasonal movements.[10] Or we may so allocate revenues and costs as to take proper account of cyclical movements. That is the point to which we are leading. Our allocations must be based on a recognition of the fact of business fluctuations.

Even in accounting allocations of revenue and cost there is implicit some theory of business fluctuations. This inchoate theory usually takes the form of a strong doubt of stability, and manifests itself concretely in conservatism.

[10] The annual output of an economic system may be judged not only in comparison with its average cyclical behavior, but also in terms of the annual needs of the population. After all, the distribution of national income in time has some relevance to the economic welfare derived from it. A people may starve to death, despite a total income adequate if distributed equally over the period considered. But it may be doubted that national income produced is the proper concept to be used here. Rather, national income consumed or enjoyed appears to be more relevant.

IV The Time-Allocation of Revenue and Cost

Granted that business uses annual estimates, what time-allocation of revenues and costs is common in accounting practice? [11] How satisfactory is it for the measurement of national income?

We shall not cover accounting practice in the detail it perhaps deserves. Its general characteristics are fairly well known. We shall confine our attention to certain outstanding and typical practices.

With a few exceptions, gross income is admitted only in the period when a sale is made. When the annual flow of goods and services is steady, it matters little at which point this flow is measured. But when fluctuations occur, and with them changes in selling prices, the point of measurement affects the measure.[12] It is just because fluctuations in selling prices do occur, however, that gross income is not recorded until a sale is made.

The exceptions in accounting practice occur in the case of long term operations, instalment sales and certain financial accruals. The accrual, before sale, of earnings on long term construction jobs is defended on the ground that such operations are more carefully figured. It is also recognized, however, that when possible deviations between production and sale become very large, some account must be taken of them in the interests of a fundamental accuracy even if relatively rough estimates are needed to do so.

The common treatment of instalment sales is to record revenue when cash is collected rather than when the sale is made. This would appear more conservative than the practice of recording revenue on a long job as production proceeds and before a sale is made. The largest expenditure, on cost of materials, is distributed over the period of collection in accordance with the amounts collected. In both cases, therefore, the procedure is directed to the same end—as far as possible to match revenues with the expenses to which they give rise.

[11] For discussions of the relevant accounting practices, see W. A. Paton (ed.), *Accountants' Handbook,* 2d ed., Section 20 (Ronald, 1933); and J. B. Canning, *Economics of Accountancy* (Ronald, 1929).

[12] Measures will differ only to the extent of the net profits on increments of inventory. But it is these profits with which we are dealing.

Discount on bonds purchased is recorded as revenue with the passage of time, despite the possibly long life of the bonds. It undoubtedly is so treated because of the nature of the asset and the apparent accuracy of the computations involved in the accruals. This appears to be the major exception to the recording of appreciation of capital value as revenue.

Of interest income theoretically accruing on mineral resources [13] and on durable equipment in general no cognizance is taken on the books of corporations. Appreciation of the value of land and other fixed assets also remains unrecorded, except upon realization.

It is most convenient to consider several types of costs piecemeal. In general, it is difficult to say more than that common practice attempts to match corresponding revenues and costs. This is done in the case of long term contracts and jobs by distributing revenue in accordance with the time of the major (prime) costs. The same procedure underlies the general recording of revenue at the time of sale: "the sale can be considered as the most significant event in the whole chain of operating circumstances and conditions—the climax and capstone of production and operation . . . ." [14] Since some overhead costs arise from expenditures on durable goods, however, it is necessary to distribute them over the time periods during which sales are made; that is, over time periods in which the bulk of the prime costs are incurred. But even prime costs require care in allocation.

The first cost we shall consider is that for materials and other items bulking large in inventories. The rather common practice of valuing inventories at cost or market, whichever is lower, (as well as the ordinary retail method of inventory) introduces peculiarities of some importance.[15] (Even in valuation at cost there are certain implications which are considered later.) In the downward phase of business cycles, inventories are valued at market. If physical inventories are constant and prices decline at a constant (arithmetic) rate, no difference between this valuation at market and valuation at cost will appear in the income account.

[13] Harold Hotelling, 'The Economics of Exhaustible Resources', *Journal of Political Economy*, April 1931, p. 170.

[14] *Accountants' Handbook*, p. 1079.

[15] For a more extensive discussion of this point see Simon Kuznets, Part Four.

(The balance sheet will, of course, be different from what it would otherwise be.) If physical inventories decline, however, profits for the period will be greater on the basis of inventories valued at market than they would be with inventories valued at cost. If physical inventories are constant, and prices decline at a decreasing rate, the same will be true. During the upward movement, inventories will be consistently valued at cost. At turning points, the situation is more complicated. In a year in which prices reach a maximum, assuming physical inventories to be constant, recorded profits will be lower with inventories evaluated at market than they would be if the cost basis were used. When prices reach a minimum, recorded profits will be higher.

A rough computation to indicate the possible extent of the above differences is in order.[16] We may assume that prices fall, during recession, at the rate of one per cent per month,[17] and that stocks are on the average about three months old.[18] Then, at the bottom of a depression when prices turn up (for example, in 1933), something like 360 million dollars will be written off inventories at the end of the preceding year and added to profits of the bottom year.[19] While this difference appears rather small, compared with total national income or even with corporate savings alone, it is concentrated in certain industries. In an analysis of the industrial distribution of national income these differences take on weight.

Difficulties in accounting for fixed assets also arise out of fluctuations in the flow of goods and services. If output is steady and the volume of capital used to produce it is also steady it does not matter what treatment is accorded capital equipment. Expendi-

[16] Cf. Colin Clark, *The National Income, 1924–1931* (London: Macmillan, 1932), Appendix I.

[17] The figure for wholesale prices, 1929–33, is 1.1 per cent. See F. C. Mills, *Prices in Recession and Recovery* (National Bureau of Economic Research, 1936), p. 9, footnote 3. During the recession of 1921 the decline was at the rate of 3.0 per cent per month.

[18] The inventory turnover of corporations as a whole was about 5 times in 1929 and 3.5 times in 1932; see the figures in *Statistics of Income*.

[19] Market (end of year) values will be about 3 per cent less than cost, on the assumption of a three month old inventory and a rate of price decline equal to one per cent per month. With corporate inventories equal to about 12 billion (as in 1932), this will mean about 360 million dollars difference between cost and market.

tures upon durable goods may be charged immediately to current output, or they may be capitalized. If capitalized, it does not matter whether depreciation upon them is charged to current costs or whether costs of maintenance (replacements and repairs) are so charged. If depreciated, any depreciation formula may be used with the same results. But output does vary, and the volume of capital goods in existence does not remain constant. Replacements, repairs, use made of old fixed assets, depreciation, do not occur simultaneously. As a consequence, accounting difficulties arise which are met in various ways on the books of business enterprises. Some investments (on intangibles [20] and developments in mining) are charged immediately to current costs, simultaneously with expenditures upon them. In some industries (e.g., steam railroads) the chief measure of capital consumption is the current expenditure upon repairs and replacements; in other industries it is only a supplementary measure covering minor expenditures.[21] In most industries expenditures upon durable goods are distributed among various time periods by some depreciation formula, usually the straight line formula. In some businesses depreciation charges are calculated upon a per unit of output basis; or the straight line formula may be supplemented by a segregation of depreciation on idle facilities. Depletion of forests, mines, quarries and wells are also calculated on a per unit basis.[22] The probable consequences of these diverse treatments may be

[20] Thus, a firm that advertises regularly may cut down its appropriation in a given year without immediately feeling a commensurate disadvantage in its business. Yet this disinvestment—and it is clearly a form of capital consumption—will not be indicated as such on the books. Like other types of under-maintenance, it will be hidden. (Unlike other types, however, the extent of under-maintenance will be influenced by factors external to the particular concern—by the advertising appropriations of other concerns in the same industry and of other industries.)

[21] Another supplementary item found in many industries, not discussed here in detail, is included in 'deferred charges'. This account includes small tools, dies, forms, and other similar types of capital goods. The use of deferred charges in accounts amounts to using an inventory basis for these types of goods. That is, they are not capitalized and then written off, but instead are evaluated at the end of each year and the net change in value treated as a cost if negative, or as a deduction from cost if positive. There are interesting industrial differences in the treatment of deferred charges, but these cannot be discussed here.

[22] The complications introduced by the tax law provisions governing deductions for depletion are considered in detail by Carl Shoup, Part Six, Sec. II, 3, and Appendix B.

summarized briefly: capital charges to immediate operations, and charges for repairs, replacements and maintenance may tend to fluctuate more violently than prime costs, sales or output as ordinarily measured. Depreciation charges based upon a straight line or similar formula may fluctuate less violently than output as ordinarily measured. Depreciation charges on the per unit basis, as well as depletion charges, will naturally move with output.

TABLE 1

RATIOS INDICATING RELATIVE MOVEMENTS OF OUTPUT AND OF CERTAIN COSTS

	INTANGIBLE DEVELOPMENT COSTS AS A PERCENTAGE OF VALUE OF OIL AND GAS SALES [1]	MAN-HOURS OF MAINTENANCE EMPLOYEES PER 100 CAR-MILES, STEAM RAILROADS [2]
1929	5.0	6.4
1930	3.6	5.9
1931	2.3	5.3
1932	2.3	5.0
1933	2.2	4.7
1934	1.7	4.8

[1] Based on the annual reports of eight large oil and natural gas mining companies.
[2] Based on data compiled by the Interstate Commerce Commission; see *Bulletin 60,* National Bureau of Economic Research (June 30, 1936), Table 2.

Some of the few available figures bearing on these differences in range of fluctuation are presented in Table 1. The relative declines of capital charges to operations (intangible development costs) in the case of petroleum wells, and maintenance in the case of steam railroads, are striking. It is of course highly doubtful that these changes are typical of short recessions. The figures shown relate to a very severe recession and to only one in any case. But they do raise a question concerning the general validity of corporate accounts for our purposes. The small cyclical amplitude in depreciation charges is fairly well known and need not be illustrated here in detail. The shorter cycles between 1921 and 1929 are barely discernible, and even the 1920–21 recession made but a slight impression on these charges. Only between 1930 and 1933 was there an important decline (11 per cent).[23]

[23] 'Measures of Capital Consumption, 1919–1933', *Bulletin 60,* National Bureau of Economic Research (June 30, 1936), p. 8.

There are important implications in the various methods of handling fixed assets that bear on accounting over periods exceeding a business cycle in length. Secular movements are also involved. For example, if maintenance accounting is used instead of depreciation accounting, computed current costs will be lower in an expanding industry, and (theoretically at least) higher in a declining industry. The far-reaching influence of this fact in an industry such as steam railroads has been commented upon.[24]

What modifications in these accounting practices are suggested by theoretical considerations? One point must be mentioned before we proceed. Illogical and inconsistent accounting practices may simply be due, as suggested by J. M. Clark, to the fact that greater logic and consistency are obtainable at a price at which it does not pay to buy. This may be true also of some theoretical corrections or modifications that may be offered.

The fact that there are alternative methods of pro-rating revenues and costs suggests that there is no sure or sufficient basis in accounting technique itself for a selection among these methods, even accepting such rules of thumb as conservatism. Accounting—private accounting as well as social accounting—must derive its criteria of selection from economic concepts of income and business fluctuations and the derivative concept of a fiscal period.

The economist has the advantage in his estimation of business facts in that he need not have the scruples of the accountant. The accuracy he strives for is related to a wider vision. With the accountant he can admit, for example, that the valuation of inventory at the lower of cost or market is inconsistent. But he can do more. He can restore consistency to the accountant's figures.

Values accrue concomitantly with production in the widest sense of the word—that is, including selling. We need not wait for the moment of realization to record profits, or for the moment of loss to record losses. We can be consistent and record them as they arise, adopting either market price or cost as our measure of value. The two are not identical; whence arises the dilemma and inconsistency of the accountant, who swings from one to the other, selecting the more conservative, and thus ordinarily omitting accrued profits but retaining losses. The economist may

[24] Cf. Robert Schultz, *Depreciation and the American Railroads* (Philadelphia, 1934).

choose cost plus 'normal' profits, or market value (already including normal profits). The former would mean accruing normal profits during the period of manufacture or display, and postponing 'speculative' profits (or losses) to the moment of realization. The latter would amount to including both normal and speculative profits when they occur. Since even speculative profits are only realized, rather than made, at the time of sale, it seems more reasonable to include them in the fiscal period in which they become apparent. Speculative profits may be considered as arising out of the assumption of risk and the exercise of business judgment; these productive operations are not confined to the moment of sale. We avoid, also, the necessity of distinguishing between 'normal' and 'speculative' profits.

If the accrual basis is the logical one to use in the economic accounting of revenue, costs must be distributed equitably in proportion to the concomitant revenue. But not all costs are attached to specific units moving through the plant or shop. The productive assistance implied by economic risk and business judgment are related to volume of investment and time, as well as to volume of output. A plant may depreciate merely as time passes, regardless of the amount of use made of it. Some of the risk mentioned attaches to the fact that the use to be made of given equipment is itself a matter of forecast, not always characterized by measurable probabilities. The extent to which straight line depreciation, for example, may be modified in our measures thus hinges on the extent to which we wish to or can distinguish between costs correlated with output (in the ordinary sense) and costs correlated with time. The mere fact that a given productive service is a function of time and not of output does not, of course, mean that we must distribute the concomitant costs evenly over time. The method of distribution depends on what we wish to show. To that extent, the determination of net income for periods shorter than a business cycle—the 'natural' fiscal period—is arbitrary. Distributing fixed costs in accordance with gross income would tend to impose, upon net income, the cyclical pattern of gross income. It is difficult to say that the resulting measure of net income is in general less suitable than one showing a greater cyclical amplitude. Nor need there be an

exclusive choice: depreciation may be charged on both a time and a unit basis. It is here especially that a theory of cyclical movements in business is implicit in any decision made. If it is felt, for example, that the errors of prosperity, which result in increases in capacity that prove excessive in the light of depression, are *sui generis,* to charge to that period all the costs incurred by this excessive investment may be justifiable.[25] On the other hand, if the errors of prosperity are conceived of as arising out of the entire cyclical process and as related to errors in other phases of the cycle, such allocation is less justifiable.

An equitable time distribution of costs arising from durable equipment and other assets that are prorated over long periods involves consideration of the interest discount implied in the cost of these assets. If the price of a given capital good be looked upon as the price paid for the present value of a series of future services, we must recognize the existence of the element of discount. One way of doing this would be to base the annual charges for use of equipment on the implicit annual values of the expected services at the time they are enjoyed, rather than on their values at the time purchased. Periods early in the life of the asset would be credited with interest income to be charged to later periods in the form of depreciation or interest. They would not be burdened with the full capital investment, made partly for the benefit of later periods, unless they were at the same time credited with some income derived from this investment. It is this idea that is at the basis of the annuity method of apportioning depreciation.

While straight line depreciation methods tend to undercharge the burden in the later years of use of a durable good, the error involved may be compensated, more or less, by the usually increasing burden of repairs and maintenance. Compensation of a sort may occur also in the cyclical movements of industry, when depreciation charges remain rigid, to the extent that repairs and maintenance rise and fall more than output. However, it must be remembered that the latter compensation, even if complete, is true chiefly of industry as a whole. For particular industries the

[25] Cf. the discussion by J. B. Canning, 'A Certain Erratic Tendency in Accountants' Income Procedure', *Econometrica,* January 1933.

degree of compensation is only partial, since there is some tendency to record capital consumption by the one or the other type of book entry rather than by both.

V Price Changes

One of the outstanding characteristics of business accounting is the reluctance to admit price changes to the records, especially those affecting fixed assets. Except when turnovers are made, either directly by sale of capital assets or indirectly by consolidation or reorganization, capital assets are usually valued at original cost. Depreciation and depletion charges are therefore not based on contemporary price levels. In essence this means that discrepancies between original cost and current values are, as in the case also of inventories, taken into account as part of profit or loss. Changes in the prices of assets therefore affect the amount of corporate savings.

From the viewpoint of the economy as a whole, corporate savings so measured are not quite suitable for estimates of national income. Modification is called for. We may (1) replace original cost prices by current market prices; (2) express our measures entirely in terms of constant prices; (3) in adjusting for price changes, take some account of relative movements of prices.

1 CURRENT PRICES

As accountants recognize, business records are based on what may be called hetero-temporal prices. The prices implicit in depreciation charges and in changes in inventory values do not refer to the market situation at the time depreciation is charged and changes in inventory values are added to or subtracted from cost of materials. For a sound definition of national income produced it is necessary to use contemporary market prices throughout our measures.

In the case of depreciation charges, adjustment for price changes (from original cost to current production cost) may run into a half billion dollars; and in a period of rapidly changing prices may exceed a billion. The measures for 1919-35 are presented in Table 2.

TABLE 2

DEPRECIATION CHARGES EXPRESSED IN TERMS OF ORIGINAL COST AND REPRODUCTION COST, 1919–1935 [1]

All corporations in the United States

(millions of dollars)

(1)	(2)	(3)
YEAR	DEPRECIATION CHARGE, EXPRESSED IN TERMS OF ORIGINAL COST	DEPRECIATION CHARGE, EXPRESSED IN TERMS OF REPRODUCTION COST	DIFFERENCE BETWEEN DEPRECIATION AT ORIGINAL COST PRICES AND AT CURRENT PRICES (1) — (2)
1919	1,620	2,620	—1,000
1920	1,940	3,330	—1,390
1921	2,200	2,770	—570
1922	2,490	2,780	—290
1923	2,620	3,260	—640
1924	2,700	3,190	—490
1925	2,860	3,250	—390
1926	3,270	3,670	—400
1927	3,350	3,740	—390
1928	3,600	3,890	—290
1929	3,870	4,250	—380
1930	3,990	4,180	—190
1931	4,000	3,920	80
1932	3,690	3,240	450
1933	3,500	3,110	390
1934	3,360	3,300	60
1935	3,420	3,410	10

[1] The figures for 1919–33 have appeared in *Bulletin 60,* National Bureau of Economic Research (June 30, 1936).

Much more important is the adjustment for inventories. For the United States we present in Table 3 Simon Kuznets' figures, discussed by him below in Part Four.

The 4,963 million dollar change in inventory values in 1931 was the net result of a decline in the physical volume of inventories (equal in value to 1,655 million dollars at 1931 average prices and to 1,940 million dollars at 1929 average prices) and a drop in prices (evaluated here at 3,308 million dollars, using the average 1931 physical volume).[26] That is, revaluation of inventories affected the computation of net income for the year to the

[26] The change in value (v), price (p) being held constant at its average amount during any short period (t_{n+1}—t_n), that is at the value ½ (p_{n+1}+p_n); plus

extent of 3,308 million dollars. The magnitudes for some other years are even greater.

2 CONSTANT PRICES

Corporate savings as a whole cannot easily be adjusted for price changes; certainly not by a simple division by a single price index. Thus, the elimination of losses arising from declines in inventory values may change corporate savings from a negative to a positive quantity. No ordinary correction of total corporate savings for price changes can yield this result.[27] The adjustment must be

the change in v, quantity (q) being held constant in a similar manner, equals the total change in v. This statement is quite general, whether p or q rise or fall with the passage of time, and whatever the manner. Thus, let p_0, q_0, v_0 be the respective values of p, q and v, at time t_0, and p_1, q_1, v_1, at time t_1. It can then easily be shown that

$$v_1 - v_0 = p_1\ q_1 - p_0\ q_0 = (q_1 - q_0)\frac{(p_1 + p_0)}{2} + (p_1 - p_0)\frac{(q_1 + q_0)}{2}.$$

The figures in the last column of Table 3 include not only the last term in this equation but also the revaluations involved in the use of the lower of cost or market price, previously discussed (see also Kuznets, Part Four).

It should be emphasized that the inventory (and depreciation) adjustments do not entail the use of a constant price during a given year. The process is not correctly described as a partial deflation. Dr. Kuznets' statement that he multiplies the physical change in stocks of goods during the year by the average weighted price prevailing during the year may be phrased in another, equivalent, fashion. That is, instead of saying that we multiply the total net change during the year by some average price, we may say that we are pricing each net change during the year at the price prevailing at the time the net change occurs. Or, if we wish to think in quasi-mathematical terms, we may say that the year is broken up into a number of sufficiently small time units (infinitesimal units at the limit) and that we simply multiply the net change during each small period by the simple arithmetic mean of the prices at the beginning and end of the period. This, in fact, is what we do in measuring other terms of the national income formula, such as wages for the year: in substance, we multiply the number of man-hours of work during a week or day by the wage-rate prevailing in *that* week or day. All this is what is implied in the phrase "properly weighted annual average price". Thus, it is clear that even the measures in terms of current market prices involve mixing together in the figures for a given year all the different price levels prevailing during the year. In order to carry through an accurate adjustment for price changes, it is necessary to unscramble this mixture by getting back to each of the original, infinitesimal or near-infinitesimal sections of the flows and the prices at which they are evaluated.

[27] There is some danger, therefore, in presenting in the same table an index of prices (cost of living or wholesale prices), and measures of components of national

TABLE 3

INVENTORY REVALUATIONS, 1919–1935

All Business Enterprises, Excluding Farms
(millions of dollars)

YEAR	(1) CHANGE IN INVENTORIES, EXPRESSED IN CONSTANT (1929) PRICES	(2) CHANGE IN INVENTORIES, EXPRESSED IN CURRENT PRICES	(3) CHANGE IN BOOK VALUE OF INVENTORIES	(4) REVALUATION INCLUDED IN YEAR'S INCOME (3) — (2)
1919	2,832	3,888	5,986	2,098
1920	3,507	5,908	1,708	—4,200
1921	522	568	—6,185	—6,753
1922	388	581	1,552	971
1923	2,802	3,001	3,219	218
1924	—218	—222	—396	—174
1925	1,068	1,075	1,469	394
1926	1,687	1,901	114	—1,787
1927	387	391	—454	—845
1928	—482	—460	—508	—48
1929	2,484	2,484	1,772	—712
1930	—978	—982	—5,313	—4,331
1931	—1,940	—1,655	—4,963	—3,308
1932	—3,614	—2,586	—4,106	—1,520
1933	—1,255	—874	1,566	2,440
1934	—994	—862	1,269	2,130
1935	—813	—630	155	785

piecemeal. An essential step in the complete adjustment of corporate savings is the substitution of current market prices for original cost prices.[28]

The use of constant prices cannot be considered a departure from the use of market values. Quantities of different goods are still combined on the basis of market value. All that is done is to substitute a constant for a fluctuating market price.

Changes in rates of interest may be handled in the same way, since they also may be looked upon as prices. Difficulties due to changes in capitalization rates may be avoided by keeping them

income produced, implying that correction of the latter by the price index will yield an adequate approximation to real income.

[28] Only in this sense can this substitution be considered a "partial deflation".

constant, at the rate in the base year, or in the given year, or some combination of the two.[29]

3 RELATIVE PRICE CHANGES

In discussing the elimination of price changes no mention was made of difficulties arising from relative price changes, of which discrepancies between reproduction cost (less accumulated depreciation) and current market values are an important group. These are best considered here in a discussion of obsolescence.

Temporary disparities of prices arise during business cycles and are characteristic features of these cycles. The problems of measurement of corporate savings to which they lead reflect the shortness of the accepted annual fiscal period and can be handled, as already suggested, by the process of adjusting for price changes or by the recognition of their essentially temporary character.[30]

Obsolescence is essentially a secular or long cycle phenomenon. Obsolescence during the business cycle has little meaning, since capital goods apparently obsolescent in the downturn and depression phases are brought back into the former sphere or level of production when business turns upward. It is relative price changes persisting over a period longer than a business cycle with which we shall be concerned in this section.

'Normal' obsolescence, obsolescence that can be foreseen even if only dimly, is written off on the books of corporations to revenue, inseparably from charges arising from physical depreciation. Unforeseen obsolescence is ignored, if the good remains in use for the length of its anticipated life. If the good is discarded earlier, a write-down is made, and charged against capital if of sufficient importance.

There are some situations in which, while the equipment or

[29] It would seem that capitalization rate changes would be reflected in ordinary price changes, and would not require separate treatment. This is true of eternally durable goods. But in the case of goods with limited lives, it would be difficult to compare those in one period with those in another, unless they were identical in number of years of remaining life, as well as in kind.

[30] Here again it is necessary to emphasize that the temporary character of these disparities, so far as business cycles are concerned, means only that they are irrelevant to the measurement of national income, and not to the factors determining the amount of national income.

structure may still be profitably used, greater profit may be obtained by substituting for it a larger or faster unit. In such a case the capital cost of the displaced asset may be added to the cost of the displacing asset, in accordance with best accounting practice. Thus, if a rentable building is torn down and replaced by an improved structure, the book value of the old structure is not a proper deduction.[31] How satisfactory are these computations for the measurement of national income?

It can be shown that anticipated obsolescence is a legitimate charge against income,[32] and if the straight line depreciation formula is used, should be expressed in terms of cost.[33]

If obsolescence is not foreseen, the question whether it is a social charge is more difficult. More or less compensating changes within the capital structure, such as those rising out of shifts in demand, may be ignored. Since increases in capital value arising out of demand changes in a part of the system will not be recorded on the books there, it seems best not to write down capital values elsewhere, but to continue to charge depreciation at book value. If the equipment is discarded, however, a write-off will be necessary. This may be charged against income (if discards are distributed fairly uniformly in time), otherwise against capital.[34]

Unforeseen obsolescence due to invention and other technological improvement would seem to be a valid social charge, as a cost underlying and offsetting the advance in technique. Since

[31] Cf., however, *Regulations 86,* Article 23 (e)-2, which seems to approve such a deduction except when a taxpayer deliberately buys real estate with a view to replacing an old building with a new one.

[32] Cf., for example, R. F. Fowler, *The Depreciation of Capital* (London: King, 1934), pp. 11–12.

[33] Strictly speaking, of course, obsolescence should be written off as it occurs. If it is, earlier years of the life of the equipment or other goods will be charged a greater amount than later years, even though straight line physical depreciation is assumed.

[34] Obsolescence may be uncovered in certain phases of the cycle (presumably depression), and may be the consequence of a progress that is pulsating—as in J. A. Schumpeter's conception. But obsolescence uncovered in depression must be confirmed in the succeeding phases of the cycle and it is therefore doubtful whether it should be associated with other than secular movements. For this reason, write-downs (which appear to be more abundant in recession and depression), represent declines in capital values accumulated in earlier periods, and should not be charged to the operations of any one phase of the cycle. This is recognized in the inclusion of write-downs among surplus (or capital) adjustments, rather than in the income account.

an increased flow of goods will result and be reflected in an increase in the gross product, it seems reasonable to charge such obsolescence as an offset. If, for the economic system as a whole, a reasonable sort of guess could be made as to its occurrence, even if it were not possible to do so for any individual part of the system, the charge would be against income, rather than against capital. That is, obsolescence unforeseen by any individual or group of entrepreneurs might be foreseen by an economist taking the broad view. Here also the short length of the fiscal period complicates the problem. For if the history of an industry be considered in its entirety, any unforeseen obsolescence is clearly a charge against its income.

The complete elimination of price changes as irrelevant to the measurement of national income, suggested above as one way out of the difficulties arising from changes in price levels, also eliminates from our figures the valid social cost involved in the investment of resources in capital goods which become obsolete. Difficulties arise, however, when we try to discriminate between different kinds of price changes. Certainly it would seem desirable to eliminate at least changes in the general price level. But the concept of a general price level has lost much of the sharpness it seemed once to possess. Perhaps the simplest procedure, in the present state of our knowledge, is to eliminate all price changes, with a realization of the assumptions this procedure involves. It must be remembered that one of our goals is to account for the entire flow of real resources into capital goods. The loss in the value of these resources should be accounted for by a deduction somewhere, whether as a current charge on revenue account, or as an extraordinary charge on capital account.

VI Capital vs. Revenue Items

Corporate savings, as available to us in accounting reports, consist of revenue items applicable to the current period, less cost items applicable to the current period, less cash dividends and income taxes. Other items and changes in position are added to or deducted from capital assets, and if not conversions of assets, are credited or charged on capital account.

These other items, which may be conveniently grouped together as surplus adjustments,[35] arise out of discrepancies between recorded anticipation and actuality, and out of price changes.

Discrepancies between the records and the facts are often due to the conservative nature of accounting practice with respect, for example, to intangible assets and unrealized profits. Or they may be due, as indicated above, to the mere expense of accounting.

Discrepancies between anticipations and actuality arise out of errors. The useful life of durable goods may be incorrectly estimated. Or, no measurement may be made: accounts may be inadequate, as in the case of the records of many small proprietors, farmers and professional workers. Or, finally, the probabilities of certain occurrences may be unmeasurable.

The longer the accounting period, the fewer will be the capital charges (or credits), for those arising out of errors in the allocation of revenues and costs to different time intervals will decrease in number. Here again we must distinguish between the discrepancies characteristic of business cycles, which cancel out if the cycle as a whole is considered, and those persisting over periods longer than a business cycle.

Probably the major portion of surplus adjustments represent, concretely, changes in general price levels, unanticipated obsolescence, and uninsured accidents.[36] As already suggested, mere revaluations—whether expressed in write-ups or write-downs, or profits and losses on sale of capital assets—may be ignored in the social accounts, unless they affect later charges for depletion and depreciation. An important type of upward revaluation occurs after the discovery of valuable mineral properties. Since expenditures for exploration and development are usually charged to current expense, whether or not the venture is successful, there are good grounds for considering these discoveries as representing capital formation and part of national income. Entries for unanticipated obsolescence, already discussed, appear to be valid

[35] Most upward revaluations appear to take the form of profits on sales of capital assets (including consolidations), while most negative revaluations enter business accounts as write-downs.

[36] Cf. 'Revaluations of Fixed Assets, 1925–1934', *Bulletin 62,* National Bureau of Economic Research (December 7, 1936).

social charges, if they can be separated from corrections for general price movements. Damages due to uninsured accidents, like unforeseen obsolescence, are definitely social charges, even if only on capital account, since there can be no question of their effect on economic welfare in general, and on the status of business corporations in particular. Such losses have been discussed in recent papers where they are treated as losses on capital account.[37] Here also, if from a broad social standpoint reasonable estimates could be made—whether or not entrepreneurs take into account the possibility of their occurrence—it would be preferable to place such losses in the income account. Practically speaking, however, it is probably simplest to treat them as losses on capital account, and supplement our measures of national income by entries for charges and credits on capital account. These entries are vital in the measurement of annual changes in national wealth, but difficult to consider as affecting the measurement of the income of the specific year in which they are made.

Such surplus adjustments as charges on idle facilities are essentially applications of the per unit depreciation charge, rather than the straight line method. They can hardly be considered as proper capital charges so far as national income is concerned.

General non-specific reserves for 'contingencies' offer a knotty problem, and raise the question of the extent to which the surplus account itself is a reserve for possible future losses.[38] The creation of these reserves should ordinarily not be considered charges on capital account. Only when specific entries are made debiting these reserves and crediting capital assets does it appear reasonable to treat the items as capital charges. However, if the fact of loss is indeed clearly established, and only its exact amount is still to be determined, there would seem to be more reason to consider the entries as relevant to our measures. The distinction

[37] A. C. Pigou, 'Net Income and Capital Depletion', *The Economic Journal,* June 1935, p. 240; F. A. Hayek, 'The Maintenance of Capital', *Economica,* August 1935, p. 246.

[38] See M. C. Rorty, 'A National Money Accounting as the Basis for Studies of Income Distribution', *Journal of the American Statistical Association,* March 1921; O. W. Knauth, 'The Place of Corporate Surplus in the National Income', *Journal of the American Statistical Association,* June 1922; and W. R. Ingalls, *Wealth and Income of the American People,* 2d ed. (York: Merlin, 1923), pp. 207–14; also Dr. Knauth's discussion in *Income in the United States,* Vol. II, Ch. 25 (National Bureau of Economic Research, 1922).

is a clouded one, and superlative accuracy is not to be expected.

The whole question of anticipation is involved in these considerations. Should the economist accept, for use in his measures, whatever anticipations are offered to him, or should he correct them? And if he attempts to correct them, should he accept the average anticipation as the criterion, or the most accurate anticipation, or impose one of his own? No clear answer is possible. In an analysis of economic processes the actual distribution of anticipations constitutes vital data. But in the estimation of national income as a measure of the 'end-product' of economic processes some manipulation appears necessary. We cannot accept as measures of income, except as first approximations, what individuals believe to be their incomes. In measuring economic welfare the economist must impose and use criteria of his own. Thus the changing anticipations related to the waves of pessimism and optimism characteristic of the trade cycle may be handled as implied above in the discussion of the fiscal period.

The path of the estimator of national income is thorny in any case. He is forced to accept accounting data to which, in many cases, only a few rough corrections can be applied. Where obviously inadequate accounts are kept—those of farmers, for instance—some estimate must be supplied by him. And he must allow for capital charges and credits as a complement to his measures of national income, even though he may feel that many of these entries properly belong in the revenue account.

VII Problems of Duplication and Omission

We turn, finally, to a few questions of duplication and omission raised during the examination of the various items entering into corporate income accounts. With respect to the expense items, there is the problem raised by taxes.[39] It is easy to consider corporate taxes as a whole a legitimate expense, paid for services rendered by the state.[40] But for individual industries this way out seems less proper. Taxes paid by tobacco and liquor corporations can hardly be considered anything but transfers. For a proper

[39] Cf. Mitchell and Kuznets, *op. cit.*, p. 10.

[40] See, however, Gerhard Colm, Part Five, Sec. II and III.

industrial distribution of national income produced, it seems legitimate to deduct only those taxes paid for services rendered to the industry. This statement applies to all taxes, including income taxes, property taxes, import duties and excise taxes on such products as liquor and tobacco. The portion of taxes not required for services can be considered either as forced transfers, or as analogous to monopoly profits. In either case, it represents income produced in the industry. Probably the simplest way of handling this problem statistically is to segregate all taxes paid by corporations and other business enterprises and show the figures in conjunction with the income data by industry. The distinction between government services to business and other government expenditures would then be made in a detailed analysis of the government's budget, the portion taken to represent services to business being deducted from the total amount of taxes paid by industry. It would be difficult to attempt so to break down tax payments of individual industries. This could be done only on an arbitrary basis, such as assuming that all property taxes are for services rendered and deductible as costs, and that excise and income taxes represent income originating in the industry.

The theoretical basis for this method of treatment of taxes lies in the assumption of market price as the unit of value. A different treatment of taxes implies a deviation from this basic assumption.[41] It may be doubted whether in the present state of economic and statistical knowledge a step can be taken away from market valuations, although such a step is ultimately necessary.[42] Since the economy is characterized by change and growth, the equilibrium theory apparatus so far seems to aid us little in this eventual step. Even well established taxes vary in weight and incidence, owing to changes in total income and prices. In any case, the underlying criticism of market prices applies with equal force to the vast group of monopoly prices, and cannot be confined to the effect of taxes on prices.

An extreme instance of the importance of taxes in measures of

41 Reduction of income to constant dollars does not rid us of market valuations, of course.

42 An approach has been made in this direction by Professor Colm. The kind of assumptions that must be made to do so is indicated in his paper (see Part Five).

national income produced is found in the tobacco manufactures industry (Table 4). In this group, taxes were more than twice the amount of national income produced as measured by a method similar to that of Messrs. Kuznets and Nathan.[43] If we include taxes in national income produced we have figures that indicate a degree of change between 1931 and 1933 (–12 per cent) considerably different from the figure excluding taxes (–23 per cent). And of course the relative importance of the industry, so far as income produced is concerned, is considerably enhanced by including taxes.[44] For all corporations, taxes other than Federal income taxes (property and other taxes, but not including excise and import duties) amounted to over two billion dollars in each of the years 1927–33. These are not only huge amounts, but also amounts characterized by little flexibility.

TABLE 4

NATIONAL INCOME ORIGINATING IN THE TOBACCO MANUFACTURES INDUSTRY, 1931 and 1933

(millions of dollars)

	1931	*1933*
National income produced, as ordinarily measured	216.3	165.6
Taxes paid		
Excise	422.0	400.8
Property, etc.	9.5	10.2
Federal income and profits (corporate)	17.1	9.0
Total taxes	448.6	420.0
National income produced, plus taxes	664.9	585.6

Sources: Wages and salaries—Census of Manufactures (1929, 1931, 1933). Salaries for 1931 estimated on basis of wages paid. Interest—estimated interest on long term debt, less interest received on tax-exempt investments, *Statistics of Income,* stepped up to include non-corporate data by ratio of total value of product to corporate value of product, Census of Manufactures, 1929. Dividends, entrepreneurial withdrawals and business savings—*Statistics of Income,* stepped up. Taxes —excise taxes from Census of Manufactures, 1931 and 1933; other taxes from *Statistics of Income,* stepped up.

[43] *National Income, 1929–1932,* 73d Cong., 2d Sess., Senate Doc. 124 (1934); *National Income in the United States, 1929–1935* (U. S. Department of Commerce, 1936).

[44] Various taxes on liquors collected by the Bureau of Internal Revenue also reach a huge amount; 411 million dollars for the fiscal year ending June 30, 1935 (*Annual Report of the Commissioner of Internal Revenue, Fiscal Year Ended June 30, 1935,* p. 53).

Bad debts represent a rather large item, as indicated in Table 5. Here too there is some question whether those losses incurred through credit extended to individuals should be considered as transfers or as expenses. The criterion by means of which the income derived from illegal pursuits is commonly excluded from national income is generally applied in this case. Another, perhaps more satisfactory, method is to segregate the figures. Bad debts incurred on accounts due from other corporations are not necessarily recorded as income by the defaulters.

TABLE 5

BAD DEBTS REPORTED BY CORPORATIONS, 1929–1931

(millions of dollars)

	1929	*1930*	*1931*
Total	942.0	979.5	1,182.7
Retail industries [1]	200.0	202.3	239.8

[1] Including all bad debts reported by retail trade, domestic service and amusements, and one-half of bad debts reported by corporations in the following industries: telephone and telegraph, gas, electric light, wholesale and retail, 'all other trade', professional, stock and bond brokers, real estate, loan and financing. The original data appear in *National Income, 1929–1932,* Appendix B, and in the annual volumes of *Statistics of Income.*

The same point arises in connection with losses, by corporations, on investments in other corporations. Duplication of losses occurs when the losses of a subsidiary are repeated in the loss on sale or writing-off of the stock holdings of the parent company. The elimination of duplication of corporate profits is quite easy. Profits must be reported to the Bureau of Internal Revenue for tax purposes, and income derived from dividends and gain on sale of investments are segregated in the published statistics. The elimination of duplication of losses would be just as easy if the figures were reliable. However, there is some question as to the accuracy of the reports, particularly of corporations that are dissolved or in process of dissolution. Naturally, when there is no tax to be yielded by insisting on more accurate reports, and when any losses reported will most probably not be used in the future to reduce taxable income, the Treasury Department is less likely to scrutinize with care the reports of companies in obvious difficulty and on the way out. Evidence bearing on the importance of any discrepancies that may arise in this connection is obviously

lacking. It is possible that an appreciable sum of losses is omitted from our aggregates on this account.

One further possible discrepancy must be mentioned. Cash dividends declared by a corporation as of one year may be recorded as received by the stockholders in the following year. Since we obtain our figures from the payers, rather than the receivers, any resulting difficulty will arise only in the analysis of income by size.

VIII Conclusion

The definition of national income should have some relation to the economic world as we have learned to know it. The organization of modern business involves, integrally, the corporate structure and the complex of interests and controls this structure implies. It is essentially for this reason that the old division of income shares must be modified to make a place for corporate savings.

Difficulties in the definition of national income arise, as Professor Pigou has indicated, out of the fact of economic change. It is extremely difficult to compose an unambiguous definition of capital consumption—of what is meant by keeping capital intact—for an economy characterized by cyclical movements and secular trends in its every element. We cannot assume that the accounting concept of corporate savings provides us with this unambiguous definition. Accounting estimates of corporate savings cannot be accepted as more than the raw material which the statistician must shape into bricks for his structure. The characteristics of accounting practice—conservatism, inconsistency, variability from one concern to another (as in the treatment of intangibles, depreciation and maintenance), the reflection of extraneous elements (as legal requirements, division of interests within the enterprise, need for credit), mold the accounting figures into shapes not altogether fitted for our purpose.

Nor is it likely that we can make such a definition of our own *before* we commence our labor of building up a theory of economics. Economics is a continuing science. It must learn from experience, its own experience. For this reason we feel that na-

tional income must be defined with reference to what we already know of economic development and fluctuation. If we are to get back of the 'nominal' calculations and evaluations of business men and accountants, we must consider the 'law' of their speculations and valuations.

We must recognize the utility of several parallel measures of national income, supplemented by measures of capital charges and credits, and broken down in detail. When such a plurality of measures is not possible, when modifications of the available data are not practicable, we must remember the assumptions implicit in these data when we draw conclusions from them.[45]

[45] Much of the above discussion has relevance also to problems in the measurement of national wealth. Thus, the remarks on the relation between a theory of cyclical movements in business and the measurement of income also apply to the measurement of wealth in connection with, for example, the question of fluctuating prices and their bearing on capital evaluation.

Part Four

CHANGING INVENTORY VALUATIONS AND THEIR EFFECT ON BUSINESS SAVINGS AND ON NATIONAL INCOME PRODUCED

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Discussion

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CHANGING INVENTORY VALUATIONS AND THEIR EFFECT ON BUSINESS SAVINGS AND ON NATIONAL INCOME PRODUCED

SIMON KUZNETS

THE COMMENTS submitted below reiterate and amplify one of the points brought out in Mr. Fabricant's paper.[1] The distorting influence of business accounting practices on any measure of business savings, and hence of national income produced, is considerable, and the need for adjusting figures taken from business accounts must be clearly recognized. Of the various sources of distortion, the changing valuation of inventories appears, for recent years, to have had the largest quantitative effect on business savings and national income produced. It would, therefore, seem advisable to discuss the various aspects of this particular influence in some detail, even at the danger of stressing the obvious.

I National Income Produced, in Current Prices

National income produced may be defined briefly as the value of all commodities and services produced, minus the value of commodity wealth consumed in this production. Within commodity wealth consumed it appears advisable to distinguish between inventory commodities, i.e., raw and semifinished materials, finished nondurable commodities, and all finished durable commodities before they reach the hands of their ultimate consumers;

[1] Part Three, Sec. IV and V, 1.

and fixed capital, i.e., all finished durable commodities that are in the hands of their business users.

Let us adopt the following designations:

$q_n p_n$ = national income produced, in current prices, q_n being commodity volume and p_n being the corresponding price level,

q_g = quantity volume of all commodities and services produced,

p_g = current prices of all commodities and services,

q_m = quantity volume of inventory commodities consumed in the process of production (production being most broadly defined),

p_m = current prices of inventory commodities consumed in the productive process,

q_c = quantity volume of fixed capital consumed in the productive process,

p_c = current prices of fixed capital consumed in the productive process.

Then, obviously,

$$q_n p_n = q_g p_g - q_m p_m - q_c p_c. \tag{1}$$

In the discussion below, we deal chiefly with national income produced, in current prices. The problem of adjusting it for changes in the price level will be mentioned only briefly in Section IV.

II The Inventory Valuation Problem

In connection with $q_m p_m$ the first point to be noted is that p_m designates the current price level of inventory commodities consumed in the productive process. If we deal, as we usually do in national income estimating, with annual magnitudes, p_m is the annual average price, weighted by quantities consumed in each distinguishable subdivision of the year (quarter, month, etc.).

The quantity of these inventory commodities consumed is properly expressed for business enterprises by the following equation:

$$q_m = q_{bi} + q_p - q_{ei} \tag{2}$$

where:

q_{bi} = quantity volume of inventory commodities in stock at the beginning of the year,

q_p = quantity volume of inventory commodities purchased during the year,

q_{ei} = quantity volume of inventory commodities in stock at the end of the year.

Hence:

$$q_m p_m = (q_{bi} - q_{ei} + q_p) p_m = q_{bi} p_m - q_{ei} p_m + q_p p_m. \quad (3)$$

Actually, from the accounting records we obtain the following value, which we designate as A_{mp}, for the cost of inventory commodities consumed:

$$A_{mp} = q_{bi} p_1 - q_{ei} p_2 + q_p p_3 \quad (4)$$

where:

p_1 = prices in which commodity stocks are reported at the beginning of the year,

p_2 = prices in which commodity stocks are reported at the end of the year,

p_3 = prices at which commodities are purchased during the year.

None of these three is likely to be equal to p_m, when prices of the commodities in question move up or down during the year. Since inventories are valued at cost or market whichever lower, if prices rise during the year and the immediately preceding period, p_1 will be lower than January 1 prices and hence decidedly lower than p_m, the average price for the year; and p_2 is likely to be higher than p_m, if the age of the closing inventory is under six months. Similarly, when prices decline, p_1 will be higher than p_m, and p_m is likely to be higher than p_2. The average price of inventory commodities purchased during the year, p_3, will differ from p_m in so far as the distribution of purchases within the year differs from the distribution of actual consumption in the productive process.

For practical purposes we may assume that $p_3 = p_m$. There is no way of ascertaining properly, in estimating national income, the distribution within the year of quantities of inventory commodities consumed and of those purchased. And it may be reasonably suggested that even when differences between the intra-annual consumption and purchase patterns are substantial, the resulting disparity between p_3 and p_m is likely to be of much

smaller importance than the difference between p_1 and p_2, on the one hand, and p_m, on the other.

If $p_3 = p_m$, then

$$A_{mp} - q_m p_m = q_{bi} p_1 - q_{ei} p_2 - q_{bi} p_m + q_{ei} p_m$$
$$= q_{bi} (p_1 - p_m) + q_{ei} (p_m - p_2). \quad (5)$$

When prices of inventory commodities consumed in the productive process rise, and the average age of stocks is under six months (which, for the business system as a whole, is quite definitely the case) both $(p_1 - p_m)$ and $(p_m - p_2)$ are negative quantities. Hence, in such a case, the value of inventory commodities consumed as reported by business accounts is too low as compared with the true one; and correspondingly, net income (in equation 1) is exaggerated by an amount exactly equal to that on each side of equation (5), signs disregarded. When prices of the commodities in question decline, the value of these commodities consumed in the productive process is exaggerated in the business account, the value on each side of equation (5) being positive; and hence net income is underestimated by a corresponding quantity.

It is thus quite clear that whether prices rise or decline, and inventories are reported at cost, or at cost or market whichever lower, the values of inventory commodities consumed, as reported in business accounts, differ from the value required for a proper estimate of national income.[2]

III Factors Determining the Size of Discrepancy Resulting from Changing Inventory Valuation

The discrepancy in question, the value of which was established in equation (5), may for the purposes of analysis be expressed somewhat differently:

[2] It is surprising to note in this connection that Colin Clark, in his *The National Income, 1924–31* (London: Macmillan, 1932), finds it necessary to correct for this peculiarity of business accounting only in years of declining prices and fails to correct for the influence of rising prices. The fact that accounting practices demand reporting inventories at cost or market, whichever lower, does not mean that in years of rising prices the valuation of the closing inventory is the same as that of the opening inventory, or that either is the same as the price level of inventory commodities consumed in the productive process.

$$A_{mp}-q_m p_m = q_{bi}p_1-q_{ei}p_2+(q_{ei}-q_{bi})p_m. \quad (6)$$

If we ask ourselves now what determines the absolute size of this discrepancy, its sign being disregarded, it becomes obvious that:

a) Other factors held constant, the discrepancy is larger the larger the difference between p_1 and p_2, i.e., the larger the change in the price level.

b) If $q_{bi} = q_{ei} = q_i$ the discrepancy is larger the larger q_i is. The same is true if $q_{ei} \neq q_{bi}$. The discrepancy is proportional to the magnitude common to both q_{bi} and q_{ei}.

c) If both prices and the quantity volume of commodity stocks change the absolute size of the discrepancy will tend to be larger if the quantity volume of commodity stocks increases; and will tend to be smaller, if the quantity volume of commodity stocks declines.

Proof:

When $q_{bi} = q_{ei}$, the discrepancy is

$$q_{bi}(p_1-p_2); \quad (7)$$

when commodity stocks increase, $q_{bi} = q_{ei}-a$ (a = positive constant) and the discrepancy becomes:

$$q_{bi}(p_1-p_2)+a(p_m-p_2). \quad (8)$$

When prices rise p_1-p_2 is invariably negative; and p_m-p_2 is likely to be negative if the average age of closing commodity stocks is under six months. Under such conditions, expression (8) will be of larger absolute size than expression (7).

When prices decline, p_1-p_2 will be positive, and p_m-p_2 is also likely to be positive. Hence expression (8) will be larger than expression (7), both arithmetically and algebraically.

Obviously, if commodity inventories decline the discrepancy will be:

$$q_{bi}(p_1-p_2)-a(p_m-p_2). \quad (9)$$

which will, for either rising or declining prices, tend to be of smaller absolute size than expression (7). Thus, secular and cyclical rises in commodity volume of inventories will, other conditions being equal, magnify the effect of changes in inventory valuation upon the discrepancy, and hence upon business savings and national income produced. Secular and cyclical declines in the commodity volume of inventories will have the opposite effect.

d) If the commodity volume of inventories and prices both

change, the discrepancy may vanish if, when commodity stocks increase:

$$q_{bi}(p_1-p_2) = -a(p_m-p_2) \text{ or } \frac{a}{q_{bi}} = \frac{(p_1-p_2)}{(p_2-p_m)}. \tag{10}$$

Since both a and q_{bi} are positive, $\frac{p_1-p_2}{p_2-p_m}$ must be positive in order that equation (10) be satisfied. But this can be the case only if the price movements change their direction at some point from p_1 to p_2.

When commodity stocks decrease:

$$q_{bi}(p_1-p_2) = a(p_m-p_2) \text{ or } \frac{a}{q_{bi}} = \frac{(p_1-p_2)}{(p_m-p_2)}. \tag{11}$$

In this case it would appear at first as if price movements do not have to change their direction within the year. But unless they do, p_1-p_2 will be larger than p_m-p_2, and hence a would have to be larger than q_{bi}—obviously an impossibility. In the extreme case $(a = q_{bi})$, p_m would have to be equal to p_1—again an impossibility under conditions of prices changing within the year in one direction only.

Hence, the effect of a change in commodity volume of stocks is not such as to allow cancellation of the discrepancy, unless prices both rise and decline within the year. But under such conditions, the discrepancy may vanish even if the commodity volume of stocks remains constant throughout the year.

IV National Income Produced, in Constant Prices

A brief consideration will show that the usual adjustment of national income produced for changes in price level does not correct for the discrepancy discussed above.

If we designate the constant price level in which income and its elements are to be expressed by P, with corresponding subscripts, then national income produced, in constant prices, is described by the following equation:

$$q_nP_n = q_gP_g - q_mP_m - q_cP_c. \tag{12}$$

Hence

$$P_n = \frac{q_gP_g - q_mP_m - q_cP_c}{q_n},$$

$$p_n = \frac{q_g p_g - q_m p_m - q_c p_c}{q_n},$$

and

$$\frac{p_n}{P_n} = \frac{q_g p_g - q_m p_m - q_c p_c}{q_g P_g - q_m P_m - q_c P_c} \tag{13}$$

The price index p_n/P_n is obviously a ratio of two price measures, both constructed similarly but for two different years, the base year and the given year. In both, the price measure is obtained by taking the prices of all commodities and services produced, allowing all possible duplication (p_g and P_g); subtracting the prices of all inventory commodities and of all services consumed in the process of production (p_m and P_m), and again subtracting the prices of all fixed capital goods consumed in the productive process (p_c and P_c). In short, both p_n and P_n are largely measures of the prices of finished commodities and services produced and available for ultimate consumers and investors. Prices of unfinished commodities and services enter them only in so far as they represent net additions to or subtractions from inventories.

It is clear now that having both p_n and P_n, no correction can be made for the discrepancy by any usual adjustment for price changes. Indeed, the correct expression for national income produced, in constant prices, is:

$$q_n P_n = q_n p_n \Big/ \frac{p_n}{P_n}$$

But if instead of $q_n p_n = q_g p_g - q_m p_m - q_c p_c$, we have a magnitude $A_{np} = q_g p_g - A_{mp} - q_c p_c$, then when we adjust for price changes, we obtain the following magnitudes:

$$A_{np} \Big/ \frac{p_n}{P_n} = [q_n p_n - q_{bi}(p_1 - p_m) - q_{ei}(p_m - p_2)] / (p_n/P_n)$$

$$= q_n P_n - (P_n/p_n)[q_{bi}(p_1 - p_m) + q_{ei}(p_m - p_2)]. \tag{14}$$

The discrepancy in this case may be absolutely smaller or larger as compared with that in income produced in current prices, depending upon whether P_n/p_n is smaller or larger than 1. But its relative magnitude, i.e., its ratio to the correct value of national income produced, will be the same whether measured in current or in constant prices.

V Magnitude and Effect of the Adjustment for Recent Years

It is of interest to consider the magnitude of the discrepancy discussed above and the effect of the adjustment for such discrepancy on the current estimates of national income produced and of that income element which reflects the discrepancy fully, viz., net business savings (Table 1).

TABLE 1

ADJUSTMENT OF CURRENT ESTIMATES OF BUSINESS SAVINGS, PROFITS OR LOSSES AND NATIONAL INCOME PRODUCED FOR EFFECTS OF CHANGING INVENTORY VALUATIONS

YEAR	RE-VALUATION OF INVENTORIES INCLUDED IN ESTIMATE	INCOME PRODUCED		NET BUSINESS SAVINGS		BUSINESS PROFITS OR LOSSES	
		PRESENT ESTIMATE	ADJUSTED	PRESENT ESTIMATE	ADJUSTED	PRESENT ESTIMATE	ADJUSTED
		(millions of dollars)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1929	–712	80,757	81,469	2,583	3,295	8,552	9,264
1930	–4,331	67,969	72,300	–4,903	–572	912	5,243
1931	–3,308	53,499	56,807	–8,052	–4,744	–3,718	–410
1932	–1,520	39,545	41,065	–8,942	–7,422	–6,193	–4,673
1933	2,440	41,813	39,373	–3,094	–5,534	–881	–3,321
1934	2,131	49,575	47,444	–1,429	–3,560	1,257	–874
1935	785	54,955	54,170	310	–475	3,382	2,597

Col. 3, *National Income, 1929–36,* prepared by the Division of Economic Research, U. S. Bureau of Foreign and Domestic Commerce (Washington, 1937), Table 1, p. 11
Col. 5, *ibid.,* Table 8, p. 24
Col. 7 = Col. 5 + dividends paid out; see *ibid.,* Table 24, p. 31
Col. 4 = Col. 3—Col. 2 Col. 8 = Col. 7—Col. 2
Col. 6 = Col. 5—Col. 2 For derivation of Col. 2 see text

The estimates of income produced, net business savings and business profits and losses (i.e., savings before payment of dividends) are taken from the most recent publication on the subject by the Department of Commerce, and need no further explanation. But the derivation of the measures of the discrepancy, given in column 2, needs to be stated briefly.

For years prior to 1936, we have estimated in the National

Bureau's study of capital formation the volume of commodity stocks held at the end of each year by the business system, i.e., farmers, all business enterprises in mining, manufacturing, construction and trade, and all corporations in the fields of public utilities, service and finance. These commodity stocks were measured in both 1929 prices and current valuation as reported in the accounts of the business firms; in addition we had price indexes measuring the average annual price level of the commodities in question.

We were thus able to estimate for every year the following magnitudes: $(q_{ei}-q_{bi})\,p_m$, and $(q_{ei}p_2-q_{bi}p_1)$. These magnitudes appear in columns (2) and (3) of Table 3 in Mr. Fabricant's paper,[3] and refer to all inventories except those in the hands of farmers. Farmers' stocks were excluded because the procedures used to estimate income produced from farming take no account of changes in current inventories.

The revaluation of inventories included in present estimates of national income produced and net business savings is obvious from equation (6) which can be rewritten as follows:

$$\begin{aligned} q_m p_m &= A_{mp} - q_{bi}p_1 + q_{ei}p_2 - (q_{ei}-q_{bi})\,p_m \\ &= A_{mp} + [(q_{ei}p_2 - q_{bi}p_1) - (q_{ei}-q_{bi})\,p_m]. \end{aligned}$$

It can now be seen why Mr. Fabricant estimates the revaluation of inventories included in the current estimates as

$$[(q_{ei}p_2 - q_{bi}p_1) - (q_{ei}-q_{bi})\,p_m];$$

and it is this magnitude that is entered in column (2) of our table.

It may be observed that the adjustment thus made possible affects materially the estimates of national income produced, raising them in years of contraction and lowering them in years of recovery. It also changes somewhat the year-to-year movement of income totals, bringing them into what seems to us better conformity with our general notions of the course of depression and recovery in this country. The unadjusted totals of income produced show almost as great an absolute decline from 1929 to 1930 as from 1930 to 1931, or from 1931 to 1932. The adjusted totals show that the contraction from 1929 to 1930 was much less appreciable than during the two years following. The unadjusted total shows a rise from 1932 to 1933; the adjusted one shows a

[3] Part Three, Sec. V, 1.

decline from 1932 to 1933, thus exhibiting a movement similar to that of income paid out.

The effect of the adjustment on business savings is, naturally, the most marked. From 1929 to 1932 inclusive, the cumulative total of business savings is reduced from —19,314 million dollars to —9,443, or by more than one-half. For the entire period, 1929–35, the cumulative total of net savings in the unadjusted figures is —23,527 million; in the adjusted, —19,012. The adjustment serves to bring out the fact that revaluation of inventories tends to intensify greatly the otherwise sensitive element of business savings or business profits—reducing them still further during the years of declining prices that usually accompany depression, and raising them still further during the years of rising prices that usually accompany recovery.

VI Broader Aspects of the Problem

The correction for the effects of changing valuation of inventories, as well as the adjustment for the difference between original cost and reproduction value bases of depreciation deductions (discussed by Mr. Fabricant), serves to raise some broad questions concerning national income concepts. The introduction of these corrections means that our measure of national income produced, and especially of business savings or business profits and losses (if we treat dividends as a residual rather than as a cost share), departs from what the business system as a whole considers its net profit or loss or its contribution to net income produced. In effect, the adjustments for the inconsistencies of the accounting system are analogous to the distinction the estimator makes between entrepreneurial withdrawals and business savings for individual entrepreneurs, most of whom make no such sharp distinction in reality; or to the attempt of the national income estimator to place a precise figure upon entrepreneurial incomes in such branches as farming, retail trade or construction, in which a large number of the entrepreneurs have but a vague notion as to the amount of their net incomes.

Such consistency on the part of the national income estimator in his attempt to measure what the net income actually *is,* rather

than what people *think* their net incomes are, seems to me fully justified. It is of importance for us to know the total net output of commodities and services during given periods, measured in terms of both current and constant prices. How else can we gauge the success of the economic system in providing commodities and services for ultimate consumption and for increase of the capital stock? True, the global measure of national income produced is in itself insufficient for such purposes; it must be supplemented by the various significant allocations, such as by industrial source, by functional type of income share, by regions, by social groups, by size among consuming units. But the properly measured total is obviously indispensable, either as the first or as the last step in this sequence of national income measurements.

On the other hand, we do lose a valuable aspect of national income measurements by making them depart from what the income recipients in the nation believe their incomes to be. For what consumers or entrepreneurs think their net incomes to be provides at least a partial explanation as to why they act as they do as consumers or entrepreneurs. An increase in the net profit of an enterprise, even though it is but a reflection of revaluation of inventories of the kind discussed above, is nevertheless real so far as it may stimulate the enterprise to further expansion or to a more generous dividend policy. And if a farmer thinks that his net income has increased, even though this increase is due only to his failure to take proper account of the depreciation of land or equipment, he may still be impelled to expand his activity. Whether such expansion will actually follow depends, of course, upon the enterprise's or farmer's ability to find the means for it; but the stimulus, provided by an increase in apparent net income, is present nevertheless.[4]

The discussion above suggests a definite choice among the several alternative approaches to national income measurements that appear in any discussion of national income concepts. One can either attempt to measure national income produced as a sum total of what income producers think their incomes are, or

[4] It is perhaps not an overstatement to say that the disparity between real and apparent net income constitutes an important factor in business cycles. A similar point, obviously suggested by the experience in Germany during the inflation years, was elaborated by F. Schmidt (see his 'Die Industriekonjunktur—ein Rechenfehler!', *Zeitschrift für Betriebswirtschaft*, 2 Sonderheft, 1927).

as the value of the net output of commodities and services. Both approaches cannot be satisfied by one estimate, but demand two distinct totals. Perhaps we should estimate both *real* income produced and *apparent* income produced. And if we do, we should probably distinguish and measure real income paid out and apparent income paid out; or any other pair of real and apparent national income totals.

The purpose of these remarks is not to indicate and justify a definite choice. Although if a choice is to be made, it seems to me more important, in the present state of our knowledge, to measure real national income produced as a basis for observing fundamental changes over substantial time periods than to measure apparent income produced, which is useful only as a factor in explaining some short term changes in economic behavior. But then there is nothing, except labor, to bar a simultaneous measurement of real and apparent income. However, the important point is that the two approaches are incompatible in one estimate. Such incompatibility is also true of the uses to which the net income measures may be put.

Discussion

I M. A. COPELAND

The nature of the correction for changing inventory valuations that Dr. Kuznets proposes to apply in estimating social income may be conveniently understood for an isolated community, if we divide its total net value product into three parts according to objects of expenditure during the year, thus:

a) Total value of goods and services consumed;

b) Saved income invested in additions to the stock of durable goods;

c) Saved income invested in additions to inventories.

Neither (a) nor (b) is relevant. Item (c), which may be either positive or negative, is precisely what Dr. Kuznets proposes to correct. When it is on a book-value basis [1] it is p_2q_{ei} minus p_1q_{bi}. Dr. Kuznets would apply p_3 or p_m, an average price for the year, to both physical inventories, q_{bi} and q_{ei}, in lieu of using respectively the year's opening and closing prices, p_1 and p_2. Thus, in effect, he applies a deflation technique, but applies it separately for each year. His correction therefore eliminates the effects of price change within each year but does not eliminate the effects of price change as between any two years. We may refer to his technique as 'partial deflation'.

Dr. Kuznets' argument for this correction begins with an equation, equation (1), as a premise. He tells us that this equation is obviously true. Its truth was not obvious to me. Indeed, when I first read his equation I thought it was obviously false. I now think it is his definition of 'national income produced at current prices', or q_np_n. If so, it becomes true by definition. I therefore

[1] For the usual estimates of 'net value product' for agriculture, which do not employ the accountants' inventory-purchases formula for cost of goods sold or used, this statement needs some qualification.

do not wish to question its validity as an equation. I do urge that other definitions of 'net value product at current prices' may properly be held and that this particular definition involves an incorrect usage of statistical terms.

As I have elsewhere repeatedly pointed out,[2] the expression 'net value product at current prices' is ambiguous for several items unless the valuation basis is specified. The item here under consideration is a case in point, and book valuation is one possible basis for it. Thus, we may properly estimate 'net value product at current prices, inventories being on a book-value basis'. This is the concept of social income at current prices that I have urged as the basic concept. Dr. Kuznets has not questioned the accuracy of existing estimates for this concept as he seems to tell us he has; rather he has offered us a different concept of social income.

Before considering the merits of his proposed concept I wish to question the correctness of designating it as "income . . . in current prices". The main purpose of setting up a concept 'income at current prices' would seem to be to carry us as far as possible towards income in stable dollars without attempting to correct the data of estimate for changing prices or other changing valuations. The chief advantage in adhering to current prices is that one avoids the subjectivity inherent in possible alternative methods of deflation. Clearly Dr. Kuznets' concept starts the process of correction for price changes [3] and therefore is not properly called income at current or uncorrected prices.

Dr. Kuznets urges that when and only when his partial deflation technique has been applied to the type of saved income under consideration, the job of correcting for price changes may be finished by applying the usual deflation technique as a complementary process. I concur.

While Dr. Kuznets' correction enables us to deflate saved income by subsequent use of the time-honored deflation technique, I feel bound to repeat my statement of a simpler deflation technique for saved income that is open to us. The year-end inven-

[2] See, for example, Part One, Sec. II, 3.

[3] Another income estimator, less concerned with algebra, might have used either p_1 or p_2 instead of p_m. This makes clear the subjectivity involved in Dr. Kuznets' partial deflation.

tories rather than the annual increments in inventories may be fully deflated by the time-honored technique, and the annual increments may then be computed from these deflated figures.

Although the problem of deflating saved income invested in durable goods is *in theory* similar to that of deflating saved income invested in inventories, Dr. Kuznets' discussion has the great advantage of breaking saved income into these two parts, and of making clear that *practically* the part he deals with is easier to handle alone and also is much the more important part of the whole for the income estimator to handle.

An inconvenient corollary of Dr. Kuznets' concept of partially deflated book-value income may be noted. Unlike income at current prices and fully deflated income, this partially deflated income does not correspond to a single clear-cut concept of social wealth. Indeed, by hypothesis, Dr. Kuznets applies two valuations to each year-end inventory, one for the preceding year and one for the following year.

II MILTON FRIEDMAN

Whether revaluations of inventories should be included in or excluded from 'national income in current prices' can best be considered in connection with the broader problem of the treatment of changes in the capital structure in general.

The capital structure of a national economy—expressed in monetary terms—can be changed through:

(1) Utilization of the available productive resources, i.e., through 'physical' additions to the stock of capital;

(2) 'Real' consumption of capital, i.e., through under-maintenance;

(3) Changes in the demand structure and consequent shifts in the relative valuation of capital goods;

(4) Technological developments making for obsolescence;

(5) 'Non-produced' additions to or subtractions from capital, e.g., the gold mine discovered by chance, or the capital brought in by immigrants;

(6) Changes in monetary conditions bringing about general price revaluations.

If we adhere strictly to a monetary definition of income as equal to the value of the goods and services consumed during the year, plus the wealth at the end of the year, minus the wealth at the beginning of the year, then estimates of national income will include changes arising from all these sources. The net effect of these six factors will represent the 'savings' during the year. This, I take it, is Dr. Copeland's position.[1]

It seems to me, however, that our tendency to accept the above definition of national income is a result of a tendency to think in static terms. Of the six possible modes of change in the capital structure, only the first two are relevant to static analysis. For under conditions of unchanging tastes and preferences of consumers, of constant technology, of given resources, and of a stable money system, none of the other types of change could arise. The remaining four modes of changing the capital structure represent the effect of dynamic factors, the effect of fundamental changes in the economic structure.

The definition of national income given above implies that, at one time or another, all changes in capital structure pass, as it were, through income. In a static state satisfying the conditions listed above this is indeed the only way in which the capital structure can be enlarged or reduced. In a dynamic state, however, it seems better to conceive of the capital structure as subject to alteration in other ways than through the utilization of some part of the income stream.

By following this procedure we depart from the stationary state fiction that all changes in the capital structure represent more or less deliberate decisions to 'save' rather than to 'spend', and we approach what seems to me a more realistic notion; namely, that changes in the underlying factors of our economy result in similar dynamic changes in the capital structure.

I am suggesting, therefore, that we define income as the value of the commodities and services consumed during the year, plus changes in the capital structure of the first two types listed above. By so doing we admit the possibility that the capital structure may be changed other than through the utilization of the income stream. The dynamic changes in the capital structure will affect the stream of income available in future years, but they will not

[1] Part One, Sec. V, 8.

be allowed to affect the current income stream. This procedure does not, of course, attempt to insulate income from the effect of all 'dynamic' or accidental changes. Factors affecting the stream of commodities and services directly—as, for example, factors making for a bumper crop of strawberries—are not, and should not be, abstracted from.

It is, of course, impossible to declare one of the two definitions of income outlined above 'valid' and the other 'invalid'. Fundamentally, the choice between them rests upon one's personal opinion as to the relative significance of the concepts, and their usefulness in analyzing the economic system.

Application of the definition of income suggested would lead to the following treatment of some of the debatable items: Revaluations of assets, whether arising from changes in the general price level, shifts in relative prices, or obsolescence would be excluded from income. (Mr. Copeland favors, it would seem, the inclusion of all three; Mr. Fabricant favors the exclusion of the first but the inclusion of the second and third.[2]) Capital brought in by immigrants, losses from floods, earthquakes, etc., would likewise be excluded. (Mr. Copeland again favors their inclusion,[3] while Mr. Fabricant favors their exclusion.[4])

If the principles suggested above were followed, it would be well, of course, to present along with estimates of national income, estimates of changes in the capital structure arising from various dynamic changes in the economic system.

It is recognized, of course, that hard and fast lines cannot be drawn separating the six types of change listed above; that, consequently, the present suggestion does not provide as simple and clearcut a solution as might, on the surface, appear. Thus, Mr. Fabricant has indicated the difficulties in distinguishing 'unforeseen' obsolescence from depreciation, and in deciding which additions to productive resources analogous to the discovery of gold mines should be considered as 'produced' by expenditures on exploration. But the lack of hard and fast dividing lines is, of course, not peculiar to the present problem, and offers little excuse for accepting a less satisfactory concept. The borderline

[2] Part Three, Sec. V, 1 and 3.
[3] Part One, Sec. V, 5.
[4] Part Three, Sec. VI.

cases are, after all, relatively unimportant; the great bulk of the changes in the dollar value of the capital structure offers little difficulty.

The decision as to which of the six types of capital change shall be included in 'income' seems to me entirely distinct from the problem of the prices in terms of which the commodities and services making up the income stream are to be valued.

III ARTHUR W. MARGET

I do not understand Dr. Kuznets' argument to be concerned with the problem of how to treat such 'profits' (or additions to 'business savings') as result from the appreciation in value of inventories still *unused* in the productive process between the time they were purchased and the time an estimate is made of the addition to 'profits' or to 'business savings' constituted by this appreciation. This is a matter that deserves discussion both on its own account and for the light it might throw on the treatment of additions to 'wealth' in estimates of income. It is, however, not directly involved in what I take to be Dr. Kuznets' specific problem; namely, the computation of 'profits' on commodities actually 'consumed' in the productive process, in the sense of being *used* in the process of manufacture.

The question, then, has to do with the prices assigned to the inventory commodities that are used in the productive process during the period under examination. As I understand Dr. Kuznets' contention, it is that the prevalent practice of valuing goods at cost or market, whichever lower, results, during periods of price change, in an overestimation or underestimation of the profits 'actually' made; and that the only way of correcting this distortion is to value goods used in the productive process not at the prices they bear in the inventory valuation as affected by current accounting practice, but at the prices they bear in the market at the time they are being used.

The underlying theoretical justification for Dr. Kuznets' method is the general doctrine of opportunity cost; since what he argues, in effect, is that the true measure of the 'cost' of a given commodity used in production is what that commodity would

obtain in the market. This is a solid foundation; and the method has the further advantage that it proposes to treat symmetrically the 'costs' of materials used in manufacturing and the imputed 'costs' of certain types of material and labor used in the estimate of 'profits' in such lines of activity as agriculture. I cannot believe, however, that Dr. Kuznets' method, *properly applied,* would give results for the measurement of 'income produced', when the latter is understood to include *all* gains or losses from entrepreneurial activity over a given period, which differ in any essential respect from the results obtained by the methods now employed.

The reason for this conclusion constitutes at the same time a specification of what is involved in a 'proper' application of the proposed method. In essence, the point simply amounts to a warning against supposing that the measurement provided by Dr. Kuznets' formula for 'income produced' through the use in production of accumulated inventories, presents a complete measure of the total gain or loss accruing to the entrepreneur as the result of the process in question. For this gain or loss should include also the *gain or loss accruing to the entrepreneur because he purchased his inventory at a price different from that which he charges himself when he uses the materials in question.*

I cannot believe that Dr. Kuznets proposes to regard gains or losses of the latter type as of no importance for an estimate of the 'real' gains of entrepreneurs. The lags between the rise in costs—including the costs of materials—and the rise in selling prices are very 'real' phenomena, in the sense that it is precisely these lags that are instrumental in changing the proportions in which the different sectors of the economic system are in a position to exercise command over 'real' resources. This is a commonplace of monetary theory, which has insisted for generations upon the fact that price lags may be the means whereby a 'redistribution of wealth' is effected during periods of price change. To disregard the differences in the amount of pecuniary profits as between entrepreneurs who have shown different degrees of foresight in accumulating inventories at low 'cost' would be to disregard the differences in the command over real wealth that these differences in pecuniary profits are certain to bring.

This granted, then the choice between Dr. Kuznets' method and current methods will turn largely upon the extent to which

it is felt to be desirable to segregate gains of the type indicated from the gains that would accrue if all entrepreneurs had no gains on inventories and charged themselves for materials of production at the prices prevailing when these materials are used. Some might prefer to regard the 'income produced' that is measured by Dr. Kuznets' formula as the only true 'income', the gain on inventory being regarded as an addition to 'business savings' comparable to that which would result from an appreciation in the value of fixed assets. Others might argue that the gains in inventories are really gains accruing to entrepreneurs in their capacity as dealers in the materials in question, and therefore as truly 'income' as the gains of those who are solely traders in commodities and make their profit by selling at a price above cost. The important thing, in any case, is that any measure of 'income produced' that is not to result in a distortion of the 'real' facts of the situation must include both types of gain, and not merely 'income produced' as measured by Dr. Kuznets' formula.

Hence the difference between the results obtained from the use of Dr. Kuznets' formula and those obtained from the use of current accounting methods, instead of affecting the *total* entrepreneurial gain from the productive process, merely affects the allocation of the two parts of this gain as between the gain on inventories, on the one hand, and the gain from the productive process when inventories used in that process are charged at the market prices prevailing at the time of use, on the other.

It will be seen, also, that the questions raised by Dr. Kuznets with respect to the 'true' and 'apparent' gains of entrepreneurs during periods of price change are really concerned with much broader problems than those covered by his formula. At bottom, what is involved is the general position expressed in Mr. Fabricant's paper,[1] and concurred in by the writer, to the effect that, in order to estimate what 'actual' profits are being made, attention must be paid to the relevant 'period', and that in many cases we are warranted in characterizing profits computed over a fraction of such a period as 'unreal', in the sense that they do not reflect what the sober second judgment of the market will decide these profits 'actually' should have been thought of as being. I agree

[1] Part Three.

entirely that we must be prepared to consider methods designed to correct the estimates of 'profits' in such a way as to bring them more nearly in accord with the 'realities' of the situation. I cannot believe, however, that Dr. Kuznets would assert that the particular method he proposes will accomplish this purpose.

He would certainly not argue, for example, that gains on inventories are entirely illusory. These gains remain 'real' so long as entrepreneurs fail to make subsequent losses that cancel their gains; and I cannot see that the method under discussion provides us in advance with knowledge as to the degree of wisdom with which different entrepreneurs will husband their respective gains. On the other hand, I am sure that Dr. Kuznets would not argue that the mere fact that gains are calculated on the basis of imputing market prices to inventories will guarantee that these gains will not be canceled by subsequent losses. 'Market' prices represent the result of entrepreneurial judgments of the moment; they, and the gains computed on the basis of them, are therefore as much subject to a more sober second judgment as are valuations of fixed capital, which are also the result of market judgments. Given the unfortunate tendency, in boom times, to regard a temporarily favorable profit situation as permanent in character, any device that will tend to undeceive over-optimistic producers as to the extent of their probable 'profit' over a 'period' of sufficient length is to be welcomed. Such devices should, however, be presented for what they are, and not as devices for representing the 'true' condition of affairs, as that condition will be revealed by subsequent market events.

IV SIMON KUZNETS

The adjustment for the effects of changing inventory valuations is a single operation the results of which may be set forth in a three-fold fashion: (a) it serves to evaluate the inventories consumed in the process of production at their market price at the time of their consumption, rather than at their book value; (b) it excludes from national income gains or losses arising from the rise or decline in prices of commodities held in stock; (c) it im-

plicitly includes changes in inventories only in so far as they represent accretions to or depletions from the stock of commodities comprising the inventories.

Each result of the adjustment (all are closely related of course) suggests some aspect of the basic argument for such an adjustment. (a) If national income in current prices is to have any consistent meaning, the characteristics of current market valuation should obviously apply both to the gross national product and to the commodities consumed in its production. Hence, both fixed capital and other commodities consumed in the productive process should be evaluated at the market price prevailing at the time of consumption, just as the finished product is taken at its current market price. (b) If national income is to represent the net current value of commodities and services produced, it cannot and should not include any appreciation or depreciation of the existing stock of wealth, except as such appreciation or depreciation results from diverting commodities to and from this stock. Just as we exclude from national income gains and losses on sales of assets by individuals, so we should exclude gains and losses arising from the holding of commodity stocks. (c) Finally, the assumption that in an income study changes in inventories should be confined to those representing actual inflow or outflow of commodities is the only one consistent with the statements under (a) and (b).

In the light of these considerations, the objections raised by Dr. Copeland and Dr. Marget do not appear valid. As I understand them, these objections are: (1) That income in current prices should "carry us as far as possible towards income in stable dollars without attempting to correct the data of estimate for changing prices or other changing valuations". But the income in current prices, as defined here, i.e., inclusive of the adjustment for the effect of changing inventory valuations, "starts the process of correction for price changes and therefore is not properly called income at current or uncorrected prices" (Dr. Copeland). (2) That the adjustment suggested has the inconvenient corollary of applying "two valuations to each year-end inventory, one for the preceding and one for the following year" (Dr. Copeland). (3) That the adjustment proposed eliminates gains or losses sustained by the entrepreneurs on inventories actually consumed in

the productive process, these gains and losses arising because of a lapse of time between the purchase of the commodities by the entrepreneur and the sale of the finished product in which the consumed inventory is embodied. And these differential gains and losses of entrepreneurs are of crucial importance and should not be neglected in any computation of national income (Dr. Marget).

(1) This writer must confess an inability to appreciate clearly the meaning of Dr. Copeland's first objection. It cannot very well mean that national income in current prices can be obtained only if the investigator adds indiscriminately whatever data are reported by various economic agents on what they consider their income receipts or income earnings to be. Let us assume that entrepreneurs, in reporting their net income, fail to deduct depreciation of fixed capital, a practice that was quite prevalent before the corporate income tax law taught the business community the benefits of such a deduction. Under these circumstances, would Dr. Copeland claim that national income at current prices should be governed by the income reported, without allowance for depreciation, on the ground that costs should be taken at the book values reported by concerns and that any attempt to correct for them initiates the process of price correction? And if the answer to this question is negative, as it obviously would be, why should we not correct for the omission by entrepreneurs, in their calculation of costs, of the disparity between the book value of fixed capital and inventories and their current market value at the time of consumption? Whether this correction is to be designated as 'deflation' depends upon definition. But, surely, income in current prices is not synonymous with a concept of income in which the data are left uncorrected from the viewpoint of a consistent definition, and hence are a mechanical total of heterogeneous parts, at the mercy of the diverse accounting practices of business and other enterprises.

Another aspect of the same objection is perhaps revealed by Dr. Copeland's statement that "the chief advantage in adhering to current prices is that one avoids the subjectivity inherent in possible alternative methods of deflation"; which he illustrates in a footnote by saying "another worker, less concerned with algebra, might have used either p_1 or p_2 instead of p_m". But it is

obvious that "subjectivity" in this case cannot mean freedom of choice resulting from an uncertainty of a theoretical character, but rather that resulting from the possibility of choice among various practical means, i.e., among various price series. And the illustration of the subjectivity is ill chosen. The other worker, if he at all wishes to measure national income at current prices *prevailing throughout each year, must* use p_m; he cannot use p_1 or p_2. The only freedom he has is in choosing series to represent p_m; in which choice, owing to the paucity of price series, his imagination or restraint may operate differently from those of another worker.

(2) Dr. Copeland's second objection, viz., that the adjustment suggested implies two valuations for each year-end inventory, seems to be based upon a misunderstanding of the argument presented in my paper. This argument attempted to show the significance and necessity of the correction for a single year; for this reason p_m was stated in terms of a single year. But, obviously, if we deal with a series of years, there is nothing to prevent us from expressing the inventories at each year-end in terms of a single, constant price level; obtain for each year the changes in inventories, in terms of that single, constant price level; convert these changes to current prices prevailing through each year; and then obtain the adjustment for each year by subtracting from these changes the differences within each year between the beginning and end-year inventories in terms of their changing book valuations. As a matter of fact, it is in this fashion that the adjustment has been computed for the tables in both Mr. Fabricant's and my own papers—the constant price level used being that for 1929.

To express the same point in algrebraic terms, let us denote P_m as the constant price level; q′, q″, etc. and p′, p″, etc. as the quantities and prices for the single years. Then equation (3) can be rewritten as the following series of equations, each for a single year:

$$q'_m P_m \frac{(p'_m)}{(P_m)} = (q'_{bi} P_m - q'_{ei} P_m + q'_p P_m) \frac{(p'_m)}{(P_m)},$$

$$q''_m P_m \frac{(p''_m)}{(P_m)} = (q''_{bi} P_m - q''_{ei} P_m + q''_p P_m) \frac{(p''_m)}{(P_m)}.$$

The adjustments for each single year would then be:

$$(q'_{ei}p'_2 - q'_{bi}p_1) - \left[(q'_{ei}P_m - q'_{bi}P_m) \frac{(p'_m)}{(P_m)} \right],$$

$$(q''_{ei}p''_2 - q''_{bi}p''_1) - \left[(q''_{ei}P_m - q''_{bi}P_m) \frac{(p''_m)}{(P_m)} \right].$$

Thus, in a series of years the most effective way in which the adjustment could be made would be to translate inventories for all year-ends in terms of a single constant price level—a step that would be apparent in the argument were it developed for a series longer than a single year.

(3) Dr. Marget emphasizes the importance of differential gains and losses arising from the time-disparity between purchase of inventories and their eventual sale in the form of a finished product, not so much as an objection to the adjustment suggested as a warning that national income obtained after this adjustment excludes these important differential incomes of entrepreneurs. With this viewpoint this writer is in complete agreement; and far from denying the importance of entrepreneurial gains and losses arising from this source, I have stressed in the concluding section of my paper the importance of measuring them. But it is my opinion, which need not be elaborated further here, that it is advisable to confine national income to the flow of commodities and services; and to prevent confusion by excluding from it all elements of capital appreciation and depreciation as a subject for separate study and measurement.

Some comments are, however, in order with reference to the success of the adjustment suggested in eliminating all the entrepreneurial gains and losses arising from the lags that Dr. Marget discussed. The time span between the date of inventory purchase and of its sale in the form of a finished product consists of two periods: (a) the period of inventory holding, elapsing between purchase and the beginning of the process of consumption; (b) the period of production, extending from the moment the inventory enters the productive process to the moment it is sold. The adjustment suggested would fully eliminate gains and losses arising from price changes extending over both periods only if: first, p_m rather than p_3 is used in the adjustment; second, p_m is taken to designate the market price of the inventories consumed at the

point where this process of consumption finally matures, i.e., at the point of sale. But actually the adjustment as applied in both Mr. Fabricant's paper and my own uses p_3 and not p_m.

As a matter of theoretical necessity, it is quite obvious that p_m rather than p_3 should be used in the adjustment; and that p_m should be understood in the specific meaning given to it above. For once a decision is made that national income should exclude all elements of revaluation of assets, a complete elimination of such elements in connection with inventories is realized only under the conditions stated.

But in actual practice it is impossible to obtain p_m, since cost of materials is usually reported in accounting records as indicated in equation (4) above.[1] We are therefore forced to use p_3 rather than p_m in the adjustment. This means that while, theoretically, we would wish to exclude the type of entrepreneurial gains and losses that Dr. Marget emphasizes, the practical exigencies of the situation force us to leave them in. The practicable adjustment succeeds in eliminating largely those gains and losses which arise from holding inventories that have not yet reached the point at which p_m becomes a reality.

(4) With reference to the difference between p_3 and p_m, and to the statement in my paper suggesting that this difference is likely to be small as compared with that between p_m and p_1 or p_2, I would like to enter a qualification suggested by Milton Friedman. In a letter discussing this point, Mr. Friedman writes:

> "I was troubled by your assumption that equating p_m to p_3 would make little difference. If this is not done, then to your equation (5) must be added the term $q_p (p_3 - p_m)$. Now the difference between p_3 and p_m will tend to be considerably smaller than the difference between p_m and p_1 or p_2. But will not q_p tend to be considerably larger than q_{bi} or q_{ei}? If, as you say, the average age of inventories is considerably less than six months, then the inventory will be considerably less than the quantity purchased during the year."

[1] This is subject to exceptions, which will become especially important if the apparent tendencies among the more advanced members of the accounting profession to change the treatment of inventories gain in extent. On the bearing of these changes on the present topic, see below.

With this comment I am in complete agreement; and now that it has been indicated above that p_m should refer to market prices current at the very end of the process of consumption, the possibility of a disparity between p_3 and p_m is greater than it would have been were p_m to refer to a point of time closer to the date of purchase. But as indicated above, the use of p_3 rather than of p_m is forced by practical exigencies.[2]

This discussion may be concluded by an indication that the recent developments in accounting practice point to an increasing dissatisfaction of accountants and of the business community with the practice of valuing inventories at changing book valuation; and constitute attempts to modify inventory valuation and income computation in a direction approaching that discussed above. Of the three methods that have developed recently in accounting practice, one is identical with the adjustment indicated: the procedure designated as the 'last-in, first-out' method (as contrasted with the traditional 'first-in, first-out' method) in which inventory entering the finished product is calculated on the basis of current market prices rather than on the basis of original cost or other book values. The other two methods also tend in the same direction. The base or normal-stock method involves the setting of a given commodity volume of inventories as the base or normal stock, to be treated as indispensable equipment and kept intact at fixed prices. The result is that when prices rise, a larger dollar volume is drawn out of current income to cover the cost of the basic inventory, and net current income is reduced accordingly; and corresponding changes occur during periods of declining prices. Thus, the enterprise does not count in its net income the gains and losses on its base or normal inventory accruing from price rises or declines; although gains and losses sustained on excesses or deficiencies over the base inventory are included. The third method, the reserve procedure, calls for a

[2] However, the use of p_3 instead of p_m has the pragmatic value that it assures the identity of the national income total obtained by adding income payments to individuals and net savings of enterprises with the total obtained by adding consumers' outlay on finished consumers' goods with net capital formation. The use of p_m would disturb this identity. For a more detailed discussion of the comparability of the national income totals obtained by these two methods, and the effect on this comparability of the adjustment for changes in inventory valuations, see the author's *National Income and Capital Formation, 1919–1935, A Preliminary Report,* Appendix D (National Bureau of Economic Research, 1937).

systematic, periodic reservation, in years of rising prices, of an amount out of net income to cover increased cost of inventory holding; these reserves being turned back into net income in periods of declining prices. Several important business concerns have adopted one or the other of these new procedures.[3] These developments impress one as an effort by business firms and the accounting profession to look behind the monetary form to the more lasting real processes—and it is for this reason that they result in a closer agreement between accounting and business procedures and the basic concept of national income.

[3] For an interesting review see Ross G. Walker, 'The Base-Stock Principle in Income Accounting', *Harvard Business Review,* Vol. XI, no. 1 (Autumn 1936), pp. 76–94.

Part Five

PUBLIC REVENUE AND PUBLIC EXPENDITURE IN NATIONAL INCOME

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Discussion

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PUBLIC REVENUE AND PUBLIC EXPENDITURE IN NATIONAL INCOME[1]

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I Concept and Measurement of National Income[2]

As A statistical concept national income is defined in this paper as the measurable part of the social product. The concept of national income is derived from notions of a pure exchange economy. It is usually discussed as if we lived in such an economy, that is, an economy ruled exclusively by the interplay of prices and costs. The economic system in reality, however, comprises other types of organization as well: the household, the non-profit institution and the governmental unit, the behavior of none of which is determined exclusively by price-cost relationships. The concept of 'social product' embraces the results of all the various kinds of work done, and at the disposal of the social group. On the other hand, it is plainly impossible to include the whole social product; the statistician must be content to include that part of the product which is measurable.

[1] The writer is grateful to Harold Barger for exceedingly valuable aid in revising the original manuscript. M. A. Copeland, Simon Kuznets, Fritz Lehmann and R. R. Nathan also made critical suggestions as a result of which the first draft of this paper was thoroughly revised. He wishes to thank Martha Anderson for help in bringing his manuscript into readable form.

[2] For more extensive discussions from somewhat different points of view see M. A. Copeland, Part One, and Clark Warburton, Part Two.

1 THE SOCIAL PRODUCT

How can we define the social product? By saying that this term denotes the results of all work done and at the disposal of the social group we merely shift the problem. It now becomes necessary to define 'work' in a social-economic sense. Not every human activity is 'work'. The effort put forth is not the proper criterion. Physical exercise taken for recreation may involve the same effort as the 'work' of a professional sportsman. Yet we do not regard the former, and we do regard the latter, as a part of the work to be measured by national income. Nor can usefulness serve as a criterion. There are many useful activities, like physical exercise, which it is not appropriate to include in national income; on the other hand, the usefulness of certain types of production and service which cannot be eliminated from national income might be questioned. If the criterion of usefulness were applied the calculation would lose its social-economic character and become a moral evaluation.

Or, is there perhaps some social relationship involved in the activity of our professional sportsman that distinguishes his exercise from that of an individual? This cannot be the criterion either. Writing a letter to a friend certainly involves a social relationship, yet it is not 'work', as the writing of a business letter is.

Dr. Kuznets suggests the "dominance of economic motives".[3] This criterion leads us into psychological difficulties similar to those that Dr. Kuznets wished to avoid when he rejected the concept of 'income enjoyed' suggested by Irving Fisher. One man may conduct his business for the same psychological motives that induce someone else to pursue a hobby. In its literal sense the 'income enjoyed' can be measured only in psychic terms. The practical result of Irving Fisher's concept of income is that he excludes from income the part of the receipts that is saved. This part may become income, but only at a later stage.[4] The person who saves certainly gives up the enjoyment of services he could buy at present. But does the thrifty person really abandon all

[3] 'National Income', *Encyclopaedia of the Social Sciences,* XI, 208–9.

[4] Cf. especially Irving Fisher's recent paper, 'Income in Theory and Income Taxation in Practice,' *Econometrica,* V (January 1937).

enjoyment until the moment he consumes his savings or the yield from them? Does he not 'enjoy' meanwhile a feeling of security or prestige, derived from possession of this capital? In any case, no clear economic definition of national 'income' or 'work' can be based on a psychological concept.[5] To come back to our example, it may well be asked whether the decisive difference lies in the fact that the professional sportsman draws remuneration for his activity. This certainly has something to do with the very essence of 'work' in a social-economic sense and yet it cannot be accepted as a general criterion, because we include in the social product many types of activity for which no monetary compensation is received.

What we need is a general institutional criterion, not a psychological or moral one; we need in fact a criterion that emerges from the economic organization of society. If someone receives compensation for any activity, whatever his motives in working or whatever the usefulness of his work, his activity is always regarded as a contribution to the social product by those who are ready to pay a price for his product or service. The market has stamped his activity as socially desired, even if not socially desirable. But the market is not the only device for deciding what activities are required in a society. As long as the family was the basis of social existence, and the family farm was the main unit of production and consumption, the head of the family ordered what was to be produced and consumed, and his commands decided what was play, and what, work. All work performed according to his orders, or according to a traditional household plan, was a contribution to the social product. Today fragments of a family economy are still interwoven with the market economy. And there is further a public sphere—the sphere of governmental activities. Here again it is not the market but decisions made by the politically responsible organs of the society that

[5] In order to avoid psychological implications, I define individual income as the acquisition of the right to dispose of a share in the outcome of production. (This definition is qualified further in subsection 4 (d) of this Section.) This disposal may take the form of either saving or consumption. In consumption it is the purchase as such, not the ultimate act of enjoyment, that is decisive. From the viewpoint of the exchange economy the purchase of a commodity may be regarded as a final act by which it is transferred from the sphere of business to the sphere of the household. (A durable good, of course, may reenter the sphere of business when sold at second hand or when forfeited in favor of a creditor.)

stamp an activity as socially desired. The training of a soldier may not be compensated by money payments, it may not be related to so-called 'economic motives', yet it is a contribution to the social product if the legislative authorities decree that a part of the nation's human and material resources shall be devoted to national defense.[6] In a communistic society all contributions to the social product may be organized in this way. Since our economy is a mixture of various forms of economic organization, we may distinguish various sectors of the social product—those related to (a) the exchange economy; (b) the economy of the household; (c) the sphere of government.[7]

Each sector makes its contribution to the social product with the help of certain material equipment. We shall see later that one of the problems in the calculation of national income arises from the necessity of distinguishing contribution to the social product from transformation of material equipment into parts of the disposable income ('capital consumption').

Here we merely point out that to each of these sectors corresponds not only a share in the social product, but also a share in the material equipment, the social wealth of a nation. The implements of a self-sufficient farmer, the house owned by the occupant, may be considered examples of household capital; industrial equipment belongs to the capital of the exchange economy; and roads, administrative buildings, or dams are examples of government capital equipment. Although these various sectors of our social economy may be distinguished, they are closely interlocked in the economic system as a whole.

[6] J. M. Clark, *The Costs of the World War to the American People* (Yale University Press, 1931), p. 127, admits that the governmental personnel renders 'a valuable service'. He does not include these services, however, as contributions to the social product and the incomes received for them as parts of the national income, for these services are not 'self-sustaining'. Should all activities that are not self-sustaining be excluded from the social product? Is the work done, for instance, in the construction of a factory that will add to the production of consumable goods only in a later period 'self-sustaining' for the period in question? If not, must these incomes, too, be deducted from national income? My discussion of some of Dr. Clark's general formulations does not, of course, imply a criticism of his estimates of the war costs.

[7] This classification is not exhaustive. I have already mentioned another economy, that of private institutions such as churches and philanthropic foundations. These, though under private ownership, are administered according to what may be called the budget principle.

2 THE MEASURABLE PART OF THE SOCIAL PRODUCT

We defined national income as that part of the social product which is measurable. No calculation of national income can include every activity covered by the broad concept of the social product. But it would be erroneous to confine our measurement to the exchange economy, for the line of demarcation between the sectors regulated by the market and the other sectors changes from period to period and from country to country.

Intertemporal and international comparisons of national income would be distorted, if the measurement included the exchange economy alone. To include all elements not subject to exchange, on the other hand, is impracticable. Where shall we draw the line? We wish to measure the social product with a common denominator: money. Therefore we rely on money estimates. Such monetary standards exist over the whole range of the exchange economy. They exist also in the spheres of public and institutional operation, for in these spheres economic activities are in the main paid for by means of money. So, for practical reasons, we include in the calculation all contributions to the social product that are compensated with money. When, however, in one country farmers consume a large part of their output in their own households, and in another country they sell the entire output on the market and buy the things they need, we must obviously evaluate the 'household-production' of the first country in monetary terms in order to make our totals for the social product comparable. The same holds good for a comparison between two countries, in one of which a large number of houses are occupied by their owners, while in the other, most of the houses are occupied by tenants. Or again, for a comparison of countries, one of which has a mercenary and the other a conscript army, a money income must be imputed to the homeowner in the former country, to the conscript in the latter.[8]

The decision as to which of the non-exchangeable elements shall be included in our national income calculation depends upon the social-economic structure of the countries and periods

[8] For such a fictitious comparison, cf. G. Colm, 'Der Finanzwirtschaftliche Gesichtspunkt des Abruestungsproblems', *Handbuch des Abruestungsproblems*, ed. by Niemeyer (Berlin, 1927).

for which comparisons are made, and on the statistical material that is available for the money evaluations that are necessary. Thus I would exclude, for instance, the regular work of housewives or the services of members of juries as non-computable for national income calculations. We shall later find other non-computable elements in the government sphere. This distinction is, however, a distinction of expediency, not of principle. It is quite conceivable that for different purposes a different procedure would be feasible.

3 THE MEASUREMENT OF NATIONAL INCOME

The methods of measuring national income are, like the concept of national income, derived from the notion of an exchange economy. The exchange economy will be used as a starting point; other elements and modifications will be included later.

In a pure exchange economy in its simplest form individuals furnish factors of production (as labor, land, patent rights, capital) and individuals (business men) use these factors to produce commodities and render services according to the demand of the market. On these contributions to production the claim of individuals to draw remuneration and the opportunity for business men to make a profit are based. Remuneration and profits in turn give the right to dispose of a corresponding part of the outcome of production. According to this simplified scheme national income is equal to: (a) the sum of all individual incomes; (b) the sum of profits and of disbursements to the individual agents of production; (c) the sum of the values of consumers' commodities and services and goods for additional investment produced or rendered within a certain territory and a certain period.[9]

In view of this fundamental equation in the economic circuit three methods of measuring national income have been devised:

a) 'Income sum'—the sum of all individual incomes.

b) 'Value added'—the sum of business disbursements and profits. This sum can be calculated by deducting from the gross value of all sales (services included) those costs which are paid to other business units (costs for replacement included). The residual is equal to the sum of wages, interest and rents (in so

[9] Cf. Copeland, Part One, Sec. I; Warburton, Part Two, Sec. I.

far as the last two are paid to individuals and not to other business units).

c) 'Social heap'[10]—the total sales value of all goods and services at the final stage, i.e., when they are handed over to consumers or invested as additional equipment.

Each of these methods, if carried out completely, would lead to the same result. And yet each method has its own merits if both the calculation of total national income and its breakdown into divisions are desired. The 'income sum' approach must be used if we desire to obtain a breakdown of total income according to income groups, or according to the geographical distribution of income receivers. The 'value added' method provides information concerning the industrial sources from which the income is derived, as agriculture, industry, commerce. The 'social heap' calculation allows a division of national income into income consumed and income invested.

The statistician following any one of these methods faces technical difficulties because the statistical information available is seldom sufficient and must be supplemented by estimates, even by guesses. There would be no great difficulties if the real economy corresponded to the simplified scheme of an exchange economy. But in fact, as suggested above, it consists of various kinds of economic organization, interlocked in the most perplexing fashion. Only a few of the difficulties met in the actual measurement of national income will be discussed here.

4 SOME SPECIAL PROBLEMS IN MEASURING NATIONAL INCOME

a) Individual income was defined above as the acquisition of the right to dispose of a share in the outcome of production. The sum of all individual incomes is equal to national income only if every income recipient makes use of the right to dispose of his share either by consuming or by saving. Actually, income recipients can also *transfer* their rights to other persons or institutions either voluntarily (e.g., by gifts to charity) or compulsorily (e.g., by taxes or fines).[11]

[10] Sir Josiah Stamp suggested the term 'national heap' in *Wealth and Taxable Capacity* (London: King, 1922), p. 42.
[11] Cf. Copeland, Part One, Sec. V, 7.

These persons or institutions thereby receive income without having contributed anything to production in order to acquire it. Thus we get the distinction between genuine incomes and transferred or derived incomes—a distinction that would not exist in a pure exchange economy. In calculating national income according to the 'income sum' approach, there are two possible procedures. The amounts voluntarily or compulsorily transferred may either be deducted from the genuine incomes; or their receipt may be neglected in summing up individual incomes. When income taxes are used for relief payments, for instance, we can either deduct the taxes from the income of the taxpayer and include the relief income in the income sum; or we can count the entire income of the taxpayer but omit the income of the relief recipient. The former method seems to be more consistent with the income sum approach, especially when a breakdown of the total income according to income groups is intended. The distribution of actual purchasing power can be shown accurately only when the income is counted in the hands of those who can ultimately dispose of it. We may call income disposable (as distinguished from income acquired) the income after deduction of those parts which are voluntarily or compulsorily transferred from the individuals who acquired them to other individuals, the government or private institutions. The sum of income acquired and income disposable must be identical,[12] the difference being in the manner of distribution.

b) Not only individuals but also corporations, institutions and the government are income recipients. If a corporation does not distribute all its profits, it retains the right to dispose of a share in the outcome of production (for instance, for investment), which means that it has an income. Undistributed profits of corporations are therefore considered as income.

As will be shown later, charitable or philanthropic foundations, universities, churches, scientific associations likewise receive incomes. If they derive revenue from funds invested, they acquire genuine income. If they receive grants and gifts from the income of individuals, these amounts can be counted as income disposable by institutions, provided they are deducted

[12] This identity exists only if the possibility of a negative income disposable is considered.

from the incomes of the donors. In like fashion governments may also acquire genuine income or receive derived income. Thus, in addition to individual incomes, we have also corporate, institutional and government incomes.

c) International affiliations necessitate further modifications of the simple formula suggested at the beginning.[13] If residents of a creditor country receive interest from abroad, the 'income sum' may become larger than the 'value added' by production in the same territory and period. In the debtor country the opposite occurs. Net values produced by, and at the disposal of, the people do not necessarily coincide within the same area and time, e.g., when war contributions are paid by the people of one country to those of another. Since the production of goods provides the means for their disposal, I consider the latter as the crucial question in deciding where this income ought to be counted. Thus it is usual to consider income derived from foreign investments or interest from war debts, etc., as income in the country where these payments are received.

d) A puzzling problem arises from the distinction between income and property. Money obtained by an individual through withdrawals from his bank account is not income. The income concept must be further qualified. The right of the recipient to dispose of a share in the outcome of production must be acquired without touching his property. Even if a business firm does not provide for the necessary replacements for the upkeep of its equipment, the disbursements it makes nevertheless constitute income in the hands of its wage earners or creditors. In calculating national income, however, a cross entry 'negative business savings'[14] must be made; otherwise national income would be larger than the 'net product'. A whole group of problems emerges from this distinction between income and property with which I cannot deal here, as for instance the appreciation or depreciation of property values, and gains from speculation.[15]

[13] Cf. Copeland, Part One, Sec. II, 1, and V, 5.

[14] Cf. Simon Kuznets, *National Income, 1929–1932*, 73d Cong., 2d Sess., Senate Doc. 124 (1934), and *Survey of Current Business*, Vol. 16, No. 7 (July 1936), p. 14.

[15] I cannot discuss here the question whether capital gains are to be considered a part of national income. I wish to emphasize only that this question is not identical with the problem whether capital gains should be taxed. The economist deals with three concepts of income, which are related but not identical. One, used in

e) The last difficulty I wish to mention concerns the meaning of 'value' in our national income definition. Money valuations do not have the same significance in the various sectors of the social product. In the exchange sector they are determined by prices that represent the supply-demand relationship. In the realm of public activity they are determined by costs. Here we assume that the political bodies that appropriate the money consider government services at least worth their cost. For calculations based on imputed values (as suggested in the case of a conscript army) we act on the assumption that the public services of the conscripts have the same value as if the latter were to earn a minimum wage.[16] To the extent that we include income arising within the economy of the household we have to rely entirely on fictitious values, transferred from the exchange sector to this sector from which exchange is absent. For example, we rate farm products raised for the consumption of the producer at the value for which the same products would sell on the market; and the rental value of a house owned by the occupant as equal to the rent that a landlord would receive for it. This use of market and cost prices as a basis for calculating national income prevents us from regarding the national income total so obtained as a direct measure of the 'social value' of the social product. Its 'social value' is not a measurable quantity. As J. M. Clark says: "We shall presumably never discover a definite yardstick of social

economic theory, is a functional concept. The second is that of taxable income through which the individual's capacity to pay is measured. The third, a statistical concept, is used in order to avoid omissions and duplications in a national income total. If, for reasons of tax policy, capital gains are included as taxable income, or certain parts of income, such as those spent on life insurance premiums, excluded, this affords no presumption as to the correct method of calculating national income. The argument, for instance, that in certain cases the gain made by A was possible only through a corresponding loss by B is an argument for excluding this gain from the national income calculation but it is no argument for excluding it from taxation.

For discussions of the treatment of capital gains by other contributors to this volume see Copeland, Part One, Sec. IV and V, 8, discussion by Simon Kuznets, and Dr. Copeland's reply; Warburton, Part Two, Sec. VI; Simon Kuznets, Part Four, discussion by M. A. Copeland, Milton Friedman and A. W. Marget, and Dr Kuznets' reply.

[16] Service in a conscript army can be considered as a taxation in kind equal to a wage that the conscripts are prevented from earning by reason of their military service.

value comparable to the dollar yardstick of exchange values." [17]

In view of this important qualification what remains of the usefulness of national income calculations? National income totals can be used for comparative purposes only if we can assume that the distortions due to differences between exchange value and social value are approximately the same in the countries or periods compared. In such comparisons, however, we must eliminate differences in the purchasing power of the money that is used as the common denominator. This again involves an important limitation in the use of national income totals, for differences in price levels can be eliminated only if the habits of consumption in the countries or periods in question are at least somewhat comparable. Otherwise no index number applicable to both countries, or both periods, can be constructed. These limitations have less importance if the national income calculations are used merely to analyze the composition of the totals.

II Public Revenue in National Income [18]

1 INCOME VS. NON-INCOME TAXES

The treatment of government activities in national income measurement depends upon: (a) the purposes for which the government spends money; (b) the types of revenue by which the expenditures are met. It is difficult to isolate the discussion of these two factors. We shall start with the assumption that all taxes are spent for financing some type of activity whose result forms a part of the social product, and therefore must be added to the net product of the exchange economy. We shall then discuss the treatment of this amount under various assumptions as to the type of tax imposed to meet these expenditures. In the next section we shall examine the types of expenditure actually incurred by governments, and the modifications that result from the fact that not all such expenditures are for services that increase the social product. No definite conclusion as to the treatment of government activities in the calculation of national

[17] *Preface to Social Economics* (Farrar and Rinehart, 1936), p. 44.

[18] For a briefer discussion of the problems covered in this and the following sections see Warburton, Part Two, Sec. IV.

income is possible, until the type of revenue as well as the type of expenditure involved have been analyzed.

We may start with a schematic example (cf. diagram, Appendix C, 1) in which we assume that all government expenditures are made for teachers' salaries and that all government revenue is raised by a personal income tax. Assume that the sum of the incomes of all private persons is 90, out of which 10 is paid in income taxes, this revenue being paid to teachers (who are, for simplicity's sake, assumed to be tax-exempt). How large is the national income if the teachers' services are considered a contribution to the social product? We may say that it is 90 plus 10 equals 100. Someone might object that we have been guilty of double counting; that the teachers' income is counted twice —once as part of the income of the tax-paying individuals, once as the income of the teachers. But obviously this sort of double counting originates from the very essence of the economic exchange process. In my income the portion that I spend for bread is calculated; and the same amount appears once more in the income of the producers of bread. The only criterion involved is whether I make a genuine contribution to the social product. The 100 in our example corresponds to a production for the market of 90 and to a value for educational services of 10. The income sum must be equal to the 'social heap' of market and government services or commodities. But is it correct to calculate the 90 as the income of private individuals, since these individuals are deprived by the government of the disposal of 10 of this income? If the 'income sum' approach is considered a device for answering not only the question what the total income is, but also who can dispose of it, we might better say, as suggested above: national income is composed of 80 at the disposal of private agents of production, 10 at the disposal of teachers, 10 at the disposal of the government. And again we must emphasize that the inclusion of the same amount twice, once as the income of the teachers and once as the income of the government, does not involve double counting.

It is questionable whether we should call this item government *income*. Income has two features: that it is acquired as a compensation for a contribution to the social product, and that its receiver can dispose of it as he pleases. These two features are

separated in the case of tax revenue. The taxpayer acquires the money and the government disposes of it. If we wish to examine what value the market places on the productive contributions of various groups of individuals, we should still consider the part of private incomes that is taxed away as the income of these taxpayers. If, however, we wish to study the purchasing power of various groups of the population, this part of the income should then be deducted and the tax should be considered as income at the disposal of the government. Since 'income sum' calculations are widely used to analyze the distribution of income disposable, I suggest the adoption in general of this procedure: that is, the calculation of private income after deducting personal income taxes, and the inclusion in the income total of a corresponding item for government revenue.

Now let us modify our assumption and replace the personal income tax by a sales tax or any other business tax. Further we assume that this tax cannot be shifted by raising prices to the consumer, but that entrepreneurs are compelled to curtail payments to the factors of production (cf. diagram, Appendix C, 2). Then, using our old example, total individual private income drops to 80, the teachers' income is again 10, and the total is 90. But how does it happen that in this case, identical with the former except for a different method of taxation, we find a smaller national income total; and that this national income total is smaller than the amount of goods produced for the market plus the teachers' services? The answer, of course, is that we omitted the 10 units of taxes. They must be added, so that we get again the same total national income: 80 of private incomes disposable, plus 10 of income disposable by teachers, plus 10 of taxes not included in the private incomes.

But how should these taxes be treated in our calculation? Again, there are two possibilities. First, looking at national income from the production viewpoint, we may say that the amounts paid as business taxes were earned by business, but could not be distributed by business. We should consequently add the business taxes to the total of individual incomes as 'business income'. Second, it seems more accurate to interpret these business taxes also as government income, because this amount, although it is earned by business, is not at the disposal of the

agents who produce for the market. In the case of income taxes the problem was how they should be allocated, whether as income of taxpayers or of government.[19] All other taxes and other forms of government revenue that curtail private income are to be added to the sum of private incomes. Income taxes take away a certain part of income already created; business taxes (under these assumptions) prevent the formation of a corresponding amount of income. As J. M. Clark says: "Taxes paid by business do not appear in the figures of national income, though they represent a division of the income of the business in which the Government gets funds which might otherwise have been divided between stockholders." [20] This refers to corporate income taxes or taxes on surplus which reduce profits. Other business taxes may be shifted back to the wage earners and thereby may reduce the wage income. In both cases, if such taxes are used for financing government services of the kind assumed up to now, they must be added as government income to the income sum of individuals.

2 SHIFTING OF NON-INCOME TAXES

The assumption we made in this example, and which seems to be implied also by Dr. Clark, is that taxes on business cannot be shifted to consumers. We assumed that they result in a curtailment of the nominal income of entrepreneurs or wage earners. Our next task is to test this assumption and to ask what conclusions for the calculation of national income follow if we find that under certain conditions such taxes may result in higher prices.

Some economists [21] take it for granted that business taxes cannot be shifted to prices. They say, for instance, that in general a sales tax cannot affect the price level. An increase in the prices of all products due to a shifting of the tax could be assumed only if other factors—monetary influences—are supposed to change

[19] It is assumed here that all income taxes are included in the sum of private incomes.

[20] *The Costs of the World War to the American People,* p. 127.

[21] Cf. e.g., J. S. Mill, *Principles;* Josef Schumpeter, 'Wen trifft die Umsatzsteuer?', *Der Deutsche Volkswirt,* Vol. III (1928). Three dissertations by graduates of Kiel University deal with this subject critically: P. Braess, *Steuersystem und Preisniveau* (Leipzig, 1933); F. Mombert, *Die Wirkungen der Kosten-Steuern im Konjunktur-Zyklus* (1935); O. Pfleiderer, *Die Staatswirtschaft und das Sozialprodukt* (Jena, 1930). Cf. also H. Neisser, *Der Tauschwert des Geldes* (Jena, 1928).

simultaneously. This proposition seems to be warranted if we consider the following example. A sales tax is imposed for old age relief. Simultaneously with the first payment of the tax, business men raise their prices. But, at the higher prices they cannot find customers for all their products. Consequently, sales drop and production decreases; workers are dismissed, and unemployment forces wages down until a new equilibrium is reached at lower wages but at the old price level. Purchasing power of the money unit in terms of goods (but not labor) is the same as previously. Through the sales tax a part of the former wages of labor has been transferred to those who receive old age relief. The tax has been shifted back to wages. But this is not our case. The example just mentioned implied no government services but merely a transfer of purchasing power from the taxpayer, or from those who ultimately must bear the tax burden, to those who benefit from the payments.

The situation is quite different if we think, e.g., of a sales tax financing an increase in government personnel. Again, we assume that business men try to raise prices, that sales and production drop in quantity, that unemployment develops. But here the difference between the two assumptions becomes significant. In the case of transfer expenditures the increasing unemployment pushes wages and thereby prices downwards until the former level of prices and employment is restored. In the present case the dismissal of workers from private employment is offset by the hiring of government personnel. A new equilibrium is restored with a reduced quantity of products on the market at higher prices; wages remain unchanged; the temporarily unemployed are absorbed into government employment. In the 'social heap' a part of the goods produced for the market is replaced by a corresponding value of government services. The tax has been shifted through higher prices.[22]

Our reasoning concerning the shifting of a sales tax the pro-

[22] It might be argued that this case does not involve a real increase in prices because the increase in market prices is compensated by an increase in the gratis services of the government. I think that this is a rather artificial and impractical construction. No one would include in a price index the prices paid by the government for defense and attack. The price index can refer only to goods and services at the disposal of individuals. Some kinds of government service may be included, but others should decidedly not be.

ceeds of which are used to increase government personnel may be illustrated by a schematic example (cf. diagram, Appendix C, 3). We assume a national income of 100 before taxation begins. This income corresponds to a 'social heap' of goods produced for the market of 100. The government starts to collect 10 as a sales tax and begins to hire workers. Prices rise because of the tax, until the price index reaches about 111 per cent. The entire output cannot be sold at these high prices. The volume of output (measured at the old prices) drops from 100 to about 90 but the sales value remains 100. The workers who formerly produced 10 units are dismissed by private enterprises, are hired by the government and are now rendering government service. The private income sum is 90 income from marketable products, plus 10 income of government personnel, equals 100. The nominal income remains the same. If this income is, however, adjusted for price changes by the price index of 111 per cent, a reduction of the real income from 100 to 90 seems to have occurred although the same amount of work has been done. The only difference is that a part of the production for the market has been shifted to government service.

This result was reached through a simplification of reasoning which can be only the first step in any analysis. We assumed a flexible labor market, no differences in the quality of labor, a monetary system reacting to the needs of the market and the absence of international competition. Also, we were concerned with the general level of market prices only, neglecting changes in the relationship among various prices that follow the imposition of the tax in question. Taking international competition into account, we must distinguish between competitive and non-competitive prices. Considering all these necessary modifications, I think we must at least assume it probable that sales taxes used for an increase in government personnel and likewise in government purchases will result in a general increase in market prices.

The example above referred to sales taxes. A similar result would follow from an examination of payroll taxes, and of excise or real estate taxes. A tobacco tax, for example, will increase the price of tobacco. The question, however, is whether this increase in one single price may not be offset by a slight decline in all

other prices. Under our assumptions such a decline must be expected with transfer expenditures but not with expenditures for increasing government personnel or government purchases.

The conclusion to be drawn from these examples is important for our problem. In the case of income taxes, government services are paid for by the income receivers who are taxed. The addition of these taxes as government income is needed only if the income taxes have previously been deducted from the income of the taxpayers. In the case of non-income taxes inducing a curtailment of private incomes, the government services are paid, for instance, by the entrepreneurs or by the workers whose profits or wages are reduced as a result of these taxes. Here an item government income must be added to individual income; otherwise national income would be underestimated. When non-income taxes are shifted to prices every consumer pays indirectly for government services in the prices he pays for the products that he buys on the market. In this case, therefore, not the nominal but only the real private income is reduced by the taxes.

The theoretical reasoning suggested that non-income taxes spent for financing government services will probably be shifted to prices, so that this becomes the most important case for our problem. We should, however, not forget that we proceeded in a rather abstract way and that whether such non-income taxes will affect the nominal or the real income can be ascertained only after the credit and business conditions of the period in question have been examined. But we must accept as a theoretical presumption that such taxation will probably increase the price level.

3 TAX INCIDENCE AND THE CALCULATION OF REAL NATIONAL INCOME

What bearing has this analysis of the incidence of non-income taxes upon the calculation of national income? If we assume that the taxes result in a higher price level, they need not be added to individual incomes as long as we wish to measure only nominal national income, i.e., income in current prices. The nominal incomes of entrepreneurs, investors or workers are not reduced by tax payments of business firms that are offset by higher

prices. Such nominal figures may be used, for instance, if it is intended to express certain parts of the national income as percentages of the whole.

If we wish to calculate national income for comparisons from period to period or from country to country the situation is quite different. A comparison of nominal figures has no meaning unless differences in the purchasing power of money are eliminated. In making comparisons between different periods such differences are usually eliminated by deflating the nominal figures with the help of a price index. We may resort to an example that compares national income in two periods. Of an income of 100 in the first period the government raises 10 by taxes on personal incomes, and uses the yield to finance educational services. In the second period everything remains the same, except that the personal income tax is replaced by a general sales tax. This sales tax does not force a reduction of nominal private income but results in an increase in market prices of 11 per cent. In the comparison of real income the price index is applied to nominal income of the two periods yielding 100 for the first and about 90 for the second. This result shows a decrease in the real income from the first to the second period, although nothing changed except the method of taxation. This certainly cannot be right. The increase in market prices in this case is the fund from which government services are financed, and this increase should not be eliminated if these government services are considered a contribution to the social product. Since it is, however, practically impossible to distinguish an increase in prices due to such taxes from an increase in prices due to other causes, the only solution is to add to the income reduced by the price index the amounts collected from such taxes and used for government services (cf. Appendix C, 3).

However, a further difficulty is involved. Actually, we very seldom have to compare, as we did in our example, a period in which business taxes are collected with a period that is entirely free from such taxes. Changes in taxation may have occurred from one period to the other, but most of the taxes probably existed in both periods. The same holds true when comparing income for various countries. There will be perhaps more taxes in one period than in another, or in one country than in another, but

the price level of all periods and all countries will be influenced by some amount of non-income taxes used to finance government services. Someone might suggest that we therefore add to national income only such an amount of taxes of this kind as has been added during the period under consideration. But this procedure does not seem practical for two reasons. First, the national income computation would have to be on a different basis when comparing 1935 with 1929 than would be appropriate in comparing 1929 with 1913. Second, it would not be sufficient to consider only changes in taxation; we should have to examine also what use was made of the tax yield. Our whole reasoning assumed that such taxes were used to finance public services. But we found that the same taxes used to finance old age pensions, for example, probably do not increase prices. The puzzling question what part of additional taxation has been used to finance public services must be answered.

Two practical solutions seem possible: either to omit these taxes and thereby get an underestimate, if the increase in prices resulting from these taxes is eliminated by a price index; or to add the taxes to the real income and so get an overestimate, if a part of these taxes already existed in the base year to which the price index refers, or if such taxes exist also in the countries the price level of which is used as a basis for international comparisons. I am inclined to choose the latter procedure for the following reason. All nominal figures are understood to represent a certain quantity of commodities and services. If we hear that national income in the United States in 1929 was 83 billion dollars we think of the purchasing power of the dollar in that year even if no index is applied. And the purchasing power of the dollar is understood as the quantity of commodities and services that could be bought on the market in that year with a certain number of dollars. Since dollars represent nothing but commodities and services I suggest that non-income taxes used to finance government services be added to the sum of private incomes.

Thus, for practical calculation we do not need to ascertain whether the non-income taxes are shifted forward to prices, backward to wages, or remain as an inroad on profits; and whether they affect real or only nominal income. If we think of national

income in terms of commodities and services we should add the non-income taxes, if they are spent for government services of the type assumed in the discussion above.

III Public Expenditure in National Income

1 GOVERNMENT COST SERVICES

The treatment of taxes was discussed under the assumption that the funds derived from taxes were used to finance government services. We must now qualify our statements by examining more closely the importance for our problem of differing types of expenditure. The statement that non-income taxes should be added to personal incomes plus undistributed profits in a real income calculation is valid only if the government services are, so to speak, at a final stage. But there are government services that should be interpreted rather as producers' goods. For instance, a government builds roads that are used mainly by trucks to carry raw material to factories. The manufacturer pays for these roads by means of some form of automobile taxation. In calculating the 'social heap' it would be a mistake to add to the value of the goods produced for the market the value of this government service, as we did in preceding examples. These government services are absorbed in the production of goods and do not represent a part of the 'social heap' in addition to the goods produced for the market. In a 'value added' calculation these taxes are to be considered cost payments like those for raw materials or fuel. We may use an example that considers only such activities (cf. Appendix C, 4). Let goods produced for the market be 100; let government services, which we may consider means of production for these goods, be 10, financed by business taxes. Business distributes to workers, capitalists and entrepreneurs (or keeps as undistributed reserve) 90. Ten is the income of government employees (disregarding the fact that material also is used for roads). Then the national income is 100, equal to the final value of the goods produced for the market. If the same expenditures were made on, let us say, education, we should calculate according to our preceding example: private income 90, plus income of teachers 10, plus taxes 10, equals 110 (cf. Appendix C, 3). And this income sum would be

equal to the value added by private production plus value added by government services, and also equal to the value of the 'social heap', consisting of 100 goods produced for the market plus 10 government services.[23] We conclude that government services, which represent means of production for the private sector of the economy and are financed by non-income taxes, should be deducted from government income.[24]

In calculating the amount spent for these cost services a difficulty arises. Direct expenditures for a certain purpose do not represent the entire cost. The expenses of tax administration, for instance, pay for a service that must be interpreted as a means for carrying on the other services of the government. The value of the government services rendered to business or to the citizens or to the community as such should include a portion of these services, which represent 'cost services for the government'.

2 TRANSFER EXPENDITURES IN GENERAL

Not all expenditures by the government are for public services. Here we meet the problem of so-called 'transfer expenditures'.[25] Relief payments, for instance, provide income to individuals who do not contribute to the social product. Two ways of handling this problem were mentioned above. We can either exclude all relief incomes and other incomes derived from 'transfer' expenditures from the computation of the sum of personal incomes; or we can first include them in the income disposable by individuals and later deduct them from the government income. The former seems simpler, yet, as we remarked above, the latter is a more adequate treatment for theoretical and practical reasons. The theoretical reason is that the income sum method should show every income *at the point where it is disposable*. Beyond doubt the relief income is disposable in the hands of its recipients. For

[23] If we assume that the educational services consist of 5 costs for material and 5 expenditures for salaries, then the value added method would include the 5 units for material among the value added by private industry, and only 5 would represent value added by government. In the 'social heap' calculation the 5 costs for material used for government services must be deducted from the 'heap' of goods produced for the market, because they are not available to the consumers of these goods and are included in the value of government services.

[24] Cf. A. C. Pigou, *A Study in Public Finance* (London: Macmillan, 1928), p. 43, footnote 1.

[25] *Ibid.*, Ch. III.

instance, relief income that is raised by a personal income tax is disposable not by the taxpayer but by the destitute. If we include the tax revenue as government income we must deduct the amounts that are not used by the government for administrative government service, but that are transferred to the recipients of relief, etc., who in turn are enabled to buy in the market. The practical reason for preferring the latter treatment is that, while it would be easy to exclude relief income from the compilation of the sum of all private incomes, there are other forms of transfer incomes that it would be more difficult to identify among personal incomes. Business subsidies may flow into the hands of wage earners or capitalists, or may become a part of corporate profits. Thus the calculation of national income by the income sum approach is simplified if the following formula is used: [26] *National income equals (I) the sum of all personal incomes (including incomes derived from government transfer expenditures) minus (II) taxes paid from personal incomes plus (III) undistributed profits* [27] *minus (IV) taxes from corporate profits plus (V) government revenue (including surpluses of public enterprises) minus (VI) government cost services minus (VII) government transfer expenditures.*

To determine in detail what expenditures are transfer expenditures involves theoretical difficulties. All kinds of relief and soldiers' pensions are obviously transfer expenditures. The latter might be included as compensation for war services. However, these services belong to a different period. Since they are not regularly recurrent they do not represent a contribution to the period under consideration. The situation is different with respect to officials' pensions. They also are paid for services rendered in the past. But here we must take into account the fact that pensions, where they exist, are a part of total compensation. Therefore to include only the salaries of officials who have the right to draw a pension later, would lead to an underestimate of their compensation. By including the normal pensions that are paid to former officials we make up for the underestimate of remuneration paid to officials in active service. This method in-

[26] This formula is not complete. We disregard items such as institutional incomes, the discussion of which does not belong to the topic of this paper.

[27] Or minus negative business savings.

volves mistakes only if the number of officials who claim a pension changes greatly from one period to another.[28]

3 DEBT SERVICE

A very moot question is the treatment of expenditures for the debt service. Service for debts incurred for self-liquidating projects need not be treated differently from private debt services. The net product of a government-owned power plant is divided among labor, entrepreneur and investor exactly as is the net product of a privately-owned factory. The only difference is that the profit becomes government revenue and must be added to national income exactly as business taxes that result in a reduction of individual incomes. And interest for debts incurred for the construction of such public enterprises must also be considered genuine income. Interest on such debts will be paid from the proceeds of these self-liquidating projects.

How about debts incurred for non-liquidating but 'productive' purposes, such as the construction of roads? We may find the answer if we imagine the following situation. Let us assume that a road is built as a self-liquidating project, as a toll road. Capital invested is ten million dollars, annual collections amount to one million, one-half of which is used for current expenditures (such as maintenance and administration) and one-half for interest payments. Income derived from this source is 0.5 million for workers employed in maintaining the bridge or in producing material used for its maintenance; 0.5 million as interest to investors. One day the policy is changed. The community discontinues the levy of a toll and raises the million through business taxes. This change in the fiscal policy should certainly not change total national income. What has happened is merely a shifting of the burden from those persons who use the bridge to those who pay taxes. For the economy as a whole the situation does not differ from that of a self-liquidating project. The additional interest payments correspond to the services available through the use of the bridge. Under the original policy of levying a toll the relevant portion of national income is calculated as 0.5 wages plus 0.5 interest plus 1.0 government revenue from the toll equals

[28] The Department of Commerce, in its recent publication, included both veterans' pensions and disbursements of the civil service retirement fund.

1.0 goods consumed or invested by the receivers of these incomes plus 1.0 value of the government service. Under the new policy the equation is exactly the same: 0.5 wages plus 0.5 interest plus 1.0 tax income of the government equals 1.0 consumers' and investors' goods plus 1.0 government service. The conclusion is: interest payments for debts that were incurred for government investment are a genuine part of national income. If all additions to 'government capital' were financed by borrowing it would be relatively easy to distinguish between expenditures for investment and for current items, the latter including costs for the administration and maintenance of this investment and the service of the debt incurred in the construction of government equipment. Since actually much government investment is financed by current revenue, it seems in practice difficult to distinguish between government investment and current expenditure. If roads are built from current revenue in one period, then in the succeeding period the people enjoy a government service for which no item appears in national income (as when no rent is imputed to the owner, who is also the occupant of a house). I consider these government services obtained from former investments out of current income one of the instances where the inclusion of estimates would be too vague on the basis of statistics at present available. But a certain incomparability remains if we compare two countries, one of which financed road construction by borrowing, the other by current taxation.[29]

The third instance that should be examined relates to interest payments on war debts. Corresponding to the income derived from the payment of interest on war debts there exists no compensating item in the social product of the same period. If we include these interest incomes as genuine incomes, then the sum of incomes will be greater than the sum of consumers' and investors' goods plus government services. These services were rendered in the past and belong to a different accounting period. The current costs of a war must certainly be calculated as the sum of all expenses, whether they are met by taxation or by bor-

[29] M. A. Copeland (*Journal of Political Economy*, XL, 1932, p. 31) says: "The great difficulty with government property income is due to the deplorable and thoroughly unbusinesslike methods of keeping government accounts."

rowing, but the later interest payments can be considered only as a transfer of purchasing power from the taxpayers to the holders of war securities.[30] If we include interest receipts of this type in the calculation of the sum of all personal incomes, then we must later deduct this item, together with the other transfer expenditures, from government revenue.

The same holds true for debts incurred for financing any current deficit unless the deficit was caused by additions to 'government capital' which render services corresponding to the cost of the debt service.

4 SUBSIDIES

Current subsidies paid to business (other than capital subsidies) induce an increase in private incomes through an increase in wages or profits (or prevent a drop in wages or profits that would otherwise be expected), or bring about a reduction in prices and thereby increase real incomes. They must be considered transfer

[30] If a country wipes out its war debt by inflation after the war the total war costs are not diminished. They are merely distributed in another way by being imposed definitely upon the holders of securities instead of the taxpayers. Whether such a method increases or decreases total national income depends upon whether the economic frictions resulting from heavy taxation or from inflation are worse. The comparison of the national income of Great Britain and Germany, e.g., would be entirely misleading, if interest on war debts were included in the national income of the former.

Dr. Kuznets, in commenting upon the first draft of this paper, made an interesting observation. He suggested that ordinarily only the defeated countries wipe out war debts after a war; consequently war debt service is paid only in victorious countries. He takes this as an indication that war investments are productive for these countries, but unproductive for the defeated countries which eliminate the debt by inflation.

The productivity of the World War was certainly not material. It can be counted as a gain in national prestige alone. To the extent that the War resulted for some countries in better economic conditions (e.g., better markets) the effect is already included in other items of the national income, and the taxes for meeting the war debt services must be treated as cost payments. If the value is in the immaterial capital of prestige, then we must interpret the tax paid for war debt service in victorious countries as a compensation for the enjoyment of living in a victorious country. One objection to this viewpoint, ingenious as it is, is presented by France, Italy and Belgium which, although victorious, depreciated their war debt about 80 per cent. Why was their investment in the War so much less productive than that of Great Britain? I think that it is much more natural to regard this national prestige, which certainly exists, as one of the 'unpaid costs and unappropriated services' (J. M. Clark), and to continue the usual treatment of war debt interest payments as transfer expenditures.

expenditures since they correspond to no contribution to the social product. If we assume that they appear in the sum of personal (or corporate) incomes in one way or the other, they must be deducted from the total, as must relief expenditures and interest on public borrowing for consumption.

R. F. Martin [31] believes that whether agricultural benefit payments are to be regarded as compensation for a contribution to the social product depends upon the statistician's attitude to the Agricultural Adjustment program. He suggests that the Department of Agriculture includes these receipts as a part of national income because it considers them payments made in return for cooperation with the government. It might be argued, according to Mr. Martin, that these payments should be deducted because they are made not for production but for the curtailment of production. Similarly it could be suggested that relief payments also are not transfer expenditures but are made as a compensation for a service. The service performed by the unemployed would be that of keeping quiet. These expenditures would probably have to be listed among the other expenditures for law and order. And yet there remains a difference. The difference between police expenditure and relief payments as a means of maintaining law and order is that the police are occupied and a certain part of the labor force is used up; the recipients of relief, on the contrary, are still available for employment. The main significance of the category 'transfer expenditures' is that no national factors of production are exhausted. That transfers of income from the taxpayer to the unemployed may have the best social effects is one of the many instances where a policy results in certain 'social values' that find no direct expression in any item of national income when it is based on exchange values. I consider benefit payments as subsidies to those farmers who agree to reduce their production. The subsidies are intended to make up for a part of the loss. They belong to the income disposable by farmers but they are transfers and must therefore be deducted from government revenue.

The treatment of farm benefit payments in the same manner as other farm income might be urged for another reason. It might

31 *National Income and Its Elements* (National Industrial Conference Board, 1936), p. 58.

be said that these subsidies are designed to make up for an extremely low market price, and that farm income plus subsidies represents an income corresponding to the real contribution of farmers to the social product.[32] To accept such a fictitious price as the basis for the calculation is logically possible only if the index of agricultural prices is also constructed on the basis of market prices increased by the amount of the subsidy.

The application of an index of market prices to an income that has been increased by subsidies would distort the result of a real income calculation. This statement allows a certain generalization. Some may find it inconsistent that we do not consider the income the farmers derive from subsidies a genuine part of national income, while we do include in the calculation the income teachers derive from payments by the government to schools. Why do we not call these payments subsidies, too? The market value of the farmer's product is low, the market value of the teacher's service is lower, indeed it is zero, so that there seems to be a quantitative difference only. But there is actually also a qualitative difference. Farming belongs to the market section of the economy. Public education does not. In no price index is public education included with a zero price. But the low prices of farm products are included. This gives us a criterion for distinguishing between subsidies and government expenditures for services. A difficulty is presented by subsidies to public service enterprises. If these enterprises belong to the market sphere covered or supposed to be covered by price indices, then the payments are to be regarded as subsidies—transfer expenditures. If they belong, however, to the administrative sector not usually represented in price indices, then the payments must be regarded as expenditures for government services.

[32] The calculation of the Department of Commerce seems to be based on similar considerations (*National Income in the United States, 1929–1935,* Washington, D. C., 1936, p. 64). The inclusion of benefit payments as farm income is not objectionable in itself, since the processing taxes are not counted as government income. But the authors of this document do not profess to include non-income tax revenue in government income whether the proceeds are used for financing government services or making transfer payments. Thus the farm benefit receipts are counted in this calculation exactly like the income of teachers or other government employees if financed by non-income tax revenue. And this seems to me objectionable.

5 DEBT REDEMPTION AND CAPITAL TRANSACTIONS

In discussing transfer expenditures we referred to interest payments alone. How about debt redemption? We examine first private debt redemption in general. A business enterprise may amortize its debt out of current receipts from the sale of its products. (Whether an enterprise distributes higher profits or increases its debt redemption is irrelevant; the current national income remains the same.) If we assume that every investor who receives back a part of his former capital outlay reinvests it, then such a policy of debt redemption is a form of compulsory saving. This amount is certainly not income to the investor; it is 'positive business saving' by the debtor. Similar is the situation of a state that uses a surplus of taxes or fees to amortize its public debt. Let us use our example of the toll bridge again, assuming that interest amounts to 0.3 million dollars, debt redemption to 0.2 million, while 0.5 million is used as maintenance expenditures for wages. The national income, as far as these items are concerned, must be calculated in the following way: 0.5 wages plus 0.3 interest plus 1.0 government income plus 0.2 government 'saving' (debt reduction) equals 1.0 production of consumers' and investment goods plus 1.0 government service.

The assumption underlying the above conclusion is that the value of the service, measured by the actual toll collection, is such that, besides meeting current expenditures, it allows a surplus for debt redemption. The moment we pass to non-profitable but productive government investment the calculation becomes highly artificial. Let us assume that the government invested one billion dollars in road construction and pays in a certain year not only 400 million in interest but also 600 million as an extraordinary debt redemption, in addition to one billion maintenance costs—the sums being derived from taxation. Since we have no method of measuring the value of the service rendered by roads other than by its cost we cannot say that the value of this public service in the current year is two billion dollars; and that this two billion service equals the two billion taxes raised which allow not only for paying the current maintenance costs and interest but also for the extraordinary debt redemption. We have no way of dealing with this case other than to measure the value of

public services by their own costs which may be regarded as a minimum evaluation. The legislative bodies that appropriate a certain sum for a certain purpose consider it worth the expenditure. Among the costs could be included, besides interest, a normal rate of amortization; but beyond this, arbitrariness begins.

Therefore I suggest as a practical solution that we interpret every extraordinary debt redemption as a transfer of purchasing power from the taxpayer to the investor.[33] Since repayments of investments are not considered personal incomes, no double counting occurs. We do not need to deduct the amounts from government revenue. An extreme example may illustrate this situation. Let total private income be 90. A business tax is raised for an extraordinary debt redemption amounting to 10. Then national income should be calculated as 90 private incomes plus 10 business taxes equals 90 consumers' goods and investment plus 10 additional investment (reinvested debt amortization). In the case of extraordinary amortization the government transforms income into capital. It is a form of compulsory saving that affects consumed and income invested (or in certain situations, income not the size of the national income but its division into income hoarded).

There is a further group of expenditures that has one peculiarity in common with debt amortization, namely, that the receipt of the government payment does not create income in the hands of the recipient. I refer to government purchases of private property, e.g., of land; or indemnities paid to the owners on the condemnation or nationalization of private property. Subsidies to existing capital paid, for example, to enable the debtor to pay off his debts, also belong to this category.

How shall these transactions be treated in the calculation of the income sum? We may consider first purchases of land by the government. Assume that the income arising from production for the market is 50 and is spent entirely for consumers' goods. The government raises 10 from a business tax and uses it for the purchase of land. Then the income is 50 private incomes plus 10 tax receipts of the government equals 50 consumers' goods plus 10 investment goods, assuming that the former owner of the

[33] This whole problem may become of great importance if the reserve provisions of the Social Security Act of 1935 are maintained.

land uses the entire proceeds from the sale of his land for investment in a new factory, or whatever it may be. If the same amount were raised by the issue of a loan, financed from private saving, the calculation would be simpler; 50 private incomes equals 40 consumers' commodities (because less is consumed now that more is saved) plus 10 investment by the former owner of the property.

Thus we need not modify the formula of our income sum calculations (cf. Section III, 2 above) because of these items. When we include, as suggested, taxes that are not already included in the private income sum, but exclude receipts from borrowing financed by personal savings, then no omission or duplication occurs under the conditions assumed in our example.[34]

6 GOVERNMENT EXPENDITURES IN THE 'VALUE ADDED' AND 'SOCIAL HEAP' APPROACH

Our conclusion is that if the whole government revenue is added to the income sum, we must deduct from it government expenditures for cost services and transfer expenditures. The main difficulties are, first, to determine 'cost services', second, to segregate that part of interest payments which represents transfer expenditures. But we cannot avoid these difficulties by starting from the 'value added' or the 'social heap' calculation. The

[34] One further type of expenditure, tax refunds, should be mentioned. They must be regarded in some cases as transfer expenditures; in some cases they are more nearly similar to debt redemption. Since an individual who receives such refunds does not declare them as income, they will not be included in the estimate of personal incomes. Hence they do not need to be deducted as transfer expenditures from government revenue.

The case is different, however, if a corporation receives such refunds. Here again two possibilities must be distinguished. If the corporation was certain that the taxes would be refunded, then the transaction is similar to a loan to the government while the tax question is pending and its later redemption. If the corporation did not expect the refund and regarded the tax payment either as a cost element or as a curtailment of its profit, then the refund is similar to windfall revenue. The amount will appear as profit or will enable the corporation to make greater disbursements for wages or for other purposes. In this instance the receipts will be transformed into personal or corporate income like business subsidies and must be deducted with the other transfer expenditures from government revenue.

Since these distinctions could not be made statistically, all tax refunds were regarded as transfer expenditures in the statistical estimates given below (cf. Table 1).

former requires that we add to the value added by all kinds of business and private services the value added by government.

When measuring the value added by business we come up against the problem of how to treat taxes. Does government participate in the value added as do workers, capitalists and entrepreneurs? Or are business taxes to be understood as cost payments similar to the payments for raw materials or fuel which must be deducted from the gross value to calculate the value added? Several writers assume that the taxes paid by business are equal to the amount spent by the government for the 'cost services' of the goods produced for the market.[35] But we have no right to make this assumption. The amount of cost services may be larger or smaller than business taxes; under modern conditions all non-income taxes are larger than the amount spent on cost services. In any event, the value added method does not avoid the difficulty of measuring government cost services encountered in the 'income sum' approach.

Further difficulties are involved in measuring the value added by government service. Dr. Kuznets includes [36] compensation of government employees and interest payments. He does not distinguish between interest payments for productive and consumptive purposes. Our reasons for including only part of the interest payments also hold true for the value added approach.

The 'social heap' approach also involves corresponding problems as far as the public sector is concerned. This method requires the evaluation of the government services that must be added to the goods produced for market at their final stage—when bought by consumers or invested in additional equipment. Two problems arise: First, what are government services at the final stage? Here again we meet the problem of the type of service that we called 'cost services', which are means of production either for the exchange economy or for the government. Second, how shall government services be evaluated? There is no other possibility than to evaluate them in terms of costs. But here again the prob-

[35] If it happened by chance that income taxes were equal to the whole amount spent by the Federal and local governments for 'consumptive' and 'political' services and all the non-income tax revenues were equal to 'cost services', then it would be justifiable to neglect the non-income tax revenues in the calculation of national income.

[36] *National Income, 1929–1932.*

lem arises whether costs include the debt service. Thus the same difficulties arise whichever of the three methods of calculation we apply in measuring national income.

IV Public Borrowing in National Income

If public borrowing is financed by saving, then the government funds are derived from private incomes already included in national income. If such funds are spent for 'transfer' expenditures and if the incomes of the recipients are included in the calculation (as we suggested), then transfer expenditures must be deducted in order to avoid double counting. We must make a minus entry under government income.

But is not the situation different when public borrowing is met by credit expansion? J. M. Clark says: "When credit institutions lend to the government funds to prosecute war, by expanding the total volume of credit, they give the government command over part of the social income which has not previously appeared in the incomes of individuals and did not come out of taxes of any kind. This affords another reason for supposing that the true social income may have been somewhat larger during the period of credit expansion than the reported figures show." [37] According to this opinion we ought to add the amounts procured by expansionary borrowing to the sum of private incomes, just as we suggested the addition of non-income taxes as government income. This point is of great importance for the calculation of national income not only during the War but also during the depression.

We should distinguish two kinds of expansionary borrowing: 'inflationary' borrowing causing an increase in prices—and 'additional' borrowing causing an increase in production. The first is typical of war financing, if we assume that expansionary borrowing occurs in a period of full employment; the latter is common in financing depression deficits when idle plants, unemployment and credit reserves exist. In practice most 'inflationary' borrowing also stimulates production to a certain extent; and

[37] *The Costs of the World War*, p. 128.

'additional' borrowing causes some increase in prices. The prevailing tendency, however, is different in the two.

From the viewpoint of national income an inflationary rise in prices is not comparable with a rise due to shifting of taxes. If the general price level rises because of the effect of cost taxes, the increment of prices does not result in a corresponding increase in the incomes of the agents of production. In 'inflationary' borrowing the government can dispose of an amount that did not appear *previously,* as Dr. Clark correctly says, in the incomes of individuals. It does appear in the incomes of individuals, however, *simultaneously* with government spending. Here the increment of prices is not appropriated by the government as taxes but causes in the same period either (nominally) increased disbursements of wages, etc., or higher (nominal) profits. The nominal national income, therefore, is increased first by the new incomes of the government employees, second by the incomes derived from the inflationary increase in prices. The 'real' national income, calculated by correcting the nominal income by means of a price index, will represent, therefore, the incomes received as compensation for the goods produced for the market as well as the incomes received as compensation for government services. The application of the price index involves a difficulty because the costs of government services will not increase exactly in the same proportion as the costs (or prices) of the goods produced for the market.

'Additional' borrowing is not different from 'inflationary' borrowing as far as the nominal income calculation is concerned. When, for instance, people engaged on public works spend their incomes, which are derived from expansionary borrowing—these incomes are, of course, included in the income sum of individuals —demand for goods on the market increases. An increase in production, not an increase in prices, follows. But this means (exactly as in the case of inflation) a simultaneous increase in incomes derived from the market, be it an increase in wages or in profits. If we calculate, therefore, as national income the sum of all private incomes derived from the market and the income of all public employees, no further addition is needed. This income sum represents the value of the goods produced for the market

plus the value of the government services financed by the 'additional' borrowing.

The case of relief expenditures financed, e.g., by 'additional' borrowing is disputable. Can we apply our general suggestion of deducting these expenditures to avoid double counting? If we wish to analyze the income 'disposable' we must include the incomes of those on relief as individual incomes. Because these incomes are received at the cost of no one else—at least as far as direct costs are concerned—they represent a net addition to the national income disposable by individuals. But they do not represent a compensation for production or for services rendered. Therefore we need again a minus entry before we can express the national income as a whole.[38]

If expansionary borrowing is used for financing subsidies to, or compensation for the taking over of, existing capital, the whole transaction may not affect national income. Let us assume that the French government issues loans of one billion francs to indemnify the owners of nationalized armament industries. The amount required may be advanced by the banks without impairing the normal investment of current savings. Let us further assume that the former owners use the billion francs received for the immediate purchase of a billion of government loans. This enables the government to pay off the bank advances. The whole transaction does not affect the circuit of incomes; it affects only the ownership of capital and the types of assets that individuals possess. The case is similar to that of capital subsidies paid to home owners or farmers in the United States during the depression. Private debts were replaced by public debts but incomes were not affected, at least not directly.

The indemnity in the first example may contain an element of profit for the owner of the enterprise; the subsidy for the home owner or farmer may reduce the interest burden. These fractions of the capital transaction are similar to current business subsidies and therefore must be deducted, together with the

[38] In this respect the statement (G. Colm and F. Lehmann, 'Public Spending and Recovery in the United States', *Social Research,* May 1936, p. 136, footnote a) that relief income should be included in the national income total if it is financed by additional borrowing should be qualified. This statement is correct only with respect to the calculation of the income disposable by individuals.

other 'transfer' expenditures, in calculating the income produced.

From this analysis of the effects of borrowing it appears that we do not need to modify the formula for the national income calculation (Section III, 2). Public borrowing, whether it is financed by private savings, by inflation or by additional credit, and no matter whether it is used for 'exhaustive' expenditures, 'transfer' expenditures or capital subsidies does not affect the formula.

V The Estimate of the National Income Sum

This Section illustrates the methodological argument given above with some actual figures. The calculations are confined to those items which belong to the subject of this paper.[39] As a starting point I shall use Dr. Kuznets' estimates of national income for 1932. The only purpose of these calculations is to make the theoretical considerations clearer, and to examine the quantities involved, rather than to present any definite suggestions for a corrected estimate of national income. I choose 1932 because this is the latest year for which comprehensive statistics of state and local public finances have been published. The national income estimates refer to the calendar year, the budget figures to the fiscal year.

We shall discuss the various items as they are indicated in the formula in Section III, 2.

(1) To the sum of genuine individual incomes as calculated in the usual estimates we add incomes derived from transfer expenditures. I assume that incomes derived from business subsidies are already included in the sum of personal incomes, as profits, wages or interest. Likewise, interest paid for the Federal debt, which we considered a transfer item, is already included

[39] I neglect, for instance, institutional incomes. An income calculation that follows rather closely the suggestions made in this paper has been made by the German statistical office; cf. *Das deutsche Volkseinkommen vor und nach dem Kriege* (Einzelschriften zur Statistik des Deutschen Reichs, Nr. 24, Berlin, 1932). Colin Clark, *National Income and Outlay* (London: Macmillan, 1937) also adds, as we suggested, the non-income taxation and other revenue of the government to the individual and corporate incomes and excludes transfer incomes. He does not, however, deduct 'cost services' of the government.

with the other interest incomes in Dr. Kuznets' estimate. He also included veterans' pensions. Thus we have to add only relief expenditures. For relief income in 1932 the several estimates differ greatly. In calculating income disposable by individuals, personal income taxes and poll taxes are deducted. The amounts paid as inheritance taxes, which in other respects have an effect similar to income taxes, do not usually constitute an element of personal income. They will do so only if they are anticipated, as they sometimes are in England, by insurance premiums; or discharged by subsequent annuities paid out of the income of the heir, as in some Continental countries.

(2) I do not discuss here the problems involved in the calculation of 'business savings' or 'negative business savings', but use the figures published by Dr. Kuznets without taking account of the corrections that he has recently proposed.[40]

(3) The figures for total government revenue include tax revenue as well as other types of current revenue.

(4) The greatest difficulties arise in classifying government expenditures in such a way that expenditures for 'cost services' can be kept separate. On the basis of the figures in Table 1, a very rough estimate of this sort has been made, adding to each group of 'cost services', 'political services' and 'consumption services' a proportional share of the costs for general administration. The total amount spent for government services (excluding transfer expenditures, capital subsidies, expenditures for debt retirement and miscellaneous) of 8,898 million dollars can be classified tentatively as:

'Cost services'	$3,182 million
Political services	1,755 million
Consumption services	3,961 million

(5) Since we included incomes derived from government transfer expenditures in the income disposable by individuals, we must deduct these amounts from the revenue of the government in order to avoid duplication. Among the transfer expenditures are included business subsidies. Deficits of public enterprises covered by the general budget are considered business subsidies. But as we saw above, we cannot consider all municipal services as

40 Cf. Part Four.

public enterprises proper. Therefore we add a part of the costs for meeting their deficits to the expenditures of the government for consumption services.

TABLE 1

PUBLIC EXPENDITURES IN THE UNITED STATES, 1932

(millions of dollars)

	FEDERAL	STATE AND LOCAL	TOTAL
General administration [1]	511	674	1,185
Economic activities [2] ('cost services')	567	2,191	2,758
Political services [3]	809	712	1,521
Consumption services [4]	50	3,384	3,434
Transfer expenditures [5]	1,639	556	2,195
Capital subsidies [6]	893	...	893
Debt retirement	413	492	905
Miscellaneous	274	161	435
Total	5,156	8,170	13,326

Source: For state and local expenditures the classification published by Paul Studenski in *Taxation and Public Policy* (R. R. Smith, 1936) has been used. The expenditures of states and local administrations are about one billion dollars smaller according to this source than according to the *Statistical Abstract,* 1935, p. 204, although the latter source excludes debt redemption, which is included in the estimate in Mr. Studenski's compilation.

[1] Including expenditures for the Treasury.

[2] Including part of state and local interest.

[3] National defense and protection; justice; Department of Interior (part).

[4] Education, culture, social welfare, public service enterprises (part of deficit), Department of Interior (part); state and local interest (part).

[5] Veterans' pensions; agricultural marketing, tax refunding, postal deficiency; public service enterprises (part of deficit); Federal interest.

[6] Federal Land Bank; farm credit; R.F.C.

A difficulty arises from the necessity of distinguishing between interest for productive and unproductive debts. A definite solution of the problem of services rendered by government assets and the debt service requires statistical material not yet available (cf. above). Therefore I propose a very crude preliminary solution. I suggest that the entire Federal debt for 1932 be considered unproductive, incurred either for war purposes or to meet a current deficit; and that interest for state and local debts be considered as paid for productive [41] investments, part of the sum

[41] I must remind the reader here of the rather broad sense in which I am using

being added to the expenditures for 'cost services' for the market economy (e.g., debts contracted for road construction), and the remainder to the expenditures for 'consumption services'. Debt amortization has not been included in the amount of transfer expenditures to be deducted from the government gross income; it was assumed that since the receipts from this source are not included among private incomes no duplication exists.

In estimating national income for later depression years the question will have to be faced as to where the line ought to be drawn between straight relief on the one hand and work relief on the other. Construction of roads, dams, government buildings, etc., which represent useful work, should be considered as government services whether performed by regular departments or emergency agencies. Expenditures for work that is done merely to employ people (some of the former CWA projects may have belonged to this category) should be considered as relief, and therefore as transfer income, without any corresponding contribution to the 'social heap'.

Starting from Dr. Kuznets' figures for personal income ('income paid out' in his terminology) and negative business savings, we get the modifications for 1932 that are given in Table 2 (the figures in parentheses refer to the various links of the formula in Section III, 2).

The national income total of our calculation is about 5 billion higher than Dr. Kuznets' estimate, which we took as a point of departure. Let us summarize the main reasons for this difference. The only taxes included in Dr. Kuznets' figures are individual income taxes. We added the non-income taxes but deducted from them the 'cost services' rendered by the government because the taxes paid by business (or by any other taxpayer) for these means of production are cost payments and not expenditures of income. We deducted also transfer expenditures to avoid double counting. So the difference consists mainly of those non-income tax revenues that are used to meet expenditures for all purposes except for 'cost services' and 'transfer expenditures'. Here we may

the term 'productive' (cf. above). Mabel Newcomer uses the term (cf. 'The Nature of American Public Debt', *American Economic Review*, Supplement, Vol. XXVII, No. 1, March, 1937, p. 54) in a much narrower sense, identifying productive debts with self-liquidating debts.

summarize what we found concerning this item which constitutes the real difference between the method applied by Dr. Kuznets and the Department of Commerce on the one hand and the

TABLE 2

ADJUSTED ESTIMATE OF NATIONAL INCOME, 1932

(millions of dollars)

Personal income (income paid out) according to Kuznets		48,894 [1]	
Income from government relief		200 [2]	
Total personal income (I)		49,094	
Personal income and poll taxes (II)		442	
A. Income disposable by individuals (I minus II)			48,652
Negative business savings according to Kuznets (III)		9,529	
Corporation tax (IV)		631	
B. Income distributed from negative savings (III plus IV)			10,160
Government revenue (V)		11,477	
Government expenditures for			
Cost services (VI)	3,182		
Transfer of income (VII)	2,195	5,377	
C. Income disposable by government (V minus VI minus VII)			6,100
Total national income (A minus B plus C)			44,592
National income produced according to Kuznets			39,365

[1] Includes incomes from subsidies and veterans' pensions.
[2] Estimate.

method suggested in this paper on the other. If we intend to calculate national income merely in nominal terms, these types of government revenue ought to be included only if we assume that they result in a curtailment of nominal incomes, either by reducing profits or by being shifted backwards to wages. We found, however, that non-income taxes, if they are spent for government services, may result in increased prices. In that case it would not be necessary to add them in a nominal income calculation. If, however, we interpret the nominal amount of the national income as representing certain quantities of goods and services measured by their market or (in the case of government services) their cost price, viz., if we think or calculate in terms of *real* income, then we must add these revenues to individual corporate and institutional incomes. Nor is it necessary, if we are measuring real income, to inquire whether these taxes are shifted or not. Then we must follow the method as it has been illustrated in Table 2.

A further modification of the method used by Dr. Kuznets results from our determination of transfer expenditures. Dr. Kuznets included veterans' pensions but not the revenue drawn from the civil retirement funds, while we wish to exclude the former but include the latter as part of national income. He included all incomes received from government debt service, while we suggested that the interest on unproductive debt be treated as a transfer expenditure. These items explain the difference of about 5 billion dollars between the estimates reached by the two methods.

VI The Relationship between Public and Private Spheres in the Economy

The proper treatment of public expenditure and revenue is important not only as a means of measuring the national income total without omissions and duplications, but also as a means of measuring the share of public activity in national income. The latter requires a theoretical consideration of the relationship between the spheres of public and private activity in the economy. We must distinguish among various types of relation which enable us to use the concepts applied in the preceding sections, but this time from another viewpoint.

(1) Public enterprises belong to the exchange sector of the economy; in the main they follow the rules of the market although the management of public enterprises may differ in many respects from the management of private. They do not follow the profit motive alone but are often influenced also by social or political considerations. If they render services that would not be rendered by private enterprises or if they are managed more efficiently, then they enrich the quantity and variety of goods procurable on the market. If they are less efficient than private enterprise would be in the same field, they diminish the real national income. The income produced by public enterprises is measured best by the 'value added' in production in relation to total income produced.

(2) Public services require men, material and capital that, under conditions of full employment, would have been employed

by market enterprises. That is the reason why Professor Pigou calls the costs for these purposes 'exhaustive expenditures'. Since the value of these services cannot be gauged except by the costs appropriated for them, we measured it by the sum of wages and salaries paid to public employees, the material bought on the market from other enterprises and the interest paid on the debt incurred in the construction of the capital needed for these services. The total 'value' of these services is, therefore, equal to the 'value added' by government plus the material bought on the market from other enterprises [42] for administrative use.

For a closer examination of these government services two further classifications are useful. First, a distinction must be drawn between investment in capital equipment and current expenditure. Appendix A gives an estimate according to which 2 per cent of the national income is invested in 'administrative capital' (especially in all kinds of public construction) in various countries. Since the entire share of private investment is usually estimated at between 12 and 15 per cent of the national income in these countries, the importance of this item relative to the entire addition to their material equipment becomes clearer. I have not found statistical data for a corresponding estimate for the United States.

A second classification of public services has already been used in our attempt to estimate the 'cost services' (cf. Table 1). Such a functional classification ought to distinguish between:

a) Consumption services that add to the individual comfort and standard of life of the citizens, as for instance, expenditures for education, for providing recreational facilities, or for social hygiene and welfare (estimated for 1932 as 3,961 million dollars).

b) Political services that are rendered for the political organization's own sake, for national prestige and power or for the protection of the social order (estimated for 1932 as 1,755 million dollars).

c) Cost services that provide means of production either to produce for the market or to carry on the public enterprise itself

42 We say 'other', not merely 'private' enterprises, because in some instances the administration may buy also from public enterprises (for instance, a municipality may buy current for street lighting from a publicly-owned power plant).

(for the discussion of this group cf. Section III above) (estimated for 1932 as 3,182 million dollars).[43]

Such classifications would allow us to analyze the 'social heap' in greater detail. The 'social heap' indicates the purposes to which a nation devotes its entire economic activity. The following classification might be suggested:

A. Consumers' commodities and services (non-durable) provided according to:
   (a) market demand
   (b) political decision
      (aa) for voluntary use (e.g., recreational facilities)
      (bb) for compulsory use (e.g., elementary education)
B. Additions to material equipment:
   (a) investments in enterprises producing for the market
      (aa) private enterprises
      (bb) public enterprises
   (b) investment in administrative equipment (e.g., road construction)
   (c) investment in household equipment (e.g., houses, motor-cars, and other durable consumers' goods)
   (d) investments abroad
C. Political services (e.g., military services).

On the basis of such a classification it would be useful to divide total income produced into: (A) income consumed; (B) income invested; (C) income devoted to political purposes.

For 'consumption' services it is possible to estimate, at least crudely, the income groups to which the people who benefit from these services belong. Such a breakdown of expenditures, especially for public education, social welfare and public service enterprises would result in an improved statement of the real distribution of income.[44]

[43] This classification necessarily entails a certain degree of arbitrariness. Education certainly raises individual standards and yet it also provides an important 'factor of production': skill of labor. Costs for providing camping grounds in forests certainly are to be regarded as additions to the personal comfort of the population, and yet they may be more important as a means of reducing the expenses of fighting forest fires, and therefore as a means of conserving national resources.

[44] Cf. H. Dalton, *Principles of Public Finance* (8th ed., London, 1934), Ch. XIX; U. Hicks, 'Some Effects of Financial Policy on the Distribution of Income in Great Britain since the War', *International Labor Review,* November 1936; Colin Clark, *op. cit.,* pp. 146 ff.

(3) Transfer expenditures were distinguished from the costs of government services. We eliminated them to avoid double counting. But these items are also interesting in themselves. We wish to know what portion of national income is transferred from taxpayers to the recipients of transfer payments. Such a transfer does not diminish the total income at the disposal of individuals. But it does affect the distribution of income and thereby also the relation between income consumed and income invested. It will reduce the total income only if the transfer becomes so large that frictions occur that hamper the process of exchange.

(4) The depression experience brought two classes of government activity into the foreground. Government services or relief payments financed by 'additional borrowing' neither 'exhaust' nor 'transfer' but create incomes. If this income creation is not balanced by an offsetting deflationary process the secondary and tertiary effects of this spending result in an addition to national income even larger than the money actually spent. This is a net addition to national income not only for the time being but also permanently, since the later interest payments for the increment of debt do not diminish the later national income but merely transfer a portion of it from the taxpayers to the recipients of such interest payments.

(5) A second category of depression expenditures mentioned above are subsidies to existing capital. They do not enter the income circuit. They result merely in the replacement of private by government debts. The government disburses $1,000 to an over-indebted farmer or home owner who uses the money to pay off his mortgage to, let us say, an insurance corporation. If the insurance corporation then invests the money in a government security of $1,000, no addition has been made either to national income or to capital equipment directly; a private loan has been replaced by a public loan.

Summarizing, we may say that the government may (1) participate in production for the market, or (2) divert labor, materials or capital from production for the market for the purpose of rendering public services, or (3) transfer incomes, or (4) create incomes, or (5) transform private loans into public loans. The economic impact in each of these cases of government activity is so different that any attempt to measure the relation between

public activity and national income, or between public activity and total production for the market, by any single percentage figure has no scientific value. For instance, the statement that an amount equal to a quarter or a half [45] of national income flows through public hands does not mean anything unless attention is paid to these various types of relation between public activity and national income.

Again we may try to make some estimates to illustrate these five types of relationship between public and private activity in the national income total. Here I choose first a pre-depression year, 1929, because I wish to add some international comparisons for which depression figures are not yet available in the classification needed for this purpose (cf. Appendix A). For expenditures typical of the depression, we must use, of course, more recent figures.

(1) There are, as far as I know, no statistics of the 'value added' by public enterprises in the United States. We can only guess, on the basis of statistics for public service enterprises and the Post Office, that the value added by public enterprises certainly did not exceed one billion dollars or 1 per cent of national income in 1929. The corresponding percentage has been estimated for Germany at 9 per cent for the same year.[46]

(2) The costs of all government services in the United States in 1929 can be estimated at 9.7 billion dollars or 11.7 per cent of national income. In this figure are included:

Compensation to government employees	$5.0 billion
Interest on state and local debts [47]	0.7 billion
Purchase of material	4.0 billion [48]

[45] E. Wagemann, then president of the Statistisches Reichsamt, wrote in an official publication in 1930 (*Finanzen und Steuern im In- und Ausland; ein statistisches Handbuch,* Berlin 1930): "The structural development in Germany has reached the point where the public economy controls more than one-half of the social product." This statement referred to public expenditure and revenue only, not to the indirect regulation of prices, wages, etc; but the transactions to which Dr. Wagemann referred included indiscriminately expenditures for government services, income transfers and costs of public enterprises.

[46] In Germany the railways, most public utilities and some mining and industrial corporations were government-owned at that date.

[47] The reason why only state and local debts are considered here has already been explained in Section V.

[48] This is a very vague guess, reached indirectly by deducting from total expenditure all the other items.

Appendix A shows that expenditures of this kind do not vary from country to country so much as do other types of expenditure. This table differs from our calculation for the United States in that the debt service for the other countries is not divided into interest for war debts, interest for productive debts and debt redemption.

(3) We estimate the transfer expenditures in the United States for 1929 at 1.5 billion dollars, including veterans' pensions (0.5), relief, subsidies, and deficits of public enterprises (0.2) and Federal interest payments (0.7). This sum is 1.8 per cent of national income, a percentage strikingly low in comparison with the percentage of income transferred by European governments.

In 1929, 1.8 per cent of national income was collected by taxes for debt redemption, which we interpreted above as a kind of compulsory saving.

(4) In a study on 'Public Spending and Recovery in the United States' [49] an attempt has been made to estimate the amount of income created through Federal spending, 1933–35. The amount was estimated to be 7,270 million for the period July 1933 through December 1935—5.6 per cent of the national income paid out during this period.[50] If the secondary effects of this public spending are included, the income created by the Federal government is between 10.8 and 13.2 per cent [51] of the national income of this period. These are expenditures which involved neither a direct diversion of funds from private use nor a transfer of income; they belong to a special category of income creation.

(5) The Treasury spent about 2 billion dollars in the same depression period for subsidies to existing capital as described above. To this figure should be added some 4 billion dollars paid out by Federal agencies and financed by loans guaranteed by the Federal government.

These 6 billion dollars cannot be related in any way to national income, for they are neither derived from income nor did they enter the flow of income directly. They represent a trans-

[49] G. Colm and F. Lehmann in *Social Research* (May 1936).

[50] On the basis of the monthly figures of national income compiled by the Cleveland Trust Company.

[51] The two figures result from two methods of calculating the secondary effects applied in the article cited above.

formation of private into public obligation, partly only temporary, because the process of repayment of some of these loans started very soon. There is no point in expressing this item as a percentage of national income. To illustrate the quantity involved, these 6 billion dollars may be compared with total long term private debts—78 billion dollars in 1933; [52] moreover, approximately one-sixth of the total home mortgage loans came into the hands of the Federal government.[53]

Summarizing, we may measure the relation between government transactions and national income by the following percentages:

Production for the market by public enterprises	less than 1%
Exhaustive expenditures (1929)	11.7%
Transfer expenditures (1929)	1.8%
Compulsory saving (1929)	1.8%
Subsidies to existing capital (about 6 billion dollars, 1933–35)	
Income creation, including secondary effects (1933–35)	10.8–13.2%

For specific purposes still further classifications may be required. If the government uses public purchases as a means of influencing private business (for instance through specific code requirements), it is interesting to know how strong the position of all government agencies, public administration as well as public enterprises, is in its effect on the market. Total purchases by Federal, state and local administrative agencies and enterprises probably amounted to 10 billion marks or 13 per cent of national income in Germany in 1929. A corresponding figure for the United States is not available, as far as I know. It may have been between 4 and 4.5 billion dollars, about 5 per cent of national income.

Another subject, a more detailed analysis of which would be very interesting, is the relation of government transactions to the process of capital formation and capital investment. The use of tax surpluses for debt redemption was mentioned as an example of compulsory capital formation. Investments in administrative equipment (roads, administrative buildings, etc.) provide an ex-

52 L. Kuvin, *Private Long-Term Debt and Interest in the United States* (National Industrial Conference Board, 1936).

53 A. Braunthal, 'Residential Building in the United States and Great Britain, *Social Research*, IV, 1 (February 1937), p. 58.

ample of government influence upon capital investment. But also in important instances the government merely modifies the flow of capital that has been formed and invested privately; e.g., if the government borrows from and lends to private individuals, as in the case of an instalment plan for electric refrigeration or for housing construction.

These few examples show that the really interesting problems require a more detailed analysis of special groups of government activities. But to measure the quantities involved it is necessary to have total national income computed on a comparable basis in such a way that it can be used to express the relative importance of these activities. With this object in view two improvements should first be accomplished: the improvement of national income calculations so that periods and countries may be compared; and the improvement of statistics of such elements in national income as government expenditures and revenues, so that recent figures would become available in a classification relevant to economic analysis.

Appendix A

GOVERNMENT EXPENDITURES (FEDERAL, STATE AND LOCAL), INCLUDING SOCIAL SECURITY INSURANCE

	PERCENTAGE OF NATIONAL INCOME			
ECONOMIC DIVISION	U. S. A. 1929	UNITED KINGDOM 1928–29	FRANCE 1928	GERMANY 1928–29
Government services				
Salaries and wages	6.0	6.0	6.5	7.5
Purchases	4.8	6.7	6.0	7.8
Investments (included in government services)	...	2.4	1.4	2.2
War pensions, relief, social insurance payments	.8	3.6	2.7	4.4
Subsidies to business and associations	...	.4	2.6 [1]	.6
Debt service, including debt reduction	3.5	10.8	8.6	1.6
Reparation payments	...	...	...	2.9
Money investments	...	0.4	...	2.4
Miscellaneous	.6	...	.0	.2
Total	15.7	27.9	26.4	27.3

This compilation is based for the United States upon the estimate given in the text, for the other countries, upon official German sources. It must be noted that in Germany and England economic conditions were depressed during 1928–29.

[1] Including subsidies for reconstruction.

Appendix B

GOVERNMENT EXPENDITURES (FEDERAL, STATE AND LOCAL), INCLUDING SOCIAL SECURITY INSURANCE BUT EXCLUDING WAR LIQUIDATION, INTEREST ON THE PUBLIC DEBT, AND COLONIAL SERVICE

	PERCENTAGE OF NATIONAL INCOME				
FUNCTIONAL DIVISION	U. S. A. 1926–27	UNITED KINGDOM 1928–29	FRANCE 1928	GERMANY 1928–29	ITALY 1928
General administration	1.8	2.0	3.1	4.5	7.0
Protection	.9	3.1	3.8	1.2	5.1
Education	2.7	2.6	1.9	4.2	2.7
Social service	1.2	6.4	1.3	11.0	4.0
Housing	...	2.7	.0	2.0	.1
Industry and commerce	.2	.4	.1	.7	.3
Highways	2.0	2.0	2.4	2.2	3.1
Total	8.8	19.2	12.6	25.8	22.3

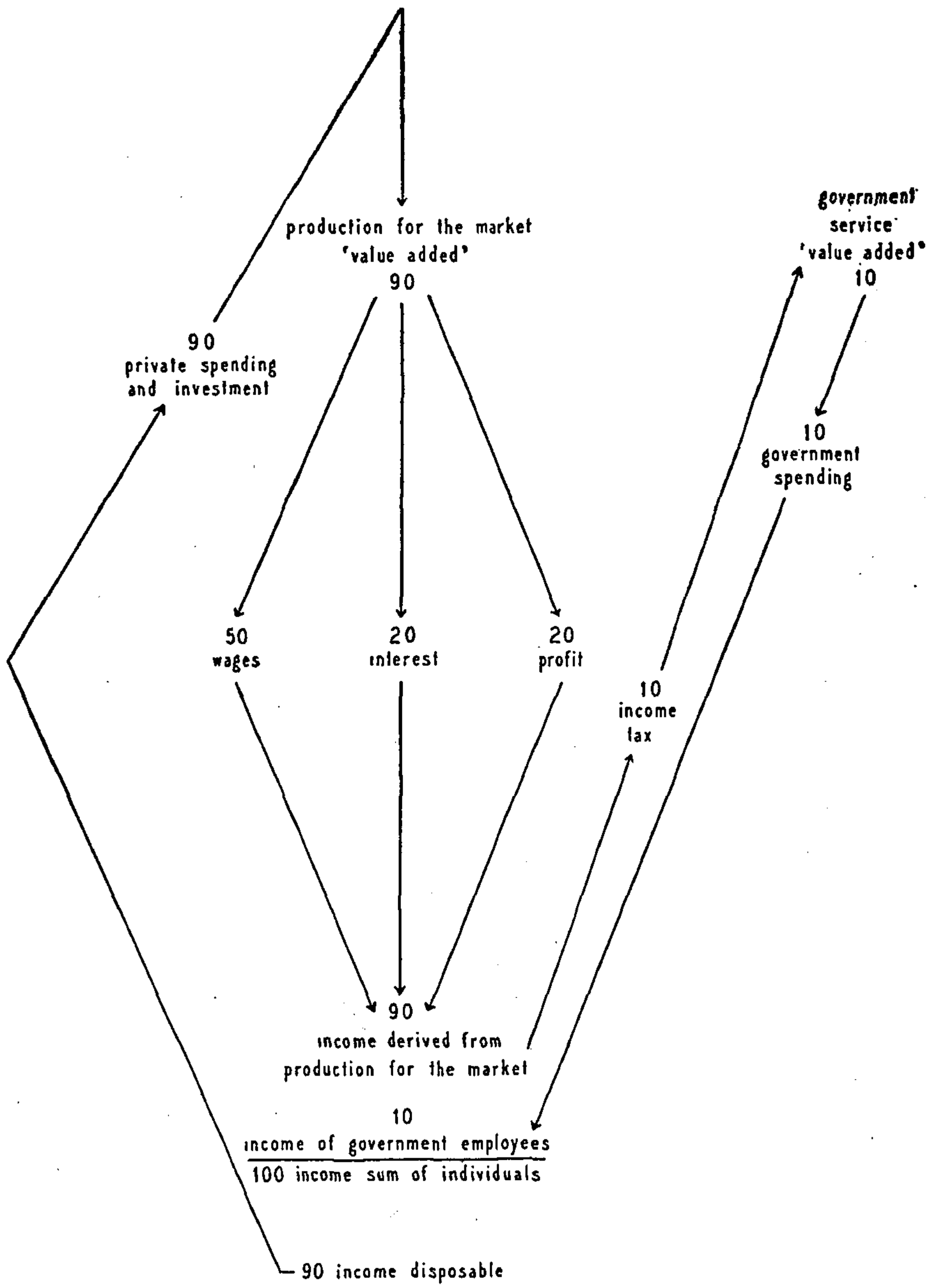
Expenditures for war liquidation, interest on the public debt, and for colonial purposes are excluded; these items depend so much on the particular political and historical situation of the countries in question that they do not seem to be comparable.

This compilation is based on official German sources. It must be noted that in Germany and England economic conditions were depressed during 1928–29.

Appendix C

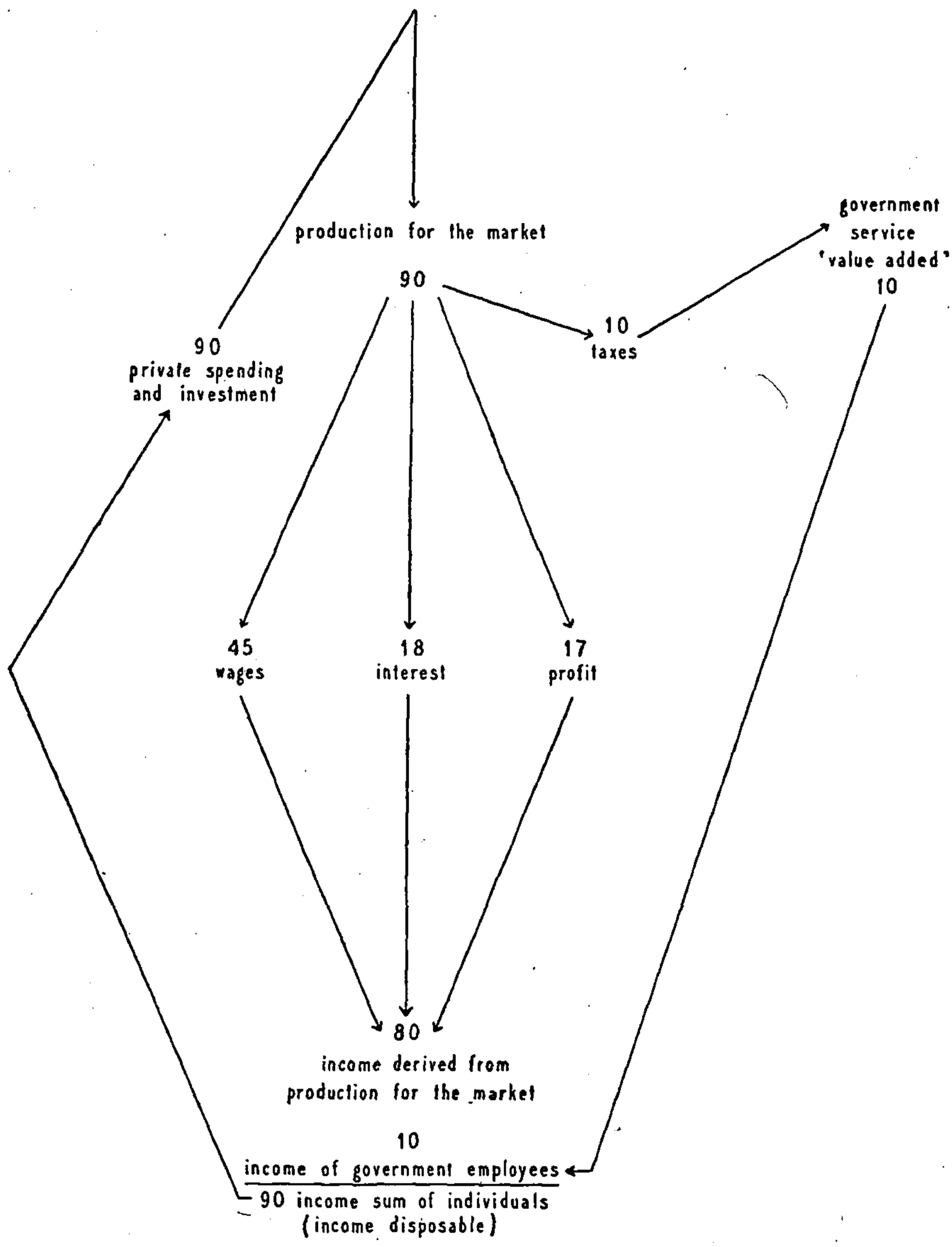
DIAGRAMS ILLUSTRATING VARIOUS THEORETICAL POINTS

1. Government Service Financed by Income Tax (government employees tax exempt)



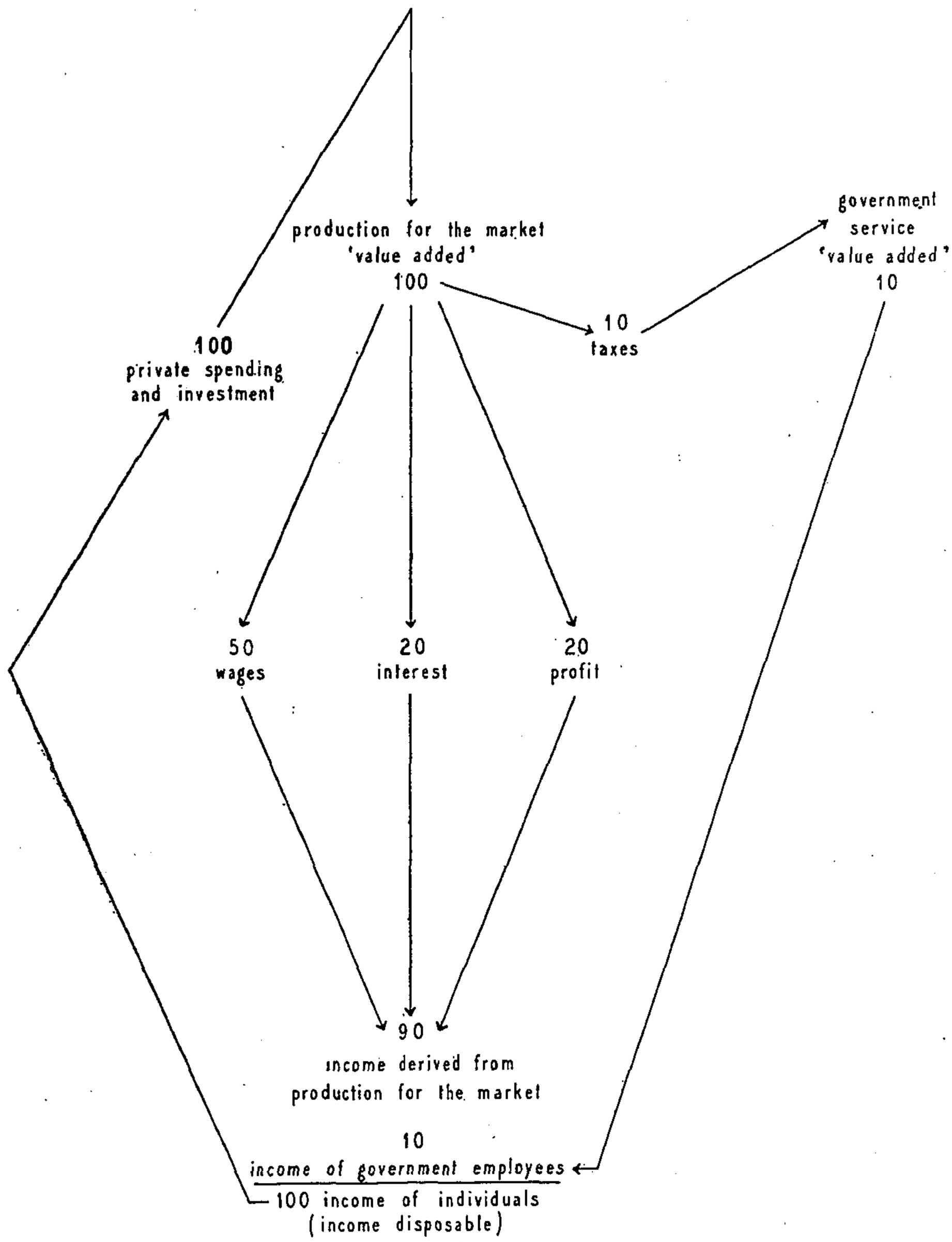
national income: 90 income disposable by individuals + 10 income disposable by the government = 100

2. Government Service Financed by a Business Tax, not Shifted



national income: 90 income disposable by individuals + 10 income disposable by the government = 100

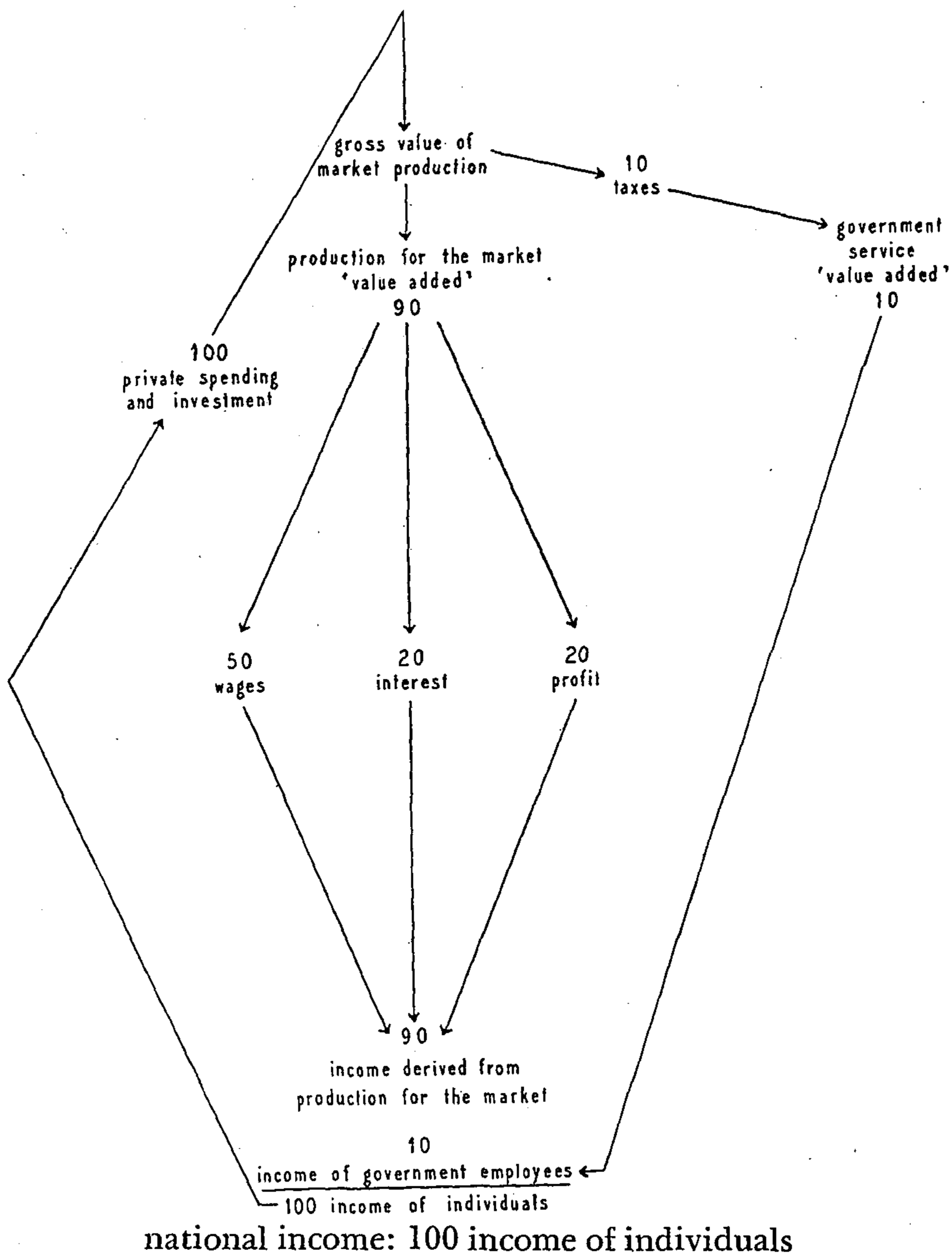
3. Government Service Financed by a Business Tax, Shifted



nominal national income: 100 income disposable by individuals + 10 income disposable by the government = 110
real national income: 100

4. Government Service ('Cost Service') Financed by a Business Tax

The tax is regarded as a cost payment, deducted from gross value of production like cost payments for material



national income: 100 income of individuals

Discussion

I J. M. CLARK

My own very limited contact with this problem was made in a way that may be somewhat typical. In attempting to measure the costs of the World War it became pertinent to guess at the effects of the War on the national income out of which these costs had to come. That purpose determined how I must treat income, without prejudice to other treatments that might be pertinent for other purposes. Income of soldiers was a part of the cost of the War, not a part of the income out of which that cost was defrayed. Moreover, for this purpose the important thing was not total income but changes in it. Almost any kind of a total estimate would serve the purpose if it were so broken down that one could find and eliminate those changes which were irrelevant for the purpose in hand. These included not only a great increase in incomes representing war expenditure, but also absolute and relative changes in the amounts of taxes which were, and those which were not, deducted before reporting private incomes. These produced distortions in the net change of total income reported for the War years; and the removal of the chief of these distortions was something that could be done regardless of one's ideas or of whether one had any ideas on the theoretical correctness of the total figure in which one was making adjustments. I suspect many persons may come to figures of national income with some such specific problem in view, and may need not so much an eternally correct total as a record of changes in the measurable parts, so broken down that the student is able to make his own adjustments.

Dr. Colm's concept of income includes a social dividend and private claims to parts of it. These claims may pass from hand to hand without any measurable increase in the social total; hence

there is duplication. Dr. Colm's method seems to be to include everything and then subtract duplications. Sometimes the same item is in effect included twice and then subtracted once. This may have a confusing effect on the student, and it might be worth considering the separate reporting of transfer items where practicable, without lumping them in the total and then subtracting them.

Some features of Dr. Colm's treatment puzzle me. He seems at points to imply that a correct reporting of national income hinges on: (a) determining just what public expenses are financed by just what revenues; (b) which taxes or loans act to raise prices and how much. If that is true, the problem seems hopeless. But I venture tentatively to doubt whether such tracings are necessary. They do not seem to appear in his own final illustrative table. If a tax or a loan raises prices, theoretically that should be automatically taken care of when we deflate money incomes by a price index (though of course our actual index number may or may not include the commodity whose price has been raised). And the net changes of different classes of income and outgo would seem to be sufficient, without earmarking.

To conclude: (1) Any social-dividend estimate runs into the dilemma of either setting a value on non-marketed services or omitting them where similar items are elsewhere included and thereby losing consistency and comparability. The result is a choice of evils at best. Where most of a given item (like services of government-owned property) is bound to be excluded in any case, there seems no real loss in excluding it all. (2) Such estimates should not be affected by any change in purely fiscal policy (such as the retirement or non-retirement of a public debt). (3) Estimates in different countries are not likely soon to be reduced to uniformity, but if their breakdowns are as complete as possible, students may be able to minimize (though probably not remove) the lack of comparability.

I feel that Dr. Colm has made a significant contribution, but do not feel competent to evaluate it point by point.

II SIMON KUZNETS

The comments submitted below fail in two respects to do justice to Dr. Colm's thoughtful paper. Some of them refer to points that are not cardinal to his argument and express disagreement in a manner, which, for the sake of clarity, perhaps exaggerates the magnitude of the issue. And they do not reveal the number of points in Dr. Colm's discussion that appear to me to be helpful guides in answering the numerous questions arising in the treatment of government income and expenditures in the measurement of national income.

1 THE MEASURABLE PART OF THE SOCIAL PRODUCT

Dr. Colm defines national income as the measurable part of the social product. And the social product is described as the result of work performed in accordance with the provisions laid down by the several institutions that co-exist in our economic system, to wit: (a) the exchange economy; (b) the economy of the household; (c) the sphere of the government.

If this formulation correctly expresses Dr. Colm's concept of national income, then doubts arise as to its serviceability as a tool of analysis. The first doubt refers to the adjective 'measurable', whose precise meaning is unfortunately not given in the paper. It surely cannot be interpreted as meaning 'being susceptible to an acceptable measurement with the available data'; for this would leave the magnitude of national income subject to vagaries in the supply of data and the varying limits of statistical imagination and/or caution. Does it then mean 'theoretically susceptible to measurement'? But then surely the limited effect of the adjective is barely sufficient for a working definition of national income. For, theoretically, all work performed, inclusive of one's efforts at a daily shave or at vocal accomplishments under a shower could be evaluated at the current market price, e.g., at those for barbers' services and for performances of fifth-rate singers.

But perhaps this second question is answered by Dr. Colm's definition of the social product, in accordance with which this concept includes only activity that is recognized as socially desired by the institutional mechanism of society—the market, the family

or the body public. I found it rather difficult to guide myself by this concept. The orders of the head of the family "decided what was play, and what, work"; "decisions made by the politically responsible organs of the society" stamp an activity as socially desired; and last, with reference to the market mechanism, "if someone receives compensation for any activity . . . the market has stamped his activity as socially desired, even if not socially desirable". This appears to provide no selective criterion at all, for it would obviously admit into social product the result of activities such as murder (paid for by some anxious purchaser), any and all activities that are expected as a matter of course in family life, and all activities undertaken by the state.

It seems to me that Dr. Colm himself, in subsequent discussion, employs a concept of national income much more rigorously defined than is suggested by its description as the measurable part of the social product. How otherwise can he distinguish between transfer expenditures and productive expenditures? Or rule out of account such items as payments of interest on war debts?

In stressing this point, I hope I do not overemphasize the importance of a clear-cut definition of national income in discussions that deal with the controversial problems of exclusion and inclusion. True, there is a fairly close consensus of opinion among the students in the field with reference to many broad groups of activities whose results would be included by anyone under national income; and to that extent a rigorously defined concept is not needed. But it is at the borderlines that such a concept is indispensable; and it so happens that the whole field of government activity within the economic system lies largely across one of the borderlines. Vagueness in the concept of national income is, therefore, likely to lead either to ambiguity or to arbitrariness in the analysis of the problems arising in the treatment of government revenues and expenditures.

2 DISPOSABLE INCOME

Dr. Colm distinguishes between income acquired and income disposable, the latter being defined as "income after deduction of those parts which are voluntarily or compulsorily transferred from the individuals who acquired them to other individuals, the government or private institutions". And "the sum of income ac-

quired and income disposable must be identical, the difference being in the manner of distribution" (Section I, 4 (a)).

This distinction calls for two comments. First, there is a cardinal difference between income acquired and disposable income, in that the former is uniquely determined and the latter is not. We observe income acquired at the line that divides the economic system from the mass of households and consumers who are the individual recipients of income shares distributed by the former. So far as this dividing line is clear, there is only one distribution of income acquired, i.e., only one configuration of the apportionment of income paid out among the various individuals who receive it. But of disposable income there are as many distributions as there are links that one wishes to distinguish in the circulation of incomes once acquired. We may be interested in the distribution of disposable income after the individuals have indulged their propensity to speculation by buying and selling on the stock market and on markets for other assets (and thus consider capital gains); or after the individuals have paid their taxes, a link that appears most important to Dr. Colm; or after the expenditures on food have been made. All these variants of the definition of disposable income are, abstractly, of equal validity; and as Dr. Colm points out, the sum of income they will yield will be identical, the variation being confined to the distribution among individual recipients. It appears obvious that the only way to set up a definite concept of disposable income is to specify the stage in the circulation of income to which it refers; and that only on condition that one of these stages is, for some reason, declared to be basic, can there be a *single basic* concept of disposable income.

This being the case, the second comment follows in the nature of a query. Why is it important to create the concept of disposable income for the treatment of government revenues and expenditures? Why do we not employ this concept in discussing the treatment of revenues and expenditures of the steel industry or the steam railroads in the measurement of national income? Obviously, the concept could be used in these examples just as easily as in the case of government; only here it would mean income disposable after payments by individuals for the products of the steel industry or after payment by them to railroads for services

in transporting the payors or the products that these payors consume. The superficial differences between these cases and the government do not stand up under scrutiny. The legal coercive power of the government is, from the standpoint of economic analysis, not much different from the coercive power wielded by a public utility or any other monopolist supplying essential products: in either case the individual can abstain from payment, but at the cost of dispensing with an essential service. In common with many other industries the government supplies the demand of both business firms and ultimate consumers. What is then the distinctive feature of government activity that necessitates the use of the income disposable concept, whereas it is not employed in the treatment of other monopolistic industries? This question seems to me to require further elucidation.

3 FUNCTIONS OF GOVERNMENT AND THE CLASSIFICATION OF EXPENDITURES

In treating the problems raised by Dr. Colm the crucial point appears to me to lie in the evaluation of government activity from the standpoint of productivity and the direction of imputation. If we can answer two questions: (a) Are government services productive? (b)What part of them is a net service to individuals and what part is a service to business establishments?—then we are in a position to solve most of the problems ranging about the treatment, first, of government expenditures, and second, of revenues, in the measurement of national income.[1]

As to the generally productive character of government expenditures, my disagreement with Dr. Colm is perhaps minor. I am still not convinced that interest on war debts should be treated as unproductive, while interest on debt contracted by the government in order to finance the rearmament program would presumably be treated as productive (or, for that matter, interest on bonds paid by the armament-producing firms who supply the government). The argument that the services of the proceeds of the war debts "were rendered in the past and belong to a different accounting period" is not effective, since the same argu-

[1] It seems to me that were Dr. Colm to begin his analysis with this evaluation of government functions, and then proceed to treat government revenues, the concept of disposable income could be dispensed with.

ment may be applied to interest payments on all long term capital investments. The services (or disservices) were in the past, but their effects continue into the present—a statement which in the case of war debts has unfortunately been demonstrated all too convincingly during the last decade and a half. However, this problem of productivity of government expenditures is part of the broad problem of productivity as criterion of the elements entering into national income; and it would be out of place here to discuss it further, except to refer back to the comments made above under 1 in connection with Dr. Colm's definition of national income.

We turn now to the second question, viz., to what extent may one distinguish between government services rendered the business system and those rendered individuals *qua* individuals. On this point I must confess myself more pessimistic than Dr. Colm, in that I consider such a distinction much more tenuous and remote than Dr. Colm conceives it to be. True, where government engages in purely commodity producing or handling functions (such as those of railroad transportation or of communication) it is easily possible to distinguish between services rendered business establishments and those rendered individuals. But if we consider activities that constitute the government's most distinctive functions, i.e., those performed by the army and navy, by the judiciary, by civil servants, etc., the distinction indicated above becomes next to impossible. These functions 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. Thus some interpreters will contend that the government is a monopolist primarily engaged in supplying services to the business system of the nation and using its coercive power to supply these services at as low cost as possible. Others will contend that the government's main function is to regulate the business system so as to make it compatible with the basic needs and demands of the individual members of the nation. In either case, the only statement that can be safely made is this: so far as the function of any government is to preserve the smooth and successful oper-

ation of the existing social system, and so far as the business system is an integral part of the social system, the activity of the government will be an indissoluble amalgam of efforts to preserve the business system (which may be classified as service to it) and to modify it for the benefit of non-business groups (which may be classified as service to individuals).

The indissoluble character of this amalgam is clearly shown by the fact that any specific government activity may be so interpreted as to put it either in the one class or in the other. Public education or relief, which appears to be so clearly in the nature of direct service to individuals, may be and has been interpreted as essentially a service to the business system, a necessary cost in permitting the business system to operate efficiently and without disturbance. Tariffs, which appear to be so directly in the nature of service to business, may and have been interpreted, as a service rendered the broad masses of wage earners in this country. A scrutiny of Dr. Colm's own classification of government expenditures raises several doubts. In what sense are the economic activities, which appear to be dominated by road and street construction, any more in the nature of direct services to business than the administrative expenditures, the political, or for that matter, the consumptive? Roads are used by ultimate consumers *qua* individuals, and a great deal of the consumption expenditures may be interpreted as an essential cost of the business system in this country.

In short, no classification of government activities and expenditures by business or ultimate destination can properly be made.[2] But there are two other classifications of government expenditures that appear both possible and necessary in the measurement of national income. First, there is the distinction between expenditures on commodities consumed, and on services of people or of property. As in all other industries, the amount of net income originating in government is exclusive of the volume of commodities consumed in the process of production. Second, there is the distinction between expenditures representing services and those representing transfers of property rights. In the current work on national income we have attempted to make

[2] This fusion of interests is perhaps a more essential distinctive characteristic of government activity than is the coercive character of its power.

both distinctions: the first by including under income originating in government only payments for personal services or interest payments on debt (to individuals); the second by adjusting income paid out by government for government net savings or losses. The latter item was computed roughly by comparing the net change in the tangible assets owned by the government with the net change in its outstanding debt.

4 ALTERNATIVE TREATMENTS OF GOVERNMENT REVENUE AND EXPENDITURES

The discussion above suggests the impossibility of classifying government activities and hence expenditures between those characterized as service to business and those characterized as service to individuals. It is accordingly impossible to say that the payments to government made by business firms are larger or smaller than the cost of services rendered by the government to these firms, the positive and negative residue being accountable as the net balance in favor of the individual payors of government revenues. (Note a similar treatment of a public utility monopolist who charges discriminatory rates to business units and to ultimate consumers.) Consequently, the treatment in national income measurement of the activity of the government in collecting its revenue must depend upon assumptions, necessarily arbitrary in character, as to what these payments to government represent.

As we vary these assumptions, we obtain different formulae for the treatment of government revenues and expenditures in national income. The simplest alternatives are as follows:

a) On the assumption that all government activities are services to the business system proper:

National income = (sum of individual incomes derived from private production minus individual income taxes) + (undistributed savings of business firms, after payment of business taxes) + (all government expenditures minus expenditures on commodities consumed plus net savings of government).

b) On the assumption that all government activities are services to individuals:

National income = (sum of individual incomes derived from private production) + (taxes paid by business firms) + (undis-

tributed savings of business firms, after payment of business taxes) + (government expenditure item adjusted as under *a*).

c) On the assumption that the payments made to government by business firms represent approximately the value of government services to business; and that payments made to government by individuals represent approximately the value of government services to individuals:

National income = (sum of individual incomes derived from private production) + (undistributed savings of business firms, after payment of business taxes) + (government expenditures adjusted as under *a*).

The most recent computations by the National Bureau of Economic Research follow formula (*c*), as being the simplest and most plausible solution of the problem. It is arbitrary, but the arbitrariness results from the nature of the problem. And the assumption that the government's distribution of charges reflects the value of its services to the payors is more plausible than the assumption that no connection exists between the locus of payments to government and the locus of benefits by the government. The latter assumption of a complete separation between the place where government payments arise and the place where government benefits fall appears to me to reduce greatly the significance of the conundrums that are so often found in the discussion of these problems in national income and taxation literature. These conundrums usually ask what happens to the calculation of national income when, e.g., the government decides to replace an individual income tax by a business tax, the tacit assumption being that national income should not be affected by the government's action. But if this action represents, as it often does, a recognition of the change in value of government services to the business system as over against its value to individuals, the national income total *should* be affected. If this implication is true, it bears directly upon Dr. Colm's use of this conundrum argument in his report.

To conclude, the incidence of government activity as between the business system and the individuals comprising the nation cannot be distinguished, except with the assistance of a definite position in social philosophy. If the latter is not acceptable, only an arbitrary solution of the question whether to deduct or not to

deduct business or individual income taxes is possible. The arbitrariness of the solution adopted by the National Bureau in its treatment of the problem is recognized. But it seems a more practicable solution than Dr. Colm's; and I am not convinced that on theoretical grounds it is inferior to Dr. Colm's procedure which appears to rely too much upon the possibility of actually establishing the effective incidence of government activities.

III MABEL NEWCOMER

I have been very much impressed with Dr. Colm's analysis of public revenue and expenditures in national income. The importance of this problem increases each year as the public share in national income increases. Many of those who have been working in the field of public finance have been aware of the error involved in estimating the tax burden as a percentage of income when a large part of the taxes in question has been deducted, as a business cost, before the figure of national income has been reached. Dr. Colm has gone much farther than this, however. He not only points to the problem. He offers a solution for it.

I foresee increasing difficulties, as the public sector of our economy grows, with the attempt to find a common measure for goods and services produced both for this public economy and for a private market economy. For the time being, however, the two are sufficiently interrelated that Dr. Colm's procedure seems to be amply justified. I find myself in complete agreement with the principal factors of his formula. I am not sure that I follow him, however, in all details. In this connection I should like to discuss two points briefly.

The second step in the formula is the deduction of "taxes paid from personal incomes". In discussing these, Dr. Colm mentions personal income taxes and poll taxes. I am wondering if he would include real estate taxes on owned homes in this category, also. It seems to me that these should likewise be deducted in order to determine "income disposable by individuals". The exact amount of such taxes is not readily estimated, but they probably came to at least twice the sum of personal income and poll

taxes deducted in 1932. The arguments for including them are that they are not a business cost, and so far as they are ability taxes they seem to be strictly comparable to the personal income taxes. So far as they are benefit taxes it may be contended that the home owner is buying services in much the same fashion as he might buy them from private owners, but in any event these services have been included, I believe, elsewhere in the formula.

It can, of course, be argued that the tax paid by the home owner is comparable to the rent paid by the tenant—a payment for the use of the house itself. Since no valuation has been placed on the income of services from these homes in the estimate of national income (they have been excluded as not computable) there would be no double counting from this point of view. Since, however, taxes on homes presumably do not measure with any exactness the value of the services of such homes to home owners, this tends to confuse issues. Compensating errors of this kind may result in a final estimate not far from the truth; and if both the annual value of homes to their owners and that part of the property taxes falling on home owners are too uncertain to be estimated, it may be wisest to attempt neither. In view of the importance of real estate taxes in our system, however, I should like some discussion of this problem.

The second point I should like to consider deals with governmental expenditures—specifically, debt redemption. Dr. Colm classifies extraordinary debt redemption as a transfer expenditure and deducts it from government revenues before these are added to national income. With this I agree. If I understand Dr. Colm's procedure correctly, however, he is including in national income the regular amortization of productive debts as government saving. With this, too, I should agree if depreciation has been deducted elsewhere, but I am not sure that it has been. And in any event, with the present status of government accounting, it might be simpler to assume that debt amortization equals depreciation than to attempt to ascertain the amount of depreciation in question.

I realize that in the time and space available it has been impossible for Dr. Colm to cover all the points involved in this problem in detail. He has given far more thought to this problem

than I have and he probably has answers for both the questions I have raised. I only hope that he will later develop this whole problem at greater length.

IV GERHARD COLM

I am grateful to have the opportunity of discussing the interesting comments of Roy Blough,[1] J. M. Clark, Simon Kuznets and Mabel Newcomer on my paper. On some points I am convinced that the critics are right and I must correct my statements; on some I feel that a misunderstanding is due to not expressing myself clearly enough—and in this respect I am especially glad that I can clarify my position; on a few points I feel that I ought to defend my thesis by proposing additional arguments.

(1) Dr. Kuznets criticizes the statistical definition of national income—the measurable part of the social product—as vague. He is entirely right. But I think that the definition must be as vague as the concept itself. Who can offer a clear-cut principle according to which it can be decided whether the work of housewives or the imputed rent value of houses owned by the occupant ought to be included in or excluded from national income calculations? I see no logical reason why these elements of the social product should be omitted, except a practical regard for the task and the limits of the statistics of national income. The term 'measurable' does not accurately describe the criterion I had in mind, and needs further definition. If the probable mistake resulting from the inclusion of an element is greater than the probable mistake resulting from the omission, then I regard this specific element of the social product as 'unmeasurable'. If the error resulting from an omission is greater than the error that may be caused through the inclusion, then it is 'measurable' and must be included. Do we shift hereby the test to the technical question of whether or not certain statistics are available? Not quite. Whether a smaller or larger mistake originates from the omission of an item in the national income computation depends not only upon the statistical material but also upon the question that

[1] Professor Blough's comments refer to both Dr. Colm's and Dr. Shoup's papers; see Part Six, Discussion I.

is to be answered by the estimates. We may wish to compare the national income of two countries. In one all household work may have been shifted to corporations (apartment houses with service, restaurants, laundries, etc.) and most of the married women may have gainful occupations. In the other country all the household work is done by the married women who have no other occupation. Any comparison that neglects the service of the housewives in the latter country would give a distorted picture—the error resulting from an omission of this element in the social product would certainly be greater than that resulting from including imputed values for these services. If, however, we are to compare countries with similar conditions in this respect or if we compare the national income of the same country over a period during which no substantial changes occurred in this respect, it would be wrong to include this item which can be measured only with such difficulties.

Thus J. M. Clark contends in his discussion that for measuring the war costs, the task for which he was using the national income estimates, he did not need to include imputed values for the soldiers' services. The omission of this item may be misleading, however, if countries with armies of a different size and organization are to be compared. Many 'definitions' of national income are merely attempts to rationalize in a general way a choice that was justified only for a specific task and based upon specific statistical material that was available. The definition I have suggested is vague; but it is not supposed to offer a general criterion, for the line of demarcation must be determined with a view to the specific question under consideration and to the statistical material available.

Dr. Kuznets asks how such a definition enables us to distinguish between transfer expenditures and productive expenditures of the government, and to say that the first category does not, while the latter does, constitute an element in national income. The answer is that national income was defined as the measurable part of the *social product*. Every item in national income must correspond to an element of the social product, i.e., the work done by and at the disposal of the social group. The relief recipient is paid not for a contribution to the social product but because he is unable to earn his living by such a contribution.

Therefore, his income is regarded as an income derived from transfer expenditures of the government, while a judge or a teacher receives his salary for a service that is regarded as necessary by those members of the legislative bodies who have to decide about the public services for which funds are to be appropriated.

And how about the murderer who may receive a payment for his 'service'? Dr. Kuznets asks how we decide according to our definition whether we regard this payment as compensation for a contribution to the 'social product'. I suggested that in the whole sphere of the exchange economy the market decides what services are regarded as productive. If in a society murder is regarded as a service supplied and demanded like the service of the butcher or barber, then I do not see how the statistician may exclude these services because he does not share the moral habits of the country with which he is dealing. I do not believe that in our civilization murder usually belongs to the services acknowledged by the market, although it is quite debatable whether the handling of bootleg liquor did not belong to the social product in the period of prohibition. I did not intend to rule out productivity as a criterion of national income by the definition that I suggested. In this respect I do not agree with Dr. Copeland who tries to avoid reference to the contribution that enables a person to claim an income.[2] In view of his approach, Dr. Kuznets' question seems to be justified, namely, how transfer payments can be determined and eliminated from the income computation. The definition that refers to the social product entails the acceptance of productivity as a criterion and meets thereby the question of evaluation. I suggested applying the evaluations of the society with which the statistician is dealing and not the evaluations of the statistician. The evaluations of a social group are expressed in various institutions—the family, the market, the political system. Here the people determine what they regard as socially desired; the statistician may have quite other ideas concerning what is socially desirable.

(2) Dr. Kuznets attacks the distinction between income acquired and income disposable. Evidently I did not succeed in making clear what is meant by this distinction. Let us assume that a person A earns $10,000 per year, and a person B is unemployed

[2] See Part One, Sec. I.

and receives $500 as relief. The relief payment is financed by an income tax which A has to pay. A and B together have an income of $10,000. How is this income distributed? If the distribution is measured in terms of income acquired, A has $10,000 and B has nothing. This is a true picture if the calculation is designed to describe the distribution of *earning power* in a society. The result is worthless, however, if the study is made to draw conclusions concerning the distribution of *purchasing power*. Then the income must be measured in the hands of those who can finally dispose of a share in the social product, who influence the demand for and thereby the production of goods and services. A transfers $500 as a tax to the government. But the legislative authorities decide to pass on the money as relief to the beneficiary who finally can dispose of it. Thus the distribution of the income disposable is calculated in this way: A's income acquired $10,000 — tax $500 = $9,500; government tax revenues $500 — transfer expenditures $500 = 0; B's relief income $500. A disposes of $9,500 for consumption or savings, B can buy $500 worth of goods and his demand schedule exerts an influence upon the market and production to this extent. If the government uses the money not for relief but for employing a teacher, then the purchasing power is not passed on by transfer. The government disposes of a part of the social product, diverting productive factors for purposes determined by the legislative bodies. In this case A can dispose of $9,500; the government of $500 and the teacher of $500, the combined income being $10,500. In voluntary transfers the benefactor decides to dispose of his income himself by making a contribution to charity. This is, however, not a final disposition of a share of the social product. The benefactor waives this right to the beneficiary whose demand decides finally what goods and services will be bought with the money.

The difficulty that puzzles Dr. Kuznets may be phrased as follows: if I buy food I also 'transfer' my money to somebody else, for instance to the baker. Why not deduct also food expenditures from the income acquired? The baker's income is not derived from the customer's income by a transfer, but it is acquired through the sale of his product. The customer disposes of a part of his income by buying bread. The baker acquires income by selling bread. Both have an independent original income acquired.

The deduction would distort the estimates because something would be deducted and nothing added—the baker's income being an element in the national income anyway. And the total of income acquired and income disposable must always be identical (except for certain international transactions).[3]

Dr. Kuznets asks further why we deduct taxes from the income acquired and not the burden imposed upon individuals by a monopolistic price policy, for instance, of railways or public utilities. This case seems to be more like excise taxes than income taxes. Excise taxes were not deducted from the nominal incomes but were eliminated by applying a price index in calculating the *real* income. The same reduction of real individual incomes results automatically from a monopolistic price policy. The difference is, however, that the revenue from excise taxes must be added as government revenue to the individual and corporate incomes, while the incomes derived from a monopolistic price policy already appear in the individual or corporate incomes, for instance as dividends or as undistributed profits of the monopolistic corporations. Thus the 'transfer' of incomes through a monopolistic price policy is already expressed in the usual calculation of real income and does not need any special operation, as is required in taxation.

(3) While Dr. Kuznets discussed the concept of income disposable in general, Professors Blough and Newcomer dealt with the question of what taxes are already included in the income acquired and must be deducted to calculate the personal income disposable. I suggested that personal income and poll taxes are already included in personal incomes. Professor Blough added inheritance, estate and gift taxes, motor vehicle license taxes and taxes on intangible property. Professor Newcomer held that real estate taxes on owned houses are also paid from personal incomes,

[3] This equation will be maintained only if a minus entry is made when property is transformed into income, as happens, for instance, in realized capital gains. Dr. Kuznets alludes to speculative transactions on the stock exchange as transfers of income. Here we have either the disposition of income (if current savings are invested in new issues the proceeds of which are used to expand productive facilities) or a transformation of property of one form into another form, or a transformation of property into income, but no transfers of income in the sense I used this term. Capital gains are not a genuine element of national income; but the reasons for their exclusion are different from those proposed for transfer incomes.

an opinion to which Professor Blough consented under certain conditions.

I agree that taxes on intangible personal property, gift taxes and motor vehicle license taxes,[4] and also some further fees, are paid directly from personal incomes and are already included in the sum of personal incomes. I said in my paper that death taxes belong to this category only if they are anticipated by insurance premiums or discharged by subsequent annuities paid out of the income of the heir (cf. Sec. V, (1)). In the other cases I held that the inheritance and estate taxes reduce the income of the heir (by an amount equal to the yield of the capital that was to be paid as tax). Therefore, I meant that death taxes should not be treated in the same manner as income taxes and I added them to the government revenue without deducting them from the individual incomes in calculating the income disposable. This was wrong. Collecting death taxes to meet current government expenditures presupposes that assets of the deceased's property must be sold. Then somebody else must acquire them and will draw the yield from them in the future. Therefore a fraction of the savings cannot be used for additional investments but are needed to meet the property loss due to the tax. If the tax yield is used to finance current expenditures (and not to create government capital), dissaving results. If the revenue from these taxes is regarded as government income, then a minus item of the same amount, representing a property loss of individuals, must be inserted into the calculation. If, therefore, all government revenue is regarded as a basis for calculating income disposable by government (Sec. V, (5)), death taxes must be deducted from the income disposable by individuals exactly as has been done in the case of income and poll taxes. Thus I conclude that Professor Blough's objection to this point is correct. Death taxes must be treated like personal income taxes, but for entirely different reasons.

In dealing with real estate taxes on owned houses, two cases must be distinguished, as Professor Blough emphasized: first, the rental values of owned houses are added to national income (English type); second, the services of such property are not re-

[4] Except, of course, taxes attributable to the use of the motor car for business purposes.

garded as an income element (as in the United States). In the first case the owner of a house, in which he himself resides, declares as income in addition to other income the fictitious rental value of his property, but deducts interest and taxes, together with other expenditures he has to make for his property. Here the real estate tax is like a business tax not included in the personal income sum—it must be added as government income, as Professor Blough correctly stated. But what is to be done when, as in the United States, no imputed values for owned houses are included in personal incomes? In the United States the income tax laws permit the deduction of interest and taxes for real estate without requiring the declaration of a fictitious income derived from this property.[5] If and as far as the personal incomes are computed on the basis of the net income of the income tax statistics, the real estate taxes are not included in the personal incomes and must be added as a separate item. But even assuming that these taxes would not be deducted in computing net incomes, the result would be the same for an estimate of the *real* national income. We must assume that real estate taxes on residential buildings will be shifted to rents in the long run. Rents certainly constitute an element in the cost of living index that is used to deflate nominal incomes. This index is applied to incomes of people who live in owned or rented houses equally. Therefore, even if these taxes were paid out of personal net incomes, their increase or decrease would be eliminated by the real income calculations. If these taxes, following the suggestions of Professors Blough and Newcomer, were regarded as already included in personal incomes, total national income would be underestimated. Increases in these taxes would reduce the real national income without a compensating item.

(4) I suggested calculating the income disposable by government through deducting from the total government revenue: (a) government transfer expenditures; (b) expenditures for the 'cost services' of the government. This income disposable by government, then, is added to the income disposable by individuals, corporations, and private institutions.

Dr. Kuznets is not quite convinced that the interest on war

[5] Thus the American income tax laws grants a certain tax privilege to the home owner that is not open to the person living in a rented house.

debts (as on all other deficit debts) should be treated as unproductive, i.e., as transfer expenditures. He does not recognize the difference between war debts and debts for long term investments. I meant that war services belonged to another period, while long term investments (like roads), for which money was likewise spent in an earlier period, still render service in the period during which interest has to be paid on the debts incurred for their construction.

Professor Newcomer suggested that the regular amortization for such productive debts should be regarded as 'compulsory savings' only if depreciation of government investments is deducted. This is correct and I agree with her also in her contention that the simplest procedure would be to regard the regular amortization as compensating the depreciation charge because the methods applied in public bookkeeping do not allow a reasonable direct estimate of the public depreciation.

Dr. Kuznets has strong objections to deducting expenditures for 'cost services' in estimating the income disposable by the government. He denies that the 'cost services' of the government can be separated statistically from the other public expenditures. Two main points of my paper were to explain that the non-income tax revenue of the government ought to be added to national income and the expenditures for 'cost services' ought to be deducted. Do we avoid, by following Dr. Kuznets' formula, both difficulties at the same time, if we assume that the two are equal? Then we would neither add nor deduct these items (cf. footnote 35). This would be indeed much simpler than the complicated additions and subtractions that I suggested.

If Dr. Kuznets holds that no classification of the 'indissoluble amalgam' of government services is possible, then he violates this principle himself. He classifies government expenditures implicitly himself by assuming that the non-income tax revenue represents approximately the value of government services to business. By the principle of the 'indissoluble amalgam' a serious question is raised which in the last analysis would lead to the conclusion that no adequate treatment of the government sphere in national income is possible. Quantification usually requires a certain arbitrariness in forcing phenomena of life into a rigid classification. The test again is whether the distortions resulting

from an omission of this whole field in the national income estimate are greater than the mistakes possibly resulting from its inclusion. If we include it, the best possible classification is required.

I agree with Dr. Kuznets that the classification I suggested entails a substantial degree of arbitrariness (cf. footnote 43). I am afraid, however, that Dr. Kuznets' assumption is much more arbitrary and involves possibly greater errors. Dr. Kuznets contends that business taxes may tend to become approximately equal to the benefits rendered to business by the government. This argument refers to business taxes. But how about excise taxes, such as taxes on liquor and tobacco, which also belong to the non-income tax revenues? The taxes paid from incomes in the United States are not more than about three billion dollars, less than 20 per cent of all government expenditures. If Dr. Kuznets' formula is correct, then this 20 per cent must include all expenditures for 'political services' (which are made for the sake of the nation or the community as such) and 'consumption services' (which are rendered for the sake of the individual citizens), while all other expenditures are regarded as 'cost services' which are rendered for business and absorbed by business, as are other cost factors. The taxes paid from incomes that amount to less than 25 per cent of all tax revenue in the United States amount to more than 40 per cent in Great Britain. Is the share of political and consumptive services so much greater there than in America? This comparison proves to my mind that countries may have fundamentally different tax structures despite similar expenditures. Consequently it is not valid to draw conclusions concerning the structure of expenditures from the tax structure. The mistakes that result from our direct classification of expenditures may amount to hundreds of millions—the mistakes resulting from Dr. Kuznets' indirect classification probably run into billions; and statisticians must choose the lesser evil.

Part Six

THE DISTINCTION BETWEEN 'NET' AND 'GROSS' IN INCOME TAXATION

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Discussion

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THE DISTINCTION BETWEEN 'NET' AND 'GROSS' IN INCOME TAXATION[1]

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I Topic Selected for Discussion

THE DEFINITION of income for purposes of taxation is of concern to students of national income for several reasons. One of the most important is that in the measurement of national income dependence must be placed upon statements of income that have been drawn up in conformity with the requirements of the tax law. Ordinarily these statements are used in the aggregate form in which they appear in the Federal government's *Statistics of Income* and in similar publications by some states.

From the many topics that might be chosen for a discussion of the relation of taxable income to national income, this paper selects the distinction between gross and net income. The Federal income tax law and all the state comprehensive income tax laws require certain inflows to be taken into account; the aggre-

[1] This paper as printed here differs from that read at the American Economic Association meetings, in December 1936, and which formed the basis for the comments by Professors Blough and Hewett, in the following respects: the material now in Appendix A was in footnote 11; the material now in Appendix B was in the text, following the paragraph numbered (f) in Sec. II, 3; and the last two paragraphs in Sec. II, 3 are new; two sentences dealing with a lower court decision have been deleted as inadequate for a subject that would require more extended treatment than can be given here; the exception to the rule of deductibility of interest payments has been added; footnote 2, except for the first sentence, is new; a sentence has been added to footnote 50; a few minor corrections in style have been made.

gate is here called gross income. From this, they allow certain outflows to be deducted; the result is net taxable income.[2] Taking the inflows more or less as given, the observer may inquire into the principles that guide the allowance of deductions for outflows, and thus work towards a concept of 'net' as opposed to 'gross' income.

So far as gross taxable income arises from a transfer of money or money's worth—and this covers practically all instances—the existence of net taxable income for taxpayers in the aggregate depends upon the relation between the tax status of each payor and the tax status of each payee as affected by each transfer. The possible relations are, of course, four; the amount involved may be: [3]

(1) not deductible by the payor, and not taxable to the payee (e.g., a gift);

(2) not deductible by the payor, but taxable to the payee (e.g., wages of a housemaid);

(3) deductible by the payor, and taxable to the payee (e.g., wages of a factory employee);

(4) deductible by the payor, but not taxable to the payee (no example important enough to cite here).

If only items (1) and (3) were found in the law, no aggregate net taxable income would result, since every receipt either would not be included in gross income (case 1) or would be offset by an equivalent deduction from someone else's gross income (case 3). It is the existence of item (2) that results in an aggregate net taxable income. Item (4), which produces a negative net taxable

[2] The matter of outflows is not so simple, technically, as may appear from this statement; sometimes the allowance is made in the form of a 'credit' against the technical 'net income', and sometimes as a credit against the tax otherwise due. Moreover, in defining gross income, the tax law in some cases requires that against a certain inflow there be offset a certain outflow in order to arrive at the technical 'gross income'; (further offsets for certain other outflows are allowed in arriving at 'net income'). In this paper, however, taxable gross income refers to any inflow, such as proceeds from the sale of a stock of goods, that must be taken into account for tax purposes—any inflow, that is, part of which may prove to be included in net income, depending on the size of the offsets made. On the other hand, gross income will not here include inflows, such as completely exempt bond interest, that can give rise to no tax liability, regardless of what the same taxpayer's outflows may be in nature or amount.

[3] The illustrations in parentheses are drawn from the existing Federal law.

income in the aggregate, is of course rare. Item (1) is important because it includes gifts and inheritances.

Payments falling under item (2) are commonly described as 'personal expenses', while payments falling under item (3) are usually, but not always, 'business expenses'. These terms suggest in a general way why the distinction is drawn—why some receipts that are taxable to the payee are deductible by the payor and why some are not. The implication is that deduction should be allowed if the payment is in some way connected with an attempt by the payor to obtain for himself some taxable receipt. If, on the contrary, the payor's outflow has no connection with an actual or potential taxable inflow to him, the expense is personal and is not deductible (as with the other grouping, exceptions can be found). The existence of taxable net income for any individual depends of course upon the taxable inflow's being greater than the deductible outflow.

The connection between the actual outflow and the actual or potential inflow thus determines whether a given outflow falls under item (2) and is not deductible, or falls under item (3) and is deductible. About the only kind of outflow that raises no questions is an extreme case of item (3), such as an outlay for a stock of goods that can be of absolutely no use to the buyer except as he can make a trading profit by it. Practically all instances of personal expense have, from certain points of view, at least a tenuous connection with an actual or potential taxable receipt.

In the paragraphs immediately following, the discussion is concerned with cases falling under item (3)—the business expense. Subsequently, the problems raised by item (2)—the personal expense—will be considered.

II Business Expenses

The 'actual or potential' nature of the taxable receipt has been emphasized to avoid any misunderstanding. The business expense may in fact result in no gross income at all, yet it remains a deductible item, at least under the Federal law. Conversely, an expense may result in taxable income, yet not be deductible, as when a gentleman farmer, in the business purely for the pleasure

of it, spends $100 to receive $50. In other words, the tax law pays little or no attention to cause and effect, or association. The guiding factor seems to be intent. The question is: was the outlay made entirely in the hope that it would result in a (taxable) receipt?

These general statements may be given point by specific reference to the Revenue Act of 1936, containing the Federal income tax law, and to the Treasury Department's *Regulations 86*, interpreting the income tax under the Revenue Act of 1934.[4] The law states that deductions shall be allowed for "all the ordinary and necessary expenses paid or incurred during the taxable year in carrying on any trade or business . . .",[5] and adds that deduction shall also be allowed, in the case of an individual, for "losses sustained during the taxable year and not compensated for by insurance or otherwise—(1) if incurred in trade or business; or (2) if incurred in any transaction entered into for profit, though not connected with the trade or business. . . ." [6] A sweeping provision allows deduction "in the case of a corporation, [for] losses sustained during the taxable year and not compensated for by insurance or otherwise." [7]

The only place in these phrases where the law specifically uses the test of intent is for "any transaction entered into for profit", but the words "ordinary and necessary" in the first quotation and the implicit reliance on the scope of corporate activities in the third quotation also serve to indicate that the legislator is much more concerned with intent than with the actual outcome. A business man may spend $100,000 and fail so badly that in retrospect the expenditure seems difficult to understand, but the legislator, if he thinks about it at all, probably contemplates letting the $100,000 stand as a deduction against such income as there may be from other sources. Perhaps a limiting case may be conceived where an individual's expense, though it is sincerely made for profit alone, is so utterly mad as to be excluded from the category of "incurred in trade or business" or "incurred in any transac-

[4] As this is written, the regulations covering the 1936 Act have not been issued.
[5] Sec. 23 (a).
[6] Sec. 23 (e).
[7] Sec. 23 (f).

tion entered into for profit". The exclusion is easier, of course, if the item has to pass the test of "ordinary and necessary".[8]

Whatever the interpretation may be on some of the finer points, it seems evident that the legislator does not wish to insist on a causal connection between a given expense and a given receipt before allowing the expense as a deductible item. In other words, he does not insist that a given expense be proved to have produced a taxable income at least as large if it is to be allowed as a deduction. Capital loss deductions are limited to capital gains of the same year, plus $2,000, but it appears unlikely that the legislators enacted this provision with an idea that a capital loss is an expense that has a causal connection with capital gains.[9] Perhaps a stronger case for the existence of some such idea can be made for the provision that limits deductions for gambling losses to gains from gambling.[10]

The net income that results from this doctrine represents ability to pay as it in fact exists rather than as it might have existed if the mistaken expenditure had not been made. So far as the resulting figure of net income enters into national income estimates, the national income figure tends to become net-after-mistakes. This may be the most desirable, and indeed the only practicable, concept, but it may be slightly misleading, since it contributes to the deduction of certain business expenses that carry a large element of personal satisfaction. Persons with sufficient wealth to indulge their business fancies may make expenditures that indubitably carry an intent to obtain profit, but that are nevertheless peculiarly apt to result in a business mistake because they are made with the same lightheartedness and the same joy in spending for spending's sake that characterizes the gentleman farmer who counts on a net loss, or the estate owner who builds a private golf course. If the purpose of the national income estimate is to indicate the size of the income available to supply the personal wants of the ultimate consumer, there are

[8] It is to be noted that the discussion in the text above does not turn on whether the item is so 'extraordinary' that it must be charged as a capital item and then amortized.

[9] Sec. 117 (d).

[10] Sec. 23 (g).

some disadvantages to a concept that, relying on intent instead of on a strict construction of 'necessary', tends to include in deductions some expenses that carry a strong personal satisfaction element.[11]

Some of the subdivisions of business expense will now be considered. The treatment will not be exhaustive, but will concentrate on the items that raise controversial questions of principle, either in statute or in administration.

1 CAPITAL LOSSES

Capital gains and losses are far too complex to be adequately dealt with at this point; detailed consideration would be beyond the scope of this paper.[12] However, it must at least be noted that the present Federal statistics reflect neither a deduction of all capital losses nor a refusal to allow deduction of any. A compromise course is followed that will undoubtedly prove troublesome to students of national income, whatever their views may be on the place of capital losses. For individuals the percentage of the loss taken into account varies with the length of time the asset has been held,[13] and losses on sales between members of a family are not deductible at all; [14] for almost all taxpayers, losses are not deductible in excess of the amount of capital gains plus $2,000; [15] and still other provisions add to the difficulty of deciphering the significance of the capital loss data in the statistics.

2 DEPRECIATION

The student of national income will obtain almost no useful de-

[11] See Appendix A.

[12] Capital gains or losses arise from the sale of a capital asset, and a capital asset is property held by the taxpayer, whether or not it is connected with his trade or business, excluding stock in trade or other property that would be included in inventory, or property held primarily for sale to customers in the ordinary course of trade or business (Sec. 117 (b)).

For discussions of the general problem of the treatment of capital gains or losses in estimates of national income by other contributors to this volume, see M. A. Copeland, Part One, Sec. IV and V, 8, discussion by Simon Kuznets, and Dr. Copeland's reply; Clark Warburton, Part Two, Sec. VI; Simon Kuznets, Part Four, discussion by A. W. Marget, Milton Friedman and M. A. Copeland, and Dr. Kuznets' reply.

[13] Sec. 117 (d).

[14] Sec. 24 (a) (6) (A).

[15] Sec. 117 (a).

tails on depreciation from the Federal income tax law. The statute is exceedingly vague, and in effect leaves the matter up to the accountants, in the first instance, and, finally, to the Treasury and the courts. The wording of the basic provision for depreciation has remained unchanged from the Revenue Act of 1918 through the Revenue Act of 1936: "A reasonable allowance for the exhaustion, wear and tear of property used in the trade or business, including a reasonable allowance for obsolescence." [16]

On the other hand, administrative practice regarding depreciation allowances has been of considerable significance in its effect on the net income figure in returns where depreciation is an important item. Recent history is instructive on this point. In 1933 a subcommittee of the Committee on Ways and Means reported its concern over the amount of depreciation that was being taken as a deduction, and, while "recognizing the soundness from an accounting standpoint of these deductions", recommended that "for the years 1934, 1935 and 1936 these allowances be reduced by 25 per cent. . . ." The subcommittee added that "no permanent injustice will be done individuals or corporations, as the basis [for determining gain or loss on the sale of the asset] of the

[16] See secs. 214 (a) (8) and 234 (a) (7) in the Revenue Acts of 1918, 1921, 1924 and 1926; sec. 23 (k) in the Revenue Acts of 1928 and 1932; and sec. 23 (l) in the Revenue Acts of 1934 and 1936. The special provision for "mines, oil and gas wells, other natural deposits, and timber" similarly remained unchanged at "a reasonable allowance for . . . depreciation of improvements, according to the peculiar conditions in each case", in secs. 214 (a) (10) and 234 (a) (9) of the Revenue Acts of 1918 and 1921; secs. 214 (a) (9) and 234 (a) (8) of the Revenue Acts of 1924 and 1926; sec. 23 (1) of the Revenue Acts of 1928 and 1932; and sec. 23 (m) of the Revenue Acts of 1934 and 1936; except that the Revenue Acts of 1918 and 1921 added a phrase, "based upon cost including cost of development not otherwise deducted", that was dropped in the subsequent Acts. Some changes were made, not important for purposes of the present discussion, in the wording of the provisions stating how the allowance should be divided between persons having different interests in the property.

The Revenue Act of 1913, sec. II, phrased the basic provision "a reasonable allowance for depreciation by use, wear and tear of property, if any", for corporations [G (b)]. For individuals it was: "A reasonable allowance for the exhaustion, wear and tear of property arising out of its use or employment in the business. . ." (B), with a proviso limiting the allowance for mines to 5 per cent of the gross value of the year's output. The Revenue Act of 1916, secs. 5 (a) and 12 (a), dropped the mine provision (concerning depreciation) and rephrased the allowance: "a reasonable allowance for the exhaustion, wear and tear of property arising out of its use or employment in the business or trade. . ." The Revenue Act of 1918, as shown above, expanded the allowance to include obsolescence.

depreciable . . . property will only be reduced by the amount of these items allowable after the 25 per cent reduction." [17]

The Treasury objected, noting that, even if the reduction were made good in a later year, the distribution of the income among the years would be distorted.[18] Shortly thereafter, the Secretary of the Treasury informed the Committee on Ways and Means that the Bureau of Internal Revenue had found that "through past depreciation deductions many taxpayers have . . . built up reserves for depreciation which are out of proportion to the prior exhaustion, wear, and tear of the depreciable assets". The Bureau proposed, therefore, "to reduce substantially the deductions for depreciation with respect to many taxpayers in various industries", by "requiring taxpayers to furnish the detailed schedules of depreciation (heretofore prepared by the Bureau)", and by "amending the Treasury regulations to place the burden of sustaining the deductions squarely upon the taxpayers so that it will no longer be necessary for the Bureau to show by clear and convincing evidence that the taxpayers' deductions are unreasonable".[19]

The Committee gave up the 25 per cent reduction plan in the belief that the Bureau's administrative change would "give greater equity and increase the revenue by as great an amount as

[17] *Prevention of Tax Avoidance:* Preliminary Report of a Subcommittee of the Committee on Ways and Means, 1933, pp. 4–5. Certain qualifications, not important for purposes of the present discussion, would have to be made to the subcommittee's 'basis' argument.

[18] *Statement of the Acting Secretary of the Treasury Regarding the Preliminary Report of a Subcommittee of the Committee on Ways and Means,* 1933, p. 31.

[19] *Report . . . from the Committee on Ways and Means . . .* (on) *the Revenue Bill of 1934,* pp. 8–9. The Bureau also proposed to make specific a limitation of subsequent aggregate depreciation to the unrecovered basis of the asset, but this appears to have been considered already in a fairly specific manner in *Regulations 77,* art. 205, last sentence.

So far as the taxpayer's own practices were not altered by the new attitude of the Bureau, the published figures on income might remain unchanged, since the published statistics are based on "the taxpayers' returns as filed, unaudited except for a preliminary examination to insure proper execution of the returns, and include amended returns showing net income of $100,000 and over, but do not include amended returns with net income under $100,000" (*Statistics of Income, 1933,* p. 2). It seems reasonable to suppose, however, that many taxpayers would actually show in their returns, as initially filed, less depreciation than they would have shown in the absence of the new regulations on burden and manner of proof.

the subcommittee plan".[20] In its next published Regulations, the Treasury fulfilled its promise.[21]

3 DEPLETION

In contrast to its treatment of depreciation, the Federal income tax statute has for many years specified in some detail the manner in which depletion shall be taken. Likewise, the regulations concerning depletion have been much more detailed than those on depreciation. [22] The total amount of money involved, either as income base or income tax, is small compared with depreciation, but the points involved are instructive in showing how the income tax statute may on occasion prescribe a highly artificial 'net' income through the artificiality of its provisions concerning deductions from gross income. The subject is discussed at some length in Appendix B.

The artificiality of the deductions allowed for depletion reflects a combination of diverse desires: to subsidize some of the extractive industries; to achieve simplicity in administration; and to consider an industry as an industry rather than as a collection of discrete entrepreneurs.

The Federal income tax law allows depletion on several bases, as follows: [23]

a) For oil and gas wells, 27½ per cent of the gross income from the property, with certain limitations.

b) For coal mines, 5 per cent of the gross income from the property, with certain limitations.

c) For metal mines, 15 per cent of the gross income from the property, with certain limitations.

d) For sulphur mines or deposits, 23 per cent of the gross income from the property, with certain limitations.

[20] *Ibid.*, p. 9.

[21] Cf. Treasury Department, Bureau of Internal Revenue, *Regulations* 77, art. 205, last four sentences, and *Regulations 86,* art. 23 (1)–5, all after the second sentence.

[22] Cf., e.g., pp. 55–60 (depreciation) and 61–88 (depletion) in *Regulations 86.*

[23] Revenue Act of 1936, sec. 114 (b) (3), (4). For a precise statement, useful to the taxpayer or to the statistician who wishes to know exactly what elements may be reflected in *Statistics of Income* for each of the past years, the brief statement of the six methods listed here would have to be appreciably expanded to note certain qualifications and changes from year to year. The purpose here is to give a general idea of the extent and nature of the artificiality of the net income figure in so far as it results from deductions for depletion.

e) For new deposits of minerals (deposits discovered by the taxpayer after February 28, 1913), not included in (a) to (d) above, the value—not the cost—of the discovery, prorated over the estimated future units of output, with certain limitations.

f) For old deposits of minerals ('old' in relation to (e) above), the cost, or the value at the time of the latest transfer where gain or loss was recognized for purposes of the tax on capital gains, or the value as of March 1, 1913.

The development of the percentage-of-gross methods [(a) to (d) above] and the discovery-value method (e) is a result of certain pressures briefly described at the opening of this Section. They may be conveniently discussed as they affect: [i] properties that do not represent discoveries made since the income tax law took effect; [ii] properties that do represent such discoveries.

Properties in the former group do not raise the question of discovery value, but they do create pressure for the use of some method of computing depletion that will not involve estimating their value. Unless such a method—for example, the percentage-of-gross method—is devised,[24] an estimate of value to serve as a base for depletion must be made as of the date when the income tax law took effect and, more important for the present point at issue, when the property changes hands in a transfer where a taxable capital gain or a deductible capital loss is realized.

Properties in the latter group raise the question whether it is not fairer to the discoverer of the property to allow him depletion on a discovery rather than a cost basis. But since a discovery basis necessitates valuation, pressure develops to put even new properties on a percentage basis or something analogous to it. If it is difficult to find a percentage formula that will perform the same functions as a cost basis or a basic-date valuation basis, it is also difficult to find such a formula as a substitute for a discovery value basis. In practice the result is likely to be an artificial method of determining the deductible amount, far removed from what most students of national income would probably wish for their purposes.

[24] Unless capital gains and losses are ignored, however, the necessity for estimating values is not escaped even by this method; see Appendix B.

III Personal Expenses

Section II, 'Business Expenses', has considered the kind of outlay that is made with practically the sole intent of getting some sort of taxable receipt. Other categories of outlay (e.g., food, clothing, shelter) may be grouped under the heading 'Personal Expenses', if that term is given a somewhat broader meaning than usual so that it includes, for example, gifts.

A general characteristic of these personal expense outlays is that, under existing income tax laws in the United States, they are not deductible from gross income in arriving at net income. Some personal expense outlays—for example, gifts—are not taxable to the recipient and therefore do not contribute towards the aggregate net income of society as shown by *Statistics of Income.* These will not be considered in the following discussion.

Each broad category of personal expense can be divided into two groups: (a) personal expenses that are made with an intent to contribute towards the acquisition of taxable gross income; (b) personal expenses that contain none—or practically none—of this intent. Group (a), it will be recalled, may be distinguished from business expenses by the fact that in the latter the intent to acquire gross receipts is the sole intent. The chief point at issue under the income tax law is the extent to which allowance might be made for the expenses in group (a). For example, a taxpayer must eat a certain minimum amount if he is to be able to operate his business and get taxable profits from it. To this extent there is a connection between outgo and income that might justify allowance of the outgo as a deduction. However, the taxpayer does not eat even this minimum amount solely in order to operate his business and make a profit in the sense that he buys goods solely in order to sell them and make a profit. As to expenses in group (b), probably no one would urge that they should be deductible, for, if they were, all items in group (a) would logically be deductible, and the community in the aggregate would show no net income at all.

1 FOOD

In most cases, taxpayers must eat if the gross income that is entered on their tax returns is to be maintained. A few, living exclusively on investment income, can fast without destroying the tax base: the gross income lives on without them.

The primary difficulty in allowing any deduction at all for food is the intimate way in which the business of living and the business of earning a living are intermixed in food consumption. A start might be made by disallowing any deduction for food that is almost certainly not necessary to the acquisition of a taxable gross income. Those who receive no income from current earnings of their own, but live on investment income and gifts, might be granted no deduction at all.[25] Those who clearly eat more than they need to keep themselves fit for work might be disallowed a part of the food expenses. With adequate technical assistance from dietitians and others, a roughly satisfactory scale of absolute allowances in money terms might be made. In fixing these allowances, recognition might be taken of differences in occupation (e.g., a ditch-digger vs. a bookkeeper) and location (e.g., cold vs. warm climates), but refinement could scarcely ever be pushed to the point of recognizing individual differences in physical constitution.

The next step, and much the more difficult and dubious, might be to attempt some division of the remainder of the food expense into deductible and non-deductible on the grounds that, while all was essential to the production of the income, much of it, if not all, also contributed to the taxpayer's enjoyment.

In any case, it would probably be impracticable to base a deduction on amounts actually spent. The bother of keeping records and the difficulties of allocating certain expenses (e.g., depreciation on the kitchen in the home) would be forceful reasons for using a scale of flat allowances. As has been suggested, various

[25] However, some difficulty arises with investment incomes if a long period, instead of one year, is considered. It might be argued that the investment income is a result of savings that the taxpayer has made on the assumption that a certain amount of expense would have to be incurred later in keeping him or someone else alive so that the investment income could be enjoyed. In other words, the prospect of sufficient food would be a necessary part of the complex of factors that induced him to save and thus made possible the investment income.

degrees of refinement could be given to the allowances, and they would of course have to be reexamined every so often in the light of changing price levels.

The present Federal law gives no help in suggesting ways of constructing a deduction for food. As interpreted by the Treasury, the law disallows as deductions all expenditures for food, except meals purchased on a purely business trip.[26] This deduction is specifically permitted by the law: "traveling expenses (including the entire amount expended for meals and lodging) while away from home in the pursuit of a trade or business." [27] This departure from the general principle probably represents nothing more than a concession to administrative difficulties.

2 CLOTHING

The remarks made about food may be applied to clothing, with this difference, however: the possibility of using actual expenditures rather than a flat allowance is not so slight. In certain cases it might appear reasonable to deduct the entire cost of clothes purchased especially for work. This possibility is illustrated by a Treasury ruling of a narrow scope: "The cost of equipment of an Army officer to the extent only that it is especially required by his profession and does not merely take the place of articles required in civilian life is deductible. Accordingly, the cost of a sword is an allowable deduction, but the cost of a uniform is not." [28]

3 SHELTER

For shelter a still better case exists for trying to use actual expenditures instead of a flat allowance if any deduction at all is to be allowed. The annual amounts involved are fairly large but, unlike those for food, they are not composed of several small items that make record-keeping so tedious. There is probably much more variation among taxpayers in the expense traceable to the business element than in the expense for either food or clothing. This makes the matter more important from the point of view of equity.

The problem is not, as in food or clothing, one that is conceiv-

[26] Art. 23 (a)-2.
[27] Sec. 23 (a).
[28] *Regulations 86,* Art. 24-1.

able largely in terms of so many units at certain prices. Rather, it is one of a gross differential—chiefly a differential based on location. The problem is not so much 'How many rooms (or cubic feet) represent shelter necessitated by the business?' as it is 'To what extent does the cost of living here, rather than elsewhere, represent a cost of business?' If a man's job requires that he be within, say, an hour's time of an office in the heart of a crowded city, he must undergo the expense of high rental (or high land prices, if he buys a house) or of transportation. Compared with a man in a small town who walks to work from a house located on land that has slight value, the worker in the large city definitely incurs a certain part of his dwelling expense as a means of obtaining income. If he can command a larger income only because of this, a refusal to allow deduction of any part of the dwelling or commutation expense places him at a disadvantage.[29]

Sometimes business considerations determine the size and appearance of the dwelling. The doctor who has his office in his home is an illustration of the former—and the doctor with a lucrative practice in the upper social strata may claim, with reason, that the appearance of his dwelling is a vital factor in his success.

Ascertainment of the deduction by a method that will not appear irrational at one time or another is, however, extremely difficult. If location is the factor in question, what other location is to be used as the standard? A city worker who lives in an apartment costing $120 a month might conceivably live in innumerable places at less cost. In some he would be so located that he could get a job that would keep him alive, and in others he would be unable to get any job. Where the size of the house is the point at issue, the solution seems easier.

The distinction between location and size is carried out in the Treasury's interpretation of the Federal income tax law. Except for lodging expenses incurred while away from home on a business trip, which it explicitly allows as a deduction, the law is silent on the question of shelter as a personal expense versus a business expense. However, the Treasury has allowed a deduc-

[29] The expense not only of shelter, but also of clothing, food, etc., may be markedly higher in some places (e.g., a remote mining camp) than in others, thus raising the kind of question discussed above.

tion for depreciation on that part of a dwelling used as an office.[30] On the other hand, it makes no allowance for expenses incurred on account of location, and it expressly denies the right to deduct commuting fares as a business expense.[31]

4 MEDICAL EXPENSES

The treatment of medical expenses under the income tax is in some respects more important than the treatment of expenditures for food, clothing and shelter. The incidence of medical expense is more uneven. Failure to treat the item properly is therefore likely to cause more instances of severe injustice. For national income estimates the unevenness is not so important.

Sometimes a medical expense is obviously connected with a person's occupation. It may take the form of payments on a health or accident insurance policy, or of bills for medicine and travel and for the services of doctors, nurses and hospitals. Of course the sick or injured person spends money to get well, not merely in order to work but also to enjoy life generally. The expense might therefore be considered similar to the expense for a minimum of food, from the point of view of intent. In a broad sense, however, the medical expense is incurred solely with an intent to obtain taxable gross receipts, and therefore falls entirely outside the category 'personal expense' and becomes in principle fully deductible as a business expense. That is, the taxpayer enters the occupation realizing the special risks of accident or illness. Standing at the point of time before the disaster occurs, the prospective, or possible, medical cost is seen to be purely a business cost.

Whether deduction should be allowed for medical expenses arising out of a clearly non-occupational situation—for example, an accident occurring on a week-end pleasure trip—depends on the general attitude taken towards expenses of mixed intent. If deduction were allowed for the minimum of food necessary for work, a deduction presumably would also be allowed for an operation for acute appendicitis.

It is often difficult, if not impossible, to ascertain whether

[30] Robert H. Montgomery, *Federal Tax Handbook, 1934–35* (Ronald, 1934), p. 513.

[31] *Regulations 86,* Art. 23 (a)–3.

medical expenses are really expenses to maintain health and ability to work or luxuries with an opposite effect. Of course the same type of difficulty is found with all other kinds of expense, but it seems to be especially acute with medical expenses. For example, the determination of a reasonable deductible expense would be difficult for a wealthy patient who enjoyed the luxury of obviating a future crisis by having his appendix extracted before it had given him any trouble, or for a patent medicine hypochondriac. Probably many medical expenses are clearly deductible, if any deduction at all is to be granted; the practical difficulty would lie in singling out the non-deductible instances.

The amount of medical expense would not be difficult for most taxpayers to record if an estimate were permitted for minor medicines purchased more or less regularly. Considerable importance would attach to a fairly precise record because of the wide variation in expense from one taxpayer to another and from one year to another for a given taxpayer. For the same reasons a flat deduction applicable to all taxpayers alike would not be much improvement over the present situation.

Extremely heavy medical expenses, if deductible at all, might properly be capitalized and spread over several years. A provision for carrying over to succeeding years any negative net income would in most instances serve the purpose of allowing the entire expenditure to be utilized effectively as a deduction, but it would not necessarily be an adequate solution. It might result in too great a fluctuation in net income, compared with what would result if the expense were amortized over several years. With shelter, for example, few persons would advocate charging off the entire cost of a house (if a deduction were allowed at all) in one year and then relying simply on a carry-over provision to get the total amount effectively deducted. Some medical expenses—for a major operation, for example—might be considered as suited to amortization as expense for shelter.

If the expense could be regarded as affecting the income of all the remaining years of the taxpayer's life, it might simply be depreciated, by any one of several systems, on the basis of the probable remaining life span of the individual. The treatment of the undepreciated balance upon the individual's death would present a difficulty, however. Unless some arrangement could be

worked out for allowing it as a deduction from the income of the estate or from the tax base of the death duties, the life-span method might better be abandoned in favor of some fairly arbitrary means of wiping the amount off the tax books within a few years. For example, for purposes of deduction, the capitalized expense might be divided equally over the first three or four years after the expense had been incurred, with allowance for unequal division of a further carry-over if such an allowance were needed in order to absorb the entire amount.

The present United States Federal law does not mention medical expenses specifically. The state income tax laws, with the sole exception of the Minnesota law, also do not mention medical expenses, and they presumably consider them personal expenses and non-deductible. Minnesota's provision is: "Payments of the necessary expenses of sickness and accidents to the taxpayer or his dependents during the taxable year shall be allowed as deductions".[32] A state official informs the writer that this provision has been abused and should be repealed.

5 EXPENSES OF TRAINING FOR A PROFESSION

Certain occupations, particularly those known as 'professions', require training that often costs an appreciable sum. The expenses ordinarily take the form of tuition fees and outlays for books and equipment. They seldom cause difficulties of allocation or record-keeping. Perhaps the only reason that they are not now deducted from gross professional income is that usually they are not incurred in the same year in which the income is earned; moreover, little consideration has been given to capitalizing them.

If personal exemptions are high and rates in the lower brackets are not very substantial, the possible deduction of training expenses will concern chiefly lawyers, doctors, architects, engineers and teachers. Otherwise, it will also be important for bookkeepers, cashiers, designers, draftsmen and stenographers.

A technical question that assumes more importance here than in the consideration of food, clothing, shelter and medical expense arises when the taxpayer does not, after all, utilize the expense *to obtain income*. A training expense is highly specific,

[32] Income Tax Law of 1933, Sec. 13 (K).

and frequently no connection is evident between the expense and the income of later years. Probably the intent is obvious enough in most instances to justify deduction, if intent is to be the test, but the occasional dilettante presents a problem analogous to that of the gentlemen farmer.

6 INTEREST

Oddly enough, the Federal tax law, while refusing deduction in many cases of mixed intent (e.g., a minimum of food), and even in cases that are probably to be classed as business expenses (e.g., certain medical expenses), grants deductions to certain kinds of outflow even though they are purely personal—that is, made without any intent whatsoever of getting taxable gross receipts. Interest paid by the taxpayer is an example. Under the present provisions of the Federal law, the net income figure is after deduction of all interest payments, no matter for what purpose, except interest on loans contracted to finance the purchase of tax-free bonds.[33] Instalment buying of consumption goods must account for an appreciable interest charge of a kind that logically has no place as a deduction in arriving at either individual or national net income so long as expenses for food, clothing, shelter and medical care are not deductible.

7 TAXES

Outflows in the form of taxes present somewhat the same situation as interest payments. Not all tax payments are deductible; but the dividing line between deductible and non-deductible tax payments, whatever it may be, has nothing to do with intent or lack of intent to acquire a taxable gross receipt. The Federal income tax allows deduction of all tax payments except: (a) Federal income taxes; (b) Federal, state or local death taxes or gift taxes; (c) local special assessments.[34]

8 BAD DEBTS

Like interest and tax payments, outflows in the shape of bad debts do not, under the existing Federal law, depend for their deductibility upon any business or profit-seeking connection.

[33] Sec. 23 (b).

[34] For minor qualifications to this list, see sec. 23 (c).

Moreover, the net income statistics are likely to be distorted, particularly when a supposedly bad debt turns out not to be bad after all and the amount recovered is entered as an item of gross income in the year of recovery instead of as a rectification of the deduction item of the earlier year.[35]

9 CASUALTY AND THEFT LOSSES

Even if the property in question is not connected with a trade or business, the Federal law allows a deduction for a loss arising from fire, storm, shipwreck or other casualty, or from theft, if the loss has not been compensated for by insurance or otherwise. If the national net income figure is to represent a sort of disposable income, it may be a close question whether the national gross income should or should not be diminished by the amount of such losses,[36] but the lack of any intent to incur the risk or repair the loss in order to acquire taxable gross receipts is evident.

10 CHARITABLE CONTRIBUTIONS

Contributions to non-profit organizations of various types and, in the case of individuals, to governments are deductible under the Federal law up to a certain percentage of the net income as computed without the benefit of the deduction. This percentage is 15 for individuals and 5 for corporations. The nature of the intent of the average taxpayer in making such gifts is not entirely clear. Possibly some of these contributions have a strong business expense element, so that if no deduction were allowed the statistics would show a net income figure too large, as they may now show one too small.

IV Summary

In the use of statistics compiled from income tax returns, students of national income must, among other things, take account

[35] A change to a policy of reopening the return would usually make no difference in the statistics for the year of reopening (see note 19), but would make a difference for the year of recovery.

[36] On this point see Solomon Fabricant, Part Three, Sec. VI.

of the deductions that the tax laws allow from gross income in arriving at net income.

The distinction usually drawn by the income tax laws between business expenses in general and personal expenses in general may not be satisfactory for the purpose of national income estimates that are designed to indicate in some way the changes in national or social welfare.

Within each of the two broad categories more specific matters may be noted. Depreciation allowances may change in amount simply by changes in administrative practice. Depletion deductions under the Federal income tax are allowed on grounds that have little in common with the concepts that guide the student of national income.

The customary refusal to allow any deduction for food, clothing, shelter and medical expenses, and the restrictions upon deductions for training expenses may give too large a figure for national income. Some parts of some of these expenses are clearly connected with certain streams of gross income. Their proper treatment depends largely, of course, upon the weight that should be given the accompanying personal element. The present treatment of interest, taxes, bad debts, casualty and theft losses, and charitable contributions, on the other hand, tends to minimize the net income total.

Appendix A

PERSONAL EXPENSE AND UNWISE BUSINESS EXPENSE: EFFECT ON THE NATIONAL INCOME TOTAL

THE EFFECT on total national income when a business expense results in a loss, compared with the effect when an equivalent amount is spent for personal enjoyment, can be illustrated by a simple hypothetical instance.

1. Assume an economy of four men—A, B, M and N, starting with zero assets

	CATEGORY IN WHICH PAYMENT FALLS (SEE SEC. I)
2. Suppose A, using free raw materials, pays M $100 for extractive labor	3
3. A then sells the product to B for $110	3
4. B pays N $100 for manufacturing and selling labor	3
5. B sells the product for $225 to: M (who contributes $100), N ($100), A ($10) and to himself (B) ($15)	2

The situation can then be summarized as follows:

PERSON	RECEIPTS	EXPENSES DEDUCTIBLE	EXPENSES NON-DEDUCTIBLE	NET INCOME
A	$110	$100	$ 10	$ 10
B	225	210	15	15
M	100		100	100
N	100		100	100
National Income				$225

6. Now assume that A, as before, pays M $100 for labor	3
7. A, as before, sells to B for $110	3
8. B hires N to work on the product, but the result is so unsuitable that the article will sell for no more than if N had never worked on it. B owes N $100.	3 (in usual method of accounting)
9. B sells the product for $125 to: M ($100), A ($10), and to himself (B) ($15)	2

The situation is then as follows:

PERSON	RECEIPTS	EXPENSES		NET
		DEDUCTIBLE	NON-DEDUCTIBLE	INCOME
A	$110	$100	$ 10	$ 10
B	125	210	15	–85
M	100		100	100
N	100			100
National Income				$125

10. If B had hired N not to work on the material but to do a song and dance for B's personal pleasure, national income would have been increased to $225:

A	$110	$100	$ 10	$ 10
B	125	110	115	15
M	100		100	100
N	100			100
National Income				$225

11. That is, the shifting of $100 of B's expenses from the deductible to the non-deductible class represents the fact that, in contrast to the former situation, he is now getting a personal satisfaction out of N's labor.
12. Another way to compute the last two examples would be to reduce B's deductible expenses in No. 9 and his non-deductible expenses in No. 10 by $100 and eliminate N's income of $100. This procedure assumes that B never pays N. The result in No. 10 is, however, a national income of only $125 unless $100 is added to B's income (but not to his taxable income, note) as a gift.

Appendix B

DEDUCTIONS FOR DEPLETION

1 Properties not Representing Discoveries Made since the Income Tax Law Took Effect

Unless some special provision, such as the percentage-of-gross method, is made, the generally accepted way to compute depletion is to find a capital value and then in some way prorate it over the units of output. For deposits already in existence when the income tax law takes effect, the usual practice is to use as the depletion base the value of the property at that time. No further valuation is necessary unless the property changes hands in a transfer where a taxable capital gain or a deductible capital loss is recognized.[37] When such a transfer occurs the problem of valu-

[37] Where the property passes by gift or by death, however, a valuation must be made for purposes of the gift or death tax.

ation may, however, be difficult. Properties that are subject to depletion are often bought and sold with no definite price set in monetary terms. Instead, the seller receives stock in the purchasing company or a right to a certain proportion of future profits, or in some other way avoids the troublesome task of setting a money value on the property. In these cases, a valuation of the property must be made by the tax officials (or made by the taxpayer and checked by the officials) if a certain aggregate allowable amount of depletion is to be ascertained. If the property is sold to a going concern whose stock is listed on an exchange or is otherwise readily valued, the task of setting a value on the property is relatively easy. In any other case it is difficult. It is particularly difficult for metal mines, where data on royalties from, and money sales of, similar properties are scanty or non-existent.[38] The degree of difficulty is indicated by the wide variations in valuations of the same property at the same time by experts; a variation of 400 or 500 per cent is apparently not uncommon.[39]

One of the results of this difficulty is likely to be a pressure, both by taxpayers and by tax administrators, to introduce methods for calculating depletion as a fixed percentage of gross or net income. In this way a depletion allowance can be fixed without reliance on any capital value. Unless capital gains and losses are eliminated, however, there must be a valuation at date of transfer, for tax purposes, no matter what method of depletion is used. The valuation must be made in order to ascertain both the immediate taxable gain or loss of the recent owner and the basis for the future gain or loss to be realized by the new owner.[40]

[38] For evidence on this point, see *Preliminary Report on Depletion,* Reports to the Joint Committee on Internal Revenue Taxation from Its Staff (Washington, 1929), Vol. I, Part 8, pp. 6–7.

[39] *Ibid.,* p. 7. A table of valuations of ten copper companies, including some of the smallest and some of the largest, shows one engineer reaching an aggregate valuation of 951 million dollars, and a second engineer reaching a figure of 168 million dollars. Presumably these are engineers in the Bureau of Internal Revenue. For a description of the 'analytic appraisal method', the method used by the Bureau in most cases, see *Depletion of Mines,* Hearings before the Joint Committee on Internal Revenue Taxation, 1930, pp. 32–3, 44–6, and *Preliminary Report on Depletion,* pp. 5–6.

[40] A possible method of minimizing this difficulty is to eliminate the taxation of capital gains and losses on such properties, with the provision that the original depletion base shall follow the property—that is, the buyer would have to use as

2 Properties Representing Discoveries Made since the Income Tax Law Took Effect

As to properties that represent discoveries made since the income tax law took effect, an important matter to settle is whether the value (not merely the cost) of the discovery should be allowed to be returned tax free through depletion. For instance, if a miner spends $50,000 developing a claim and then finds he has a mine worth not $50,000 but $1,000,000, should the total depletion allowed through the life of the mine be $50,000 or $1,000,000?

3 Discovery Depletion

First, the term 'discovery' must be examined. Many definitions are possible. Near one extreme, the term may be restricted to veins or deposits that are physically separate from other veins or deposits and whose existence was highly uncertain when the developing expenses were incurred.[41]

Near the other extreme, 'discovery' might mean any ore not included when the last preceding valuation was made because its presence was not then known.[42] In a still more extreme form it

his depletion base not the price he paid for the property but the basic-date depletion base that would go with the property.

A similar valuation problem arises with depreciation, since the amount to be depreciated is: (i) the cost or other basis as determined in sec. 113 (b) for ascertaining gain or loss, less (ii) the salvage value.

[41] This is approximately the meaning given the term in the present United States Federal income tax. "Discoveries shall include minerals in commercial quantities contained within a vein or deposit discovered in an existing mine or mining tract by the taxpayer after February 28, 1913, if the vein or deposit thus discovered was not merely the uninterrupted extension of a continuing commercial vein or deposit already known to exist, and if the discovered minerals are of sufficient value and quantity that they could be separately mined and marketed at a profit." Moreover, discovery depletion is granted only if "such mines were not acquired as the result of purchase of a proven tract or lease . . ." *Revenue Act of 1936,* sec. 114 (b) (2).

[42] This broad interpretation has been advanced by mining representatives. ". . . the whole of his [the miner's] possession in mineral consists of capital [that should be recoverable tax-free through depletion], and the measure or value of that capital is the value of the whole of the mineral . . . regardless of whether it be an uninterrupted part of a deposit he may be working or may otherwise know, or whether, on the contrary, it comprehends wholly independent masses and bodies of mineral; and, further, regardless of whether, at any time, he may or may not be aware of its existence" (L. C. Graton, *Depletion of Mines,* p. 5).

may mean any ore value that was not foreseen—value, for example, arising from an unexpected increase in selling price.

If the latter extreme is not adopted, some provision must be made to care for such newly discovered ore as does not come under the discovery rule. The procedure followed in the United States is to retain the old valuation in dollars, but to increase the number of physical units to which it applies, thus getting a smaller amount of dollar depletion per physical unit of subsequent output.[43]

The most obvious reason for allowing any discovery depletion at all is a desire to encourage exploration for minerals. The strength of this encouragement will of course depend upon the height of the tax rate applicable to the part of the mine's proceeds that is otherwise taxable. Contrast with a mining enterprise carried on by a corporation subject only to a moderate flat-rate tax, a mining enterprise carried on by an individual who would pay a high rate under a personal income tax progressive rate scale on that part of the mine's proceeds that would be taxable were it not for discovery depletion. In the latter enterprise the subsidy represented by the tax exemption granted under the discovery clause may be substantial enough to result in certain exploratory work and a consequent production of minerals that would not otherwise occur, at least within the same time period. In the former enterprise, the hidden bounty may be so slight in relation to the risk involved as to lead to no added production. The incentive may be made stronger for a corporation if some means is devised for passing on the exemption to its stockholders,[44] but even this device may not make the exemption seem worth much to the managers of a large, widely-owned concern.

[43] For critical observations on this process of 'dilution', see *ibid.*, pp. 8–9.

[44] This has not been done in the United States. In interpreting sec. 115 (a), *Revenue Act of 1934,* since unchanged ("The term 'dividend' . . . means any distribution made by a corporation . . . out of its earnings or profits . . . [not out of 'income' as defined by the statute]"), art. 115–6 of *Regulations 86* says: "A distribution from a depletion reserve based upon discovery value to the extent that such reserve represents the excess of the discovery value over cost or March 1, 1913, value, is, when received by the shareholders, taxable as an ordinary dividend." In Canada, however, where depletion in certain cases is at a flat rate of 33⅓ per cent on net income, the stockholders get the benefit, since the stockholder is allowed to take 33⅓ per cent of his dividends as return of capital, hence tax-free (Ramstedt, *Depletion of Mines,* p. 41).

Consequently, the effectiveness of discovery depletion in increasing output probably depends more on the character of the ownership interest than on any other factor.[45]

Allowance of at least some discovery depletion has been supported on the ground that some allowance should be made for money that has been spent by the same taxpayer in other years,[46] or by other persons in the same general line of activity.

Additional grounds are advanced to support allowance of discovery depletion on a broad basis so that practically all units not previously taken into account in setting a value may, as soon as they are discovered, add their value to the existing depletion base. One of the arguments of special interest from the point of view of national income estimates is that put forward by certain mining representatives who emphasize that, whether or not the owner of a mining property is aware of the actual extent of the mineral in his property, all is his property or 'capital', as is shown in cases involving theft.[47] "To deny an owner's property right in this extra [i.e., lately discovered] mineral by denying his right to compensation or depletion for its removal would be to deny him what, as a legitimate mine operator, would be granted to him as the victim of theft from his property by another." [48] Another phase of the same argument contends that, even though the physical content is found to be the same as estimated, additional depletion is justified if the mineral is in fact sold for more than was anticipated.[49] In essence, then, this argument would set, as

[45] "In enacting the discovery clause in the Revenue Act of 1918, Congress doubtless intended to grant relief chiefly to the individual prospector. This has not turned out to be the case. The greater part of the benefit from discovery depletion has gone to corporations having full opportunity to charge exploration expenses of years prior to discovery against their income" (*Preliminary Report on Depletion,* p. 12).

[46] This was one of the reasons for the enactment of the discovery clause in the United States Revenue Act of 1918 (*Preliminary Report on Depletion,* p. 11).

[47] Ramstedt, *Depletion of Mines,* pp. 14 ff.

[48] *Ibid.,* pp. 18–19. "The [mine] value exists by gift of nature, and its value is not diminished by the fact that full count of it cannot be made at any given and arbitrary time, but only as the inherent conditions of mineral occurrence allow the value to be disclosed" (*ibid.,* p. 17).

[49] Cf. a criticism advanced against the (narrow-concept) discovery depletion allowed under the United States Federal income tax act: "For example, taxpayers who make discoveries in periods of prosperity are allowed large deductions for depletion, whereas those who are so unfortunate as to make discoveries in years of

the capital value that might be depleted, the value that an observer would set on the property at the beginning were he able to foresee perfectly all the relevant events that do in fact occur throughout the life of the property. The income tax statistics would then never reflect, as net income, the value of discoveries.

If the income tax law is one that taxes capital gains, care must be taken to make some provision for special treatment of the sale of natural deposits if the purpose of discovery depletion provisions is not to be partly negated. If a prospector discovers, at a cost of $100,000, a deposit worth $1,000,000, the $900,000 profit can be returned to him tax free under a discovery depletion provision if he retains the deposit and works it himself. If he sells it for $1,000,000 instead of operating it, however, he has a profit of $900,000, which will be subject to tax unless some special provision is made. To be completely uniform with the discovery depletion provision, the capital gains provision should entirely exempt this profit by using the $1,000,000 instead of the $100,000 as the basis. However, various reasons of policy such as a desire to aid the prospector-operator rather than the pure wildcatter, may dictate a somewhat restricted exemption.[50]

4 Percentage Depletion

Discovery depletion necessitates valuation, and valuation of mining properties on a large scale leads to pressure from certain mining groups to substitute some method that promises greater simplicity.[51] The most obvious suggestion seems to be a flat

depression are required throughout the life of the property to take a lower rate" (*Preliminary Report on Depletion,* p. 2).

[50] Thus the United States Revenue Act of 1918 restricted the maximum surtax rate in such cases to 20 per cent (the ordinary maximum rate was 65 per cent), and placed a similar limitation on the corporation war excess profits tax. For 1922–33 the rate limit was 16 per cent. The limit was then dropped until the 1936 Act revived it at 30 per cent for oil and gas properties. The basis in case of sales is cost, not discovery value; and in recent years this basis is adjusted by the actual depletion allowed (the same provisions apply with respect to percentage depletion); see Revenue Act of 1936, Sec. 113 (b) (1) (B).

[51] It is significant that the first industry in the United States to be brought under a percentage depletion plan was an industry (oil and gas) that at the time of the change was apparently about 90 per cent under discovery depletion, in contrast with basic-date depletion or cost depletion (*Depletion of Mines,* p. 110).

percentage applied to gross income or to net income,[52] or a specific amount in cents per pound or ton.[53]

Under neither the gross method nor the net method is any limit set to the aggregate amount of depletion that may be claimed through a period of years by a given concern.

The advantage of the percentage-of-net method, from the taxpayer's viewpoint, is that it allows him to take the depletion when it counts, and (assuming the rate has been judiciously set in the manner explained below) does not force him to take it when it does not count. That is, if he has a bad year and has no tax to pay even without the depletion allowance, he is better off if he can save up the allowance for that year and apply it to a subsequent, profitable year. This argument applies only if the law does not allow an indefinite carrying forward or carrying back of losses from one year to another. In no year is the income entirely wiped out by depletion, and therefore the great fluctuations in taxable income from year to year that are sometimes found when depletion is based on cost, or basic-date value, or discovery value (or on gross receipts) cannot obtain under the percentage-of-net method.

Of the two, the percentage-of-net method has certain modest logical advantages over the percentage-of-gross method, under particular restricted conditions. Let it be assumed that the owner of a newly discovered mine has practically no means of knowing even roughly how much profit he will get from it. If he assumes, however, that in any case it will be spread more or less evenly over a more or less certain time-span (say, twenty years), it becomes possible to express the capital value [54] (whatever it may be

[52] Canada has adopted the percentage-of-net method for gold and silver mines (50 per cent), copper, lead and zinc mines (25 per cent), and oil and gas wells (25 per cent) (*Preliminary Report on Depletion,* p. 22). Note, however, that Canada does not tax capital gains to the same extent as the United States (*Depletion of Mines,* p. 112). The United States, as already indicated, uses the percentage-of-gross method for certain kinds of deposits.

[53] This method is used in Canada for coal mines. At a uniform rate it is obviously inapplicable to a wide range of different kinds of mine (e.g., the various metal mines); see *Preliminary Report on Depletion,* p. 13.

[54] There are of course some difficult problems involved in distinguishing between the capital value of the ore, subject to depletion, and the capital value of the plant, subject to depreciation. The existence of these problems, however, does not invalidate the general thesis set forth above. The staff of the joint committee,

in dollars) as a percentage of total income (whatever it may be in dollars)—assuming too, of course, a certain rate of interest.[55] Whether these assumptions can be reasonably made without a considerable amount of information on the dollar amount of capital value may be questioned. However, if the percentage rate so derived is applied to the annual income, it will have yielded by the end of the period an aggregate amount equal to the capital value that would have been estimated at the beginning of operations if the estimator had been able to foresee the exact absolute amount involved. A different percentage would be required, however, for every mine differing in expected life.

If an unsuspected extension of a deposit or vein is found in the mine some years after operation has started, the percentage-of-net method has a tendency to bring the value of this extension into the capital value aggregate that is to be recovered tax-free through depletion. The action may not be precisely the same as if the extension were valued without error, since the life of the extension may not, and probably will not, be the same as the life of the main body of the mine. Therefore, it actually requires a different percentage from that applied to the net income from the main body. Evidently, however, the percentage-of-net method tends to accomplish the same result that is sought under the broadest use of the discovery-depletion method.

The percentage-of-gross method, the method used in the United States Federal law, is still further removed from capital value, that is, from the only concept that gives depletion meaning. Such validity as this method may have must depend upon some

in recommending use of a percentage-of-net method, specifies a particular variant of this method that allocates a reasonable amount of the net income to plant investment (*Preliminary Report on Depletion,* p. 3).

[55] For example, L. C. Graton has testified with reference to the Hoskold formula, which has been used in the Internal Revenue Bureau of the Treasury in valuing mines: "For instance, on a mine with an estimated life of 20 years, and for which it is deemed that an 8 per cent (in all these cases the 'security' rate on sinking fund is taken at the usual 4 per cent) true profit on the value of the mine is appropriate, the Hoskold reciprocal is 44 per cent. This means that the total operating profits expected from that mine during its 20 years of estimated operation, when multiplied by 44 per cent, gives the value of the mine according to the estimates assumed. Similarly, for a mine of estimated life of 35 years with a 7 per cent return of true profit on mine value, the Hoskold reciprocal is about 34 per cent. For a mine of, say, 8 years of life valued so as to yield a true profit of 10 per cent, the Hoskold reciprocal is about 60 per cent" (*Depletion of Mines,* p. 67).

ascertained or assumed relation between gross and net income. In this way a tenuous connection with capital value may be established. Otherwise, there is no basis whatsoever upon which to fix the percentage rate. Of course it is possible to examine records of depletion allowances that have been granted on the basis of genuine attempts to estimate capital values in dollars, and then ascertain the ratio that, when applied to gross income, would have given the same results. Obviously, however, the ratio will be different for practically every company for practically every year. Averaging the results to obtain a representative percentage is a procedure that has no logic to support it.[56] The process of averaging and, in general, the desire to obtain uniformity of percentage (whether of gross or of net) among all units in an industry and among industries [57] negate the philosophy according to which the depletion should vary with the capital value. If firm X has been receiving depletion that, translated to a percentage of net income, equals 40 per cent, while for firm Y the corresponding percentage is 60 per cent, an average of 50 per cent written into the law and thenceforth applied to both X and Y accomplishes nothing that can be logically linked to the prior situation.

If percentage depletion is allowed as a substitute for discovery depletion, the problems of capital gains and corporate shareholders are still relevant. If the desire is to benefit prospectors who sell before developing as well as those who discover and develop, the percentage provisions must be supplemented by suitable exemption of part of or all the profit gained by sale of the property. Likewise, if the desire is to benefit corporate investors as well as individual investors, provision must be made for exempting a suitable amount of the dividends received by the shareholders.[58]

[56] This procedure has been followed, however, in arriving at the percentages now in use in the United States Federal income tax law. The logical confusion is particularly marked when depletion values representing various kinds of method are lumped together for the averaging—when, for example, cost-depletion allowances, basic-date depletion allowances, and discovery-depletion allowances are included in the total that is divided by the aggregate gross income to get a percentage to put in the law; cf. *Preliminary Report on Depletion,* pp. 61–67.

[57] See, e.g., the disapproval of non-uniformity of percentages expressed in *Preliminary Report on Depletion,* pp. 7–11.

[58] A provision of the former type (see note 50 above) but not of the latter, exists in the present United States Federal income tax law. As to corporate dividends, sec. 115 as interpreted by *Regulations 86,* art. 115–6, is as follows: "The amount

Indeed, if this provision is not made, the simplicity claimed for the percentage method will be lost when it is necessary to discover the excess of percentage depletion over ordinary depletion in order to ascertain how much of a given dividend is taxable. Instead of avoiding capital valuation, the law will then require both it and the percentage calculation.

by which a corporation's percentage depletion allowance for any year exceeds depletion sustained on the basis of cost or March 1, 1913, value, computed without regard to discovery or percentage depletion allowances for the year of distribution or prior years, constitutes a part of the corporation's earnings or profits accumulated after February 28, 1913, within the meaning of section 115, and, upon distribution to shareholders, is taxable to them as a dividend."

Discussion

I ROY BLOUGH

THE purpose of this note is to compare the deductions of taxes from gross income allowed in the Federal income tax law and reflected in Federal income tax statistics with the deductions of taxes from gross income appropriate in the estimation of national income. The note thus endeavors to link the results of the papers of Professors Shoup and Colm.

1 TAX DEDUCTIONS IN COMPUTING TAXABLE INCOME

In general, taxes paid or accrued are deductible in computing taxable income. However, the exceptions are very important. Non-deductible taxes include: Federal income taxes (together with war-profits and excess-profits taxes); estate, inheritance, legacy, succession and gift taxes; and taxes assessed against local benefits of a kind tending to increase the value of the property assessed—that is, special assessments—except those allocable to maintenance and interest charges.[1] With certain minor exceptions all other taxes are deductible.

Professor Shoup observes (Sec. III, 7) that the difference between deductible and non-deductible tax payments, whatever it may be, has nothing to do with intent or lack of intent to produce taxable gross receipts. It will be noted that if the intent to produce taxable gross receipts were the criterion of deductibility personal taxes should not be deducted while business taxes should be deducted. This, however, is not the rule. Federal income taxes, whether personal or business, are not deductible. State income taxes, whether personal or business, are deductible, as are also property taxes and other taxes generally.

[1] Revenue Act, 1936, sec. 23 (c).

The provisions for deductibility of taxes are not, however, without logical basis. The principle that seems to be followed is that of ability to pay the tax. The non-deductible special assessments finance government services that directly add to the value of the property, and are treated for taxation in the same manner as are other investments. When the benefited property is sold the special assessment is allowed as a deduction in determining capital gain [2] in the same way as other costs. Estate, inheritance, legacy, succession and gift taxes are logically not deductible since the receipts from which they are paid are not part of taxable income and thus not a measure of ability to pay. The Federal income tax is logically not deductible since the ability to pay a tax should be measured before, not after, its payment.

Making the other taxes deductible is also in line with the ability to pay principle. While, in general, taxes pay for services to persons as other expenditures do, there are important differences. Taxes are payments largely outside the control of the payor; whether or not he desires the services of government he must pay. The services that he receives do not ordinarily increase his money income, and they bear no necessary relation to the amount he pays. From the viewpoint of ability to pay, taxes should, with the exceptions mentioned, be generally deductible, otherwise an income tax may be imposed for which the individual does not have the means of payment—a paradox in a personal tax.

2 TAX DEDUCTIONS IN COMPUTING NATIONAL INCOME

Income Sum Method. In discussing the treatment of taxes for computing national income by the 'income sum' method, Professor Colm divides taxes into three classes.[3] The first class includes taxes paid directly from incomes that have been received by individuals and are already included in the income sum. In this class he places personal income taxes and poll taxes; and also taxes on those undistributed business profits that are added—presumably before tax deduction—to incomes received.[4] Other taxes imposed on individuals that he does not specifically include but that appear properly to belong in this class are inheritance,

[2] Revenue Act, 1936, sec. 113 (b) (1) (A).
[3] Part Five, Sec. II, 1 and 2.
[4] *Ibid.*, Sec. 111, 2.

estate and gift taxes; [5] motor vehicle license taxes; and taxes on intangible property. All these are paid directly from income already counted and it is believed none is shifted beyond the payor so as to enter into the value of any good or service. Whether taxes on owner-occupied land, buildings, and personal effects should be included in this class depends on whether the services of such property are added separately to the income sum. If so, they fall in the second or third class, if not, in the first class.

The second class includes taxes that are imposed on industry and that diminish the amount of income received by individuals. Examples are taxes on employers shifted to employees in lower wages, and taxes absorbed as a reduction of corporate profits. The third class includes taxes on industry that are shifted and thereby increase the value product of industry. Taxes belong in this class only when shifted to the consumer; if absorbed at some point before reaching the final consumer or if shifted backward the tax would fall in the second class. Taxes of the third class are paid by the individual out of income already recorded in the national income sum; they are paid not directly but in the form of price.

Professor Colm shows that these three classes of tax should be treated differently in computing national income. Taxes paid directly by the individual from income already recorded—the first class—need not be added to the sum of personal income since they have already been recorded. Taxes that reduce the incomes received by individuals—the second class—should be added, since they have not been recorded. Taxes that are shifted to consumers in higher prices—the third class—should be added when 'real income' is being computed but not when 'nominal income' is being computed.[6]

[5] In the case of inheritance, estate and gift taxes this statement is made on the assumption that changes in property inventory from year to year will not be used as elements of national income. Professor Colm apparently excludes inheritance and estate taxes from the class of taxes on income (see *Ibid.*, Sec. V, (1)). Contrast in connection with the inclusion of changes in property values W. I. King, *The National Income and Its Purchasing Power* (National Bureau of Economic Research, 1930), p. 38; Simon Kuznets, *National Income, 1929–1932,* 73d Cong., 2d Sess., Senate Doc. 124 (Washington, 1934), p. 5; and Maurice Leven, *Income in the Various States, Its Sources and Distribution, 1919, 1920, 1921* (National Bureau of Economic Research, 1925), pp. 19–38.

[6] Part Five, Sec. II. Professor Colm adds all government revenues to the income

Nominal national income, as he uses the term, is the actual sum of dollars of income received.[7] When computing nominal income, changes in the forms of taxes not accompanied by changes in the 'social heap' should not have any effect on the number of dollars of income received. For this reason taxes that are shifted to consumers should not be added to the sum of personal incomes since they are paid indirectly by the individual out of income already received by him. If they are added, the number of dollars of income is increased whenever taxes that are shifted to consumers are substituted for taxes that are not shifted.

Real national income is income corrected for differences in the purchasing power of the dollar from time to time and from place to place.[8] When computing real income, changes in the forms of taxes should not have any effect on the amount of income after deflation by an appropriate price index. When taxes are shifted to consumers in higher prices the price index rises. When this higher price index is applied, the resulting income figure is reduced although no real reduction has occurred. To avoid this, in computing real income the amount of the taxes that are shifted to the consumer should be added to the income sum.

The real income figure thus computed is, Professor Colm points out, not very satisfactory. When shifted taxes replace personal taxes they must be added to the income sum. However, if the higher price index resulting from their use is applied to the amount of taxes to be added the result is a diminution of the figure of real income where no diminution has occurred. Accordingly, the amount of such taxes must be added to the income sum without being deflated by a price index. This presents a serious practical problem because, as Professor Colm points out, it is difficult, perhaps impossible, to compute changes in the amounts of such shifted taxes for different periods of time. Furthermore, adding the undeflated taxes to a deflated income sum results in part of the income being included at one price level and part at another and possibly much different price level, which might cause substantial error.

sum and then deducts certain taxes. For the present purpose the direct addition of taxes seems to be a clearer approach.

[7] *Ibid.*, Sec. II, 2.

[8] *Ibid.*, Sec. II, 3.

In computing real income, Professor Colm deducts from the income sum those government expenditures that represent 'cost services' to industry.[9] He does not suggest a proper treatment in computing nominal income. It would appear, however, that in computing nominal income they should not be deducted as they do not ordinarily increase the value product of industry and thus are not counted twice. In computing real income they should be deducted since they are used up in producing other income. When the price index is applied there is double counting unless they have been deducted.[10]

Value Added Method. The treatment of taxes in computing nominal and real income may be analyzed further by passing from the 'income sum' method to the 'value added' method of computing national income. In this method the expenditures of government have been combined with the value added by different industries. Accordingly, all income has been included at least once. The question here is not what taxes should be added but what taxes should be deducted to avoid double counting.[11] Personal taxes paid out of income and taxes on businesses that are absorbed by reducing personal incomes do not cause duplication and should not be deducted. Taxes imposed on industry and shifted to consumers are treated differently in computing nominal and real income.

In computing a nominal income figure consistent with nominal income derived by the income sum method, taxes imposed on industry and shifted to consumers should be deducted. These taxes appear in income twice, once in income produced by government and a second time in the higher prices of goods sold by industry.

[9] *Ibid.*, Sec. III, 1.

[10] See Example 2 below.

[11] The proper treatment of taxes in estimating national income by the value added method (estimate of income produced) was discussed in Volumes I and II of *Income in the United States* (National Bureau of Economic Research, 1921, 1922). In Volume I the treatment proposed was to deduct taxes imposed on business that are shifted and not to deduct taxes on business that are not shifted (pp. 51–55). In Volume II the proposed treatment of taxes is that taxes paying for services to industry should be deducted while taxes paying for services direct to persons should not (p. 5). While no distinction was made between nominal and real income it appears that the treatment proposed in Volume I is correct for computing nominal income while that proposed in Volume II is correct for computing real income.

Government cost services to industry should not be deducted in computing nominal income for they do not increase the number of dollars of value product of industry and thus do not duplicate any value product.

In computing real income, however, a different procedure is consistent with Professor Colm's income sum method. If the nominal income is divided by the price level the result will not be a real income figure that can be compared with that for countries or periods in which other price levels prevail. To produce a comparable real income figure shifted taxes should not be deducted and cost services should be. The following example—referred to below as Example 1—may help to clarify the point. Suppose that government services of a purely personal and non-business character are being financed by personal taxes, no tax being imposed on industry. Obviously there should be no deduction of taxes in arriving at either nominal or real national income any more than if the services were being performed by private industry and sold at a price. Suppose, now, that the financing of this service is transferred from the personal tax to an excise tax imposed on the manufacturers of a specific commodity. The tax would probably be shifted in whole or in part to consumers, thus enlarging the value product of the industry. The national income, however, has not been increased. To fail to deduct the taxes would record an increase in nominal national income where none has occurred. However, if the price index number is computed it will be found to be higher because of the shifted taxes. Applying this increased price index number to the nominal income, the taxes not having been deducted, will reduce the real income to the same figure as before. If the taxes are deducted the real income will be less than before. Accordingly, when computing real income by the value added method to reach a figure consistent with that computed by the income sum method, taxes, whether shifted or not, should not be deducted from the combined value product of industry and government.

A second example—referred to below as Example 2—may clarify another aspect of the problem. Assume a situation where all concerns of an industry have been obliged to pay the cost of private policing and fire control services. These costs, being borne by all concerns in the industry, enter into price and enlarge the

value product of the industry. Now suppose that the government starts to supply these services free, financing them by a general net income tax on individuals. In the case of a competitive industry the removal of these costs will result in a decrease in price and a decline in the value product of the industry.[12] Yet there has been no real decrease in national income, only a change in its distribution and price labeling. If the cost of the government services received by the industry is deducted from the value product of the industry a non-existent decrease in the dollars of national income will be recorded. Accordingly, to compute nominal income government services to industry should not be deducted. However, the price level will have fallen and when nominal income is deflated a non-existent increase in income is shown. To arrive at real income government cost services to industry must be deducted.

Some may suggest that since the comparison of national income in different times and places requires a real income figure, nominal income may be omitted from consideration. However, one defect of real income as computed by the methods described above is that parts of the national income cannot be compared accurately to the whole.[13] Changes in taxing methods or methods of rendering services may result in recording important internal changes in the makeup of income. An example is seen in the computation of ratios of taxes to net income. In Example 1, the effect of substituting shifted for non-shifted taxes was to increase the number of dollars of nominal national income before deflation without changing the dollars of total taxes. The computed ratio of taxes to national income is decreased although no change has taken place in the true ratio.

Another reason for not abandoning nominal income is that there are possibilities of using it in arriving at a real income figure. The reason nominal income fails to measure relative real income when divided by the price index is due to difficulties with the price index used rather than with any fundamental inaccuracy in the nominal income figure. The indexes used for elimi-

[12] In case of cost services to only a few concerns or to a monopoly the savings might not be passed on to consumers. In such cases the expenditure should be deducted even in the computation of nominal income.

[13] See Colm, Part Five, Sec. II, 3.

nating differences in dollar purchasing power have included only privately produced goods and services. They do not take into account that part of such goods may be paid for partly through taxation or that their prices may contain taxes going to finance government services to persons. It is seen that in Example 1 the taxes imposed directly on individuals were reduced by the change in taxing methods, but this reduction did not affect the deflating index. Likewise, in Example 2 taxes to individuals were increased but this increase did not in itself affect the deflating price index. If the deflating index took into account the change in the tax burden on individuals the nominal income figures when deflated would become comparable real income figures. The price index needs to be adjusted by adding in some way the 'cost services' of government to industry that are financed by non-shifted taxes and by deducting in some way the government services to persons financed by shifted taxes.

This adjustment of the deflating price index cannot be made for individual prices. It can apparently be done for the price index as a whole in the following manner for income computed by the 'value added' method. (a) Determine the total amount of the taxes that are shifted. (b) Determine the total amount of government cost services to industry. (c) Subtract the total of shifted taxes from the total of cost services, retaining the algebraic sign of the result. (d) Find the ratio of this result to total nominal income excluding the value of all government services. (e) Multiply the usual deflating price index by this ratio. (f) Add (signs considered) the resulting percentage adjustment to the price index. (g) Deflate the total 'nominal income' with the adjusted price index. The result is a national income figure, which, while not the same in amount as the 'real income' described above, appears to be consistent with changes in price levels due to changes in taxation or government services. A basic assumption of the procedure is that changes in the 'price level' of government services are proportional to the changes in the price level of other goods and services, which, while probably not correct, is perhaps the most reasonable assumption that can be made.

The real income computed in this way appears to avoid the difficulties mentioned above for real income figures. However, the method is perhaps of only theoretical significance since no

adequate measurement of tax incidence or of government services to industy has been made.

3 TAXABLE INCOME AND NATIONAL INCOME

A remaining task is to compare the treatment of taxes in computing taxable income with the treatment in computing national income. Since statistics from income tax returns are chiefly of value in the 'income sum' method and are not widely useful in the 'value added' method, the comparison will be made only for the former.[14] The treatment of taxes for national income will be that presented by Professor Colm with the revisions suggested above in the case of personal taxes other than income taxes.

It is apparent that the treatments for national income and for taxable income are not the same. National income theory requires that personal taxes should not be deducted. Income tax treatment does not allow deduction of Federal income taxes but allows deduction of state income taxes, motor vehicle license taxes, poll taxes, intangible property taxes, and so forth. National income theory requires that non-shifted business taxes be added to the sum of personal incomes. Income tax treatment allows, for example, the deduction of land taxes on business property in arriving at an individual's income. National income theory requires that shifted business taxes be added to the sum of personal incomes in computing real income. Such taxes are deducted under the income tax and should be added back to correct the

[14] A survey of the actual use that has been made of statistics from income tax returns in computation of national income may be helpful. W. I. King's *Wealth and Income of the People of the United States* (Macmillan, 1915) was published before statistics from Federal income tax returns were available. In the National Bureau's *Income in the United States* statistics from income tax returns were used little if any in the estimates of income by source. In the estimates of income received they were used for incomes of over $2,000 per year and for corporate surplus. They were relied on very heavily for determining the distribution of incomes. The Federal Trade Commission report of 1926 also relied on income tax statistics for distribution of incomes. They do not appear to have been used largely in computing the amounts of income. In Dr. King's *National Income and Its Purchasing Power* statistics from income tax returns are not used for wages and salaries but are used for dividends in the case of a very few industries. They are also used in figures of income distribution and to determine the part played by corporations in collecting and disbursing national income. In *National Income, 1929–1932,* by Simon Kuznets, statistics of income were used largely for interest, dividends, corporate savings and at times for interpolating figures for which other data were not available in all years.

figures. In computing nominal income, however, the income tax deductions of this class of taxes are proper.

In some respects income tax deductions correspond to national income theory. Special assessments for capital improvements do not increase the value product in the year in which paid, if at all, and are properly not deductible. Likewise, estate, inheritance and gift taxes are not deductible either for taxable income or national income.

It thus appears that the effect of income tax deductions is to reduce national income below its true level. To correct this, taxes deducted in computing individual taxable income should in general be added to the reported income, although shifted taxes should not be added in the computation of nominal income. Adding back the individual taxes will not complete the correction since certain corporation taxes must also be added to the income sum.

If only those taxes that were imposed on property owned or transactions carried on with the intention of producing taxable income were deductible for income taxation the national income figure would likewise be reduced below its correct level if the income sum were based on income tax returns, since no business taxes should be deducted in computing real income and only part of the business taxes should be deducted in computing nominal income.

II WILLIAM W. HEWETT

The definition of income and its application to specific problems has for many years given rise to vigorous controversy. There are very few corners in the entire field of economics so infested with tricky, intricate problems whose solutions seem to appear just ahead of the student, but have the unhappy faculty of disappearing into thin air, after the manner of a mirage. Professor Shoup has probed deeply into one small section of this broad subject and I shall await with great interest the final product of the larger study, of which I understand this paper to be a small fragment. I confess some misgivings in discussing Professor Shoup's paper for I am not at all sure as to the exact question, or ques-

tions, to which he has directed his attention. He appears to have in mind, at least in some measure, three distinct questions: (a) To what extent does the Federal income tax law, in distinguishing between gross and net income, involve theoretical inconsistencies that should be eliminated? The analysis of depletion, for example, considers various alternatives for the solution of this problem (discovery value, discovery cost, percentage-of-gross) and goes so far as to make such definite suggestions as, "to be completely uniform with the discovery depletion provision, the capital gains provision should entirely exempt this profit".[1] (b) To what extent does the distinction between gross and net income encourage production, stimulate efficiency, and achieve a rough approximation to social justice? Numerous interesting and pointed comments are made with this question in mind. In the depletion analysis Professor Shoup informs us that, "the most obvious reason for allowing any discovery depletion at all is a desire to encourage exploration for minerals". In discussing the incidence of medical expenses he asserts that, "failure to treat the item properly is therefore likely to cause more instances of severe injustice". This discussion of problems of justice, equity and social policy opens the door wide for a broad analysis of the whole problem of income taxation. (c) To what extent does the distinction between gross and net income lead to reported taxable incomes that are unreliable as data for estimating the size of the national income? If I understand Professor Shoup correctly, it is this question he had primarily in mind and the material dealing with my first two questions should be considered interesting digressions. Unfortunately, a statement is rarely made as to the plus or minus effect upon the size of national income of the deductions considered, and certainly the conclusions of the paper do not grow out of the material presented without considerable interpolation by a reader.

I shall confine my remarks to the problem of utilizing income tax returns as data for the measurement of national income. At the start a serious difficulty arises from the fact that Professor Shoup does not state the definition of income within which he is working when he argues the case for or against each deduction

[1] See Appendix B. The profit is that secured by selling a mine for more than discovery and exploration costs.

allowable under the Federal law. This procedure makes it impossible to trace the overstatement or understatement of national income as evidenced by taxable income returns. Obviously, a student who held the position of Irving Fisher, that income is a flow of services, would arrive at very different conclusions as to the merits of a given deduction, than those which would be reached by a student who accepted a standard commodity and service definition of income of the type adopted by the National Bureau of Economic Research. The treatment of depreciation, for example, is quite different in the two definitions. Professor Fisher's definition does not allow a deduction for depreciation, while the National Bureau definition insists most emphatically upon such a deduction to arrive at net income. What Professor Fisher applauds, the National Bureau severely condemns. If Professor Shoup means to accomplish something more than a demonstration of the dangers of inconsistencies in the construction of the law (a demonstration unnecessary to anyone at all conversant with the Federal income tax law), then some standard, or norm, must be adopted that will enable one to say 'this provision overstates, while that provision understates, the correct size of national income'.

1 THE DISTINCTION BETWEEN THEORETICAL, LEGAL AND TAXABLE INCOME

Considerable confusion can be avoided in studies that must utilize the concept of income, if a sharp distinction is made between 'taxable income' and what I have called elsewhere the 'legal definition of income'.[2] An income tax law is not designed to supply economists with data; the only reason for its enactment is the necessity of obtaining government revenue. A tax law must therefore carry water on two shoulders—it must satisfy in a reasonable manner the demands of sound income theory and at the same time adjust the tax burden with efficiency and equity. It is this dual requirement that leads Professor Shoup from equity to measurement and back again in such a confusing manner. Now the men who are charged with the formulation of an income tax law must begin with some preconceived theoretical concept of

[2] W. W. Hewett, *The Definition of Income and Its Application in Federal Taxation* (Philadelphia: Westbrook Publishing Co., 1925), pp. 78–88.

income in mind—at least vaguely. This concept I shall call the theoretical definition of income. Faced with the problems of taxation, the theoretical definition must be modified to conform with the requirements of efficient, economical, tax administration; the law must provide certainty and convenience as to the time and manner of payment and it must be economical to collect. The experience of the legislature and the decisions of the courts have gradually evolved principles that allow a definition of income for purposes of taxation; a *legal definition* of income. These principles, in my opinion, are reasonably clear and have been followed with very commendable consistency. (a) The Federal law is concerned only with receipts of money or money's worth. Food raised by the taxpayer for his own consumption, the services of a housewife, or the rental value of a house occupied by the owner are all items that most income definitions would include, but since they do not 'come in' as receipts or payments, they are not a part of legal income. (b) The Federal law is concerned only with realized gains; realizability is not sufficient. This is the principle that gives rise to so many cases of confusion in the treatment of fluctuating property values. Suppose A, B and C each bought one hundred shares of United States Steel at $80 a share and that the market value of the stock increased over a period of years to $95 a share. A sells, realizing a gain of $1500 with which he purchases an automobile. B likewise sells, but at once purchases the equivalent in United States bonds. C, satisfied with his steel stock, does not sell, but continues to hold it. An income tax levied on a realized basis taxes both A and B on the $1500 addition to income. C, having realized no gain, would not be taxed; he would report no taxable income gain. Yet it is clear that these three individuals have an equal gain in economic strength. Realizability would appear to measure the improved position of the taxpayer much more consistently than the test of realization. The same difficulty exists for all forms of property such as real estate, stocks, bonds, and even durable household equipment. But a tax law formulated on the principle of realizability would be almost impossible to administer with the present level of control over accounting practices. Every change in the value of an item of property would have to be reported as a gain or loss during the entire period in which the property was

held by the taxpayer. The inconvenience in time of tax payment would also be serious, for a taxpayer might find it necessary to sell his property in order to make tax payments on an accrued, but unrealized, gain. Therefore, with but few exceptions, the Federal income tax law restricts its definition of income to realized gains.[3] (c) The Federal law is directed towards the output of the productive process, what Sir Josiah Stamp has called the 'national heap'. Gains that are not part of the productive process, but are simply transfers of the rights to wealth or income, are excluded from the law. In a famous court case, Gould vs. Gould,[4] it was declared that alimony, or an allowance based on a separation agreement, was not to be included in gross income and was not deductible as an expense in the computation of net income. Gifts and inheritances fall within this same category; they are not additions to the national heap, but are transfers of rights to wealth or income.

Here are three definite principles implicit in the Federal income tax law that make possible a formulation of a legal definition of income. Legal income is *the receipt of money or money's worth, growing out of the productive process and actually realized.*

Taxable income is this legal income modified to secure special political or social objectives. These objectives have nothing whatever to do with the theory of income and only confusion results from any attempt to deduce such implication. A few illustrations may be helpful. Under the present law only 30 per cent of the gain in value of a capital asset is included in computing taxable income if the asset has been held by the taxpayer for ten years. This provision does not tamper with the theory that a realized gain is legal income; it has entirely different objectives and does not give aid and comfort to those who hold to the theory that capital gains are not income. The discovery value provision referred to by Professor Shoup belongs to this group of items, as do also the provisions permitting partial deductions of contributions and donations. Many of the exemptions from gross income

[3] Some income-determining factors are recognized that are on an accrual basis, as for example, inventories, accounts receivable, accounts payable and depreciation. These exceptions are made because they are necessary deductions if the *realized gross income* is to be reduced to a net figure.

[4] 245 U. S. 151.

and the credits allowed have social or political objectives. All these provisions tend to understate, in reported taxable income, the correct legal income. Taxable income is a residual sum after diverse inconsistent exceptions have been made to the general principles set up in the law in defining income.

My personal interest in the theory of income may have caused me to exaggerate the importance of the distinctions I have just drawn, but I believe they furnish a useful method of analysis, especially when some of the broader aspects of the income tax law pass under review. But the distinction can be of assistance in simplifying the problem faced by Professor Shoup, that of measuring national income. If his paper is to be interpreted as an appraisal of the effect upon the size of national income of each specific deduction he has presented, and if other provisions of the law such as those concerned with exemptions and credits are later to be brought within his purview, then it is necessary that a direct comparison of the theoretical definition of income he believes most acceptable be made with the definition that underlies the law. Once basic differences of principle are understood and appraised, the additional problem of specific inconsistencies growing out of political, social or other objectives will appear in their proper perspective. The difficulty I encountered in following Professor Shoup's thread of thought was in no small measure due to the absence of any norms that might be used as yardsticks in evaluating the effects of the various points he raised. Inconsistencies have been demonstrated, but their meaning in terms of national income has not been indicated.

2 BUSINESS EXPENSES AS DEDUCTIONS FROM GROSS

Turning now to a more direct discussion of the deductions from gross income, I wish to comment on business expenses, depletion, and the effects of price level changes. Business expenses are deductible items under the Federal income tax law. To draw a line between business and personal expenses, Professor Shoup believes the law applies a test of *intent*. Deduction as a business expense is allowable if the expenditure is for the purpose of obtaining additional taxable income. From this it follows that a consistent policy would require that all business expenses made for the purpose of securing direct personal satisfaction rather

than additional income should be denied deductible status. A wasteful or spendthrift expenditure made for the 'joy of spending', and carrying with it a large element of personal satisfaction has been compared with the expenditure of the same sum of money for the hire of someone to do a 'song and dance' for the entertainment of the taxpayer. The intriguing theoretical issue here raised has far-reaching implications, for consistency would demand a new deduction from gross income to allow for dissatisfactions beyond the normal expectations of a given expenditure. The employer who finds it necessary to attend all the funerals of deceased employees suffers a loss in satisfaction just as real as the gain in satisfaction by spendthrift activity. That rich man who spent for the joy of spending may have a son whom he requires to work his way upward through the plant and who at the moment of the wasteful payment is suffering the agonies of the damned down in the stockroom for $12 a week! The implications are equally disconcerting when the test of intent is applied to personal expenses. The food, clothing and shelter necessary as a minimum to keep the taxpayer in sufficiently good health to carry on his employment and produce gross incomes becomes a deductible business expense. At the end of this road is a concept of income that requires a nice balancing of utility against disutility. J. A. Hobson actually attempted such an evaluation of human costs and human utilities in relation to the size of national income in his interesting book, *Work and Wealth.*[5] Irving Fisher's theory comes rather close to this concept of income, but even he draws the line between services and psychic satisfaction. A definition of income that is to be usable as a statistical tool must rigidly rule out satisfaction and dissatisfaction. We cannot trace down a measure of apples to learn the outcome in satisfaction; was a poor man saved from incipient starvation or did a small boy get an unfortunate case of indigestion? The legal definition of income I formulated above does not involve the subjective question of intent. The receipt of money or money's worth growing out of the productive process is as far as the law goes. The test is the objective act of the taxpayer, not his state of mind. Professor Shoup admits that in only one place does the law use a phraseology that might be labeled 'intent'. But the words *trade,*

[5] Macmillan, 1921. Ch. III is of special interest to the point here at issue.

business, profession appear throughout the law, and, I might add, the court cases dealing with the law. Where it is obvious that an item that normally is a personal expense shades into an expense in trade, business or profession, the law does permit a deduction. As I see it, this policy is in the interest of consistency; it is not an evidence of inconsistency. Misguided, wasteful business expenses must be deducted regardless of intent, or national income will be overestimated in terms of goods and services produced. The food purchased on a business trip, the sword of an army officer, and the space used as a professional office by a physician in his own home should be deducted for exactly the same reason. The degree of inconsistency involved depends upon the definition of income selected as a standard. The National Bureau of Economic Research in its publication, *Income in the United States,* Volume I, found it necessary to define income in a manner open in many ways to the same criticism Professor Shoup makes of the tax law.

3 DEDUCTIONS FOR DEPLETION

The analysis of the deductions for depletion I found the most interesting and useful section of Professor Shoup's paper. The British law has simply refused to grapple with this problem, and generally speaking does not permit any deduction at all for wasting assets. The entire return for annuities is taxable as income without allowance for the capital sum invested.[6] In a case dealing with timber lands it was clearly declared that, "It has long been the law of the United Kingdom that exhaustion of capital, however it might be treated in strict actuarial principles or according to certain principles of economics, may for purposes of taxation be treated as a profit." [7] The opposite extreme was presented to the United States Supreme Court in a case growing out of the Corporation Excise Tax of 1909. The plaintiff, Strattons Independence Limited, a gold mining concern, claimed it had no net income. The difference between the market value of the gold extracted and the costs of extraction was declared to be the value of the gold in place in the mine. All the apparent gain was only depletion of capital. The American income tax law position

[6] Coltness Iron Co. vs. Black, 1 Tax Cases 305.

[7] Kauri Lumber Co. Ltd. vs. Comm. of Taxes, 1913 A. C. 771.

is a very unsatisfactory compromise between these two extreme cases, in the hope that at least some approximation of equity between the government and the taxpayer may be assured.

If the definition of income is agreed to be a net flow of commodities and services, it would seem that net income in a case of wasting assets should be equal to the difference between actual costs (discovery, extraction and marketing) and gross return. In the case of assets acquired by purchase, the purchase price should be included. This procedure would credit national income with the net gain in commodities and services. The method of prorating the total cost over a period of years should be selected in the light of ease of administration. Professor Shoup's analysis of this problem is very suggestive.

4 SHIFTING PRICE LEVELS

As a final comment I should like to call attention to the absence of discussion of the effect of shifting price levels upon the taxable income. At no point does the law permit deductions for price level increases. Depreciation accounts are placed on a cost basis, and capital gains and losses are reportable as of the price level at the time of realization. A taxpayer who bought a machine for $1000 may find that the same machine costs $1500 when he is forced to replace it. An increase in the price level results in his replacement fund being insufficient to secure a new machine; his real net income has been overstated in his reported taxable income. The same error is involved when capital gains reflect an increase in the price level; an increase in the money value of an item of property is not an increase in real income; reported taxable income is inflated by rising prices and deflated by falling prices. This error cannot be removed by reducing money income to a base year, without including in the calculation the entire value of the capital asset on which the gain or loss was reported. If a share of stock increased in market value from $100 to $150 because of a 50 per cent increase in the level of prices, the entire $50 must be deducted; you cannot deduct 50 per cent of $50, or $25. The method of reducing capital gains to a base year will not give an accurate estimate of net real income.

In conclusion, I wish again to express great interest in the ultimate product of Professor Shoup's study. He is breaking new

ground and the results should be of real value both to the theoretical economist and to the tax expert.

III CARL SHOUP

Professor Blough agrees that the present Federal income tax provisions regarding the deductibility of taxes are not consistent with the general principle that would allow deduction of an outgo only when it was made with an intent to produce taxable gross receipts. He says, however, that these provisions follow the principle of ability to pay. This conclusion may be questioned if the significance of the 'intent' principle is that it acts as a guide to determining relative personal ability to pay. If two men, A and B, have equal incomes and equal outgoes in all respects except that A spends $20 a year on admissions to amusements, and B saves the $20, it is generally conceded that both should pay the same income tax (assuming that savings are not deductible in any case). If the government levies a 10 per cent tax on purchasers of tickets to amusements, and A then spends $18.20 on admissions plus $1.82 tax, should he now pay less income tax than B? If the following year A has to spend the $20 buying a set of technical books that he intends to use as a means of maintaining his income—that is, he fears that without the books he will suffer a decrease in gross income—deduction of the $20 would be generally accepted.

Deductibility of state personal income taxes raises an additional question of priority of rights of the Federal and the state governments. The present provision of the Federal law acts as a hidden form of Federal aid to states that impose income taxes rather than, for example, sales taxes. Part of the amount the taxpayer pays to the state in income tax represents money that would be available, not to the taxpayer, but to the Federal government, if the state had no income tax.

Professor Hewett expresses uncertainty over the exact question or questions to which attention is directed, but is correct in assuming that the main point was intended to be, in his words, "To what extent does the distinction between gross and net income lead to reported taxable incomes that are unreliable as data

for estimating the size of the national income?" The chief purpose of the paper was to call these problems to the attention of students of national income, without offering specific advice in each case on how to adjust the final national income figures. Although a demonstration of the mere existence of the dangers may not be necessary, a listing of the dangers with some background material on their history and the arguments relevant to them (which account for the first two questions noted by Professor Hewett) may be helpful to those who must decide where and by how much to adjust their computations of national income.

The test of intent, for determining whether an item is deductible, is opposed to the test of results. Hence the test of intent rules out satisfaction and dissatisfaction, instead of depending on them. Professor Hewett's legal definition of income does not, of course, involve the subjective question of intent, since it does not deal with the question of what items can be deducted from the receipt of money or money's worth in order to arrive at a *net* income figure. The point seems to be that business itself must be defined ultimately in terms of either results or intent, and since the tax law does not use the test of results, it must be assumed to use the test of intent. Thus the objection to such a phrase as "misguided, wasteful business expenses must be deducted regardless of intent" is that, in order to determine whether they are business expenses, some assumption has to be made about the intent of the spender at the time he made the outlay.

Part Seven

SOME PROBLEMS IN MEASURING PER CAPITA LABOR INCOME

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SOME PROBLEMS IN MEASURING PER CAPITA LABOR INCOME

SOLOMON KUZNETS

NUMEROUS problems are connected with the estimation of labor income as such. In recent years particular interest has been aroused by work relief wages and in years to come some attention must be devoted to taxes and benefits under the social security system. These issues are, however, beyond the scope of this paper. Here we shall attempt to discuss per capita labor income figures mainly in the light of the employment estimates by which total income figures are divided.

For purposes of the following discussion we shall assume that the total labor income figures are as perfect as they can be and that moreover they include only those items which correspond to items included in the employment estimate. Thus we shall not concern ourselves with the validity of the theoretical grounds for the inclusion, in total labor income for a particular year, of retirement pensions, compensation for injuries and similar incomes received in that year.[1] Obviously much the greater portion of such items is not paid to people who have been employed or have any claim to employment in the year in which the payment is made. To simplify the argument we shall assume therefore that per capita labor income includes only wages and/or salaries.

Furthermore in most of this paper we shall be dealing with labor income figures as they are compiled and estimated in this country. Income may be measured at the point at which it is paid out or received. In measuring income paid out we also get some measure of the service for which income is paid. A by-product

[1] On this point see M. A. Copeland, Part One, Sec. V, 3.

of measuring income received is a count of the number of income recipients and their distribution with reference to certain characteristics. Obviously the questions raised in connection with per capita income in the two cases will be different. For income paid out the fundamental problem is to get at the number of individuals who receive it; the composition of the income figure is automatically given by the method of estimation. For income received the emphasis will fall on the attempt to separate receipts into income and non-income and to segregate within income what may properly be called labor income. In this country the data so far available practically compel estimating most of the labor income at the point at which it is paid. This approach is assumed in our discussion.

With these limitations in mind it is clear that the significance of a particular per capita labor income figure is conditioned by the nature of the divisor used in connection with total labor income. Three different divisors are conceivable: (1) a figure measuring the amount of work performed in exchange for the income received, probably expressed in labor time units; (2) the number of individuals who worked to obtain the income; (3) a figure measuring the normal labor supply of the industry that paid out the labor income. The corresponding per capita quotients would then represent an average wage rate, average annual earnings of persons employed and average annual earnings of employees attached to the industry.

I Average Wage Rate

Each of the above sets of divisors and ratios has a significance of its own.The amount of work performed is a measure in physical terms of the contribution of labor to the production of income for a particular year. It is as important in connection with income as a physical quantity measure of the capital equipment utilized in a particular year or as a physical quantity measure of the net production of goods and services. When compared with the available supply of labor it indicates the degree of utilization of this most important productive resource. Figures of this type have also

been widely used in analyses of productivity and in discussions of proposals for shorter hours.

The average wage rate measures, of course, the price of labor. It is doubtful, however, whether for broad industry groups of the kind used in national income estimates and for annual periods a wage rate is of much value. The limitations of a wage rate as an index of income, even for a particular occupation, are well known. It tends to rigidity. With an adverse change in business conditions the income of employee groups is reduced by underemployment and unemployment long before wage rates are cut; and the converse is usually true of revivals. Moreover a wage rate tends to be inversely correlated with the expected duration of the job and the security of its tenure. A weighted average of occupational wage rates for an industry is even less reliable. It may and does change with a shift in weights due to heavier relative employment or unemployment in the lower paid occupations.

The per capita labor income figures in the Department of Commerce estimate of national income for 1929–35, described as annual rates of pay, represent approximations to the average wage rates. This is true with one important qualification, viz., that the standard for a full time job is set in terms of the particular industry group and year in question. Therefore the wage rates are not comparable. For instance, it is of some relevance to the 27 per cent decline of the per capita wage in manufacturing from 1929 to 1934 that the length of a full time week also dropped from about 48 to 40 hours. Similarly it may be important to know that whereas the average annual compensation in manufacturing and trade in 1929 was about the same, the difference in normal full time hours may have been as much as 15 per cent.

The lack of comparability in the full time standard between industry groups and between years is even more important for the employment figure used as a divisor. For example, it is believed that one reason for the lag between the increase in production and in employment in 1934–36 is the lengthening of scheduled full time hours in certain industries. Would it not be proper to have this change in hours (as well as the reduction in hours introduced in 1933) reflected in a figure that purports to

measure full time employment? The change in full time weekly hours is as much a characteristic of the industrial history of the last six years as the change in the distribution of employment over the twelve months of each year. Why allow the latter to influence the employment figure and neglect the effect of the former? If the full time equivalent number of employees reflected even indirectly the actual number of employees there would be good reason for adjusting it to changing industrial practice. The figure, however, is not meant to and does not serve this purpose.

Certainly no justification for a varying full time standard is to be found in the assumption that the resulting per capita figure approximates the income of a more or less regular employee of the industry. For of the total employees only a portion, varying from year to year and from industry to industry, would, on the most generous assumption concerning mobility, have an opportunity for full time employment. Thus while the average wage in construction and the average compensation on street railroads in 1929 were about the same ($1763 and $1718) the relation of the lowest to the highest number employed in 1929 in the two industries was very different, 56 and 95 per cent respectively. Similarly, if we compare two manufacturing groups, such as food and tobacco on the one hand, with furniture and construction materials on the other, we find that the average wage in 1929 was about $1150 in both, but that the relation of minimum to maximum employment was 76 per cent in the first and 89 per cent in the second. Similarly the decline in the average wage from 1929 to 1933 of about 25 per cent in the chemicals manufacturing group does not tell the whole story; for at the same time the opportunity for full time employment for those employed declined about 14 per cent.

II Average Annual Earnings

Let us pass now to the second type of per capita figure—the average annual earnings of the individuals employed during a year. The number would include, of course, not only those who worked the full twelve months but also others with a shorter employment

record. The presence of the latter is due to fluctuations in the employment offered by the industry as well as to turnover. It is obviously important to know not only the average number of jobs in an industry but also their distribution over time and their association with individual persons. In terms of per capita income received from the industry, two industries with the same outlay for wages and salaries and the same average number of jobs may present a remarkable contrast depending upon the seasonal regularity of employment and the rate of turnover.

The significance of the average annual earnings derived in this manner would naturally depend upon the closeness of the figure to the total income of the persons involved. The individuals in question may derive additional income, first, from property or from self-employment, and second, from employment during the same year in another industry. Such material as is available from family budget studies indicates that the first source of supplementary income may be safely ignored for purposes of the present discussion. The importance of employment in more than one industry depends to an appreciable extent upon how fine an industrial classification is used; the broader the industry or industry group, the smaller in general the relative number of such cases. More will be said on this point later.

There is also some question about the significance of the average as related to the range of income distribution that it represents or disguises. By introducing into the distribution individuals who were employed only a short time the range is of course enlarged. Whether under these conditions two averages should be calculated, one for the more or less full time employees and the other for short time employees, is just as legitimate a question as whether to separate wage earners into skilled, semiskilled and unskilled. The answer depends largely upon the availability of data. In any case the average is not an effective substitute for an income distribution. It is but a rough measure of the welfare of persons employed in an industry. Whether the remedy for low annual earnings lies in eliminating seasonal irregularity or high turnover or in raising wage rates no average can disclose.

Can average annual earnings or the number of individuals employed be estimated with a reasonable degree of accuracy on the basis of available data? The most important single source for both

labor income and the divisor is what might be broadly termed employment and payroll statistics either of the census or the current reporting type. Next in importance is the heterogeneous collection of estimates that give some approximation to the employment statistics. They usually involve an employment figure or figures covering a portion of the field, a raising factor and some index of activity used for interpolation and extrapolation. A review of the Department of Commerce figures shows that roughly 90 per cent of the employment for 1929 is estimated by using these two types of data. The rest is measured by two other methods—estimates based on the amount of work performed and estimates obtained by dividing the amount of payroll by a full time wage arrived at independently.

An important feature of employment statistics is that they measure only the number of persons employed either on a particular day or, more commonly, during a particular pay period —in most cases a week, in some, two weeks or half a month and only in relatively few cases as long as a month. They do not show how many different persons were employed during a period that involves two or more time units used in the measurement, say two months, a quarter or a year. They do not indicate whether a series showing an unchanging employment of 100 from January through December relates to 100 individuals or 1200 individuals. This is one reason why it is easier to calculate full time equivalent employment—essentially a hypothetical number of full time jobs—than to estimate the number of individual persons employed.

This aspect of employment statistics usually attracts little attention because they are used mainly to measure employment in a particular month. Thus in order to establish the recovery in employment from the trough of the depression to the present all we need know is the number of persons employed say in March 1933 and at present. The employment statistics tell us this; but they do not provide sufficient information for the assertion, for example, that one of every two persons unemployed in March 1933 has been reemployed. It is possible that all those unemployed in March 1933 have been reemployed. In other words employment statistics cannot be used directly to measure the duration of unemployment.

In connection with annual earnings we are interested not in the average number employed month by month but in the number employed in the course of the year. If we confine attention to a single industry it is obvious that the number cannot be less than the highest number employed at any time during the year, or the highest reading of the monthly employment index for the year. This, however, is only a minimum. The maximum would be the sum of the number employed in each pay period comprised in the year. Where the true number falls between these limits depends upon the amount of job-to-job shifting.

A vivid illustration of the difference between annual earnings based on average employment and on actual employment is offered by a study of fourteen railroads made by the Federal Coordinator of Transportation.[2] For 1924, 1929 and 1933 annual earnings calculated on the basis of records for individual employees were compared with the quotient of the total payroll by the average of the mid-monthly counts of employees. Although the earnings figures used in this study have a distinct upward bias because they are calculated from records kept for income tax purposes and exclude new entrants as well as final separations, they were 3.3 per cent lower than the payroll-employment quotient (for all employees excluding executives) in 1924, 4.6 per cent in 1929 and 9.0 per cent in 1933.

A study of the automobile industry for 1934 made by the Bureau of Labor Statistics [3] exemplifies the fact that the highest reading of the employment index offers only a minimum estimate of the actual number of individuals employed in the course of a year. The material obtained in this study is used in the construction of Table 1, where we compare the employment record of individuals employed in the peak month of 1934 with a hypothetical employment record calculated from the employment index on the assumption that the index covered an unchanging group of individuals over the year.

[2] *Annual Earnings of Railroad Employees, 1924–1933* (Federal Coordinator of Transportation, Section of Labor Relations, May 1935), particularly p. 92.
[3] *Monthly Labor Review,* March 1936, particularly pp. 529, 535 and 542.

TABLE 1

CUMULATIVE PERCENTAGE DISTRIBUTION OF PERSONS EMPLOYED IN THE PEAK MONTH BY DURATION OF EMPLOYMENT

Duration of employment in 1934	AUTOMOBILE PLANTS *Based on* *employment index*	AUTOMOBILE PLANTS *Based on* *actual records*	AUTOMOBILE PARTS PLANTS *Based on* *employment index*	AUTOMOBILE PARTS PLANTS *Based on* *actual records*
3 months or more	94.0	94.1	88.3	92.5
6 months or more	84.2	78.0	75.1	72.0
9 months or more	69.3	60.4	67.6	55.6
10 months or more	61.4	53.6	62.9	49.2
11 months or more	54.4	44.9	57.2	42.6
12 months	52.5	35.5	56.2	34.2

Table 1 shows that if the duration of employment of individuals who constitute the labor force of the industry could be judged by the length of time jobs are filled, 525 of every 1,000 persons would have been employed throughout the entire year in the automobile manufacturing plants, and 562 of every 1,000 in automobile parts plants. In actual fact only 355 and 342 respectively were so employed. Upon whom did the industry draw to fill the remaining jobs? In part upon the very same individuals included in the table, some of whom were apparently employed longer than the employment series would indicate (see the first line of the table). A large number, however, must have come from the outside, that is, from among persons who were not employed even in the month when employment was highest.

The table is illustrative only. The year 1934 was unusual in the irregularity of employment in the industry. The calculation based on records for individual employees covers only a sample of the industry and is limited to their employment in the plants studied. There is, however, reason to believe that the employment obtained by them in other plants of the industry was relatively insignificant. Moreover an artificial element of stability is introduced by the inclusion of office employees in the sample group; these are excluded from the employment index underlying the first and third columns.

As stated above, the difference between the number of persons employed in the course of the year and the highest reading of the monthly employment index in that year is directly related to the amount of job-to-job shifting by the individuals concerned. This

shifting may for present purposes be described as due to: (1) change in character of job; (2) change in location of job; (3) personal reasons.

By the first we refer to the intermittent character of certain work, such as inventory taking and repairs, even in a plant operating at a constant rate from week to week. The variation will naturally be greater in plants with even a moderate seasonal cycle in production. In these, some jobs will be filled during the slack season that are not filled during the active season. Consequently, the number of different jobs filled during the year will be greater than the highest number of jobs filled on any one day.

The most extreme illustration is what happens in the construction of a building. The various phases of the work following one another in a regular sequence with some overlapping in time —excavation, erection of the structure, roofing, flooring, plumbing, interior finishing, etc.—require the employment of persons with different skills using different equipment. The highest number of jobs filled at any one time is far less than the sum of the maxima of separately identifiable jobs. Thus in a United States Bureau of Labor Statistics study [4] of the labor engaged in the construction of an apartment house in Washington, D. C. that was begun in September 1931 and completed by the end of March 1932, employment was found to be as follows:

Average employment per day (excluding Sundays and holidays)	107.5 [5]
Highest employment on any day	230
Average employment in weeks ending nearest 15 of month	126
Average employment when classes of work are kept distinct	335
Highest employment when classes of work are kept distinct	504 [6]

Employment on the basis of full time equivalents was less than 110 when calculated by a daily record, and about 125 when derived from reports for so-called representative weeks. This is only half of the largest number of jobs filled on any one day and therefore of the highest reading of the employment series, which was 230. But even the latter minimizes the actual number employed

[4] See *Handbook of Labor Statistics* (1936), pp. 229–34.

[5] This figure works out to about 113 if Saturdays are excluded in addition to Sundays and holidays.

[6] Calculated from man-hour data on the assumption of a 48-hour week for all classes of work. Because the work-week for some crafts is shorter and because of the inclusion of incomplete weeks, this figure is clearly an underestimate.

during the duration of the construction project which was at least 500.

Except in construction and perhaps a few manufacturing industries this phenomenon is probably of little importance. Jobs of the sort that are available only for a very limited time are likely to be filled by the employees temporarily taken off their regular tasks. In some cases casual labor is hired. When such jobs demand considerable skill they may be contracted out, as they undoubtedly were in the case of the apartment house.

By change in location of the job we refer to the fact that while the number of jobs in an industry may remain fairly constant the apparent stability may be the result of an increase in the number of jobs in some plants accompanied by a decline in others. For many reasons usually grouped as imperfect mobility of labor not all the individuals separated from the payroll in the plants that contract employment are transferred to plants that expand employment. Imperfect mobility is particularly important in an industry with pronounced regional differences in structure and seasonal fluctuations in employment.[7]

For statistical purposes the significance of this factor is great or small depending upon the homogeneity of the industry for which the employment index is compiled. For instance, the index for the iron and steel industry is a much safer basis for estimating the number of individuals employed than the index for the cotton goods industry, which shows marked differences between New England and the South, or the index for sawmills which in effect covers two or three distinct industries. Certainly the index of employment for all manufacturing industries combined is a poor guide to the number employed more than one month; for it offsets the losses in one industry by gains in another. Thus, according to J. Parker Bursk [8] the true range of seasonal variation in manufacturing employment before 1929, if the experience of each industry is kept distinct, was 14 per cent rather than the 4 per cent indicated by the composite seasonal index of the Federal Reserve Board.

[7] For an extended discussion of this point, with reference primarily to production series, see Simon Kuznets, *Seasonal Variations in Industry and Trade* (National Bureau of Economic Research, 1933), Ch. VIII and IX.

[8] *Seasonal Variations in Employment in Manufacturing Industries, 1931* (University of Pennsylvania Press, 1931), Ch. VII.

Shifting due to causes other than changes in the character or location of jobs may best be presented by mentioning the reasons usually given in connection with the quitting or discharge of a worker: dissatisfaction with working conditions, opportunity to get a better position, desire not to work, invalidity or death, incompetence, insubordination, dishonesty, etc. A shift of this type may occur also in the case of a lay-off if with the resumption of the job it is filled by some one other than its former occupant.

The magnitude of the phenomenon of job-to-job shifting cannot be measured by the turnover rate even in those few industries where data on turnover are compiled. The fundamental limitation of the turnover figures for our purposes is that, like employment, they are reported on a monthly rather than an annual basis. If the sample of turnover reports is not too heavily weighted by plants with a progressive personnel and employment policy, the turnover figure for a particular month, after adjustment for the change in the number of jobs, would indicate the difference between the number of individuals employed and the number of jobs filled. It would be impossible however to ascertain whether and to what extent a similar figure calculated for the following month relates to the same individuals. In manufacturing, for example, in January 1935, for every 10,000 wage earners 304 were separated from the payroll and 633 hired. The difference between these two figures represents a gain in the number of jobs and should be reflected in the employment index. But each of the 304 out of the 10,000 jobs was apparently held in the course of the month by two individuals, whereas in the employment index these jobs were counted as if they had been held by a single person.[9] The question is how many of these 304 individuals are included in the comparable figure for February 1935, which happens to be 279? Since it is known that voluntary or involuntary shifts from job to job are more likely during the first few months of an individual's service with a particular employer[10] the

[9] Unless the job was held by two individuals in the course of the same pay period; if this was the case, two employed persons are included in the employment and payroll report.

[10] See, for example, the Bureau of Labor Statistics study for 1930, 'Hiring and Separation Methods in American Factories', *Monthly Labor Review,* vol. 35 (1932), pp. 1005–17, particularly Table 11; or a study of 3,800 hirings by the Atlantic

chances are excellent that a goodly proportion of the 304 individuals will also enter into the turnover rate in February or the following few months. Once again we know only that a monthly figure represents an underestimate of the magnitude of the phenomenon while the sum of the twelve monthly figures undoubtedly overshoots the mark.

So far the discussion has related to one industry, however broadly or narrowly defined. As soon as we take more than one industry into account the minimum limit fixed above loses its significance. Although the number employed in one industry in the course of a year cannot be less than the largest number employed during a particular pay period, the number employed in two or more industries may be less than the sum of the highest readings of the corresponding employment indexes. The reason is the possibility of industry-to-industry shifting.

Offhand it would seem that industry-to-industry shifts would not be unusual. An analysis of the occupational composition of the working population shows that it includes a large proportion of unskilled occupations and of occupations entering in some measure into nearly every industry. Thus, according to the Census of Occupations for 1930, nearly 16 per cent of the non-agricultural employees consist of unskilled laborers. Persons in clerical occupations, for many of whom there is little industrial specialization, constitute another 16 per cent.[11] Such shifting is made easier by the geographic concentration of industrial activity. According to the Census of Manufactures about 55 per cent of the wage jobs in manufacturing are in 95 counties out of a total of over 3,000.[12] The concentration of wholesale distribution and financial activities in cities of 500,000 population or over is also a generally accepted fact.[13]

Refining Company, reproduced in J. D. Hackett, *Labor Management* (New York, 1929), p. 305.

[11] For a definition of the unskilled and clerical occupational groups and a retabulation of the Census figures relating to them, see W. S. Woytinsky, *The Labor Supply in the United States* (Committee on Social Security, 1936), pp. 28, 30, 42.

[12] See Daniel B. Creamer, *Is Industry Decentralizing?* (University of Pennsylvania Press, 1935), p. 10.

[13] For a comprehensive picture of the geographic concentration of employment in private business see U. S. Bureau of the Census, Census of Business: 1935, *Personnel and Pay Roll in Industry and Business, and Farm Personnel by Counties* (June, 1937).

The information available on actual shifts is limited. There are in the first place census data indicating major trends in the shifting of broad industrial-occupational groups, such as the decline in basic industries including agriculture, mining, manufacturing and construction, and the increase in the distribution and service industries, such as trade, transportation, finance, the professions and domestic and personal service. It is not clear, however, to what extent these changes are brought about by the transfer of individuals as compared with a change in the industrial attachment of persons first entering a gainful occupation.

We know also of the rise of new industries, such as automobile, aircraft, radio, air conditioning. These draw for their labor in part upon the related industries, some of which they have been displacing, and in part upon an undifferentiated labor supply much of which comes from agriculture.

Our data are most abundant with reference to agriculture, partly because we are able to identify shifts to and from agriculture with migration to and from farms. According to Department of Agriculture estimates, about three and a quarter million persons moved annually from farms to cities or cities to farms in 1920–32; in the following years (to and including 1936) such movements have involved less than 2,000,000 persons annually. After those not in gainful occupations have been eliminated, apparently something like 1,300,000 persons in 1920–32 and 750,000 in the following years were shifting annually from or to employment in agriculture.

There is finally fragmentary information on shifting by individuals. A study of applicants for jobs with private firms in Philadelphia,[14] made in 1929 and covering mainly their experience for the preceding three years, shows that about 65 per cent had more than one job and that about 46 per cent had jobs in more than one industry. The industries involved in the shifts bear no apparent relation or similarity to one another. Another study,[15] covering approximately the year 1928, of separations

[14] Burton R. Morley, *Occupational Experience of Applicants for Work in Philadelphia* (Philadelphia, 1930), p. 150.

[15] Isador Lubin, *The Absorption of the Unemployed by American Industry* (Brookings Institution, 1929). It is interesting to observe that occupational shifts are less frequent than industrial, according to data assembled by both Lubin and Morley.

from about 20 industries in Baltimore, Chicago and Worcester, Massachusetts, shows that of those who found steady jobs only about one-third did not shift their industrial affiliation. A study of the highly skilled cutters in the men's clothing industry in Chicago in 1926–28 [16] is less significant for our purposes because the conditions for retaining their industrial attachment were highly unfavorable; about 70 per cent of those covered shifted to other industries.

Related to the subject of shifting is what might be called dual industry affiliation, that is, the regular combination of jobs in two industries held by the same individual year after year. Here again information of a mass character is scanty. The latest two Censuses of Agriculture have furnished data on work off farms by farm operators; in the Census covering 1934 an attempt was made to separate agricultural from non-agricultural work. This shows that nearly 2,100,000 farm operators spent some time off their farms in working for pay or income, of whom at least 70 per cent were engaged mainly in non-agricultural pursuits. Some of this work may have been of a temporary emergency nature, but if so, emergency employment was largely a substitute for regular employment available in normal years, for the 1934 ratios check fairly well with the 1929. These censuses do not disclose how prevalent such a combination of agriculture with other industries is for family labor or for wage workers attached primarily to agriculture. From other sources, however, it is evident that such a combination must be fairly common, particularly in rural industries such as lumbering and wood working, food processing, the manufacture of fertilizer, road building.[17]

On the other hand, for many seasonal industries, primarily urban in character, the dovetailing of employment appears to be impracticable. Workers in the apparel trades or in building construction do not as a rule find employment in other industries in the slack seasons, partly because of the coincidence of seasonal peaks and partly because it would appear to detract from their chance of reemployment at their primary occupation. Students

[16] Robert, J. Myers, 'Occupational Readjustment of Displaced Skilled Workmen', *Journal of Political Economy,* Vol. XXXVII (1929), pp. 473–89.

[17] Interesting evidence of recent date on the dovetailing of seasonal rural industries with agriculture is found in Blair Stewart, *Seasonal Employment and Unemployment Compensation in Oregon* (Reed College, January 1937), pp. 38–9.

of seasonal unemployment in the 1920's, when this was the important aspect of unemployment, used to place much more emphasis on the necessity for regularization of employment in the seasonal industries than on the possibility of adjustment through systematic combination of jobs in two industries.[18] That a worker in a seasonal industry can get along with employment only in that industry is partly explained by the fact that industries in which the season is very short, such as canning and summer hotels, or industries with a sharp seasonal peak, such as retail trade with its November and December peak, draw usually upon the secondary labor supply—persons who are not entirely dependent upon employment, such as housewives and students in school, and who do not pursue a gainful occupation for more than two or three months in the year.

An overall assessment of the quantitative importance of all these limitations of employment statistics for our purposes cannot be made on the basis of the available data. It would have been feasible were it possible to compare the Census of Occupations, which classifies the gainfully occupied population by their usual occupation and industry, with employment statistics for the preceding year. Such a comparison is extremely difficult. One reason is the lack of comparability in the industrial classifications, explained in part by the inevitable differences in procedure between enumerations in one of which the unit is a person and in the other a business establishment.[19] Another difficulty arises because not all types of economic activity are covered by industrial censuses or current employment series; this limits the possibility of combining classifications to ensure greater comparability.

The limitations of employment statistics stressed above make it necessary to resort to all kinds of detailed adjustments industry by industry, on the basis of a vast collection of miscellaneous data plus the unavoidably arbitrary use of judgment. The aim of this estimating job would be an approximate segregation of those counting upon full employment from the voluntary part-timers and the allocation of the former by industries. Even for years of

[18] See, for example, H. Feldman, *The Regularization of Employment* (Harper, 1925), Ch. XIV, Sec. II.

[19] For an attempt to compare the Census of Occupations data for 1930 with the reports of the Census of Manufactures for 1929 see W. S. Woytinsky, *op. cit.*, pp. 18–23.

high employment the results would be of varying reliability depending upon the information it is possible to uncover. For depression years, when a large labor reserve is piled up in every important industry, adjustments of this sort would necessarily become more difficult and more speculative.

III Average Annual Earnings of Persons Attached to Industry

It is for the depression years that the concept of attachment to industry, mentioned at the beginning of this paper, acquires a special significance. When business is good and employment is at a normal level there is in general no appreciable difference between the number attached and the number regularly employed in the course of a year. For in such periods cyclical unemployment is not large. On the other hand unemployment of a seasonal nature, unemployment connected with the shift of jobs, and unemployment due to sickness and similar causes, have already been included in the number employed; it is this 'normal unemployment' that accounts for the difference between the number employed and the average of a monthly employment series.

The primary source for data on attachment is the Census of Occupations which, as mentioned before, presents classification difficulties if its information is to be used in connection with labor income series derived primarily from industry censuses or sample enumeratons. In intercensal years the estimate would of course rely upon the occupations census merely as a starting point. The method used in the best known estimate of attachment in this country, the one by W. I. King adopted with some modifications by M. B. Givens and covering the period 1920–27, is best described as follows:

> "Substantially his (King's) estimates of the numbers attached to industry are made wherever possible by discovering the highest month of employment for each year of prosperity and by inflating this figure by an arbitrary percentage to allow for illness and other known factors. As the number of persons required in any group declines, as evidenced by lower maximum employment during a given year than in some preceding year,

the estimated number attached to such a group is decreased only when increases in other groups may be made, sufficient to account for the estimated total gainfully occupied population." [20]

Of the problems peculiar to an estimate of attachment one of most general interest is as follows: Are first-job seekers, reentry seekers or unemployed with a long duration of unemployment to be regarded as attached to industry? These persons have not developed an attachment to any industry, even such a loose one as would be evidenced by short-time employment; or their attachment to industry may have been broken long ago by marriage, voluntary retirement on savings or involuntary prolonged unemployment. On the other hand, they are apparently indistinguishable from any other unemployed in that their economic circumstances are such that they must work and their physical and mental make-up presumably qualify them for work of some kind.

No guidance on this problem is to be derived from census experience. The practice of the Census of Occupations has been to rule out persons who do not have a gainful occupation, that is, "an occupation by which the person who pursues it earns money or a money equivalent, or in which he assists in the production of marketable goods".[21] This practice, which tends to eliminate from the category of gainful workers, or those attached to industry, most of the persons falling into the groups enumerated above,[22] is understandable in the light of two considerations: (1) the primarily occupational orientation of the Census of Occupations; (2) the numerical insignificance of the above groups before April 1930 when plans were perfected for taking the Census. On the other hand, the several employment and occupation censuses taken since 1931 have departed from this tradition. They have counted as 'employable persons' or 'workers' all persons

[20] American Statistical Association, *Proceedings*, March 1929, pp. 34–5.

[21] U. S. Bureau of the Census, Fifteenth Census of the United States: 1930, *Population*, Vol. V, p. 29.

[22] Thus, according to the Massachusetts Unemployment Census as of January 2, 1934, at most only one-third of the first-job seekers had any vocational training and could be said therefore to have a gainful occupation; see Massachusetts Department of Labor and Industries, *Report on the Census of Unemployment* ... (Labor Bulletin 171), pp. 26 and 29.

within certain age limits who were either employed or able to work and seeking work, although the crucial tests of 'ability to work' and 'search for employment' were of course applied differently in the different censuses.[23]

The answer to the problem of first-job and re-entry seekers depends upon the purpose for which a figure of labor income per person attached is calculated. Does it purport to measure the average compensation of an employee in industry, taking account of unemployment that industry forces on him? In that case the King-Givens method of accepting the highest employment figure reached in a month of prosperity as the figure of attachment should be adequate. According to all conservative estimates employment in no major industry group, with the possible exception of agriculture and government, has as yet exceeded 1929 levels. By the King-Givens method, consequently, the number attached to industry has remained practically unchanged since 1929, despite the increase in population. By implication, the net addition to the employable population since 1929, which is currently estimated at a minimum of 3,500,000 persons, is barred by technological changes, lowering of the plane of living and other forces from becoming attached to industry.

The above solution of the problem is not satisfactory if the figure of labor income per person attached is used as a measure of

[23] Cf. the definitions in the following censuses: (1) Massachusetts. "*Employable persons*—Included all persons 14 years of age or over who were employed or who were able to work and seeking employment" (see Massachusetts Department of Labor and Industries, *op. cit.*, p. 6). (2) Michigan. "*Employable persons*—It includes all persons 15 years of age or over who were working or were able to work and seeking employment on the census date. . . Persons without previous work experience were considered gainful workers only if they had made verbal or written application for employment within the past month" (see Michigan, State Emergency Welfare Relief Commission, *Michigan Census of Population and Unemployment,* First Series, nos. 1–10, Lansing, Michigan, July 1936–April 1937). (3) Census of Relief Employables. "*Worker*—Any person, 16 through 64 years of age, inclusive, who at the time of this census was a member of a relief household and who was working or seeking work, except an adult . . . needed at home to care for dependents under 16 years of age. . . . Persons seeking work who performed no gainful work of any kind during the 10 years preceding this census are reported as 'inexperienced' " (see U. S. Works Progress Administration, Division of Social Research, *Workers on Relief in the U. S., March 1935: A Census of Usual Occupations,* January 1937). For a similar definition see also Pennsylvania, State Emergency Relief Administration, *Census of Employable Workers in Urban and Rural Non-Farm Areas of Pennsylvania: 1934* (Harrisburg, Pa., 1936), p. V.

the welfare of the population attached to industry in the capacity of employees; for any measure of welfare, however crude, must reflect the fact that under present conditions the same income is made to support a larger number of dependents. The 3,500,000 or more persons who under other circumstances would have been partially or fully self-supporting (and conceivably supporting their own dependents) are now in the status of dependents. Therefore if the figure of labor income per person attached is to be used as a measure of welfare the divisor underlying it must be calculated as a more or less constant proportion of the total population. First-job seekers, re-entry seekers and unemployed of long duration must for this purpose be regarded as attached to industry, provided care is taken to exclude the exaggeration in these figures due to the unemployment of the regular family breadwinners.

This easy solution cannot, of course, be made to apply to any single industry or industry group. With the absorption of first-job and re-entry seekers in an industry while its total employment is contracting,[24] the total labor force of an industry (including its reserve of unemployed) may be greatly in excess of its prosperity employment or of its labor requirements in the foreseeable future. Under these conditions it is not quite certain whether all persons with recent employment experience in an industry should necessarily be regarded as attached to it; for many of them there may be no hope of reemployment in this industry. It is clear, moreover, that the use of prosperity employment figures may seriously misrepresent the relation between the numbers attached to different industries.

This brief review of the problems presented by per capita labor income figures cannot be complete without mention of the new type of data that may become available as the social security system begins to operate. Since both old age and unemployment benefits are calculated on the basis of income earned, and the funds for both purposes are accumulated by taxation of wages and salaries, it appears that for administrative purposes it would

[24] It may be estimated that between 1930 and 1935 at least 6,000,000 first-job seekers entered the labor market. In 1935, with unemployment hovering about the 10,000,000 mark, at most only 2,000,000 of the first-job seekers were still unemployed.

be necessary to obtain data on the earnings of individual employees as well as on total payrolls. The social security system thus furnishes for the lower income groups a device for obtaining information similar to that which would become available for the higher income groups through the systematic tabulation of personal income tax returns. In fact it would seem that the social security data should be more readily usable to estimate per capita labor income. The reason is that the information will be furnished by employers so that the classification of individual employees by industry and of their earnings by industrial source should be more accurate than is possible under the income tax system. There will, of course, be many difficulties due to exclusions from the Social Security Act of certain industries, occupations and incomes above a certain maximum as well as to possible changes in the scope of the system.[25] These difficulties, however, appear to be minor indeed when compared with those encountered in using statistics available at present.

[25] For a discussion of these and other difficulties see Ewan Clague, 'Statistical Problems in the Administration of Social Security', *Journal of the American Statistical Association*, vol. 32 (1937), pp. 509–16.

Part Eight

INCOME PARITY FOR AGRICULTURE

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Discussion

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INCOME PARITY FOR AGRICULTURE

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THE PROBLEM of estimating income parity for agriculture is presented in the Soil Conservation and Domestic Allotment Act of Congress approved February 29, 1936, the declared purpose of which is the

> ". . . reestablishment, at as rapid a rate as the Secretary of Agriculture determines to be practicable and in the general public interest, of the ratio between the purchasing power of the net income per person on farms and that of the income per person not on farms that prevailed during the five-year period August 1909–July 1914, inclusive, as determined from statistics available in the United States Department of Agriculture, and the maintenance of such ratio." [1]

The question is, how shall we determine the ratio between the purchasing power of the net income per person on farms and that of the income per person not on farms that prevailed from August 1909 to July 1914?

I propose to leave aside questions concerning the fairness of the pre-War ratio, or the validity of any such ratio as a yardstick for guidance in government action. These are proper questions, but to answer them is not our immediate responsibility. Accepting the obligation as now prescribed by law, what should we do?

[1] Soil Conservation and Domestic Allotment Act, an amendment to the Soil Conservation Act, Public No. 461, 74th Cong., 2d Sess., Sec. 7 (a), (5).

I Interpretation of the Pertinent Text of the Soil Conservation and Domestic Allotment Act

First let us try to arrive at a common understanding or interpretation of the pertinent text of the Act. What is meant by "the ratio between the purchasing power . . . that prevailed during the five-year period"? In accordance with recent and current usage of the term 'purchasing power' we are interpreting this text to require that estimates of current income per person be divided by appropriate index numbers of prices of goods and services constructed on the prescribed pre-War base, and that the results for the current year be compared with the per capita incomes in the base period. Stated concretely, in computing the purchasing power ratio for 1936, income per capita for persons on farms would be divided by an index number (1909–14=100) of the cost of living on farms; the income per person not on farms would be divided by an index number (1909–14=100) of the cost of living elsewhere. Parity would require that the results for 1936 in terms of purchasing power have the same ratio as the incomes per person on farms and not on farms during the pre-War period.

One suggestion is to use simply the dollar income ratio as the purchasing power ratio. This would of course greatly simplify matters. Could it be interpreted as a fulfillment of the legal requirements? If the cost of living on farms and in towns were parallel, this simpler procedure might be approved as being equivalent to that understood to be required by the language of the Act. Can we assume that they are? Are the errors of representation in cost of living index numbers likely to be greater than the errors of comparing the unadjusted per capita incomes? If so, we might be warranted in interpreting the law to allow such a procedure, but we might be compelled to demonstrate the validity of such assumptions.

How shall we interpret the phrase "of the net income per person on farms"? This is a troublesome prescription involving many controversial points, but I shall try to deal with it briefly. Obviously it requires a departure from the practice of estimating income from agriculture per farm operator. The significant differences between the income per person on farms and the income

from agriculture per farm operator cannot be disregarded. The only available statistical measure of the number on farms is the Census of Farm Population. As a practical matter it is necessary to accept Census definitions of farms and of farm population. Persons living on farms include farm labor families and some persons engaged primarily or entirely in nonagricultural pursuits. Apparently the income from sources other than agriculture accruing to those living on farms must be added to their income from agriculture to estimate the income per person on farms. Conversely, the income from agriculture accruing to persons not living on farms, whether they be farm operators or laborers, must be transferred to the nonfarm side of the balance of national income.

At this point we must take notice that in the Act the word 'net' qualifies the returns to those on farms, and does not apply to the income of others. It is commonly understood that net income from agriculture is gross income less payments for production goods and services provided by persons not operating farms. Presumably the *net* should be computed also for income accruing to farmers from sources other than agriculture. That is, a farmer who works in a quarry is entitled to have costs of transportation and of any equipment that he must supply deducted from his income from that source.

"Income per person not on farms" may be defined as what remains of national income per capita after net income to persons living on farms is deducted from national income. Thus it would not appear that the use of the word 'net' has any significance provided income per person not on farms or national income is estimated in a manner comparable with that used in estimating national income from agriculture.

If the payrolls of street car operators are added, without any adjustment, to the payrolls of clerks, the income of one group becomes in part an actual cost of the other, and adding the two tends to pad the income for the nonfarm group. It will be necessary to scrutinize carefully the procedures used in estimating nonfarm income of both those living on farms and those not living on farms.

Another phrase that deserves notice is "as determined by statistics available in the United States Department of Agricul-

ture". I interpret this to mean that the Secretary of Agriculture has the legal responsibility of deciding what data and statistical procedures may be satisfactory or adequate for determining the per capita purchasing power ratio between the farm and nonfarm population. There are no absolute tests of adequacy and the results are to carry no burden of precise yardstick determination, such as the use of parity price in determining processing taxes. These findings in the Department are to be used with other facts in determining agricultural policy.

Perhaps the language of the Act could be interpreted to allow the Secretary to use the data now available. We are estimating income from agriculture and could simply divide this by the farm population. We could take one of the national income series of estimates, subtract the income from agriculture, and divide the remainder by the remainder of the population. The per capita income results could be divided by existing index numbers of cost of living to determine purchasing power ratios. This has been done.[2] Is this a reasonable and satisfactory interpretation of the law?

To me it seems doubtful and I believe that those interested in the improvement of social conditions should accept this responsibility as an opportunity to improve statistical estimates to be used as guides in social policy, and endeavor to comply with the spirit and not merely the letter of the legal formula.

How shall we define 'income'? Let me repeat what we have urged upon a previous occasion, that we should have current only one official estimate of national income. We now have two. Shall we produce a third for our special purpose? I believe fairly good technical reasons could be found for constructing a national income estimate for this special purpose, but I hope that it will not be necessary. I hope that we can prevail upon the Department of Commerce to join us in cooperation with the Central Statistical Board to develop a definition and procedure that can be used in both the farm and nonfarm fields and that will give the official estimate of national income.

The real income of the nation is its annual product of commodities and services. Our first step is to estimate the annual

[2] *Agriculture's Share in the National Income,* Agricultural Adjustment Administration (U.S.D.A., October 1935).

value of the product. Dividing the annual values by an appropriate series of price index numbers provides a measure of changes in real income which, converted to a per capita basis and related to the pre-War average, indicates the degree of parity as prescribed by the Soil Conservation and Domestic Allotment Act. This is easier said than done; the really difficult problems arise in developing the procedure for making such estimates.

Before we begin to discuss procedure, you may ask, why not build on the concept 'income paid out'? This suggests distribution of income although its meaning is not entirely clear. All income of the year accrues to some person or corporate body of persons. We find that the concept is used to set aside corporate savings, and there we find 'negative savings' or 'losses'. But the latter do not describe real savings or real losses in the ordinary sense of these terms in economics. Applied to agriculture the results are absurd. An allowance is set up for wages to the farmer and his family and this is included in the items paid out. It is a large item and has a very significant effect upon the total. When the farmer's income is large enough to pay himself something more than this wage allowance, there is a 'business saving'; when the farmer's income is insufficient, there is a loss or 'negative saving'. This is purely an 'if' or hypothetical computation and provides no real measure of anything. Furthermore, rent is not included in the 'income paid out' although in agriculture this is an important item, more important than dividends.

'Income paid out' seems to me to have a misleading connotation, even for corporations, in that the payments during a given year are not necessarily from the operations of the year. To the extent that an enterprise makes payments from accumulated cash balances, from liquidation of capital or borrowings against future income, there is no contribution to the national volume of goods and services. It is merely a matter of distribution, a transfer of ownership or conversion of use. The annual flow of payments to individuals has great significance, of course, but this should not be confused with national income.[3]

For a basic definition of national annual net income I propose to adopt that used by Simon Kuznets: "the total volume of com-

[3] See M. A. Copeland, Part One, Sec. V, 2, discussion by Simon Kuznets and Clark Warburton, and Dr. Copeland's reply.

modities and services produced during the year minus raw material, capital equipment, and other economic goods consumed in this production".[4] Perhaps as a practical matter, the word 'value' should be inserted in this definition because we commonly express income in terms of value. This definition corresponds to what has been attempted in the Bureau of Agricultural Economics. Our present efforts are directed towards improving the estimates of goods and services produced and of the annual expenditures for raw materials, capital equipment, and other economic goods consumed in production. This would give the contribution of agriculture to national income. To avoid confusion it may be desirable at this point to refer again to the terms of the Act. As I understand it, compliance with the Act would require the computation of an estimate that is different by being a division of incomes on the basis of where the recipient lives. In other words, we shall have an estimate of the contribution of agriculture to national net income and of the share of national income received by those living on farms.

II Special Problems in Estimating Purchasing Power of Per Capita Income to Persons on Farms

The Bureau of Agricultural Economics is now undertaking to improve the estimates of income from agriculture, to calculate the income of persons living on farms from sources other than agriculture, and to improve the index number of cost of living on farms for use in determining the relative purchasing power of per capita income to persons on farms. I shall not undertake to present the plans or review the many problems in detail, but shall mention a few in order to invite suggestions for solutions.

(1) What shall be done with inventories? Changes in inventory are often due merely to changes in valuations, price levels, and not to real changes in goods and services. The problem is found in concrete form in dealing with livestock. The product of the year may or may not be marketed that year. In some years the breeding stock are sold short and in others they are built up.

[4] *Bulletin 59,* National Bureau of Economic Research (May 4, 1936); *National Income, 1929–1932,* Senate Doc. 124, 73d Cong., 2d Sess.

Marked changes in prices may result in a low stock for breeding and feeding at the beginning of the year being valued more highly than a much larger stock at the end of the year. One device is to estimate the change in physical volume; apply to this change the average price for the season and add the result to or subtract it from the value of the sales for the year to obtain the value of the production or the net contribution. To many this seems preferable to taking the difference in inventory values as a modification of the value of sales.

(2) Farm machinery presents several problems. In the first place, annual valuations comparable to those of livestock do not exist. But both depreciation and the extent to which depreciation is offset by the purchase of new machinery can be estimated. Logically in years when machinery purchases exceed depreciation, the additional expenditures should be treated as capital investments and in years when purchases are insufficient the deficit should be treated as a decline in capital equipment. In addition to the problems of constructing reasonably dependable estimates of actual depreciation and replacement, we have to decide what is the best method of handling these estimates of deficits and excessive expenditures in the income account.

(3) A public utility charge may be treated as a service cost, but many of the irrigation and drainage enterprises are owned and operated by farmers individually or cooperatively as nonprofit enterprises, the annual assessments or charges varying with material and service costs. Shall we handle the farmer-owned enterprises in a manner similar to farm equipment, as if they were part of the farm?

Estimating water costs where irrigation and drainage are in use involves several problems similar to those of farm machinery, and others in addition. Estimates of annual replacements and real depreciation of drainage and irrigation are complicated by the fact that costs of operation and of maintenance or replacement are sometimes not kept in separate accounts. Furthermore, some forms of depreciation, such as the silting of reservoirs and the lowering of water tables, are very difficult to estimate. Operations, replacements and additions to plant may be made in part by the farmer's own labor. The latter may at times be a significant contribution to income in the form of investment. Likewise the

annual assessments for water may be used in part for additions to the plant, that is, for investment.

(4) Insurance has not been handled satisfactorily in the farm income account. There ought to be annual estimates of losses from fire, flood, tornadoes and other such destructive forces. Replacements are necessary for the maintenance of the production plant. Insurance paid to farmers on this account should be deducted to determine the net loss and to this should be added insurance premium payments by farmers. This proposal applies particularly to such items as barns, granaries and pumping stations. Should erosion be taken into account as a production cost? To what extent is the coverage of such costs practicable?

(5) Shall the direct taxes the farmer pays be deducted from gross income in determining net income? These taxes are payments to others for services, but only a part of these services are direct contributions to production. The individual farmer may consider all taxes a cost but the services furnished in return for taxes to all farmers as a group are personal benefits or services. It is important to segregate the payments for services that may be considered personal from those that may be considered contributions to production because of the significant changes that have taken place over a period of years. To illustrate, not many years ago many roads in the country were maintained by farmers through labor or poll taxes contributed directly for the purpose. Not many years ago the children who went to high school from the farm had to pay tuition, and all school books were furnished directly out of the pockets of farmers. Today county or state tax funds maintain the roads and pay the tuition of the high school pupils from the farms as well as from the city, and in many states even textbooks are free. It seems reasonable therefore to divide the farmer's direct tax bill into two parts, the one to be deducted from gross income in determining net, and the other to be recognized as a portion of the farmer's net income paid to nonfarmers for services. Suggestions are invited as to principles to be followed in making this division in taxes.[5]

Turning to a consideration of a few problems in estimating gross income, let us ask, how shall we value: (a) farm products consumed on the farm; (b) the farmhouse as a place to live? In

[5] See Gerhard Colm, Part Five, Sec. II, 1 and III, 1.

the Bureau we have seen no satisfactory alternative to valuing food consumed on the farm at the prices farmers could obtain for the same products marketed in the village. The significance of the difference between the cost of the same foods on the farm at these prices and their cost to families not on farms should be recognized in the use of such data. What procedure would satisfy the critics and at the same time avoid other serious defects in making comparisons? Direct comparisons in other respects are also difficult, and the disadvantageous position of farmers in obtaining other goods and services offsets to a considerable extent the disadvantageous position of nonfarmers in obtaining their food.

We recognize that some income valuation should be placed upon the use of the farm dwelling. As with food, to undertake to compare the dwelling with a dwelling in town and credit it with the rent that would be charged for it in the city seems unreasonable. Many services and comforts are associated with city residences that do not exist or can be had only by additional expenditures in the country. I am introducing these two subjects to encourage discussion of both points in the hope that we may receive some practical suggestions.

The index number of cost of living on farms is being reconstructed with additional data to improve its dependability and make it more inclusive. The data used to establish the base of the index number series now current seem so scant that we feel that we must collect additional data for this period. It also seems desirable to include some additional items to make it more truly representative of the cost of living. Heretofore the index has been constructed entirely of commodity prices. Some service charges, including telephone and electric light charges, are being added. It is recognized that the weights must be revised and a few additional price items added in order to construct a series that will include and give due weight to commodities produced on the farm. We may be led to construct three index number series: (a) cost of living, including service charges, price of food furnished by the farm and commodities bought for use in the family living; (b) cost of living constructed from items weighted according to purchases; (c) costs or prices and service charges related to production. It has been suggested that we should have a price index number series related to investment. I find it dif-

ficult to visualize the construction of such an index number for farmers owing to the irregularity of investment and the difficulty of distinguishing between expenditures for investment and for maintenance.

To make comparable index numbers of cost of living on the farm and in the city presents an interesting and difficult problem. It seems to me that the best procedure is to aim first at obtaining representative index numbers without undertaking to match items or weighting. It should be recognized that the commodities and services consumed on the farm differ in kind, quality and quantity combinations. Any attempt to match them leads only to confusion. House rent, however, presents a peculiar problem that may deserve further consideration as probably requiring different treatment. Perhaps house rent or allowance should be omitted from the index numbers on both sides, omitting from the farm income any allowance for the value of the residence as a place to live and subtracting house rents from the income available to persons not on farms. What procedure would be best?

III The Distribution of Income

The distribution of income and of purchasing power among those living on farms is of course also important. While no distribution is required by the Act, the development of policies with reference to agriculture should take into consideration the effect of economic changes and programs or plans upon the position and well-being of farm laborers, tenants, subsistence farmers, commercial farmers and part-time farmers, as these may be affected differently to a significant extent. Is it feasible to classify persons living on farms and to estimate changes in income and in purchasing power by such a classification? One can see at once many problems in drawing classification lines for the population and obtaining satisfactory estimates of income distribution by this classification. The construction of index numbers of cost of living might not be so difficult, as this could be done simply by the use of budgets and the selection of items or commodities to be priced. The cost of savings for this classification, if such were considered, would be much more difficult. Distributions

by size of income in the nonfarm and farm populations would also be very valuable information for an understanding of the significance of economic changes in production and distribution and of the effects of specific programs upon both the welfare of the people as a whole and the several groups of the population.

IV Sampling Personal Incomes

In view of the many difficult problems in arriving at a comprehensive estimate of national income, and at a division of income between farm and nonfarm population and in view of the importance of knowing the distribution of income for these two sections of the population, I submit the question, would it be better to approach the problem through sampling personal incomes?

Data could be obtained annually from representative agricultural producers, storekeepers, and from other large occupational groups. They could be collected by a sample census by the United States Bureau of the Census, or by the several government agencies that ordinarily have contacts with and offer some services to occupational groups. A special sample census could be supplemented by the state and Federal income tax returns. It would be possible to obtain more measures of real income through such a sample census schedule than can be obtained now from available data. The data collected would show significant year-to-year changes in the incomes of individuals and changes in the size distribution of incomes in the several occupational groups. Of course it would be difficult to develop a pre-War base with which to compare data collected for the present. We ought, however, to be considering the future as well as the past. If we believe this is the best procedure for obtaining such data we should now make plans.

Discussion

I M. R. BENEDICT

DR. STINE specifically disclaims consideration of the validity of a parity income yardstick for guidance in government action. This is undoubtedly a wise limitation in view of the scope of the subject and the fact that the Bureau of Agricultural Economics must for the present center its attention on the specific provisions of the Act. He has drawn attention in a very excellent way to the problems presented and to some of the possible lines of attack.

It seems only fair to Dr. Stine and his associates to state what he has merely implied, that this phase of the Act seems to be loosely drawn and ambiguous. As it now stands one can grant it little merit in clarifying objectives in national policy. It is no doubt an improvement over the old price parity concept in that it gets away from the extreme rigidity in price relationships which that criterion provided. It does not, however, segregate any reasonably homogeneous and distinguishable group which should be considered separately in national policy. The term 'per person on farms' throws into this category a very miscellaneous group. Some are commercial operating farmers on something that approximates the family-size farm, or the family-size farm with some small amount of hired labor. This is the group about which the public usually thinks most in considering policy with respect to farm problems. The provision as drawn, however, includes also a very considerable number of people who live on farms but work in cities, the large scale corporate farmers, and the large number of itinerant agricultural laborers, croppers and other groups which have a very low level of income. To put the matter briefly, it brings into the picture practically all the degrees of prosperity and lack of prosperity that exist in society as a whole, except that agriculture includes few, if any, of those

with extremely large incomes. Nevertheless some even of these may be brought into the picture if the provision is interpreted literally, since some of the wealthiest people live on country estates.

No program oriented specifically to crops and land is likely to affect in the same way or even in the same direction the various members of such a diverse group as that included in the category 'per person on farms'. So far as the agricultural program is strictly a soil conservation program, it is proper that payments be related directly to land. To the extent that it is an income-transferring device, it should not be related directly to land held, since this means giving most to those who have most. Instead it would seem that it should be related to human groups in terms of needs or of merits, or both.

We should by now be thinking more precisely about the make-up and homogeneity of the groups we are dealing with in income and policy considerations. This means developing some sort of breakdown of the nation's population into groups that have some reasonable degree of homogeneity. We can then study income changes in terms of such groups whether they live in rural or in urban areas.

These comments are not presented in criticism of Dr. Stine's approach. They imply rather the need for a new outlook farther back than in the specific Federal agencies charged with developing income estimates. The new approach to the problem of parity for agriculture, handled along the lines that Dr. Stine's division is developing, will no doubt contribute materially to a better understanding of the income and expense situation of nonurban people. Unfortunately it will not throw much new light on the urban income situation and it still leaves us far short of an adequate approach to the problem of income estimates for the various important groups in nonurban areas.

There are few tasks that the Central Statistical Board might undertake with better reason than to develop either a centralized or a well-coordinated program of income estimates for the various significant and recognizable economic groups in society. Until some such procedure is developed, such a ratio as that called for in this Act will have little meaning scientifically. By any rules of statistical computation an average for groups so diverse as

people on farms and people not on farms can have little significance. The maladjustments within the groups must necessarily be far greater than the differences between the two groups so defined.

If, however, we follow Dr. Stine's lead and think specifically of the provision set up in the Act, there are still several problems that seem not to be met adequately in any approach thus far developed. Ideally the comparison of groups such as those the framers of the Act had in mind would be in terms of the content of living in the different lines of activity. Unfortunately there has been as yet no satisfactory method devised for measuring this. The only thing that can be done is to get as many indicators of it as possible, and undertake to appraise relationships in living content in terms of these indicators. Direct money income is only one of them. As an example, let us take the change in the comforts of farm life within the last twenty years. A vast network of improved hard-surfaced highways has been spread over the country, most of it at public expense. This has improved conditions for both city and country residents but almost certainly has been a greater boon to the latter, since the former already had relatively easy access to stores, theaters, churches, etc. Such a change cannot be measured, nevertheless it is of great importance. Another widespread change is the improvement in the rural school situation. Less obvious and perhaps less directly a result of public action are the changes in availability of electric light and power, of telephone and mail service. Most of these improvements have come in since the base period indicated but will not be measured in a computation of direct money income. Yet they cannot well be disregarded as having accrued more or less equally to farm and nonfarm groups. Many were already available to city residents as early as 1910, though of course they have since become much more general.

Referring to the problem indicated by Dr. Stine with respect to possible double counting of income paid out for transportation, etc., it would seem that the ideal to strive for would be the income available for consumption goods, services and savings. Wherever possible it would seem desirable to follow the procedure he has mentioned, namely, to offset against one another items considered nonmeasurable or difficult to measure that are

substantially the same in both groups. For example, if housing conditions could be regarded as substantially similar, a deduction of house rental from the income of the man in the city and its omission in considering farm income would seem justifiable. Unfortunately this can hardly be defended owing to the differences in qualities of housing. Here it is very easy to give unwarranted values to rather superficial qualities. The tendency is to compare the city worker's house, with its electric lights, running water and sewage disposal, with farm homes, most of which probably lack these conveniences. On the other hand, the farm home may have spaciousness, privacy and often attractive surroundings for which many a city dweller would gladly trade his modern conveniences if he could still be within reach of his work. If we consider the worst of the city dwellings and the worst of the farm dwellings, there probably is not much to choose between them.

Is it justifiable to divide estimates of income by 'appropriate' index numbers of prices of goods and services when part of such income would be in savings accumulations, which presumably are as valuable in the one place as in the other? It would seem to me more logical to try to evaluate on a comparable basis the consumption goods and services and add to these values the estimated savings, both in money and in such items as land value accruals. A ratio might then be established between the incomes thus indicated. Although this would undoubtedly be more difficult, the data now being gathered could be used in part for this purpose. Land value increases and decreases, even for farm lands, accrue, of course, to both city and country dwellers; so a computation of this kind would necessarily be extremely rough. Yet this is the form that most farmers' savings have taken in the past.

In 1910–14 farm land value accruals were an important source of income to landowners. In recent years this item has been in the main either small or negative. It seems now to be again positive.

The omission or the term 'net' before nonfarm income seems unwarranted though defended by some of those who participated in drafting the Act. Certainly to be justifiable in policy making the computations must seek to reflect the relative well-being of the two groups. This can be accomplished only by using net in-

come for both groups, and by including both tangible and intangible items. Values of intangible items can be deduced only in terms of recognizable reactions to them. Of course, if the various intangible items can be assumed to have changed about equally in the two groups, the relatives of changes in cash items may afford a fairly acceptable rough yardstick. Certainly it would be a far more accurate measure of relative well-being than would a direct comparison of money incomes in the two groups, which has been presented from time to time and widely misinterpreted. There is considerable danger in using for the purposes here considered values of farm products sold plus inventory changes, because many crop and livestock sales are from one farmer to another. Much study has been given to this problem in the Bureau of Agricultural Economics, but it is sure to arise more sharply in these attempts to get at net returns in terms of goods sold minus production expenses.

For public utility and mutual service agencies it would seem to me that no great error would arise if farmers' cash outlay for these purposes were used. Inputs of farmers' own labor would not usually affect the situation materially, and except for large new capital ventures the ordinary ups and downs of inventory change, as in irrigation reservoir conditions and water-table levels, are probably reflected in land values as accurately as they can be appraised in any other way. Unless they are major changes continuing in given directions, they will tend to equalize over a period of years. The problem of losses and expense from fire, floods and tornadoes mentioned by Dr. Stine represents an important gap in the data but one for which there would seem fairly good possibilities of obtaining estimates. These, however, will present a difficult problem in avoiding double counting of values of new investments.

Since taxes are in part used as a means of transferring income from group to group and from area to area, the most feasible procedure would appear to be to attempt segregation of those public expenditures which contribute to local welfare and to regard these as income, but to treat all other taxes as expense.

In valuing contributions to family living, I am unable to find any suitable basis for direct comparison except to use urban prices or at least urban total budgets for both places. The point

is made that the farm resident is put to greater expense in providing nonfarm items. This, however, is allowed for in the general expense of farm operation. It is largely a matter of time input; moreover it is offset partly by quantity buying at quantity prices. Without this provision the large decrease in self-sufficiency on farms since the base period may introduce a significant error.

It must be recognized that service charges, as for electric lights and telephones, were very minor items in the base period.

In general the rather lightly stressed proposal for studies of sample budgets would seem to me to offer the greatest promise of real contribution, especially if recognizably different groups are carefully sampled. The studies now being undertaken in lieu of this approach seem likely to add to our knowledge of the situation, but they are at best a makeshift.

In conclusion, it seems unfortunate that the effort now being expended must be directed so specifically to a relatively meaningless comparison with conditions of a quarter of a century ago. We should look now to significant studies of the incomes and living conditions of the various social groups, seeking bases for ameliorative programs wherever these are most needed, and should abandon the present approach, which is based on illogical groupings and on relationships in periods long past, as soon as Congress permits.

II JOHN D. BLACK

Dr. Stine has made a very careful analysis of the problem of determining income parity for agriculture under the latest version of the Agricultural Adjustment Act. I shall concentrate my attention upon a few issues that he did not develop.

From the standpoint of administration, I am inclined to agree with Dr. Stine's suggestion that income parity could have been determined more satisfactorily if it had been defined in terms of net income with purchasing power omitted. This could have been done very easily, simply by omission of the term 'purchasing power' before 'net income per person', in the language of the Act. If the Act had been so written, it would have been necessary merely to take the ratio between net income per person of the

entire population and net income per person of those living on farms during 1910–14 and the current year.

There are good reasons for believing that the inclusion of purchasing power in the definition will not bring us any closer to the measure of change sought than a mere comparison of net incomes per person. In the first place, the index of purchasing power that is applied to total net income to adjust it to a content-of-living basis should relate to all classes of the nation's population. It is not satisfactory to have a cost of living index referring solely to the laboring classes or solely to low-income groups, as will be the case with the indexes based on the budget data now being collected. Cost of living indexes based on budgets of low-income groups are certain to overweight foods and other necessities and underweight such items as automobile costs which increase rapidly with increasing income. It may be that, for the purposes in hand, what we want is an index in terms of foods and other necessities. But if so we should not call it a purchasing power index for the entire population; it will be an index for the low-income groups alone.

Perhaps more important is the fact that the net income figures take account of changes in the quantities of goods produced as well as in the prices received for them, whereas an index of purchasing power measures price changes only; that is, does not include changes in quantities of goods consumed. As the content of living of the population rises, the quantities rise also. If it is in general true that all goods produced are consumed, except for temporary irregularities arising from varying proportions of producer and consumer goods production and the like, then it is important that the quantities on the consuming side be included along with the quantities on the producing side.

Finally, the content of living includes many intangibles that are difficult to reduce to a value basis. Their number may even be increasing along with the increasing expenditures of public funds on education, roads, health, sanitation, police protection, and also with the great increase in the amenities of life that come with modern inventions such as the telephone, radio and cinema. Who is ready to say that the changes since the base period have affected country and city alike?

Do not the foregoing considerations make one really doubt

whether we shall get any closer to a comparison of per capita farm and nonfarm incomes after we have fooled around with an adjustment in terms of a purchasing power index than if we had been content with per capita net incomes alone?

Perhaps, however, introducing purchasing power into the measure of parity may prove in the end to have been worth while if only it leads to putting the entire comparison on an index basis, that is, the net incomes as well as the purchasing power. If that were done, then our comparison of parities would be in terms of ratios of index numbers, pre-War and current. The principal advantage of a comparison on an index basis is that it avoids statements in terms of absolute amounts, which the layman is bound to compare with one another, when in fact these absolute amounts are not really comparable. From this point of view, the statement of parity in the Act is a long step forward in that it recognizes that the ratio of farm to national income per capita need not be 100, but something perhaps much less than 100—perhaps as low as 60 to 70 in some sections of the country. These two income figures cannot be comparable, for they are in terms of sets of values in localities as different as Europe and the United States. I doubt, for example, if there is any more difference between the content of living of farm families in Denmark and the United States than there is between farm families and urban families in the United States generally. When we take into account geographic variations within the United States, the comparison becomes even less satisfactory. This is well illustrated by the circumstance that in the New England states the difference between farm wages with and without board, estimated by crop reporters most of whom are farmers, is about $25 per month whereas in the southern states it is about $10 per month. This large difference arises in part, it is true, from differences in the content of living in these two areas, but in large measure it arises from differences in the valuation of approximately equivalent utilities.

If this whole comparison were on an index basis, there would be a quantity index to go with the price index in the net income part of the equation. It would be at once apparent that we needed the two to make the income index. I do not mean that we would need price and quantity indexes calculated according to Dr.

Fisher's 'ideal' formula. For a few years, price and quantity indexes independently derived come very close to making excellent income indexes if based upon any good formula.

It would then be obvious that we needed both quantity and price indexes for the expenditure or living part of the analysis. Dr. Stine's presentation so far as I can see has overlooked the need for measuring quantity changes.

If this comparison were on an index basis, the choice of a base year or period would become important. It would be necessary to have such periods not too far apart if changes in production and living proceed at the pace of the last twenty-five years. This difficulty could be met by shifting to a new base period and a new weighting period at roughly ten-year intervals. It is not likely that the break in index numbers from the old series to the new would be at all abrupt. If it were, certain smoothing devices could be used.

The base is important for the purchasing power index even if income is not put on an index basis. Certainly it is not satisfactory to use weights of the 1910–14 period in a purchasing power index to be applied now. Using weights of a recent period makes comparison with 1910–14 also wide of the mark.

I note that Dr. Stine does not wish a comparison of farm and nonfarm purchasing power in terms of indexes using matched items; he wishes each index series to stand on its own feet. It seems rather strange for Dr. Stine to take this position in view of his insistence in the past that we need a special index number for each purpose. Here we have a situation in which separate indexes each made in terms of its own regimen produce results that are useful for comparisons of change in their own universes, but are not suitable for comparison between universes. If there is any solution at all, it must take the form of a regimen made up of items common to both, and as for the rest, of the best equivalents that can be found. The resulting comparison will by no means be precise, but it will come nearer to serving this special purpose than the two series each standing on its own feet. It is interesting to note, in this connection, Dr. Stine's insistence also on one agricultural income series that will serve all purposes.

Dr. Stine has suggested that the critics of the present agricultural income series, in which farm-produced commodities con-

sumed by farm families are valued at the farm, should offer another solution if they do not like the present one. Here is a case where there can be no real solution, unless it is to have two separate index series, one in which all the commodities included are valued at the farm and another in which they are all valued in the city. The only possible approach to a single series is to match the two regimens as nearly as possible, as was suggested above for index numbers.

Dr. Stine has questioned whether rents should be included. Obviously if as the years pass housing becomes a significantly more or less important part of family living in the country as compared with the city, or vice versa, it will not do to omit rents in making up either an income or an index series.

The principal omission in Dr. Stine's paper is his failure to present the need for regional income parity comparisons. It seems to me that these are needed for major type-of-farming regions, for example, for the cotton states as a unit, the tobacco states, the dairy states. I see no reason why for index purposes some states should not be included in more than one region. The need for index series rather than income series becomes particularly evident when we conceive the comparison in terms of regions. Thus expressed it is possible to measure relative changes between regions from year to year and at various points in cycles of prosperity and depression. Of course the choice of the base period in which all the index numbers are made 100 becomes very important.

The final question that Dr. Stine raises is whether income parity comparisons should be based on totals as at present or should be based upon sample data collected for this purpose. A much larger sample would be needed than any that the Department of Agriculture has thus far developed; and it would not be safe to rely upon mailed questionnaires—there would be altogether too much selectivity in the results. We can also feel assured that we would need the total estimates as a check on the sample. No doubt, however, some details of the total estimate could be omitted.

Dr. Stine began his paper by saying that the Act had determined the choice of a base period for the income parity comparison. I have a letter from Robert Martin, the author of a

recent National Industrial Conference Board book on farm incomes, in which he takes the position that Dr. Stine, or at least the Bureau of Agricultural Economics, is by no means free from responsibility for the choice of this base period; that the work of the Bureau of Agricultural Economics furnished the foundation for this choice, and that it no doubt participated in the working out of the price parity policy. Whether or not Dr. Stine is properly subject to this judgment, we can be assured that L. H. Bean must be, since he helped develop the income index series while in Dr. Stine's department and later helped devise the income parity comparison in the drafting of the latest version of the Adjustment Act.

III O. C. STINE

I find myself in accord with many of the points presented by Doctors Benedict and Black. Their discussions make material contributions to the development of the subject. Their answers to several questions proposed by me will be helpful in carrying out our plans for estimating purchasing power per person on farms. Perhaps one point deserves specific comment—the omission of the need for regional income parity comparisons. I quite agree with all that has been said on this point. My failure to present it is due to the fact that the Act does not prescribe it, and we failed to persuade those upon whom we are dependent for funds to consider the development of regional estimates and price indexes as being required under the Act and necessary at present.

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