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*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

SOLOMON FABRICANT

## *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.<sup>1</sup> 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.<sup>2</sup> These are first, that corporate savings are computed on the basis of a relatively sophisticated accounting technique; second, that

<sup>1</sup> 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).

<sup>2</sup> 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.<sup>3</sup> Somewhat similar is the lack of distinction in the accounts of single proprietorships, between personal and business transactions.<sup>4</sup>

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"<sup>5</sup> 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

<sup>3</sup> 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.

<sup>4</sup> 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.

<sup>5</sup> *Bulletin 59*, National Bureau of Economic Research (May 4, 1936), pp. 11-12.

come.<sup>6</sup> 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.<sup>7</sup> 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.<sup>8</sup>

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.

<sup>6</sup> 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.

<sup>7</sup> *Regulations 86, Income Tax, Revenue Act of 1934* (Washington, 1935), pp. 372-5.

<sup>8</sup> *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.<sup>9</sup> 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-

<sup>9</sup> 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.<sup>10</sup> 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.

<sup>10</sup> 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?<sup>11</sup> 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.<sup>12</sup> 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.

<sup>11</sup> 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).

<sup>12</sup> 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<sup>13</sup> 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 . . . ." <sup>14</sup> 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.<sup>15</sup> (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.

<sup>13</sup> Harold Hotelling, 'The Economics of Exhaustible Resources', *Journal of Political Economy*, April 1931, p. 170.

<sup>14</sup> *Accountants' Handbook*, p. 1079.

<sup>15</sup> 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.<sup>16</sup> We may assume that prices fall, during recession, at the rate of one per cent per month,<sup>17</sup> and that stocks are on the average about three months old.<sup>18</sup> 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.<sup>19</sup> 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-

<sup>16</sup> Cf. Colin Clark, *The National Income, 1924-1931* (London: Macmillan, 1932), Appendix I.

<sup>17</sup> 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.

<sup>18</sup> 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*.

<sup>19</sup> 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<sup>20</sup> 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.<sup>21</sup> 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.<sup>22</sup> The probable consequences of these diverse treatments may be

<sup>20</sup> 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.)

<sup>21</sup> 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.

<sup>22</sup> 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 <sup>1</sup>	MAN-HOURS OF MAIN- TENANCE EMPLOYEES PER 100 CAR-MILES, STEAM RAILROADS <sup>2</sup>
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

<sup>1</sup> Based on the annual reports of eight large oil and natural gas mining companies.

<sup>2</sup> 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).<sup>23</sup>

<sup>23</sup> '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.<sup>24</sup>

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

<sup>24</sup> 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.<sup>25</sup> 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

<sup>25</sup> 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<sup>1</sup>

All corporations in the United States  
(millions of dollars)

YEAR	(1)	(2)	(3)
	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

<sup>1</sup> 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).<sup>26</sup> That is, revaluation of inventories affected the computation of net income for the year to the

<sup>26</sup> The change in value ( $v$ ), price ( $p$ ) being held constant at its average amount during any short period ( $t_{n+2}-t_n$ ), that is at the value  $\frac{1}{2}(p_{n+1}+p_n)$ ; 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.<sup>27</sup> 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.

<sup>27</sup> 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 INVEN- TORIES, EXPRESSED IN CONSTANT (1929) PRICES	(2) CHANGE IN INVEN- TORIES, EXPRESSED IN CURRENT PRICES	(3) CHANGE IN BOOK VALUE OF INVEN- TORIES	(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.<sup>28</sup>

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.

<sup>28</sup> 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.<sup>29</sup>

### 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.<sup>30</sup>

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

<sup>29</sup> 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.

<sup>30</sup> 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.<sup>31</sup> How satisfactory are these computations for the measurement of national income?

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

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.<sup>34</sup>

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

<sup>31</sup> 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.

<sup>32</sup> Cf., for example, R. F. Fowler, *The Depreciation of Capital* (London: King, 1934), pp. 11-12.

<sup>33</sup> 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.

<sup>34</sup> 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,<sup>35</sup> 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.<sup>36</sup> 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

<sup>35</sup> 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.

<sup>36</sup> 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.<sup>37</sup> 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.<sup>38</sup> 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

<sup>37</sup> 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.

<sup>38</sup> 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.<sup>39</sup> It is easy to consider corporate taxes as a whole a legitimate expense, paid for services rendered by the state.<sup>40</sup> 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

<sup>39</sup> Cf. Mitchell and Kuznets, *op. cit.*, p. 10.

<sup>40</sup> 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.<sup>41</sup> 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.<sup>42</sup> 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

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

<sup>42</sup> 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.<sup>43</sup> 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.<sup>44</sup> 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.

<sup>43</sup> *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).

<sup>44</sup> 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 <sup>1</sup>	200.0	202.3	239.8

<sup>1</sup> 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.<sup>45</sup>

<sup>45</sup> 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.