A REVIEW OF PRICE-LEVEL CHANGE

AND

INCOME DETERMINATION CONCEPTS

BY

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B.Com., London University, 1949

A thesis submitted in partial fulfilment of

the requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION

in the Faculty of

Commerce and Business Administration

We accept this thesis as conforming to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

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ABSTRACT

The thesis seeks to find some satisfactory concept of income and contrasts economic income concepts with accounting concepts. The case for price-level accounting is set out by illustrating from various case studies the deviation of income in real terms from reported income, and by considering the theoretical arguments in favour of price-level accounting. Arguments against price-level accounting then follow.

Principles underlying the two main schools: the purchasing power historical cost system and the current cost system are next considered followed by a demonstration and appraisal of the application of several price-level accounting systems that have been proposed.

Finally a reconciliation between economic and accounting concepts of income is attempted, and a position in favour of price-level accounting is supported.
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A REVIEW OF PRICE-LEVEL CHANGE AND INCOME DETERMINATION CONCEPTS

I. WHAT IS INCOME

"Accountants have no complete philosophical system of thought about income; nor is there evidence that they have ever greatly felt the need for one." ¹

The function of accounts

Broadly the accounting functions fall into two main groups: (a) the preparation of general-purpose statements, viz., the statement of income for the period ² and the statement of the financial position of the enterprise at the end of the period, and (b) the provision of special-purpose reports which provide data for financial and costing control. While the latter function is rapidly gaining in importance, the first function nonetheless corresponds to the layman's concept of accounting, and the present study will be primarily concerned with certain specific problems in this area. These problems are concepts of income and income measurement with particular reference to changing price levels.


² "A fair determination of income for successive accounting periods is the most important single purpose of the general accounting reports of a corporation", W. A. Paton, "Recent and Prospective Developments in Accounting Theory", in Dickinson Lectures in Accounting, Cambridge: Harvard University Press, 1936-37 - 1939-40, 1943, p. 97.
What is income

A pertinent question is, "Whose income do we wish to measure?" The economist and the accountant might well have different concepts in mind. The economist concerns himself with the level of income which flows from a certain level of economic activity; the national income for example, is a quantitative measure of this concept.

An accountant thinks of income in a very different way. He is not concerned with the total flow of wealth in a community nor the accretion to an individual's stock of wealth from all sources. The income he deals with is that of a business enterprise, an accounting entity which may comprise an individual, a collection of individuals, a partnership or a corporation.

When we consider the nature of income, we find that the economist considers profit as only one of the components of income. "Income ...... may be derived by working for wages or salaries, or from owning property, land or capital equipment, which contributes to the output of goods, or from lending money ...."

3. "National income may be defined provisionally as the net total of commodities and services (economic goods) produced by the people comprising a nation; as the total of such goods received by the nation's individual members in return for their assistance in producing commodities and services; as the total of goods consumed by these individuals out of the receipts thus earned; or, finally as the net total of desirable events enjoyed by the same individuals in their double capacity as producers and consumers." Simon Kuznets, in article on "National Income" in Encyclopaedia of the Social Sciences, New York: MacMillan Company, 1950 (reprinted), Vol. XI, p. 205.

A comprehensive theory of profit is propounded by J. B. Clark and others; they view profit as arising out of change in a dynamic economy as, for example, in the state of arts or demand and supply schedules. Thus profits are the result of disequilibrium and imperfection of competition. Other economists have attempted to define profit as a reward to one of the factors of production. Thus some economists postulate that change must be unpredictable; profit then is the return to risk and uncertainty borne by capital. Others again believe that profit arises from economic change which is deliberately induced; in this innovation theory the entrepreneur is the vital factor. It has been held that the emphasis placed by this theory on management initiative is the most satisfactory one in understanding the dynamics of our modern industrial economy. Thus not only is there no consensus of opinion among economists but the economic profit concepts do not lend themselves to objective measurement and further quantitative analysis.


In contrast, accountants have adopted an entirely different approach. The term 'income' is treated as synonymous with 'profit'; at least this is done for enterprise income, with which we are concerned. Accounting profit is institutional in conception. It is characterized by two common features - it is a residual figure and it is non-contractual. Further, it comprises income from all sources - accounting profit may include elements of rent, labour and interest. It thus tends to be heterogenous in nature, the extent of heterogeneity depending on the type of enterprise and, in some cases, the nature of the business. Nonetheless, it possesses the important merit of being measurable. Further, it is usually possible to make certain adjustments which will eliminate the differences, or at least, minimise these differences for purposes of inter-enterprise comparisons.

Though our analysis is centred on the net income or net profit of the business enterprise, often referred to as business income, nevertheless a rapprochement between the economists' and accountants' viewpoints is essential. The theoretical systems of the economists provide the framework of reference against which we can test the validity of the concepts of income measurement developed by the accountants to account for economic activity.

9. The accountant also recognizes there are other sources of income, such as investment income.

ECONOMIC CONCEPTS OF INCOME

Income has been variously defined. Some definitions are given below; they confirm that income is, indeed, a controversial subject.

"Income has been defined as: (1) 'the wealth measured in money which is at the disposal of an individual or a community, per year or other unit of time'; (2) 'the inflow of satisfactions from economic goods, estimated in money' (Seligman); (3) 'those incomings which are in the form of money, including payments in kind.'

"These definitions have some ambiguity. In general, the term is confined to those 'satisfactions which are capable of being parted with, or are usually parted with, for money.'"

There is no one concept of income which is generally accepted by economists; instead there are a confusing number of concepts which often conflict. We shall deal here only with those few which have been a significant influence, directly or indirectly, on the development of accounting thought on income.

Fisher's income concept

It has been suggested that the income theory advocated by Irving Fisher is representative of economists' views on income and that his

concept more nearly parallels that of the accountant than does the work of any other economist. "Income", according to Fisher, "consists of services, which can be defined as desirable events or the avoidance of undesirable events.... The value of an income is the value of the services of which it consists; it is measured for practical purposes in terms of money." 14 Elsewhere he writes: "A stock of wealth existing at a given instant of time is called capital; a flow of benefits from wealth through a period of time is called income". 15

These benefits are abstract services derived from material assets, which are themselves capital. The gross income is the value of all the services flowing from an article of wealth in a period and the net income is the excess of gross income over the outgo (defined as disservices or undesirable events). For the community as a whole, the income received in any stage of economic activity will be equally matched against the outgo in the succeeding stage, and the only uncancelled element in the matching process is final objective income, that is, the final personal uses of wealth, ordinarily called "consumption". The last link in the chain of income flow is final subjective income, defined as the stream of consciousness of any human being.

There are certain affinities between Fisher's system and that of the accountant, Fisher conceived of income as a continuous flow of benefits, which closely approximates certain accounting doctrines of continuity, in particular the going concern convention and the accrual

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concept. Net income measured as the differential between gross income and outgo or disservices is also a familiar accounting concept. Further, income as consumption is comparable to the accountant's realization convention, that is, income is earned when the end-product passes into the hands of the consumer.

Nonetheless, it is difficult to justify the extravagant claims made for the influence of Fisher's work on the development of accounting theory and practice. 16 Much of the controversial aspects in Fisher's income concept would appear to arise from his desire to avoid double counting within the framework of community incomes. In order that both the services which go into the production of a capital instrument and the services that are derived from the capital instrument should not be included in the income measure, he suggests that savings must be excluded in the year in which the savings are accumulated, since the interest on the savings will be counted as income in subsequent years; he thus equates income with consumption. 17 Taking this premise to its logical conclusion, he recommends that the capital cost of an asset should be deducted as an outgo in determining net income of the year in which the investment took place, 18 thus confounding not only the accountant's distinction between capital and revenue expenditure but also generally accepted economic concepts of personal and social incomes. That the author of this novel concept considered it a practicable tool of income measurement is evident

18. Ibid., p. 123.
in the following quotation: "A business-man's money-income means to him the money receipts from his business, less the money expenses of obtaining them. As applied to commercial affairs, this concept is nearly adequate, and in fact it coincides, as a special case, with the concept of income which we have adopted." 19 When applied to an enterprise, this concept would mean that only the portion of its profits which is withdrawn by the proprietors would be considered income, any ploughed-back profits being regarded as outgo. From an accounting viewpoint the fallacy in this analysis lies in confusing the receiving of benefits with their eventual disposal. Further, Fisher does not appear to have dealt with the case where the savings are not invested, but are hoarded. A further application of this rule concerns the accumulation of interest. Fisher would have us regard such accumulation as an addition to the capital stock; any income earned but not consumed is not income. 20 Indeed, he goes further and treats an increase of capital from whatever cause as not giving rise to income. 21 This is, of course, contrary to those economic and accounting concepts which regard income as an accretion to net worth. There are other criticisms. Hicks has suggested that, since we would not regard the income of a person earning a monthly salary as nil in the week in which he is not being paid, money receipts are not a good guide to income determination. 22

19. Ibid., p. 103.
20. Ibid., pp. 134-5.
21. Ibid., p. 249.
But this is precisely how Fisher would have us measure a business man's income. His disagreement with Hicks is perhaps at an even more profound level than this. Fisher specifically excludes from his system the concept of capital maintenance. His income flow is an irregular one. This is only comprehensible in an implicit assumption of an income flow which, fundamentally, is not restrained by any considerations of periodicity in income determination. Such an assumption would conform to conditions in the real world, but renders Fisher's theory less useful as an economic model. Finally, it has been objected that the concept of community psychic income is both nebulous and invalid; since psychic income is essentially subjective it must vary from individual to individual and is clearly not additive.

To conclude, this particular income theory is inadequate in its application to the measurement of enterprise income. It does not provide a guide to investment policy, since in turn it is determined by the amount reinvested. Also, since it does not give the rate of return on invested capital, it cannot serve as a measure of operating efficiency. It thus fails to satisfy either of the tests of a good


24. "In actual fact it is seldom true...that income flows uniformly or that capital remains at a constant level." Fisher is prepared to concede, however, the notion of standard income, "it is simply the income which he would receive if he chose to keep his capital unimpaired and unincreased", but this is not to be confused with true income. Ibid., p. 110.

concept which Fisher himself has set: "it must be useful for scientific analysis, and it must harmonize with popular and instinctive usage." 26

We might briefly consider the likely effects, if any, of price level changes on Fisher's system. His income statement would not be distorted, since both incomes and outgoes are in current dollars. There is no pro-rating of historical costs. However, though Fisher accepts the likelihood of differences arising between the value of the capital asset and the corresponding outgo (equals cost) and advocates the adoption of current market values in the capital accounts, he would strictly exclude any capital gains or losses from income. His system does not permit the recognition of purchasing power gains or losses. 27

For the economy as a whole, increased costs are equally matched by increased incomes, but incomes in all intermediate stages will tend to be higher if there is a general price rise, and the final objective income will certainly be higher. Final subjective income will not, probably, be affected. It might be argued that subjective income will also rise, since the wearer will derive greater satisfaction from a more expensive suit. But this is not so if the price rise is a general one; the human mind acts as an implicit deflator and subjective income is likely to remain as before the price change took place. The picture is more complicated, however, if the increases in specific price levels are not uniform or if the price increases are confined


27. See, for example, Fisher's article on "Income" in the Encyclopedia of the Social Sciences, op. cit.
to particular commodities. Final objective income would still be
greater, but we cannot say, *a priori*, whether the subjective income
in the community would be greater or less than before, or would
remain the same.

Other flow concepts of income

Most economists who are unable to accept Fisher's theory of income
as consumption are, nonetheless, in broad agreement with his
fundamental description of income as a flow of benefits from wealth
through a period of time. Several other income concepts have been
developed from this basic premise.

Income as produce 28 - This is a backward looking concept; it
provides a measure of the income obtained in a past period. Net
income is defined as the net value which the owners of the factors of
production have received as remuneration. This net value is the
difference between the value of output produced in the period and
certain items which have been reckoned as products of previous
periods and deducted to avoid double counting. There are several
variations of this concept, two of which are especially relevant to
accounting theory. In one the deductions for depreciation and materials
consumed are based on original costs of production, thus changes in
values give rise to capital gains or losses which are partly included
(in the case of fixed assets, that part which is proportional to the
depreciation charge) in the income measure. In the other variant, these

28. See Erik Lindahl, "The Concept of Income" in Economic Essays in
Honour of Gustav Cassel, London: George Allen and Unwin, Ltd., 1933,
pp. 399-407.
deductions are based on current costs of production. Provision is thus made for the actual diminution of value of capital assets consumed in the production process, while capital gains and losses are excluded from income.

As a measure of income _ex post_, the concept of income as value of output less services at current prices consumed in producing that output is theoretically the more sound. Insofar as accounting theory recognizes the accrual to economic net worth as income, the produced income concept approximates accounting income. In practice, however, accounting theory is modified by considerations of conservatism and, to a lesser degree, objectivity; income is generally recognized at the point of sale.

_Income as sales_ - Some economists have adopted the accounting principle of treating income as earned when a sale takes place. For example, income has been defined as "determined when current costs have been charged at current price levels against current dollars of gross revenues." 29 In other words, income is sales less outgoings at current prices, and this concept again does not embrace dollars of constant purchasing power.

A similar approach was adopted by Keynes. He defines "the income of the entrepreneur as being the excess of the value of his finished

output sold during the period over his prime cost". The prime cost of production is the sum of the factor cost, that is, the amounts paid out by the entrepreneur to factors of production (exclusive of other entrepreneurs) for their current services and the user cost, which is defined as "the amounts which he pays out to other entrepreneurs for what he has to purchase from them together with the sacrifice which he incurs by employing the equipment instead of leaving it idle". But Keynes is equivocal over whether to employ historical or current costs in measuring net income. This arises from his treatment of supplementary cost, which comprises that part of depreciation which is involuntary but not unexpected. Since its influence on consumption policy is comparable to that of prime cost, the argument runs, it should be deducted from income in order to arrive at a net income concept. But Keynes does not believe that a quantitative estimate of supplementary cost can be based on principles alone, rather it depends on the choice of accounting methods. He quotes with approval the endorsement of historical cost depreciation by inland revenue authorities; the employment of an unaltered pre-determined figure ensures a zero windfall gain or loss over the life of the equipment taken as a whole. He concedes that in certain circumstances it is reasonable to employ current cost depreciation. In any event, he would exclude unforeseen changes in market values, whether due to price

31. Ibid., p. 23.
level changes, exceptional obsolescence, or acts of God from the income measure, regarding these as windfall losses (or gains) on capital account. 33

From an accounting viewpoint, these flow concepts of income are simply not comprehensive enough. They would appear to incorporate only operating income and beg the question of what to exclude, as for example, is profit on sale of fixed assets income, and does this depend on whether such profits are legally distributable or not?

There is an even more fundamental objection to Keynesian income; the realization assumption often gives a poor and inadequate measure of obtained income, as will be shown later. So far as price level changes are concerned, the income flow concepts can be defined such as to provide a measure of income ex post expressed in current dollars, which can then be deflated to give real income. Purchasing power gains and losses are normally excluded.

The Hicksian theory of income - This is the most comprehensive theory of economic income, comprising several related concepts which enjoy wide acceptance among economists and some accountants. In its pure form, it is a flow concept of income ex ante. Income is measured by the continuous appreciation of capital goods over time. Capital values, according to this theory, are dependent on the expected future services of the capital goods discounted at the current rate of interest, due allowance being made for the risk factor; as these

33. Ibid., p. 57.

expected future services draw nearer, capital values will appreciate. Income is thus measured by the difference between capital values at two instants of time, or where consumption is expected to take place, by the value consumed plus or minus the difference in the two capital values. Income as interest is thus the total sum of the consumption and the saving expected to take place during a certain period. 35

This concept is further developed by Hicks, who propounds three approximations to the central meaning of income. He defines income firstly thus,

"A man's income (is) the maximum value which he can consume during a week, and still expect to be as well off at the end of the week as he was at the beginning." 36

But if it is expected that the rate of interest, that is, the marginal productivity of capital, would change, then the central meaning of income is expressed more adequately by the second proposition.

"Income (is) the maximum amount the individual can spend this week, and still expect to be able to spend the same amount in each ensuing week." 37

When a further assumption that prices are expected to change is introduced, a third revised definition becomes necessary.

"Income...(is) the maximum amount of money which the individual can spend this week, and still expect to

35. Lindahl, op. cit., p. 401.
36. Hicks, op. cit., p. 172.
37. Ibid., p. 174.
be able to spend the same amount in real terms in each ensuing week." 38

The concept of well-offness is essentially vague. Hicks believes that the practical purpose of income is to serve as a guide to businessmen for prudent conduct, but the income concept is not one which the theoretical economist can usefully employ. 39 There is an even more insurmountable difficulty. Since the proposed measures are in terms of expectations, they are by definition ex ante concepts which are not measurable. In order to serve the accountant's purpose, income must be conceived ex post and the concepts redefined. Income ex post may be taken as the sum of actual consumption plus the increase (or minus the decrease) in capital value which has taken place during the period. Income thus conceived is no longer a flow concept; it has a hybrid composition: it is dependent partly on the consumption flow and partly on changes at two instants of time. If the future can be predicted with certainty, then all expectations will be realized and no differences would arise between ex ante and ex post income. The windfall profits or losses, that is, the difference between the value change which has taken place and the value change which has been expected to take place, can be attributable to changes in the value of money, acts of God or the King's enemies. Or they might occur on account of changes in specific price levels though the value of money itself remains stable. Further, whether we are measuring the capital

38. Ibid.
39. Ibid., p. 180. Hicks has set out the conceptual deficiencies and indeterminateness inherent in his theory. Ibid., pp. 175-6.
values of individual assets or the enterprise as a whole, then changes in expectations, at the two instants of time, of future receipts, the rate of discount or the risk factor, are also contributing factors in determining the income figure.  

The Hicksian concepts correspond closely to a fundamental accounting principle - that of "maintaining capital intact". The concept of "as well-off as before" can thus be defined in the following different ways: it is desired to maintain intact

(a) the stock of wealth in money terms
(b) the stock of wealth in real terms, that is, the stock of physical capital
(c) the flow of wealth in money terms
(d) the flow of wealth in real terms, that is, in terms of purchasing power or command over goods and services
(e) psychic well-offness

The concept of maintaining the money capital intact is now generally considered inadequate in periods where there are even moderate price level changes. When such changes are substantial there

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41. That is, to maintain the stock of wealth such that a constant income is derived from it. Professor Hayek has suggested this viewpoint (Hayek, "The Maintenance of Capital", Economica, August 1935, p. 244 et seq.) but Keynes "doubt(s) if such an individual exists". Keynes, ibid., p. 60.

42. For example, lower pay in exchange for more congenial work. The concept of subjective income is an integral part of Fisher's system, but it is alien to the accounting convention of objectivity. Alexander (in "Income Measurement in a Dynamic Economy", reprinted in W. T. Baxter and Sidney Davidson, Studies in Accounting Theory, Homewood, Illinois: Richard D. Irwin, Inc., 1962) also considers income in terms of well-being a more fundamental but unmeasurable concept in the case of an individual.
is evidence that the resultant income figure might be very misleading. Nonetheless, this is the income *ex post* concept which corresponds to Hick's first and best-known definition of income, and its adoption by the accounting profession, on account of its superiority over orthodox accounting principles, has often been urged. At any rate, it is useful to consider some of the implications of the concept, abstracting for the moment from our inquiry the two assumptions of changes in the interest rate and the general price level.

The increased net worth concept  - One of the most enthusiastic advocates of the increased net worth concept of income is Professor Ronald Edwards, who defines enterprise income as the increase in net worth (in money terms) of a business at two different dates, with due allowance for drawings and introduction of new capital in the interval. This money worth at any point of time is the present value of discounted future receipts less future outgoings. In other words, the proponents of this concept would have us face squarely that the problem of measuring income is one and the same as that of valuing capital.

It would be out of place to level the criticism of impracticability at Edwards, since he is more concerned with the conceptual problem

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43. This concept was discussed and analysed at considerable length by Professor Edwards, and its adoption by practising accountants urged in a series of thirteen articles, "The Nature and Measurement of Income", The Accountant, 1938, various months.

44. S. S. Alexander, *op. cit.*, points out that this does not constitute circular reasoning, since receipts are not income, but a mixture of income and return of principal. To measure this year's income, we need to know all future receipts, but not future incomes.
than its practical application. Nevertheless clarity of concept should lead to good practice. What is the number of future years the receipts of which are to be discounted? The answer to this is that after a certain number of future years which can be mathematically calculated given the rate of discount, the present value of the net receipts of the more distant years will be so small that they may be safely disregarded. 45 There are more basic criticisms. The discount rate must be based on two factors, the present rate of interest and the degree of risk of not realizing the future profits. The latter is essentially a subjective valuation. While Edwards claims that this valuation is made every time a business changes hands complications arise in the absence of a buyer. This form of valuation only takes place when there is a sale, amalgamation or liquidation of a business, that is, where there are two parties to bargain over the price.

Moreover, the concept of income as an increase in net worth is not, in fact, a reliable guide to consumption. The concept does not exclude capital gain from income, and, as Fisher has pointed out, "the capitalization at any point of time of future expected income is not itself income, and...an increase in this capitalization from one point of time to another is not income - except potentially". 46 An attempt to base consumption on such potential income, it is argued, is in reality a consumption of capital. The objection may not be a valid

45. The principle is the same as that in calculating the present value of a perpetual bond.

46. Fisher, article on "Income" in Encyclopedia of the Social Sciences, op. cit.
one. It begs the definition of capital. Further, given a certain degree of hindsight, the concept does tend to average out income, and though this might not accord with actual observed events, it may not altogether be a bad thing, since consumption in practice does tend to be evened out. Consumption policy, though, is not Edward's prime concern. He considers that the most important function of the increased net worth concept is to reveal the rate of return on the resources invested in the undertaking thus providing a guide to investment.

The variable income concept — A special case of the Hicksian concept of income ex post has been developed by Alexander, which is particularly useful in assessing managerial efficiency, and thus also enhances its usefulness as a guide to investment. Alexander also proceeds from the concept of income as an increase in the capitalized value of future expectations. But it is proposed that under conditions of uncertainty, a distinction should be made between two components which together make up mixed economic gain: variable income and unexpected gain (or loss). Variable income comprises the net receipts from the asset, plus or minus any value change which was, at the beginning of the period, expected to take place during the period; it also includes

any value changes which take place as a result of managerial activity. We exclude from variable income any unpredictable value changes, which might arise on account of a change in expectations due to wrong judgments made at the beginning of the period.

The merits of the variable income concept are: (a) it satisfies the economic definition of well-offness, (b) it reflects year to year variations in the results of the firm's operations, (c) under certain assumptions - that going value will be maintained intact when tangible equity is maintained and price levels are constant - variable income is the same as production profit and approximates accounting sales profit, and (d) the variable income concept is particularly useful for assessing managerial efficiency.

But the concept, useful as it is in emphasizing one of the main functions of income measurement, has two serious defects. As a practical measure it would be well-nigh impossible to implement, since we are required to distinguish between value changes which are the results of good judgment and good luck respectively. The problem becomes more intractable when price level changes are taken into account. Who is to say whether the purchase of an asset at a lower price is to be attributed to skill and judgment or to external market forces?

Furthermore, the concept seeks to exclude unexpected gain from income. Unexpected gain is defined as the difference between the value

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48. If expectations of future receipts have been affected by operations in the current year, then variable income is redefined as the net receipts from the asset, plus or minus any change in its value which was expected at the beginning of the period, plus or minus the discounted value of any consequential change in expected future receipts brought about by the level of current receipts.
of the asset at the end of the period and what that year-end value was expected to be at the beginning of the period. Thus it would appear that one aspect of management ability - the ability to forecast future profits - will not be reflected in the variable income figure, but in the size of the unexpected gain or loss.

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We might take a pause at this juncture to consider the development of the accountant's concepts of income measurement and their application.

ACCOUNTING CONCEPTS OF INCOME

When double-entry bookkeeping was first developed in the 14th century or earlier, it did not concern itself with income determination. Since the enterprise comprised a single venture form of trading and all assets were disposed of at the end of the venture, the function of the bookkeeper was to record the sales and purchases, the profit on the venture being automatically determined.

An important change took place with the development of joint stock corporations. These were permanent forms of enterprise, and a periodical determination of profit was considered necessary to guide proprietors in their consumption policy. The method adopted reflected the influence of single venture accounting. All assets were valued.

Circulating capital was valued at cost price, except that finished goods were often valued at selling price, and fixed capital was valued at cost less depreciation. The total of these values was compared with the total similarly computed at the beginning of the period to determine net income for the period (making due allowances for introduction of new capital and withdrawals). This is, of course, the balance sheet method of computing income.

It was not until the early 20th century that accountants began to compute income by matching revenue from sales against costs including depreciation. Thus depreciation accounting was evolved, in which fixed capital is regarded as costs which are used up as they render service in succeeding periods.

Insofar as accountants understand and accept the qualifications in their own work, it has been claimed that they have a highly unified theory of business income. The accountant's present day concept of income falls into two separate but closely inter-related aspects: (a) income defined as an increase in owners' equity, and (b) income as the excess of revenue for the period over costs incurred during the period.


The dominant position of the balance sheet in the accounting scheme is generally held to be unsatisfactory, and the modern trend is for it to be superseded by the income statement, a trend hastened in the United Kingdom by the statutory requirements of the English 1948 Companies Act and in North America by the requirements of disclosure specified by the Securities and Exchange Commission.

But this point has been over-emphasized in recent accounting literature. The information required to be disclosed in the United Kingdom does not include the all-important sales figure, nor such outgoings as purchases or advertising. The present disclosures in the income statement are, therefore, altogether inadequate for analysis purposes or for comparison, either between enterprises or for the same enterprise over a number of years. But, more fundamentally, the income figure is a reflection of changes in the two balance sheets at the beginning and end of the period respectively, and it is the accounting principles and conventions which underlie this relationship that have given rise to most of the accounting problems in income determination.

53. M. E. Murphy (Accounting, A Social Force in the Community, p. 99) quotes with approval B. B. Parkinson, an English Chartered Accountant, "The undue elevation of the balance sheet until more recent years in accountancy law and literature may excuse - though it does not justify - hasty conclusions concerning its importance".


55. But details of turnover are a suggested requirement included in the Report of the Jenkins Committee on Company Law which was set up in U. K. to consider the desirability of new company legislation. The Report was placed before Parliament on June 21, 1962.
The term "accounting concepts" is often employed in the relevant literature, though there is little consensus of opinion as to its precise scope and meaning. For example, the economists' concepts of capital, income and asset valuation have been contrasted with corresponding concepts based on accounting practice.\(^{56}\) The accountants' approach to these problems, however, is clearly procedural and can hardly be considered conceptual. The 1957 Revision of the Accounting and Reporting Standards for Corporate Financial Statements discussed under the head of "underlying concepts": the business entity, enterprise continuity, money measurement, and realization.\(^{57}\) They are very similar to a longer list propounded by Paton and Littleton: the business entity, continuity of activity, measured consideration, costs attach, the matching of effort and accomplishment, and verifiable, objective evidence.\(^{58}\) Many authorities, however, find that the terms concepts, principles, canons, postulates, conventions are often used interchangeably.\(^{59}\)

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There would appear to be a general disagreement on terminology, the urgent resolution of which strengthens the case for an "accounting court". 60

In general, there appear to be three orders of definitions of principle: "(1) source, origin or cause, (2) a fundamental truth or proposition on which many others depend; a primary truth comprehending or forming the basis of various subordinate truths, and (3) a general law or rule adopted or proposed as a guide to action: a settled ground or basis of conduct or practice..." 61 While recent developments in accounting have emphasized the search for fundamental truths, it is the third definition of principle which has generally been found to underlie accounting practice in the past. Certain of these accounting principles are briefly given below.

The entity concept  The business undertaking is conceived of as an accounting entity distinct from the interests of the owners. The rationale of this concept is based, firstly, on law. A corporation is a legal entity distinct from its shareholders; in English legal procedure a firm, that is, a partnership, also possesses some of the qualities of an entity. Secondly, there is great convenience in stating the financial position of an unincorporated enterprise without taking into account the owners' assets and liabilities outside the business. 62 But probably the most important factor is that the entity

60. This was called for by Leonard Spacek, "The Need for an Accounting Court", Accounting Review, July 1958, p. 368.


62. See Accounting and Auditing Practice Bulletin No. 19, issued by the Committee on Accounting and Auditing Research of the Canadian Institute of Chartered Accountants, July 1961.
concept is coextensive with an economic unit. Thus it facilitates the important accounting function of measuring the rate of return on investment in individual concerns.

Though the entity concept of the accounting unit is widely accepted, there are also certain opposing theories. The proprietary theory emphasizes the standpoint of the proprietor of a business enterprise and changes in the proprietor's "Net worth"; the theory has become less tenable with the development of corporate organization. Vatter finds both the entity and proprietary concepts emphasize the personalistic approach and thus do not lend themselves to objective application. He proposes in their stead a fund theory of accounts. 63

The money postulate There are two assumptions that accountants adopt towards a monetary unit of account. One is that they measure only those services and disservices which can be translated into money terms and that these money measures constitute valid and useful approximations to income and net worth. The other assumption is that the monetary unit possesses constant purchasing power, alternatively, that price level changes do not affect the accounting statements in any significant way and therefore can be ignored, or at least that when prices change they will eventually revert to their original level.

The realization principle Prior to 1913 income was measured as an increase in net worth and the convention of recognising profit on sale evolved only after the First World War. 64


conflicts with the economic concept of "income (as) the money value of
the net accretion to economic power between two points in time"; 65
the economist recognises profit accruing at each stage of the manufacturing
process. The accrual concept itself is familiar to the accountant;
this is how he values a fixed interest-bearing bond. It is perhaps
not untrue to assert that the accountant is aware of the increase in
values taking place in the manufacturing process, but he is restrained
by the consideration of two other conventions, conservatism and
objectivity, from taking profit into account before a sale takes
place. Realization is, of course, the critical event for most types
of enterprise. In gold refining where the United States government
has contracted to purchase at a specified price, and in other extractive
industries whose output is sold on an international market, profit
is recognized on the mining of the metal. Similarly, in the rubber
industry revenue is recognized on the sale of the closing stock in
the subsequent period and in agriculture on the harvesting of the
crop. Again, where collection is the critical factor, as with some
professional firms, it determines the moment of time at which profit
is taken into account. The critical function theory of profit recognition
provides, conceptually, a more valid rationale of the realization
principle than the doctrines of conservatism and objectivity. 66


66. See John H. Myers, "The Critical Event and Recognition of Net
Profit", Accounting Review, Vol. XXXIV, No. 4, October 1959,
pp. 528-32.
The going concern principle

The concept of continuity, or as Dicksee terms it, the assumption of permanence, has considerable influence on income measurement theory. It is the not unreasonable assumption that the business is going to continue operations indefinitely which underlies the concept of depreciation accounting. The accountant "accordingly emphasizes the flow of costs and the interpretation of assets as balances of unamortized costs". 67

But it can be argued that the business enterprise in fact is not immortal, and that we can determine the statistical expectancy of life of any enterprise. Should we adopt such an approach, then where the economic life of the asset exceeds the life expectancy of the firm the service potential of the asset is restricted, with consequential effects on the rate of depreciation and income measurement. More generally, cancellation values will be lower than accrual values for all assets. Thus it is held that the going concern concept "has been useful in broadening the scope of accounting beyond the limitations of liquidation value and of strictly construed legal rights and obligations". 68

The accounting period convention

The determination of enterprise income for a definite time period, sometimes referred to as the financial year of the enterprise, is of almost universal application in accounting practice. 69 It constitutes in effect the rationale for the matching

67. Paton and Littleton, op. cit. p. 11.
68. The Basic Postulates of Accounting, p. 39. See footnote 86 for full citation.
69. There are minor exceptions as, for example, in accounting for joint ventures.
principle. It has given rise, directly or indirectly, to many of the more intractable problems in income measurement since the income of the enterprise cannot, in effect, be determined with precision until it has come to the end of its economic life. But owing to the natural impatience of the owners to consume part or all of the income as it is being earned, accountants perforce apportion the enterprise economic life into arbitrary periods, usually approximating that of a calendar year. The apportionment, however, might well be less arbitrary than it would appear, since many human economic activities are governed by events related to the seasons, in particular to the annual harvesting. Some examples are provided by an agricultural farm, a tobacco manufacturing firm, a department store, a wine shop. 

The matching principle  

Income has been defined as the surplus arising out of the matching of expired costs against revenue, 70 or more elegantly, of effort and accomplishment. 71 In accounting practice, the definition can be further narrowed down to the matching of sales against the cost of producing the output sold. The matching process constitutes one of the most comprehensive of the accounting concepts. It arises out of the necessity of accounting for periodical income and it embraces the important accounting principles of accrual and deferment. Accrual accounting is said to be superior to cash accounting, since it matches against current income current disservices, including those for which payment has not been made.


The principle of accrual income, which runs counter to the conservatism rule, is infrequently applied, as in certain cases of fixed interest-bearing securities. Deferral constitutes another way of looking at the depreciation concept; an asset is conceived of as a bundle of deferred charges, to be associated with the current services it renders in each successive period of its economic life.

The cost principle  Accountants measure an asset at the price of acquisition. Since this is the economic value, the test of the market place, it is held to be objective, and further, it has the merit of being verifiable. The asset is maintained in subsequent periods at its original cost ostensibly for two reasons. To do otherwise for a fixed asset would run counter to the application of the continuity concept, while in the case of a current asset, to act otherwise would be contrary to the realization principle. The cost principle has often been subjected to strong criticisms. In the first place, the principle is not consistently applied. Where the book value of the inventory has been reduced to the lower of cost or market at the end of a financial period, the new figure which has incorporated a departure from cost is accepted as the new cost figure for the subsequent period. Secondly, where the cost figure has been deflated by means of a general price index, in order to take purchasing power changes into account, there has in fact been a restatement of the cost figure in the depreciated monetary unit, rather than a

departure from the cost principle. The traditionalists who oppose this form of adjustment are defending, not historical cost, but original cost.

The doctrines of conservatism and objectivity

It has been held that conservatism is a philosophy or an attitude and not a principle, 73 but there are others who would disagree. 74 Conservatism has been defined as "a reaction to uncertainty and represents in essence merely a counsel of caution. The proper role of conservatism in accounting is to insure that the uncertainties and risks inherent in any given business situation are given adequate consideration". 75 In practice, however, the concept has been much abused; accountants generally consider it meritorious, where an alternative exists, to understate income and net worth and overstate costs.

The doctrine of objectivity, and its corollary the distrust of subjective valuations, have long been sacred cows in the accounting profession. These principles appear to have been vindicated by the experience of the asset reappraisals in the inter-war years. The


74. "The word 'principles' has a proper application to accounting as connoting certain fundamental qualities of good accounting, notably conservatism and consistency", George C. May, op. cit., p. 44.

75. Professor Robert L. Dixon supplied this conception of the role of conservatism - quoted in Moonitz, op. cit., p. 47.
influence of the objectivity principle on income measurement is closely intertwined with the operation of several other accounting principles, as for example, the recognition of profit on sale and the emphasis on historical costs. It has not, however, the same force as the conservatism principle. Thus, under the going concern assumption, while fixed assets are valued at cost less depreciation, current assets should properly be shown at market values. The rule of lower of cost or market, however, overrides both the going concern and objectivity principles.

The consistency principle

The application of the consistency principle ensures comparability of the accounts of the enterprise (a) within the accounting period, (b) between one accounting period and another, and (c) between departments and sections within the organisation. A change to a better system is permissible, provided that the change and its effects on the accounts are indicated. But in practice this accounting principle has often been abused, and it has sometimes served as a rationalization of and lends support to inertia.

It should be noted that the consistency rule does not apply between individual companies, even where they belong in the same industry (though advocates of uniform accounting systems believe it should. The modern trend appears to be toward greater uniformity and consistency). The accounts, however, should be capable of being adjusted for inter-company comparability.

The concept of materiality

This concept is best defined as the necessity to disclose information which might lead an informed investor
to change or modify his decision. This criterion, rather than the size of the transaction in absolute dollars or ratio terms, should serve as the guide to disclose. The concept is concerned with the exercise of judgment; it must not be confused with a situation which involves any compromise of an accounting principle.

The adequate disclosure principle The adequate disclosure principle is closely related to the materiality concept. The following are some brief guidelines to disclosure: all pertinent facts must be disclosed; the statement should be couched in precise, technical accounting terminology; the information should be properly classified and the statement must be meaningful and not misleading; any events that occurred after the balance sheet date but before the date of publication of the accounts which materially affect the general picture should be disclosed.

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The above description of accounting principles appear to confirm they are primarily rules adopted as a guide to action and do not constitute a general body of theory. The defense is sometimes made that, nonetheless, these principles have served well in the past. It is clear however, that certain contradictions inherent in these accounting conventions have never been resolved. For example, the rules are at times mutually exclusive. The application of the going concern principle to asset valuation might well defeat a conservative

76. Moonitz, ibid.
philosophy when fixed asset prices fall; many creditors and shareholders have discovered to their dismay that balance sheet values can be overstated as well as understated (which is the more usual state of affairs). The conservative principle often conflicts with full disclosure; it conflicts with consistency in the application of the lower of cost and market rule to inventories; it defeats its own purpose when overdepreciation in one year's accounts leads to underdepreciation in subsequent years. Further, there have been considerable doubts that many of these principles, even if properly and consistently applied, are valid guidelines for accountants today. A conservative valuation is not necessarily the correct or the best available figure to adopt in accounts. The application of the realization principle is said to distort the reported income as between accounting periods. Advocates of price level accounting have long challenged the assumptions of the monetary postulate.

The lack of an internally consistent framework of accounting principles is attributed by some practitioners to the status of accounting as an art rather than a science, though such a view must have many critics. Other authorities prefer to attribute the lack of fundamental laws or absolute precepts to the way accounting has evolved to serve divergent objectives. Thus the auditor's opinion


78. Catlett, op. cit.
that the accounts "present fairly the financial position ....
and the results of operations for the year then ended, in accordance
with generally accepted accounting principles applied on a basis
consistent with that of the preceding years" 79 can hardly be justified. It is believed that the term "generally accepted accounting principles" first came into use as a result of the correspondence, published in 1934, between a committee of the American Institute of Certified Public Accountants, a committee of the Controllers Institute and the New York Stock Exchange. 80 The question of what constitutes "general acceptance" has often been asked, and it has been suggested that these principles might have been accepted by accountants but they have at best been tolerated and at times viewed with suspicion by stockholders and the general public. 82 "So many costs can at option legitimately be anticipated or deferred, expensed or capitalized, that no corporate earnings figure is now regarded by sophisticates as absolute and objective." 83

79. My italics. This is the usual practice in North America. The reference to "generally accepted principles" is not customary in the United Kingdom.


81. See, for example, Accounting and Reporting Problems of the Accounting Profession, published by Arthur Anderson & Co., September 1960, p. 1.


A fundamental objection to the defense of past service lies in the large transformations economic conditions have undergone in the twentieth century. Some of the more significant changes are attributable to the complex nature of corporate organisation and the high rate of technological change. But a special problem also exists in the instability of the monetary unit. The assumption that money provides a stable measure of value no longer holds true, and the retention of the monetary postulate in accounting practice has often led to a wide divergence between the true state of affairs and the reported figures. Accounting statements fail increasingly to reflect financial conditions in the real world.

The need for a logically rigorous and internally consistent framework of accounting principles has become increasingly urgent to meet the needs of modern economic enterprise.

(a) Company accounts have taken on a public character. They are not the sole concern of some special segment of society, but have become basic data for the investor, the consumer, the employee and the government.

(b) From an economic welfare viewpoint, one of the most important functions of accounting statements is to serve potential investors. They influence the flow of funds into alternative lines of investment and helps to procure an optimum allocation of resources.

(c) They provide an important criteria by which management performance can be judged, a function all the more important with the present day separation of ownership from management.

See also Paton and Littleton, op. cit., pp. 1-3.
(d) Accounts also constitute a valuable management tool to aid management in the decision making process.

(e) The above developments have posed new and fundamental responsibilities for the accounting profession. In addition, new problems are posed by two other factors, the rapid rate of technological change and price level fluctuations.

A sound and comprehensive body of accounting theory must first be established and the principles formulated before satisfactory solutions to some of these problems can be evolved.

It is therefore against a background of discontent with existing practices and a generally felt need for a comprehensive theory to replace the present assortment of accounting rules that the Accounting Principles Board, with sole authority to make pronouncements on accounting principles, was set up in 1958 by the American Institute of Certified Public Accountants. A relevant part of the Charter Rules of the Board as adopted by the Council of the Institute is reproduced below:

"The broad problem of financial accounting should be visualised as requiring attention at four levels: first, postulates; second, principles; third, rules or other guides for the application of principles in specific situations; and fourth, research.

Postulates are few in number and are the basic assumptions on which principles rest. They necessarily are derived from the economic and political environment and from the modes of thought and customs of all segments of the business community.....
A fairly broad set of co-ordinated accounting principles should be formulated on the basis of the postulates .... The principles, together with the postulates, should serve as a framework of reference for the solution of detailed problems.

Rules or other guides for the application of accounting principles in specific situations, then, should be developed in relation to the postulates and principles previously expressed. Statements of these probably should be comparable as to subject matter with the present accounting research bulletins. They should have reasonable flexibility.

Adequate accounting research is necessary in all of the foregoing. Pronouncements on accounting matters should be based on thoroughgoing, independent study of the matters in question, during which consideration is given to all points of view .... " 85

Subsequently two research studies on the basic postulates and the broad principles of accounting were prepared and published in 1960 and 1961 respectively by the Director of Accounting Research

(of the Institute).  Though the Accounting Principles Board has found the studies too revolutionary for acceptance at the present time, nonetheless, for reasons developed below, they must be regarded as the dividing watershed in the development of accounting principles.

Moonitz considers first the approach that should be taken to formulate the basic postulates that underlie the accounting principles. He discards for various reasons the axiomatic approach, the ethical or sociological approach, and the pragmatic approach. In a selection of methods, it was held that "relatively heavy reliance must be placed on deductive reasoning in the development of accounting postulates and principles. We must first recognise and define the problems to be solved, then move to their solution by careful attention to what 'ought' to be the case, not what 'is' the case". (It must be admitted that this method seems somewhat familiar to the axiomatic approach which the author has discarded earlier.)

The following statement of the function of accounting is closely related to the first five postulates (A-1 to A-5):


88. Such as the concepts of justice, truth, fairness, adaptability and consistency advocated by DR Scott, "The Basis for Accounting Principles", Accounting Review, December 1941, pp. 341-49.

89. Moonitz, op. cit., p. 6.
"The function of accounting is (1) to measure the resources held by specific entities; (2) to reflect the claims against and the interests in those entities; (3) to measure the changes in those resources, claims, and interests; (4) to assign the changes to specifiable periods of time; and (5) to express the foregoing in terms of money as a common denominator."  

Moonitz divides his postulates into three groups. These are reproduced in Appendix A at the end of this chapter. Some general comments are included below.

Group A. The environment of accounting

Our economy has certain characteristics: private ownership of productive resources, production for exchange and the market place, free labour and the use of money. Economic activity is carried on mainly through the medium of business-type entities, which concentrate on producing goods and services. The allocation of scarce resources to these entities is based on predictions which in turn depend on past results and future estimates. These results, estimates and predictions are in part stated in quantitative terms. Here, then, is located the function of accounting.

Certain generalisations can be formulated against this political and economic environment in which accounting exists. One that underlies all others assumes the existence of order and predictability in human affairs. The five more specific generalisations

90. Ibid., p. 23.
included in Group A deal with quantification, exchange, entities, time period and the unit of measure.

Two further groups of supplementary propositions deal with accounting itself.

Group B. The field of accounting

The four propositions in Group B apply over an area that is coextensive with accounting. Postulate B-2, which states that accounting data are based on past, present or future exchange prices, is particularly thought-provoking. Conventionally, accounting data are based on past exchanges. It is pointed out that this is proper for initial recording, provided that certain assumptions are present: arm's length bargaining, rational conduct and dealings in an active market. The postulate in fact seeks an abandonment of cost, as conventionally defined, as the basis of accounting measurements. The concept of cost is expanded to include any "objective measurement."

Group C. The imperatives of accounting

The five propositions included in Group C stress what ought to be: the goals, objectives and standards of accounting. They are not coextensive with the field of accounting, nonetheless they have a wide applicability. Postulate C-2 defines 'objectivity' to mean "unbiased:

91. On a matter of terminology, Moonitz urges that "cost" should be restricted to cash transactions, and non-cash transactions should be called by other names, such as "market price", "fair value", "estimated value", etc.

subject to verification by another competent investigator. In this usage, an estimate or forecast can be objective, along with completed events of the past." Postulate C-3 on 'consistency' refers it to a given entity over time periods. The postulate does not extend to inter-industry comparisons, partly because it is felt that, in instituting a proposed change, the individual enterprise should be governed by considerations of improved efficiency rather than improved intercompany comparability.

The concepts of materiality and conservatism are reflected as basic propositions.

The study on accounting postulates is accompanied by one on broad accounting principles. The guidelines for formulating the set of principles (a summary of which is reproduced in Appendix B at the end of this chapter) are: (1) to ensure comparability of the principles with the basic postulates, (2) to carry the analysis and discussion far enough to make clear the implications of the principles, and (3) to formulate recommendations that can be reduced to practice. The authors state that the principles have been designed to meet the needs of all interested groups. Further, they are "relevant primarily to formal financial statements made available to third parties as representations by the management of the business enterprise."
Some of the more controversial issues raised by the authors which represent significant departures from accepted accounting practice can be briefly summarised. The authors do not accept the realization principle, quoting with approval May's views that profit is attributable to the whole process of business activity and that the realization principle gives satisfactory results only when the flow of product is reasonably uniform. 97 The authors further find that the concern of accounting is properly with the changes in assets and debts, and the related (derived) effect on profit. There is thus a movement away from an operating profit concept back to the older concept of profit as a change in net worth. Income measurement is thus seen as part of the wider problem of asset valuation.

Money or claims to money should be stated at their discounted future exchange prices. "The use of the market (effective) rate in force at the date the receivable was acquired will result in the recognition of the amount and rate of interest actually being earned by the company under the contract entered into". 98 With regards to other assets, it is recommended that inventories which are readily saleable, such as agricultural produce and precious metals, should be measured at net realizable value (a future exchange price), thus assigning the change in resources and the related profit or loss to the period of production. 99 Most inventories, however, should be valued at their replacement cost (a current exchange price) and not their costs of acquisition. The use of current (replacement) cost has the further

99. Ibid., p. 27.
merit of distinguishing "holding" (the difference between acquisition and replacement costs) and "operating" (the difference between replacement cost and selling price) gains or losses. In the absence of some formal procedure, such as a quasi-reorganisation of a merger, fixed assets are to be carried initially at acquisition cost. But the asset accounts should be restated in terms of current replacement cost at periodic intervals, say, every five years. Current market prices should be employed for the purpose, or in their absence, index numbers or some form of appraisal.

Some broad generalizations are made in both studies about the price level problem. The authors quote with approval an excerpt from the minutes of the Accounting Principles Board that "the assumption in accounting that fluctuations in the value of the dollar may be ignored is unrealistic ...." 100 Since a separate study on price level change and its impact on accounting is under way, detailed attention on price level problems is not included in these two studies on accounting postulates and principles.

Both studies have aroused considerable interest and comment, some of which have been highly critical. 101 Spacek finds the basic postulates self-evident and inadequate to serve as the basic foundation on which sound accounting principles can be established. He would have preferred an ethical approach, and would emphasize justice, truth and fairness; the one basic accounting postulate

100. Ibid., p. 19.

101. See, in particular, the individual comments on the studies included at the back of the two monographs, and also Cannon, op. cit., Grady, op. cit., and "Editorial", Maurice E. Peloubet, "Is Further ....contd.
underlying all accounting principles is fairness - fairness to all segments of the business community. Moonitz, on the other hand, has stated in his monograph that while these concepts must not be ignored, they cannot serve as the point of departure for an objective enquiry, since the concepts are subjective and themselves need standards to be capable of application. On the whole, Moonitz's point of view is more persuasive. The essential test is that the proposed postulates should not outrage ethical values rather than that they should comprise the ethical values themselves.

The controversy over the publication of the 'principles' takes place in several areas. Advocates of the proposed principles see large merits in the uniformity and consistency imposed on accounts, so that similar results will be reported for similar events. The lack of authoritarian standards often leads to experimentation and from thence to misrepresentation, as in the recent case of the Sister Kenny Foundation. Critics, however, fear that the imposition of uniform standards will lead to a loss of flexibility in meeting different sets of conditions and constantly changing environment. The argument might be over relative emphasis, as most accountants are in


103. Ibid., pp. 3-4

104. Spacek, op. cit.


106. Peloubet, op. cit.
favour of minimising areas of difference, while agreeing that dissimilar situations might call for differences in accounting method.  

It is also felt that the heavy dependence on deductive reasoning in the approach adopted in the research studies is not altogether desirable. Most practitioners would prefer to see theory directly related to practice and its validity tested in the world of practical affairs before acceptance. In particular, some fear that accounting will become more subjective with the increased emphasis on market values, current replacement costs and appraisal data.

In general, it might be concluded that these two studies represent a notable effort to develop a logically rigorous body of general theory and an internally consistent set of broad principles. Without being truly revolutionary in scope, they depart significantly from "generally accepted accounting principles" in deemphasizing the concepts of conservatism and realization. The concept of objectivity has been redefined to exclude subjective bias but to incorporate past, present and future transactions. In those areas where the generally accepted principles of accrual accounting have been inconsistent, the deficiencies have been made good, as in the recognition of market price which leads to the recognition of inventory gain as income. Another example is


108. See, for example, A. C. Littleton, Essays in Accounting, Urbana: University of Illinois Press, 1951, p. 376, quoted in Grady, op. cit.

109. Comment of Herbert E. Miller, in Sprouse and Moonitz, op. cit., p. 76.
the broad utilization of the interest factor in discounting amounts receivable or payable in the future. 110

But the largest advance lies in the broad and general proposal to incorporate market values and replacement costs into the accounting system, taking both the general price level change and specific price changes into account. 111 Since the studies do not treat the price level problem in any detail, they do not contain recommendations on methods of price level adjustments, the use of supplemental statements, or the equity case for making such adjustments in the corporate sector only. They do, however, afford a foundation for what most proponents of price level accounting believe to be basic principles: (a) the maintenance of capital in terms of the units of purchasing power invested, and (b) the statement of revenues and related costs in homogeneous current dollars. The large problems of price level changes have been well documented elsewhere, and the urgency of measures to deal with them are not in dispute. These statements of postulates and principles incorporate the price level problem within an integrated general theoretical framework. They thus constitute a milestone in the development of accounting theory.

The proposed change from cost-based to current-valued assets and net worth is seen by some to transcend the price level problem. It is part of the larger problem of bringing statements of financial

110. See, in particular, comment of William W. Werntz, ibid., p. 82.

111. See, in particular, Postulates A-5, B-2 and C-4, and the principles in Groups B and D.
condition closer to financial condition itself, which is the fundamental purpose of the accounting function. 112

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Conclusions

We are now in a position to note some of the major differences between the economist's and the accountant's concepts of income. In the first place, the development of the two disciplines have proceeded along very different paths. Economics is derived from a philosophical base and deductive reasoning. Its terms are rigidly defined. In its theoretical models, there is no compromise with the demands of practicalities and convenience. The principles of accounting, on the other hand, have been derived from practice. Accounting texts first described what is the practice in the majority of cases; this then later constitutes the principle. Accounting theory has been developed to take into account increasing complexities of business but the development was not systematic. Further, it has been essentially a pragmatic approach, with practice ahead of theory. In the last decade, however, the theorists in their model building have made large and significant advances.

A further distinguishing feature is that the economist works on a larger canvas. He is concerned not only with the income of the firm, but also with the incomes of individuals and of society as a whole. He analyses the nature of income by the source that gives rise to it, that

112. Cannon, op. cit.
is, he regards income as a reward to a factor of production. Thus he classifies economic income into interest, rent, wages and profit. When this principle is applied to the concept of national income, the economist adopts a sector approach. The interest of the accountant by contrast is a narrow and limited one. He is primarily interested in the income of the enterprise arising from all sources, and he is not, as a rule, interested in the nature of such income; nor is he interested in the incomes of individuals or of society, abstracting in his calculations from all considerations of social benefits and social costs.

The economist is concerned with future events. His income concept is based on expectations; income to him is dependent on subjective evaluations. The accountant is concerned with a historical record of what has taken place in the past. This concern with bygones and sunk costs has often been criticised, but it must be recognised that the framework of reference of the tasks of the two professions is very dissimilar. The economist works with concepts and ideas; the models he builds are theoretical ones. The accountant deals with facts and the results of his work must satisfy at least the following criteria: (a) they are capable of quantitative measurement, (b) they can be relied on and employed by disinterested third parties for their own purposes and (c) they are capable of verification by others. This is not to justify, of course, the retention in the accounting procedures of obsolete and unscientific conventions nor the tardiness in reappraising the framework of accounting theory in the light of economic change and developments in other disciplines.
To an economist the value of an asset is the present value of its future services. Similarly, the value of an enterprise is the present value of future receipts net of future outgoings. But the enterprise value exceeds the sum of the values of the net assets owned by the enterprise by an amount which is sometimes called goodwill. The increased net worth theory regards income as the difference between enterprise values at two points of time. This is, however, very different from the so-called balance sheet method of computing income. The accountant records fixed assets at historical cost less depreciation and current assets at the lower of cost or market. Accounting net worth is the summation of these book values. But even where the assets are shown at current-based values, the summation of such values would still differ from economic net worth.

Goodwill has been judicially defined as the probability that old customers will resort to the old place. In an economic sense, goodwill measures the difference between the net worth of an enterprise and the sum total of the bookvalue of its net assets. \textsuperscript{113} Goodwill, where it exists, is often included at a figure which bears little or no relationship to its true worth. The absence of goodwill in the accounts or its writing down (unless accompanied by a decline in earning capacity in money terms) in fact constitutes the creation of a secret reserve. \textsuperscript{114}

\textsuperscript{113} Canning, \textit{op. cit.}, p. 20, considers goodwill a valuation account par excellence. It exists only because some or all assets are not measured properly. Thus goodwill is not itself an asset, it is merely the extent to which assets have not been measured correctly.

\textsuperscript{114} The writing down of goodwill is advocated by Merton Backer, "Determination and Measurement of Business Income by Accountants," \textit{Handbook of Modern Accounting Theory, op. cit.}, p. 236.
Yet accountants counsel against the advisability of creating or writing up goodwill. Where a figure for goodwill exists, it has usually arisen on the purchase of a business or an amalgamation.

Economic income theory comprises two main schools, a flow concept and income conceived as a change at two instants of time. Accounting income is usually conceived of as operating profit determined under certain generally accepted conventions plus non-operating incomings less non-operating outgoings. An attempt at a partial reconciliation of the two viewpoints can be found in the following definition of economic income ex post.

"Economists commonly apply the expression 'income' to mean the amount which before appropriation for direct taxation, can be distributed to the proprietors of an enterprise as a result of the operations of the accounting period, subject to the retention of amounts in respect of depreciation and inventory adjustments which are necessary to avoid encroaching on the accumulated resources of the enterprise". 115

But the gain (admittedly a substantial gain) in employing a concept and terminology which are common to both professions must be balanced against a certain loss of conceptual clarity in an economic definition of income which is closely identified with the accounting realization principle.

Accountants have assumed that the monetary unit on which the accounting structure is based constitutes a constant measure of value, though this assumption is now seriously challenged within the profession.

itself. Economists, on the other hand, have long recognised the problem posed by changes in the value of money and conceive of income in real terms, though there is no general agreement on the meaning of the latter nor is it always as explicitly stated as one might expect. What then of the future

The principles of accounting theory and practice in the past have incorporated, in order of importance, the doctrines of conservatism, objectivity and consistency. These doctrines have been developed in periods of stable price levels and it can be claimed that they have served their purpose relatively well. Modern economic society differs from the past in several crucial respects. Firstly, the major predominant form of economic unit is the corporate organization. Both the structure of the corporation and business itself is becoming increasingly complex compared with the joint venture and sole proprietorship forms of enterprise. Secondly, both the general and secondary price levels have become more volatile. In particular, there is a long term tendency for the general price level to rise. Thirdly, modern economic processes are characterized by frequent innovations and an increasing tempo of technological change. We are concerned with the relationship of the first two developments to historical cost accounting and their effects on income measurement. A special difficulty that is related to the corporate form of organization arises from the increasingly long life span of the

116. The increased productivity of a new machine or a new process resulting from technological change presents special problems in income determination which is outside the scope of this paper.
corporate entity. Thus the cost of assets purchased in past periods might still be charged against current production when large movements in the price level have rendered such costs obsolete. To a lesser extent, the argument can be extended to stock. The volatile nature of short-run prices might make it desirable to consider problems of adjustment not only from year end to year end, but from month to month (any shorter time period would be impracticable, on account of time, expense and lack of available data) if we wish the accounting figures to reflect values in some real, as contrasted with monetary, sense.

The structure of accounting income theory has come under review and strong criticism in recent years, largely against the background of fluctuating price levels. There is at least a possibility that one of the fruits of the price level controversy is a rapprochement between the theoretical concepts of the economists and the newly developed empirical models of the accountants.

Certain qualifications to the economic concepts must be made, in view of the nature of the accountant's task. In the first place, income must be defined ex post, because past income is what the accountant is called upon to measure. Secondly, purely subjective values must be eschewed in favour of valuations which can be tested and verified, since accounts are prepared not for the information of the proprietor alone, but also of many interested third parties. Expectations are likely to constitute an important feature in value determination but so far as possible, these values should correspond to expectations in the market place.
There would appear to be two theoretical systems of economic income which are of particular relevance. One is the flow concept of income as sales and the other is the Hicksian concept of income conceived \textit{ex post} as an increase in net worth. Both concepts of income can be defined to incorporate historical costs or, alternatively, all incomes and outgoings in current dollars. Whether historical costs or current dollars should be adopted in accounts must depend, to a large extent, on the \textit{empirical} evidence of the effect of price level changes on the meaningfulness and utility of the income figure. The income as sales concept is closely related to accounting theory and practice. But it tends to understate the increase in net worth, since accretions to value in output are taken into account only at the point of sale. Further, when price levels change, purchasing power gains or loses which arise from the holding of assets and liabilities are not taken into account. The development of an income theory based on this concept is therefore more limited in scope than one based on a variant of Hicksian income.

Both the flow and the Hicksian concepts of income can be found in the proposals of price level systems. Their choice depends on our goal. If we assume for the moment the intrinsic value of income determination, and that the utility of the income figure has been greatly lessened by the effect of price fluctuations, an appraisal of existing accounting techniques of income measurement becomes urgent. There would appear, however, to be several alternative approaches to the price level problem. Should we seek to retain, more or less fundamentally unchanged, the present income statement, but with all items expressed in current dollars? Or should we consider a new
concept of income altogether, that will maintain intact the fixed assets and stocks of the enterprise in some real sense, either in terms of its physical volume or productivity? Or should we extend the "maintaining capital intact" rule to include also money assets and liabilities?

APPENDIX A. THE BASIC POSTULATES OF ACCOUNTING *

Postulate A-1. Quantification. Quantitative data are helpful in making rational economic decisions; i.e., in making choices among alternatives so that actions are correctly related to consequences.

Postulate A-2. Exchange. Most of the goods and services that are produced are distributed through exchange, and are not directly consumed by the producers.

Postulate A-3. Entities, (including identification of the entity). Economic activity is carried on through specific units or entities. Any report on the activity must identify clearly the particular unit or entity involved.

Postulate A-4. Time period (including specification of the time period). Economic activity is carried on during specifiable periods of time. Any report on that activity must identify clearly the period of time involved.

Postulate A-5. Unit of measure (including identification of the monetary unit). Money is the common denominator in terms of which the
exchangeability of goods and services, including labor, natural resources, and capital, are measured. Any report must clearly indicate which money (e.g., dollars, francs, pounds) is being used.

Postulate B-1. **Financial statements.** (Related to A-1) The results of the accounting process are expressed in a set of fundamentally related financial statements which articulate with each other and rest upon the same underlying data.

Postulate B-2. **Market prices** (Related to A-2). Accounting data are based on prices generated by past, present, or future exchanges which have actually taken place or are expected to.

Postulate B-3. **Entities.** (Related to A-3) The results of the accounting process are expressed in terms of specific units or entities.

Postulate B-4. **Tentativeness.** (Related to A-4) The results of operations for relatively short periods of time are tentative whenever allocations between past, present, and future periods are required.

Postulate C-1. **Continuity** (including the correlative concept of limited life). In the absence of evidence to the contrary, the entity should be viewed as remaining in operation indefinitely. In the presence of evidence that the entity has a limited life, it should not be viewed as remaining in operation indefinitely.

Postulate C-2. **Objectivity.** Changes in assets and liabilities and the related effects (if any) on revenues, expenses, retained earnings, and the like, should not be given formal recognition in the accounts earlier than the point of time at which they can be measured in objective terms.
Postulate C-3. **Consistency.** The procedures used in accounting for a given entity should be appropriate for the measurement of its position and its activities and should be followed consistently from period to period.

Postulate C-4. **Stable unit.** Accounting reports should be based on a stable measuring unit.

Postulate C-5. **Disclosure.** Accounting reports should disclose that which is necessary to make them not misleading.


APPENDIX B . SUMMARY OF ACCOUNTING PRINCIPLES *

The principles summarised below are relevant primarily to formal financial statements made available to third parties as representations by the management of the business enterprise. The "basic postulates of accounting" developed in *Accounting Research Study No. 1* are integral parts of this statement of principles.

Broad principles of accounting should not be formulated mainly for the purpose of validating policies (e.g., financial management, taxation, employee compensation) established in other fields, no matter how sound or desirable those policies may be in and of themselves.
Accounting draws its real strength from its neutrality as among the demands of competing special interests. Its proper functions derive from the measurement of the resources of specific entities and of changes in those resources. Its principles should be aimed at the achievement of those functions.

The principles are as follows:

A. Profit is attributable to the whole process of business activity. Any rule or procedure, therefore, which assigns profit to a portion of the whole process should be continuously re-examined to determine the extent to which it introduces bias into the reporting of the amount of profit assigned to specific periods of time.

B. Changes in resources should be classified among the amounts attributable to

1. Changes in the dollar (price-level changes) which lead to restatements of capital but not to revenues or expenses.

2. Changes in replacement costs (above or below the effect of price-level changes) which lead to elements of gain or of loss.

3. Sale or other transfer, or recognition of net realizable value, all of which lead to revenue or gain.

4. Other causes, such as accretion or the discovery of previously unknown natural resources.

C. All assets of the enterprise, whether obtained by investments of owners or of creditors, or by other means, should be recorded in the accounts and reported in the financial statements. The existence of an asset is independent of the means by which it was acquired.

D. The problem of measuring (pricing, valuing) an asset is the problem of measuring the future services, and involves at least three
steps:

a. A determination if future services do in fact exist. For example, a building is capable of providing space for manufacturing activity.

b. An estimate of the quantity of services. For example, a building is estimated to be usable for twenty more years, or for half of its estimated total life.

c. The choice of a method or basis or formula for pricing (valuing) the quantity of services arrived at under b, above. In general, the choice of a pricing basis is made from the following three exchange prices:

(1) A past exchange price, e.g., acquisition cost or other initial basis. When this basis is used, profit or loss, if any, on the asset being priced will not be recognized until sale or other transfer out of the business entity.

(2) A current exchange price, e.g., replacement cost. When this basis is used, profit or loss on the asset being priced will be recognized in two stages. The first stage will recognize part of the gain or loss in the period or periods from time of acquisition to time of usage or other disposition; the second stage will recognize the remainder of the gain or loss at the time of sale or other transfer out of the entity, measured by the difference between sale (transfer) price and replacement cost. This method is still a cost method; an asset priced on this basis is being treated as a cost factor awaiting disposition.

(3) A future exchange price, e.g., anticipated selling price. When this basis is used, profit or loss, if any, has already
been recognized in the accounts. Any asset priced on this basis is therefore being treated as though it were a receivable, in that sale or other transfer out of the business (including conversion into cash) will result in no gain or loss, except for any interest (discount) arising from the passage of time.

The proper pricing (valuation) of assets and the allocation of profit to accounting periods are dependent in large part upon estimates of the existence of future benefits, regardless of the bases used to price the assets. The need for estimates is unavoidable and cannot be eliminated by the adoption of any formula as to pricing.

1. All assets in the form of money or claims to money should be shown at their discounted present value or the equivalent. The interest rate to be employed in the discounting process is the market (effective) rate at the date the asset was acquired.

The discounting process is not necessary in the case of short-term receivables where the force of interest is small. The carrying-value of receivables should be reduced by allowances for uncollectible elements; estimated collection costs should be recorded in the accounts.

If the claims to money are uncertain as to time or amount of receipt, they should be recorded at their current market value. If the current market value is so uncertain as to be unreliable, these assets should be shown at cost.

2. Inventories which are readily salable at known prices with readily predictable costs of disposal should be recorded at net realizable value, and the related revenue taken up at the same time. Other
inventory items should be recorded at their current (replacement) cost, and the related gain or loss separately reported. Accounting for inventories on either basis will result in recording revenues, gains, or losses before they are validated by sale but they are nevertheless components of the net profit (loss) of the period in which they occur.

Acquisition costs may be used whenever they approximate current (replacement) costs, as would probably be the case when the unit prices of inventory components are reasonably stable and turnover is rapid. In all cases the basis of measurement actually employed should be "subject to verification by another competent investigator".

3. All items of plant and equipment in service, or held in stand-by status, should be recorded at cost of acquisition or construction, with appropriate modification for the effect of the changing dollar either in the primary statements or in supplementary statements. In the external reports, plant and equipment should be restated in terms of current replacement costs whenever some significant event occurs, such as a reorganization of the business entity or its merger with another entity or when it becomes a subsidiary of a parent company. Even in the absence of a significant event, the accounts could be restated at periodic intervals perhaps every five years. The development of satisfactory indexes of construction costs and of machinery and equipment prices would assist materially in making the calculation of replacement costs feasible, practical, and objective.

4. The investment (cost or other basis) in plant and equipment should be amortized over the estimated service life. The basis for adopting
a particular method of amortization for a given asset should be its
ability to produce an allocation reasonably consistent with the
anticipated flow of benefits from the asset.

5. All "intangibles" such as patents, copyrights, research and
development, and goodwill should be recorded at cost, with appropriate
modification for the effect of the changing dollar either in the
primary statements or in supplementary statements. Limited term
items should be amortized as expenses over their estimated lives.
Unlimited term items should continue to be carried as assets, without
amortization.

If the amount of the investment (cost or other basis) in plant and
equipment or in the "intangibles" has been increased or decreased
as the result of appraisal or the use of index-numbers, depreciation
or other amortization should be based on the changed amount.

E. All liabilities of the enterprise should be recorded in
the accounts and reported in the financial statements. Those
liabilities which call for settlement in cash should be measured by
the present (discounted) value of the future payments or the equivalent.
The yield (market, effective) rate of interest at date of incurrence
of the liability is the pertinent rate to use in the discounting process
and in the amortization of "discount" and "premium". "Discount" and
"premium" are technical devices for relating the issue price to the
principal amount and should therefore be closely associated with
principal amount in financial statements.

F. Those liabilities which call for settlement in goods or
services (other than cash) should be measured by their agreed selling
price. Profit accrues in these cases as the stipulated services are
performed or the goods produced or delivered.

G. In a corporation, stockholders' equity should be classified into invested capital and retained earnings (earned surplus). Invested capital should, in turn, be classified according to source, that is, according to the underlying nature of the transactions giving rise to invested capital.

Retained earnings should include the cumulative amount of net profits and net losses, less dividend declarations, and less amounts transferred to invested capital.

In an unincorporated business, the same plan may be followed, but the acceptable alternative is more widely followed of reporting the total interest of each owner or group of owners at the balance sheet date.

H. A statement of the results of operations should reveal the components of profit in sufficient detail to permit comparisons and interpretations to be made. To this end, the data should be classified at least into revenues, expenses, gains, and losses.

1. In general, the revenue of an enterprise during an accounting period represents a measurement of the exchange value of the products (goods and services) of that enterprise during that period. The preceding discussion, under D (2), is also pertinent here.

2. Broadly speaking, expenses measure the costs of the amount of revenue recognized. They may be directly associated with revenue-producing transactions themselves (e.g., so-called "product costs") or with the accounting period in which the revenues appear (e.g., so-called "period costs").
3. Gains include such items as the results of holding inventories through a price rise, the sale of assets (other than stock-in-trade) at more than book value, and the settlement of liabilities at less than book value. Losses include items such as the results of holding inventories through a price decline, the sale of assets (other than stock-in-trade) at less than book value or their retirement, the settlement of liabilities at more than book value, and the imposition of liabilities through a lawsuit.

II. THE CASE FOR PRICE-LEVEL ACCOUNTING

Changes in the value of money

There are several kinds of movements in the time-series of important economic magnitudes, in particular, the secular trend, business cycles, seasonal variations, disturbances attributable to non-economic factors, and the "long waves" covering periods of fifty years or more. ¹ The secular trend and business cycles are believed to have large and important effects on price levels ² (as distinguished from the levels of employment and production); they are thus of special interest to accountants.

Cyclical fluctuations in the inter-war years

There was a general recovery of economic activity in most western countries after the end of World War I; the first downturn took place in 1920, culminating in the trough of 1922, followed by a recovery in the following year. ³ 1929 witnessed a further and serious decline which was carried into the first half of the 1930's. ³ These fluctuations are reflected in the price indexes given in Table I. ⁴

Secular decline in the value of money

Superimposed on these significant short term price movements is a long term trend of decline in the purchasing power of money. Since 1900


². There are, of course, many different price levels. Consideration of this aspect of the problem is deferred to Chapters IV and V.

³. See Haberler, op. cit., pp. 266-7, for a graphical presentation of cyclical fluctuations in the United States and European countries.

⁴. All numbered tables are included in the appendix.
there has been a tendency for the general price level to rise, so that each successive cycle took place on higher price levels than its predecessor. Economists distinguish between two types of inflation: demand inflation and cost inflation. The former is the consequence of "too much money chasing too few goods", the latter of an increase in costs not accompanied by a rise in productivity. Both causes are usually present in an inflationary situation, an increase in aggregate demand often affecting the price level by bringing about an increase in manufacturers' costs where there already exists full employment of some or all of the factors of production.

Since inflation is primarily a monetary phenomenon, it is not unexpected that the general price level should rise during war years; this is a partial consequence of the continuous creation of credit by governments to finance their war efforts. The rise in prices in World War II was in fact smaller than in the previous war, and it is the price rise after the end of the war which has been exceptional. So far as the United Kingdom is concerned, there was on the average an annual increase of 1%-5% in the general price level in the following decade, a magnitude that has not been equalled in its peace time economy in the past century. The

5. Council on Prices, Productivity and Incomes, First Report, London, 1958, p. 5. See also Table I.

6. The average wholesale price index in the United States in 1935-40 was 52.2 and in 1947-52 was 104.9 (1947-49 = 100).


8. The price rise appeared to have been less marked in more recent years, but again showed large advances in 1961 and 1962.

<table>
<thead>
<tr>
<th>Year</th>
<th>Retail prices (1958 = 100)</th>
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<tbody>
<tr>
<td>1950</td>
<td>68.2</td>
</tr>
<tr>
<td>1951</td>
<td>74.8</td>
</tr>
<tr>
<td>1952</td>
<td>81.3</td>
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experience in other countries, excluding countries whose economies have been disrupted by war or revolution and the South American republics, has been very similar, though in most cases less pronounced.  

The following causes have been held to be responsible for the inflation in the 1950's:  

(a) a boom in the industrialised nations in consumer durables and housing which spread to private investment in plant and equipment  

(b) increases in costs, particularly wage costs, not accompanied by increased output  

8. (Contd.)

<table>
<thead>
<tr>
<th>Retail prices (1958 = 100)</th>
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<tbody>
<tr>
<td>1953</td>
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<td>1954</td>
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<td>1960</td>
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<tr>
<td>1961</td>
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<tr>
<td>1962</td>
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</tbody>
</table>

* My estimate, based on figures for three quarterly periods

Source: National Institute of Economic and Social Research, National Institute Economic Review, No. 22, November 1962, Table 9, p. 53.

9. The following table gives the median annual increase in consumer prices, which generally reflect prices paid by wage earners and middle-income groups, in 91 countries from 1952 to 1958.

<table>
<thead>
<tr>
<th>Median increase (Per cent)</th>
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<tbody>
<tr>
<td>1952-53</td>
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<td>1956-57</td>
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<tr>
<td>1957-58</td>
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</tbody>
</table>


......contd.
(c) in Communist countries, an increasing share of the national product allocated to consumption

(d) in the underdeveloped nations, the use of deficit financing to promote industrial expansion, leading to excess demand in the absence of a larger agricultural output

(e) there was no evidence in the industrialised countries of excess of aggregate demand, but there were shortages of specific commodities such as coal and steel.

Table II gives an indication of the inflation in this period in certain selected countries. In the light of declared official economic objectives, with their emphasis on achieving industrialisation or full employment in the economy, there would appear little evidence to believe that the current rising price trend will be reversed in future years.

The effect of price level changes on accounting income

It has sometimes been contended that money, as a unit of value, has served its function relatively well, and that the minor year-to-year fluctuations in the price level do not produce significant distortions in the reported income figure. It can be seen from Table I, however, that there has been a substantial decline of well over 50% in the value of money in the past 50 years. Furthermore, though the United States

11. (Contd.)

Since 1950 gross domestic incomes in the United Kingdom, including all wages and salaries, company profits, nationalised industry surpluses and rent receipts, have more than doubled from £1,321m to £23,490m. Over the same period the gross domestic product (in terms of constant 1958 prices) has increased by only 31.6 per cent from £16,699m to £21,981m. Incomes, in fact, have risen at an annual rate of 6.9 per cent over the period 1950 to 1961 - more than two and a half times as fast as the 2.5 per cent "real" growth in output. Manchester Guardian, Friday April 6, 1962.

12. Price level changes have significant effects, of course, on other
(to which the table refers) has experienced relative monetary stability, nonetheless the annual rate of change in the general price level in some years was well above 5%.

A number of case studies have been undertaken in the United States and other countries to determine the quantitative effects of price level changes on income and other financial statements. Their results indicate that both long and short term price movements produce significant impact on accounting magnitudes. Some of the results of these case studies are briefly given below. 13

(A) Adjustments in terms of a constant-value unit

(i) One of the earliest and best known exponents of stabilized accounting was Sweeney 11, who applied its techniques in the measurement of the corporate incomes of three enterprises in dollars of a constant purchasing power.

A water works company The selected year was the financial year of the company ended October 31, 1929. The general index stood at 177.5 both at the beginning and end of the period. Nonetheless, it was found that the net income on operations expressed in stabilized dollars

12. (Contd.) accounting magnitudes as well. These will not be discussed, except insofar as they are pertinent to income measurement.

13. The case studies have been classified roughly into two groups, those which aim to express income in terms of constant purchasing power, and those which adjust the income figure to current dollars. A more detailed study of the principles and methodology of the different systems is made in Chapter V.

was only 65% of the reported income; when the net purchasing power losses from holding money and money assets were taken into account, realized net income was only 32% of reported income. 15

A woollen mill company. The selected financial year ended on July 31, 1929. The general index stood at 176 at the beginning and 181.5 at the end of the period, an increase of approximately 3%. Though this company had been in existence for only two years, in which the general price level had varied little, there were considerable differences between the stabilized and unstabilized figures. The net operating loss expressed in stabilized dollars was higher than the reported loss by 4%, but the realized net loss for the year was only 83% of the reported loss figure; the reason was a large net realized gain from the change in the value of money not included in the unstabilized accounts.

A factoring company (agent for textile mills) This study covered a 2 year period ended September 30, 1931. The general index stood at 182 at the beginning of the period, 165 at the end of the first year and 145.5 at the end of the second year. When the income statement has been stabilized in the general price level of September 30, 1931, it is seen that there are very substantial realized gains from holding money and money assets in a period of declining prices, which reflect on the inadequacy of ordinary accounting procedures which do not take such gains and losses into consideration. The extent of these adjustments are given in Table III.

15. Realized net income is defined as net operating income plus net realised purchasing power gains. In this illustration purchasing power gains and losses arose from short-term (monthly) changes in the index and in the holdings of money assets and liabilities.
(ii) A comprehensive study was undertaken by JONES of the impact of inflation on the accounts of nine steel companies in the United States, comprising over 80% of output and employment in the industry. A comparison of the aggregate accounting statements for 1941-47 and the adjusted purchasing power statements in terms of 1935-39 dollars reveals the following picture:

<table>
<thead>
<tr>
<th>Company statements</th>
<th>Adjusted statements in 1935-39 dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Dividends earned by a substantial margin each year</td>
<td>(a) Dividends not earned in any year since 1941</td>
</tr>
<tr>
<td>(b) Income retained $543m</td>
<td>(b) Dividends, interest and taxes paid out of capital $4.09m</td>
</tr>
<tr>
<td>(c) 1946 reported income $200m</td>
<td>(c) 1946 real loss $88m (equivalent to $123m in 1946 dollars)</td>
</tr>
<tr>
<td>(d) 1947 net income $356m</td>
<td>(d) 1947 net income $91m (equivalent to $145m in 1947 dollars)</td>
</tr>
<tr>
<td>(e) working capital increased by 51% during 7-year period</td>
<td>(e) working capital increased by 2% during 7-year period</td>
</tr>
</tbody>
</table>

(iii) BAXTER conducted a similar investigation of seven steel companies in the United Kingdom, which sample is believed to give a broad picture of the industry. A study of the accounts of three of the


companies covered the period 1939 to 1947, and the full study, 1949 to 1957. Separate figures are presented for each period of adjusted income in current pounds sterling and stabilized income expressed in pounds of the last year in the period. The main index employed is that of consumers' expenditure, and the effects of a further deflation by means of an index of the replacement cost of industrial assets of steelworks are also given.

There was general agreement between the 1939-47 results and the American study. The general index in 1939-47 rose on an average by 8% a year. Corrected income in current pounds reduced profits by some 12.5% at the start of the period, 40% in the middle, and 80% in 1947. Current income was insufficient to cover the payment of taxes and dividends in all years.

The experience in the latter period 1949-57, when the general index rose approximately 4% per annum, was different. Current income was lower than reported income by about 13% throughout the period. There was always a surplus after distribution, if income was expressed in current pounds, but when replacement costs of stocks and fixed assets were taken into account, there were deficits in three years. Some of the results of this study are reproduced in Table IV.

(iv) Four companies, a public utility and three manufacturing companies, were included in a price level study project of the AMERICAN ACCOUNTING ASSOCIATION. The period covered was from 1941 to 1951.

18. See Jones, op. cit.

19. See Ralph C. Jones, Price Level Changes and Financial Statements - Case Studies of Four Companies, American Accounting Association

----------contd.
one in which inflation had been most pronounced. The general procedure was to restate the financial statements of each company in terms of the December 1951 dollar, by means of the consumers' price index. It was found that (a) inflation had overstated the rate of return by twice as high as the adjusted figure, (b) dividends were in excess of adjusted income, and (c) there were sizeable purchasing power losses from holding liquid assets. Some of the results of the investigation are briefly summarised in Table V.

(v) In a study of three of the largest electrical manufacturers JOEL DEAN 21 made use of specialised indexes to deflate each major group of assets to real terms. The period covered 1935 through 1948, and 1935 was selected as the base year. Dean found an upward bias in the reported income, and a tendency for the gap between reported and adjusted income figures to grow wider over time. By 1941 adjusted income was about 50% of reported income for all three companies. The large discrepancies between the two sets of figures in the later years are reproduced in Table VI.

19. (Contd.)


20. The period 1929-40 was included in the case study of Sargent and Company, the only one of the four studies that covers the years of deflation and depression which followed the stock market crash of 1929 as well as the more recent period of inflation.

(vi) A particularly interesting study of the effects of price level changes on the profits of a department store was made by Corbin. He found that in the period 1933 to 1952 (a) adjusted income was on an average 20% lower than reported income, (b) adjusted rates of return on equity were 25% lower than reported figures, (c) taxes and dividends were high relative to adjusted income figures, but there were no payments out of capital, (d) purchasing power gains and losses on money assets and liabilities were substantial, and (e) growth indicators based on reported figures overstated expansion by 50% to over 100%.

(vii) Blaine employed a combination of the Sweeney and Corbin methods of price level adjustments in computing the effects of price change on the accounts of a canner of fruits and vegetables which exhibited marked seasonal variations both in its sales and production costs. The selected period was the company's financial year ended January 31, 1959; the general index rose from 122.5 to 123.8 in this period, an increase of well under 2%. Adjusted operating income expressed in January 1959 dollars was only 21% of the reported figure. When total purchasing power gains on net monetary liabilities were taken into account, adjusted income was 52% of reported income.

(viii) Aggregate data for inter-industry comparison have been computed by Slesinger and Hollander, who adjusted income figures relating to


........... contd.
seven industrial sectors at constant 1956 prices. In the period 1951 to 1956 it was found that depreciation adjustments were the most important, and contributed to significant inter-industry differences. Further, those industries with relatively large inventories and net monetary assets suffered more when prices decline in 1952. In 1951 when the wholesale price index rose 11%, income adjustments in the seven industrial groups ranged from 25% to 128%; in 1956 the index rose 3% while the lowest and highest adjustments were 27% and 97% respectively. The real average rates of return on investment were lower, in most cases substantially lower, than the reported data for all industrial groups. The results of the investigation are briefly summarised in Table VII.

(B) Adjustments in terms of current value units

A different approach to the price inflation problem is advocated by Mathews and Grant, who proposed that adjustments should be made in respect of the replacement costs of physical assets only, viz., stocks and fixed assets. This technique was applied to a general study of all Australian companies (excluding banks and life assurance companies) in the period 1945-46 to 1952-53. The results, summarised in Table VIII, show that (a) the increase in accounting profits in the

(Contd.)


period was greater than that in current income, (b) the stock appreciation factor was exceptionally important in this period, particularly in 1950-51 and 1951-52, and (c) current saving was lower than expected (in other words, the amounts paid out by way of taxes and dividends were unduly high in relation to current income in the period), at least until 1952-53, and it is possible that in some of the manufacturing industries current savings over the period as a whole were negative.

Partial adjustments

In addition to the above investigations into the effects of price changes on income measurement, there have also been a number of less comprehensive studies centred mainly on the depreciation of fixed assets. McNICHOLS and BOYD listed the fixed assets of International Harvester Company at the close of its financial year October 31, 1951, by year of acquisition and depreciation rates. Using the wholesale price index as the deflating factor to reflect general purchasing power change, they found that the adjusted cost of the assets exceeded their historical cost by 49%, with consequential effects on income measurement.

26. For a similar analysis of United Kingdom companies, see F. W. Paish, "Company Profits and their Distribution Since the War, District Bank Review, No. 114, June 1955.

The results of a similar study by WARNER 28 of five giant corporations in the United States from 1938 to 1951 are given in Table IX.

A case study by BIERMAN 29 based on the published composite accounts of the electric utility industry from 1940 to 1952 established that depreciation adjustments for general price level change varied from -11% to 16% of the depreciation charge in 1940-45, and from 31% to 62% in 1946-52. In 1952 when reported income was $947m and adjusted income in 1952 dollars only $672m, the depreciation charge was understated by $275m.


29. Harold Bierman, Jr., "The Effect of Inflation on the Computation of Income of Public Utilities", Accounting Review, Vol. XXXI, No. 2, April 1956, pp. 258-62. The depreciation adjustment is particularly important for public utilities. Reported depreciation is 77.5% of reported income of public utilities; the corresponding figure for manufacturing companies is 26%.
APPENDIX

TABLE I. WHOLESALE PRICE AND CONSUMER PRICE INDEXES AND ANNUAL PERCENTAGE CHANGES, UNITED STATES, 1890 - 1961
(1957 - 59 = 100)

<table>
<thead>
<tr>
<th>Year</th>
<th>Wholesale price index</th>
<th>Consumer price index</th>
<th>Year</th>
<th>Wholesale price index</th>
<th>Consumer price index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1890</td>
<td>30.7</td>
<td></td>
<td>1926</td>
<td>54.8</td>
<td>61.6</td>
</tr>
<tr>
<td>1891</td>
<td>30.6</td>
<td></td>
<td>1927</td>
<td>52.3</td>
<td>60.5</td>
</tr>
<tr>
<td>1892</td>
<td>28.5</td>
<td></td>
<td>1928</td>
<td>53.0</td>
<td>59.7</td>
</tr>
<tr>
<td>1893</td>
<td>29.2</td>
<td></td>
<td>1929</td>
<td>52.1</td>
<td>59.7</td>
</tr>
<tr>
<td>1894</td>
<td>26.2</td>
<td></td>
<td>1930</td>
<td>47.3</td>
<td>58.2</td>
</tr>
<tr>
<td>1895</td>
<td>26.7</td>
<td></td>
<td>1931</td>
<td>39.9</td>
<td>53.0</td>
</tr>
<tr>
<td>1896</td>
<td>25.4</td>
<td></td>
<td>1932</td>
<td>35.6</td>
<td>57.6</td>
</tr>
<tr>
<td>1897</td>
<td>25.5</td>
<td></td>
<td>1933</td>
<td>36.1</td>
<td>54.1</td>
</tr>
<tr>
<td>1898</td>
<td>26.5</td>
<td></td>
<td>1934</td>
<td>41.0</td>
<td>56.6</td>
</tr>
<tr>
<td>1899</td>
<td>28.5</td>
<td></td>
<td>1935</td>
<td>43.8</td>
<td>57.8</td>
</tr>
<tr>
<td>1900</td>
<td>30.7</td>
<td></td>
<td>1936</td>
<td>44.2</td>
<td>58.3</td>
</tr>
<tr>
<td>1901</td>
<td>30.2</td>
<td></td>
<td>1937</td>
<td>47.2</td>
<td>50.0</td>
</tr>
<tr>
<td>1902</td>
<td>32.3</td>
<td></td>
<td>1938</td>
<td>43.0</td>
<td>49.1</td>
</tr>
<tr>
<td>1903</td>
<td>32.6</td>
<td></td>
<td>1939</td>
<td>42.2</td>
<td>48.4</td>
</tr>
<tr>
<td>1904</td>
<td>32.7</td>
<td></td>
<td>1940</td>
<td>43.0</td>
<td>48.8</td>
</tr>
<tr>
<td>1905</td>
<td>32.9</td>
<td></td>
<td>1941</td>
<td>47.8</td>
<td>51.3</td>
</tr>
<tr>
<td>1906</td>
<td>33.9</td>
<td></td>
<td>1942</td>
<td>51.0</td>
<td>56.8</td>
</tr>
<tr>
<td>1907</td>
<td>35.7</td>
<td></td>
<td>1943</td>
<td>56.5</td>
<td>60.3</td>
</tr>
<tr>
<td>1908</td>
<td>34.4</td>
<td></td>
<td>1944</td>
<td>56.9</td>
<td>63.1</td>
</tr>
<tr>
<td>1909</td>
<td>37.0</td>
<td></td>
<td>1945</td>
<td>57.9</td>
<td>62.7</td>
</tr>
<tr>
<td>1910</td>
<td>38.6</td>
<td></td>
<td>1946</td>
<td>66.1</td>
<td>68.0</td>
</tr>
<tr>
<td>1911</td>
<td>35.5</td>
<td></td>
<td>1947</td>
<td>81.2</td>
<td>77.8</td>
</tr>
<tr>
<td>1912</td>
<td>37.8</td>
<td></td>
<td>1948</td>
<td>87.9</td>
<td>83.8</td>
</tr>
<tr>
<td>1913</td>
<td>38.2</td>
<td>34.5</td>
<td>1949</td>
<td>83.5</td>
<td>83.0</td>
</tr>
<tr>
<td>1914</td>
<td>37.3</td>
<td>35.0</td>
<td>1950</td>
<td>86.8</td>
<td>83.8</td>
</tr>
<tr>
<td>1915</td>
<td>38.0</td>
<td>35.4</td>
<td>1951</td>
<td>96.7</td>
<td>90.5</td>
</tr>
<tr>
<td>1916</td>
<td>46.8</td>
<td>38.0</td>
<td>1952</td>
<td>91.0</td>
<td>92.5</td>
</tr>
<tr>
<td>1917</td>
<td>64.3</td>
<td>44.7</td>
<td>1953</td>
<td>92.7</td>
<td>93.2</td>
</tr>
<tr>
<td>1918</td>
<td>71.7</td>
<td>52.4</td>
<td>1954</td>
<td>92.9</td>
<td>93.6</td>
</tr>
<tr>
<td>1919</td>
<td>75.8</td>
<td>60.3</td>
<td>1955</td>
<td>93.2</td>
<td>93.3</td>
</tr>
<tr>
<td>1920</td>
<td>84.5</td>
<td>69.8</td>
<td>1956</td>
<td>96.2</td>
<td>94.7</td>
</tr>
<tr>
<td>1921</td>
<td>53.4</td>
<td>62.3</td>
<td>1957</td>
<td>99.0</td>
<td>98.0</td>
</tr>
<tr>
<td>1922</td>
<td>52.9</td>
<td>58.4</td>
<td>1958</td>
<td>100.4</td>
<td>100.7</td>
</tr>
<tr>
<td>1923</td>
<td>55.1</td>
<td>59.4</td>
<td>1959</td>
<td>100.6</td>
<td>101.5</td>
</tr>
<tr>
<td>1924</td>
<td>53.6</td>
<td>59.6</td>
<td>1960</td>
<td>100.7</td>
<td>103.1</td>
</tr>
<tr>
<td>1925</td>
<td>56.6</td>
<td>61.1</td>
<td>1961</td>
<td>100.3</td>
<td>104.2</td>
</tr>
</tbody>
</table>

Wholesale Price Index:

Notes: (a) The Wholesale Price Index measures average changes in prices of all commodities, produced or imported, which are sold in primary markets of the United States. The sample includes more than 2,000 items. Because of its
broad scope, it is often used as a general purpose index.

(b) The previous series on the 1947-49 base has been converted to the new reference base, 1957-59 = 100.


Consumer Price Index:

Notes: (a) The Consumer Price Index measures average changes in prices of goods and services usually bought by city families of wage earners and clerical workers. It is based on prices, obtained in 46 cities, of about 300 selected items.

(b) The previous series on the 1947-49 base has been converted to the new reference base, 1957-59 = 100.

# TABLE II. WHOLESALE PRICE AND CONSUMER PRICE INDEXES IN SELECTED COUNTRIES, 1960 AND 1961

(1953 = 100)

<table>
<thead>
<tr>
<th>Country</th>
<th>Wholesale price index</th>
<th>Consumer price index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western countries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Canada</td>
<td>101</td>
<td>106</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>France</td>
<td>130</td>
<td>132</td>
</tr>
<tr>
<td>West Germany</td>
<td>103</td>
<td>105</td>
</tr>
<tr>
<td>New Zealand</td>
<td>110</td>
<td>110</td>
</tr>
<tr>
<td>Asian countries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>101</td>
<td>105</td>
</tr>
<tr>
<td>India</td>
<td>118</td>
<td>121</td>
</tr>
<tr>
<td>Philippines</td>
<td>108</td>
<td>114</td>
</tr>
<tr>
<td>Thailand</td>
<td>113</td>
<td>122</td>
</tr>
<tr>
<td>Burma</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Federation of Malaya</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>South America</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>399</td>
<td>549</td>
</tr>
<tr>
<td>Chile</td>
<td>1109</td>
<td>1117</td>
</tr>
<tr>
<td>Venezuela</td>
<td>105</td>
<td>107</td>
</tr>
</tbody>
</table>

n.a. denotes 'not available'.

TABLE III. UNSTABILIZED AND STABILIZED INCOME OF MILL AGENTS, INC., IN UNITED STATES, FOR THE YEARS ENDED SEPTEMBER 30, 1930 AND 1931. ($000)

<table>
<thead>
<tr>
<th></th>
<th>1930</th>
<th>1931</th>
<th>1930</th>
<th>1931</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unstabilized</td>
<td>Stabilized</td>
<td>Unstabilized</td>
<td>Stabilized</td>
</tr>
<tr>
<td>Net income (loss) on operations</td>
<td>78</td>
<td>73</td>
<td>-85</td>
<td>-86</td>
</tr>
<tr>
<td>Net realized purchasing power gains</td>
<td>-</td>
<td>96</td>
<td>-</td>
<td>135</td>
</tr>
<tr>
<td>Realized net income (loss) for year</td>
<td>78</td>
<td>169</td>
<td>-85</td>
<td>50</td>
</tr>
<tr>
<td>Net unrealized purchasing power loss</td>
<td>-8</td>
<td>*</td>
<td>-27</td>
<td>-11</td>
</tr>
<tr>
<td>Final net income (loss) for year</td>
<td>70</td>
<td>169</td>
<td>-112</td>
<td>38</td>
</tr>
</tbody>
</table>

* not significant

Notes: (a) All stabilized figures are expressed in the general price level of September 30, 1931.

(b) The net unrealized loss in the unstabilized accounts arose from the application of the rule of lower of cost or market to the securities and inventory.

Source: Sweeney, op. cit., p. 149.
TABLE IV. NET PROFIT AND SURPLUS OF THREE STEEL COMPANIES, 1939-47
AND SEVEN STEEL COMPANIES IN UNITED KINGDOM, 1949 - 1957
(£000,000)

<table>
<thead>
<tr>
<th>Year</th>
<th>Net profit</th>
<th>Surplus after taxes and dividends</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reported</td>
<td>Current £s</td>
</tr>
<tr>
<td>Three steel companies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1939</td>
<td>2.1</td>
<td>1.9</td>
</tr>
<tr>
<td>1940</td>
<td>3.0</td>
<td>2.2</td>
</tr>
<tr>
<td>1941</td>
<td>2.2</td>
<td>1.3</td>
</tr>
<tr>
<td>1942</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>1943</td>
<td>2.2</td>
<td>1.3</td>
</tr>
<tr>
<td>1944</td>
<td>2.5</td>
<td>1.5</td>
</tr>
<tr>
<td>1945</td>
<td>2.5</td>
<td>1.3</td>
</tr>
<tr>
<td>1946</td>
<td>3.5</td>
<td>2.1</td>
</tr>
<tr>
<td>1947</td>
<td>2.4</td>
<td>0.4</td>
</tr>
<tr>
<td>TOTAL</td>
<td>22.4</td>
<td>13.0</td>
</tr>
<tr>
<td>Seven steel companies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1949</td>
<td>19.9</td>
<td>17.2</td>
</tr>
<tr>
<td>1950</td>
<td>23.2</td>
<td>19.6</td>
</tr>
<tr>
<td>1951</td>
<td>24.8</td>
<td>19.6</td>
</tr>
<tr>
<td>1952</td>
<td>34.1</td>
<td>28.9</td>
</tr>
<tr>
<td>1953</td>
<td>34.0</td>
<td>29.8</td>
</tr>
<tr>
<td>1954</td>
<td>13.4</td>
<td>38.3</td>
</tr>
<tr>
<td>1955</td>
<td>56.2</td>
<td>50.1</td>
</tr>
<tr>
<td>1956</td>
<td>53.9</td>
<td>46.1</td>
</tr>
<tr>
<td>1957</td>
<td>67.6</td>
<td>59.3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>357.1</td>
<td>308.9</td>
</tr>
</tbody>
</table>

Notes:  
(a) The net profit figures in current £s and stabilized £s are shown after adjustments for general price level changes.  
(b) The surplus in current £s and stabilized £s is given after providing for replacements, taxes and distributions.  
(c) The earlier period's accounts are stabilized in £s of December 31, 1947 and the latter period's accounts in £s of December 31, 1957.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reported</td>
<td>Adjusted</td>
<td>Reported</td>
<td>Adjusted</td>
</tr>
<tr>
<td>1951 Revenue as % of 1941</td>
<td>226</td>
<td>128</td>
<td>256</td>
<td>145</td>
</tr>
<tr>
<td>Rate of return on total interest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1941</td>
<td>7.8</td>
<td>6.1</td>
<td>7.4</td>
<td>4.8</td>
</tr>
<tr>
<td>1951</td>
<td>6.9</td>
<td>1.7</td>
<td>7.8</td>
<td>3.1</td>
</tr>
<tr>
<td>Average 1941-51</td>
<td>8.0</td>
<td>4.4</td>
<td>8.8</td>
<td>4.5</td>
</tr>
<tr>
<td>% of earnings distributed as dividends</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1941-45</td>
<td>88</td>
<td>133</td>
<td>68</td>
<td>114</td>
</tr>
<tr>
<td>1946-51</td>
<td>59</td>
<td>107</td>
<td>52</td>
<td>79</td>
</tr>
<tr>
<td>1951-51</td>
<td>69</td>
<td>119</td>
<td>56</td>
<td>89</td>
</tr>
<tr>
<td>Income tax rates</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1941</td>
<td>55</td>
<td>60</td>
<td>47</td>
<td>60</td>
</tr>
<tr>
<td>1951</td>
<td>59</td>
<td>84</td>
<td>55</td>
<td>74</td>
</tr>
<tr>
<td>Average 1941-51</td>
<td>59</td>
<td>71</td>
<td>46</td>
<td>62</td>
</tr>
<tr>
<td>Depreciation deficiencies as % of adjusted depreciation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1941</td>
<td>5</td>
<td></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>1951</td>
<td>28</td>
<td></td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Average 1941-51</td>
<td>21</td>
<td></td>
<td>25</td>
<td></td>
</tr>
</tbody>
</table>

* Too high to be significant

Source: Perry Mason, op. cit., p. 40.
TABLE VI. REPORTED AND ADJUSTED EARNINGS AVAILABLE FOR INTEREST AND DIVIDENDS OF THREE MAJOR MANUFACTURERS OF ELECTRICAL PRODUCTS IN UNITED STATES, 1935, 1941 AND 1946-48

($000,000)

<table>
<thead>
<tr>
<th>Year</th>
<th>General Electric Co.</th>
<th>Westinghouse Electric Corp.</th>
<th>Radio Corp. of America</th>
<th>Aggregate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reported</td>
<td>Adjusted</td>
<td>Reported</td>
<td>Adjusted</td>
</tr>
<tr>
<td>1935</td>
<td>31.0</td>
<td>30.3</td>
<td>10.8</td>
<td>10.8</td>
</tr>
<tr>
<td>1941</td>
<td>60.2</td>
<td>32.5</td>
<td>21.8</td>
<td>8.4</td>
</tr>
<tr>
<td>1946</td>
<td>42.4</td>
<td>5.6</td>
<td>6.9</td>
<td>-13.5</td>
</tr>
<tr>
<td>1947</td>
<td>102.7</td>
<td>-8.2</td>
<td>52.0</td>
<td>-12.3</td>
</tr>
<tr>
<td>1948</td>
<td>201.5</td>
<td>58.9</td>
<td>53.9</td>
<td>2.8</td>
</tr>
</tbody>
</table>

Note: The adjusted earnings are in constant 1935 dollars.

Source: Joel Dean, *op. cit.*, p. 195.
TABLE VII. UNADJUSTED AND ADJUSTED ANNUAL RATES OF RETURN AND PERCENTAGE OVERSTATEMENT OF REPORTED INCOME IN SEVEN INDUSTRIAL GROUPS IN UNITED STATES, 1951-56

<table>
<thead>
<tr>
<th>Industrial classification</th>
<th>Average annual rates of return</th>
<th>Percentage overstatement of reported income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unadjusted</td>
<td>Adjusted</td>
</tr>
<tr>
<td>Agriculture, forestry and fishing</td>
<td>3.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Bituminous coal and lignite</td>
<td>4.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Construction</td>
<td>3.9</td>
<td>3.3</td>
</tr>
<tr>
<td>Apparel and related products</td>
<td>3.2</td>
<td>2.1</td>
</tr>
<tr>
<td>All metal manufactures</td>
<td>7.0</td>
<td>5.3</td>
</tr>
<tr>
<td>Trade</td>
<td>4.5</td>
<td>3.6</td>
</tr>
<tr>
<td>Services</td>
<td>4.2</td>
<td>2.0</td>
</tr>
</tbody>
</table>

*Source: Slesinger and Hollander, op. cit.*
TABLE VIII. WHOLESALE PRICE INDEX, ACCOUNTING PROFITS, CURRENT INCOME AND SAVING OF AUSTRALIAN COMPANIES, 1945 - 1946 TO 1952 - 1953

(A£m)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting profits</td>
<td>134</td>
<td>164</td>
<td>197</td>
<td>221</td>
<td>273</td>
<td>420</td>
<td>377</td>
<td>368</td>
</tr>
<tr>
<td>Adjustments for stock appreciation and depreciation</td>
<td>-3</td>
<td>-15</td>
<td>-42</td>
<td>-48</td>
<td>-72</td>
<td>-152</td>
<td>-156</td>
<td>-48</td>
</tr>
<tr>
<td>Current income</td>
<td>131</td>
<td>149</td>
<td>155</td>
<td>173</td>
<td>201</td>
<td>268</td>
<td>221</td>
<td>320</td>
</tr>
<tr>
<td>Current saving (current income less taxes and dividends)</td>
<td>28</td>
<td>30</td>
<td>30</td>
<td>23</td>
<td>30</td>
<td>11</td>
<td>-41</td>
<td>83</td>
</tr>
<tr>
<td>Current income as percentage of accounting profit</td>
<td>98</td>
<td>91</td>
<td>79</td>
<td>78</td>
<td>74</td>
<td>64</td>
<td>58</td>
<td>87</td>
</tr>
<tr>
<td>Wholesale price index</td>
<td>100</td>
<td>103</td>
<td>117</td>
<td>131</td>
<td>156</td>
<td>189</td>
<td>223</td>
<td>226</td>
</tr>
</tbody>
</table>

Source: Mathews and Grant, op. cit., pp. 49 and 94.
### TABLE IX. REDUCTION OF INCOME OF FIVE GIANT CORPORATIONS IN UNITED STATES AFTER
ADJUSTMENTS FOR PURCHASING POWER HISTORICAL COST DEPRECIATION, 1938 - 1951

<table>
<thead>
<tr>
<th>Company</th>
<th>Type of business</th>
<th>Percentage reduction of reported income after taxes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>14 year average, 1938-51</td>
</tr>
<tr>
<td>Consolidated Gas</td>
<td>Public utility</td>
<td>19</td>
</tr>
<tr>
<td>United States Steel</td>
<td>Steel producer</td>
<td>22</td>
</tr>
<tr>
<td>California Packing Co.</td>
<td>Food Processor</td>
<td>7</td>
</tr>
<tr>
<td>Chrysler Corporation</td>
<td>Durable consumer</td>
<td>4*</td>
</tr>
<tr>
<td>Sears Roebuck &amp; Co.</td>
<td>Department Store</td>
<td>3</td>
</tr>
</tbody>
</table>

* The depreciation charge amounted to only 1% of total expenses, thus the price level change effect on income was small.

III. THE CASE FOR PRICE-LEVEL ACCOUNTING FURTHER CONSIDERED

The function of income determination

At this stage it may be useful to ask why we measure income. First, as a historical record and measurement of what has happened in the past, the income statement is a report of stewardship. Further, the income figure is employed to determine the tax payable and the amount distributable to proprietors. But the historical record can also be used to assist us in making decisions affecting the future.¹ The two most important of such decisions are concerned with income as a guide to investment policy and as a measure of operating efficiency. Certain questions now come to mind: 'Is the income figure essential for some or all of these functions?', 'Is the income concept (or are the income concepts) adequate to perform these functions?' and 'Is income measurement adequate?'

Traditionalists have emphasized the role of the income statement as a report of stewardship, of the accounting for the owners of the enterprise by management of the funds that have been entrusted to them. This viewpoint offers a rationale for historical cost accounting. But it hardly accords with the modern concept of the management function as one of the risk bearing. In any case, the ready transferability of ownership in the corporate sector has deemphasized the significant position of the original providers of funds; the stakes of the new owners are based on current market values.

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¹ "What people wanted out of corporate income statements was information that would allow them to make decisions affecting the future." George D. Bailey, op. cit.
It is, of course, not essential to base the tax structure on the income concept. A capital tax is wholly feasible and an expenditure tax has been proposed. Further, the income figure for tax purposes is different from either accounting or economic income. It is a figure determined by statutory provisions which are enforced irrespective of what accountants might consider 'best practice', and which further, can be replaced by a very different set of statutory provisions.

Income is generally believed to be the governing factor in dividend policy, but there are other considerations: (a) available cash, (b) creditors' protection and (c) maintenance of capital. Where income has been earned, it does not necessarily mean that dividends can be distributed where there is insufficient cash. But this qualification is not a critical one, as it is not unknown for directors to borrow funds for the purpose. In any case the income figure sets the upper limit to dividends, but it is less certain that creditors are being protected since past losses need not be made good, nor is it clear that capital is being maintained.

Accounting income is at best a defective tool when viewed as a guide to consumption policy, insofar as it seeks to maintain money capital


3. Surprisingly, Keynes thought Marshall was right to regard as income whatever the Income Tax Commissioners chose to treat as such. See Keynes, op. cit., p. 59.

4. For example, the United Kingdom Government has introduced legislation in the first half of 1962 which treats certain types of capital gains as ordinary income for tax purposes.
and not real capital. In a period of rising prices, this function must appear a sterile one. But there appears to be a more fundamental objection. The maintenance of capital rule is bolstered by statute law and an impressive array of early legal precedents, but it conflicts with the important economic concept that in a dynamic economy scarce resources should be channelled into competing fields of investment, both within a business and between businesses, such that the marginal return on capital in every sphere of investment is equal. The conflict, however, is an apparent one for individuals and unincorporated enterprises, since the owners' knowledge of how much they may consume must be assumed to be a guide and not a determinant of consumption policy. In the case of corporations, other than those which exploit wasting assets, consumption policies, in order to conform with statutory requirements, are perforce more rigid.

Though essentially a historical record, the income statement is often used to aid in the formulation of future expectations. Management seeks to maximise returns from different departments or alternative courses of action, and its decisions are often based on the results of past performance. In the economy as a whole, investors seek to obtain the best yields available from investment funds at their disposal, and again the search is based largely on comparative measures of past performance. The interaction of these two sets of investment decisions guides the economy towards operating at optimum efficiency; how closely depends on the realizations of the various expectations.

5. See, for example, B. S. Yamey, "The Case Law relating to Company Dividends", reprinted in Baxter and Davidson, op. cit., pp. 428-432. Later case law which rejects the maintenance of capital rule has not, on the whole, found approval in the accounting profession.
Income is then said to measure the operating efficiency of the firm, which can be identified with management efficiency. This is best given by a rate of return on the resources employed in the previous period(s). Thus the same income concept will serve for an evaluation of management efficiency as well as a guide for those decisions of managers and investors which aim to maximise future expectations.

Tentatively, we may conclude that the measurement of income serves two main purposes and a number of less important ones. The first major function is a guide to consumption. It is also a guide, and this is the more modern concept, to the flow of scarce national resources into alternative fields of investment. The first we may term the traditional function and the second the social function of accounts.

It is sometimes contended that there is no one ideal concept or one ideal measure of income. Rather, in much the same way as there are different costs for different purposes, different concepts of income must be formulated and different measures computed according to the specific purposes which they are to serve. For example, the most comprehensive concepts are given in the Hicksian definitions. But because the ex post measures of income include changes in expectations, they are not necessarily a sufficient guide to consumption in the real world, taking cash flows into account. Again, a useful approach to the measurement

of management efficiency is given in the concept of variable income. It is not a practical measure, however, because of the difficulty of distinguishing between the impact of management efficiency and that of forces external to the firm.

Deficiencies in income measurement

There is no one consistent body of general theory into which the accounting principles of income measurement can be fitted. It is not surprising, therefore, that accounting income is inadequate with respect to many of the functions that the income figure is said to serve. There are those that would defend the fundamental truth of double-entry principles on the ground that they have remained basically unchanged since the fourteenth century. But the circumstances under which corporate enterprise operates today are vastly different. First, we have replaced the single venture form of enterprise carried on by the Florentine and Venetian traders by a corporate form with very different characteristics, in particular the separation of ownership from management and the continuity of corporate enterprise. A second consideration is that the Florentine rules are only valid given one of their basic assumptions, the maintenance of a stable price level.

There are, then, the following separate problems in the accounting measurement of operating income:

1. the choice of a satisfactory income concept or concepts, which are in theory sound and in their practical application quantitatively measurable and independently verifiable

2. the inadequacy of accounts to measure money income, which can be further analysed to

   (a) accounting conventions which subsume a stable price level, and
(b) accounting conventions which are not related to problems of changing price levels

3. the inadequacy of accounts to measure real income.

The deficiencies in the accounting process centre around two main, and often closely related, points: the fluctuating value of money and the matching of expenses against revenue in the accounting period.

Briefly, defects in the matching process, abstracting for the moment from price level changes, include the application of the realization principle and certain inconsistencies in the application of the matching principle itself. Where the production process is a long one, the value of the product sold has accrued in earlier periods, whereas some of the expenses charged against revenue pertain to the current period. In other words, revenue is, in fact, not matched against costs incurred in earning that revenue, except on the implied assumption of an even flow of revenue and an even flow of costs. Revenue, in the economic sense, is earned during the production process, and not in the final sale.

A specific example of inconsistency in the application of the matching principle can be found in accounting for hire purchase transactions in some countries as, for example, in the United Kingdom and Australia.

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7. This criticism has more or less point according to less or more indirect cost included in the value of work-in-process carried forward.

8. "There is a difference between accounting and economics. In economics (and in fact), the manufacturing process is regarded as creating value, but in financial accounting only the costs of manufacture are recognized as matching to the value of the product during the manufacturing cycle; all the profit (that is, the increase in owners equity) is recorded at the time of the sale." R. N. Anthony, Management Accounting, p. 62, Homewood, Illinois: R. D. Irwin, 1960.

Generally, accounting practice has also been deficient in the recognition of interest. Thus a long-term loan payable to or by the firm is shown at its face value in money terms, whereas a present value figure would conform closer to economic value and economic income. Similarly, it is not generally recognized, at least among English accountants, that where an interest-bearing loan is issued at a premium (or discount), this is tantamount to an adjustment of the interest rate, and the premium (or discount) should be written off to the interest account over the life of the loan, with corresponding effects on income determination. Though important in principle, these deficiencies are overshadowed, in quantitative terms, by the problems in income measurement caused by changes in the value of the unit of measurement itself.

The problem of rising prices

Let us first consider the general problem posed by rising prices, which is the economic condition in most countries today. Changing price levels influence the accounts in two ways, which have been termed the money effect and the historic cost effect. 10

The money effect is relatively easy to appreciate. When prices rise, the rentier whose income is fixed in money terms as well as the owner of money assets are both worse off in terms of real purchasing power. Similarly a firm which holds considerable fixed money assets, that is, cash, book-debts, bills receivable and such will stand to lose from the fall in value of both capital and income in real terms. The converse

is also true and a firm with considerable fixed money liabilities, for example, creditors, preference shares, etc., will gain.

It is less evident, however, that a firm which holds non-monetary assets might also be adversely affected by inflationary tendencies. Oddly enough, the gradual depletion of net worth can be attributable to the working of certain accounting conventions, in particular, the money and realization conventions and the use of historical costs in accounts which result in the overstatement of accounting profit and the consumption of real capital. One of the consequences of adopting the historical cost convention is that receipts earned on sales in the current period and expressed in current dollars are compared with costs, part of which have been incurred in previous periods and recorded in dollars of those periods. So long as the monetary postulate holds true, the resultant profit figure is a meaningful one. But it ceases to be valid when there is a significant change in the general price level. Current costs and past costs are expressed in dollars of different purchasing power and are not additive (any more than is proper to add together Canadian dollars and Malayan dollars), nor is it proper to deduct such past costs from current receipts. The use of the realization concept and historical costs thus lead to an overstatement of the true profit figure. Some accountants would deny this and the controversy really rests on whether the protagonists have in mind the money capital or some concept of real capital that they desire to maintain intact.

The realization rule is also said to lead to a distortion of profits between different periods. Where a current asset, say, stock shows an increase in the current price, there is clearly an increase in the net
worth of the enterprise (other things being equal) in money terms. Whether there is also an increase in net worth in real terms would depend on the nature of the rise in price, but it clearly is not dependent on the sale of merchandise. 11 Much the same applies in the case of a fixed asset, say, machinery. The fact that the demand for machinery is a derived demand does not affect the position. Assuming that the general price level has remained stable, there is an unequivocal increase in net worth in real terms irrespective of whether the rise in price is on account of an increase in the value in use of the machinery in that particular line of endeavour, or in the exchange value of the asset in some other use (its value in use in the original firm remaining constant). 12 Again, the increase in net worth is not dependent on the sale of the asset, and the principle of income measurement need not be confused with whether property has passed or whether the income is legally distributable or not.

The case for price-level adjustments

We have already seen from the empirical evidence of a considerable number of case studies that the price level error contained in the reported profit figure is, in nearly every instance, a substantial one. Among the most important functions that the income figure is said to perform is the guidance it provides to different groups, such as managers; owners, investors, and creditors in making business decisions. These decisions

11. This and related points are discussed in two articles by M. J. Greener, "Profit - Fact or Fiction?", The Accountant, October 7 and October 14, 1961.

12. Greener, ibid., agrees that there has been an increase in net worth in this last case, but does not propose to incorporate it into the accounts. This appears to be inconsistent with his general line of argument.
are concerned with choosing between alternative lines of action in the future, and the choice is based on an evaluation of past results. It is, therefore, important for these results to be presented in as reliable a form as possible, if the correct decisions in the economy are to be made. 13

Apart from considerations based on the relationship of income measurement to the decision-making process - and in a dynamic economy these considerations are valid and powerful ones - the case in favour of price-level adjustments centre round the following arguments:

(a) the maintenance of capital
(b) tax considerations
(c) the influence of reported income data on trade cycle fluctuations.

The maintenance of capital

The principle of maintaining the capital invested in the enterprise intact is accepted by both economists and accountants. The terminology is not altogether fortunate, 14 and it has been suggested that the accountant's task is better defined by regarding "capital as a value fund that must be accounted for", 15 since to maintain the capital fund

13. There will always be some substantially correct and some substantially incorrect economic decisions. Since the results of only one of the alternative courses of action that existed in the past, that is, the one actually adopted, are available, it is impossible to judge with any degree of certainty whether it was the best decision. Nonetheless, if we assume that past results are, more often than not, a reliable guide to future events, then decisions predicated on an evaluation of past results are, on an average, more likely to be substantially correct decisions. With accumulated experience of how the economy works, the relative number of substantially correct decisions will increase, but it cannot improve beyond the factor of probability that past results bear to future events.

14. See, for example, Fisher's adverse comments. Value and Capital, op. cit.

(or to increase or decrease it) is an entrepreneurial rather than an accounting function. There is considerable disagreement, however, on the precise meaning of the capital concept itself. Accountants have always regarded it as their duty to report on the stewardship of the owners' funds, and thus tend to devote their attention to the money capital invested in the enterprise. In a period of rising prices, this interpretation might well lead to a continuous shrinking in the scale of operations and erosion of real capital. There is one special case in which such a contraction might not prove unacceptable to the owners, where the price rise is specific and relates to the stock while the general price level remains stable. Even so, if the specific price rise is a continuing or substantial one, indivisibilities of scale might prove an insurmountable barrier to efficient operation.

There is one other concept of maintaining money capital that should be mentioned. Hayek, in his analysis of the rationale of maintaining capital intact, concludes that it is the income from the capital stock that we should seek to maintain and it would appear that he has a money income concept in mind. 16

Most economists, however, conceive of capital in real terms. Pigou, in his consideration of the national dividend, argues that it is the stock of physical assets that should be maintained (subject to exceptions, 16

16. "Such a constant income stream (of a workman) in an objective sense might provisionally be defined as consisting at every successive moment of varying collections of commodities actually bought at an aggregate price, by which the collection of commodities actually bought at the beginning of the period might have been obtained". F. A. Von Hayek, "The Maintenance of Capital", Economica, August, 1935, p. 250.
such as destruction by acts of God or war). 17 This concept of real capital does not command general support; in a period of rapid technological change, the concept is, perforce, a nebulous one. It is seldom that machines on the expiry of their economic life, are replaced by identical ones, though obviously this varies between industries; 18 the concept has greater validity when applied to stocks. Some proponents of price-level adjustments would adapt the constant stream of income theory and argue that the objective of capital maintenance is to provide a constant stream of real income, that is, it is the purchasing power committed in the investment in the enterprise that should be maintained. Another school of thought, while conceding that expired assets should be replaced in the most profitable form rather than by identical units, proposes that it is the productive capacity of the plant that should be maintained. 19 Under either of these concepts, as opposed to those incorporating money capital, the enterprise is protected from the capital erosion effects of rising prices, and the economy as a whole from the unwitting process of capital disaccumulation.


18. Some firms work on the assumption that technological progress will render existing machines obsolete every five years. In industries such as tobacco and brewing the rate of innovations is leisurely, in others such as plastics and aircraft the rate of innovations is exceptionally rapid.

Tax considerations

There are several factors that tend to dampen the ill effects of inflation on the erosion of capital. These are, for example, the application of the conservatism principle, the existence in some firms of large depreciation reserves, the current transfers to reserves and what might be termed as generally accepted best practice in the accounting profession. But a reported profit figure which has been inflated by historical cost accounting procedures does entail certain problems. It might be thought by some that labour should have a larger participation in the prosperity, and the trade unions might well exert pressure for an increase in wage rates. Further, shareholders might look askance at what they consider an unreasonably conservative dividend policy. But the most important consideration in this context is the high rate of corporate taxation in most countries; it is this which has lent impetus, among academics and professional accountants alike, to the current search for a more meaningful income measure. The government is a partner in all profitable enterprises, and distribution of profits by way of taxation is not within the discretion of the board of directors.

There are, then the following important tax considerations:

(a) Whether the distribution by way of taxes and dividends are paid out of profits which are determined after sufficient funds have been retained to maintain the real resources invested in the enterprise. Otherwise, the tax on profits will be partly a tax on capital and the payment of dividends might, in fact, constitute a repayment of capital.

20. These are discussed in the following chapter.
Equity between the firms paying tax. The profits tax represents very large transfers of funds between individual firms and the government. It would, therefore, be desirable for the tax burden to be as fairly shared as possible between the individual firms. But equity, in this as in all things, is a matter of value judgment. We can, however, note some of the effects of reported profits based on orthodox accounting conventions on the incidence of the tax burden. In the first place, the profits of firms holding large stocks and machinery will be particularly distorted by the historical cost error, and they will be paying considerably more tax than other firms with the same real income. There is then a tax bias in favour of the less capital intensive firms (and industries).

Secondly, there is also a tax bias in favour of new firms, firms which buy new rather than second-hand machinery, and firms which purchase machinery at high prices. There will also be an incentive for firms to replace their equipment early because of the availability of initial and investment allowances, as in the United Kingdom (even though repairs are treated for tax purposes as a current charge). To conclude, the tax bias will tend to distort the pattern of investment, not necessarily in favour of the more efficient firms in the economy.

21. The employment of these allowances constitutes an unsatisfactory compromise with the problem of maintaining capital in an inflationary period.

Trade cycle fluctuations

The errors in accounting profit in periods of price movements have long been familiar to economists, and their probable effects on trade cycle fluctuations recognised. More recent analyses of this phenomenon can be found in the writings of Lacey and Baxter. Briefly, accounting conventions tend to distort the profit figure when prices change through the comparison of revenue expressed in today's dollars with certain costs expressed in dollars of past periods. Such costs comprise the valuation of the consumption of stock and fixed assets in the revenue earning process. Baxter concludes that "the depreciation error tends to make the high-price years (both before and after the peak) look better, and the low-price years look worse. The stock error instead lifts profits in all years when prices are rising, and depresses profit throughout the down-grade......It appears reasonable to conclude that an error so widespread and so emphatic in its rhythm must have a considerable influence on business sentiment." Overstatement of the accounting profit encourages an optimistic outlook in times of inflation, while its understatement adds to the pessimistic outlook in times of depression. Thus the artificial element in accounts affects the level of employment, incomes and prices and intensifies trade cycle fluctuations.

23. One of the earliest analysis is given in F. Schmidt, Die Industriekonjunktur-ein Rechenfehler (Trade cycles - An Accounting Error), 1927 in which profit distortion was regarded as one of the major causative factors of trade cycles (Quoted by H. W. Singer, in a note on "Profit Measurement and the Trade Cycle", Economic Journal, December 1948, p. 596). See also Friedrich A. Hayek, Prices and Production, London: George Routledge and Sons, Ltd., 1935, p. 151 and Gottfried Haberler, Prosperity and Depression, op. cit., pp. 49-50.


25. (Contd.)


IV. THE CASE AGAINST PRICE-LEVEL ACCOUNTING

So far we have considered the arguments in favour of a structure of accounts which would take price level changes into consideration. This envisages a revolutionary approach in a profession characterised by a traditional and conservative frame of mind. The arguments appear overwhelming and a merely negative attitude towards new horizons in the development of accounting theory and practice would be unhealthy. But there exists a strong body of opinion which are not in favour of change, or at least, of precipitate change. Some of their criticisms do not stand up to critical examination; many are trivial or based on misunderstandings of the proposed changes while some appear to cancel out one another. But others are more damaging, both with respect to the general principle of price level adjustments and the specific proposals themselves. A few fundamental criticisms raise very complex issues, to which no adequate answers can be given at present. In the present chapter we shall examine some of these counter-arguments, and, in sifting the wheat from the chaff, try to obtain a clearer picture of the fundamental difficulties that remain.

The two main principles which form a logical base for historical cost accounting may be termed the 'formalized accounting' principle and the 'contract' or 'risk' principle. Under the formalized accounting principle, income is the matching of expenditures against revenues to which they relate. This formal statement describes what the accountant does; it is a definition of historical cost rather than a formulation of a conceptual principle. Critics have pointed out that the adoption of replacement costs is not a departure from the cost principle; that replacement costs are economic costs and the relevant costs for decision making; and that current costs are the only valid additive costs, since past costs perforce refer to money units pertaining to different periods. It has also been pointed out that under conventional accounting procedure, where a historical cost depreciation figure has resulted in higher reported profits when prices rise, this is equivalent to a tax on the capital gains on depreciable assets, since such gains appear as a component of operating income. Conversely, when prices fall, lower profits result in a tax allowance on the capital loss. We do not propose to enter into the controversy whether the taxation of capital


gains or a special class of capital gains is justified, or whether such gains should be taxed on the same as or a different base from ordinary income. The fallacy in the conventional accounting process lies in not distinguishing this important class of capital gains.

The second principle is a philosophical and ethical one. It implies that the inadequacy of the depreciation provision in periods of inflation is a business risk, and "attempts to contract out of such risks are attempts to secure preferential treatment at the expense of the community." This argument is not, however, a valid one, since under present accounting procedure there is a corresponding advantage, when prices fall, in the tax allowance on the capital loss. The adoption of replacement cost accounting is thus seen to involve the substitution of a different kind of risk, in which capital gains and losses on account of changing price levels are distinguished from operating income. "The point at issue is, should an existing form of risk be forced on industry instead of another simply because of a coincidental development of accounting technique and fiscal practice, when there are significant theoretical arguments as well as compelling and urgent practical reasons why it should not."

It has sometimes been asserted that there has been no real decline in the value of money, and that the changes that do take place are not sufficiently large such as to affect the accounts in any substantial

6. Accounting for Inflation, op. cit., p. 50. (ibid).
7. Ibid., p. 51. These compelling reasons subsume that capital gains are not taxable, or at least taxed at lower rates than income.
fashion. The assumption that there will be no continuous fall in the value of money was one of the considerations that led the Royal Commission on the Taxation of Profits and Income to reject arguments in favour of replacement cost depreciation. The assumption has not been justified in the light of hindsight, but, in any case, a more realistic approach might have been to consider alternative lines of action. Case studies in price level accounting have demonstrated that the effect on the profit figure of a relatively small annual change in the price level is of a significant order of magnitude. Further, there is also a cumulative effect, through the depreciation charge, of the price level changes in past years.

The argument has also been put forward that it is difficult, perhaps impossible, to measure changes in the general price level with any substantial accuracy, and some support for this can be found in the viewpoints of certain statisticians. But the consensus of opinion among most economists and statisticians is that the employment of index numbers for the purposes for which they have

8. The Royal Commission on the Taxation of Profits and Income was appointed by the United Kingdom Government on January 2, 1951. It published three reports, the final report in June 1955. See also David Walker, "The Royal Commission and Depreciation Allowances", Accounting Research Vol. 6, No. 4, October 1955, pp. 360-81.

9. See footnote 8 in Chapter II.

10. See for example, Wilcox and Greer, op. cit. and Changing Concepts of Business Income, pp. 112-118, 127, 129, etc. See also Recommendations on Accounting Principles, N15; Price Level Changes and Financial Statements Supplementary Statement No. 2; and Joel Dean, "Measurement of Profits for Executive Decisions", Accounting Review, Vol. XXVI, No. 2, April 1951, p. 193 for a presentation of the pros and cons of this classic problem.

11. There is a particularly violent attack on the theory and use of index numbers in M. J. Moroney, Facts From Figures, Penguin Books Ltd., pp. 48-54.
been constructed is valid and justified. 12 Index numbers are in fact frequently used in determining wages paid by government or industry, in wage negotiations between employers and trade unions, and sometimes even in the prices paid by official bodies for primary produce; 13 they are also employed by management in policy making and by economists and others in analysing and interpreting the economy as a whole or its individual sectors. The proposal, therefore, to employ index numbers within a comprehensive structure of price level accounting would appear a feasible one. What is essential in any such system is a general body of theory that has claim to conceptual validity rather than arithmetic accuracy, since approximation in greater or less degree is inherent in the theory of index numbers itself. It is necessary to substantiate, however, that a system of accounts based on the use of index numbers which take price level change (or changes) into consideration results in a profit figure which is significantly different from the conventional accounting one, that the revised figure conforms to a theoretically acceptable notion of what income means, and, above all, that it possesses greater utility to users, in particular, management, for different

12. For example, no strong criticisms of the use of index numbers are found in the writings of such authorities as M. G. Kendall.

enterprises and under varying economic circumstances. So long as the adjusted profit figure consistently satisfies these conditions the charge that it is not an accurate figure is adequately refuted.

There is also a related argument that a general price index does not reflect the price movements of its components, which might change at different rates or even in different directions. This criticism has more weight the further removed is the base year or the more pronounced the fluctuations in the general price level—a classic index number problem which has long been considered by economists. However, in the absence of abnormal conditions such as war or the threat of war, the criticism is much weakened where a new index is constructed or the old series is converted to a new reference base frequently, say, every decade. Further, the argument is primarily directed against the advocates of a general purchasing power index and does not apply to those price-level systems in which specific price indices are employed. This particular aspect is examined at some length by Edwards and Bell who

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15. For example, the Wholesale Price Index and the Consumer Price Index series published by the United States Bureau of Labour Statistics have been recently converted from the old 1917-19 base to a new reference base, 1957-59 = 100.

16. See, for example, Price Level Changes and Financial Statements, Supplementary Statement No. 2, op. cit.

17. As proposed by Mathews and Grant, op. cit., and others.

give it a central place in their thesis, which argues that correcting for individual price changes is the more important adjustment and must be made first before the income figure is adjusted for changes in the general price level.

Some of the criticisms as for example, on the partial character of adjustments which do not take gains and losses from the holding of money and money assets into account, have been overtaken by subsequent developments in price-level accounting theory and case studies. Nonetheless the emphasis placed on the adjustments to stock and the depreciation figure can be defended on several grounds; these two adjustments are quantitatively the most major ones in the computation of operating income. It is also objected that the large number of alternative, and in some cases conflicting, proposals would render the final acceptance of price level accounting by the profession and the business community more difficult. On the other hand, it can also be argued that the prolific number of proposals at the present experimental stage is not only to be expected but also desirable. While it is undoubtedly true that the adoption of adversity of methods would create undue confusion and destroy the basis of comparability between the accounts of different companies, such an event is unlikely to arise. The good sense of the accounting profession, the deference its members display towards the recommendations of the leading professional institutes and the necessity to conform with tax and other legislative requirements are all powerful

19. Wilcox and Greer, op. cit., p. 495.

20. The arguments presented by Mathews and Grant, op. cit., are given in the following chapter.
forces towards a certain degree of uniformity. There will perforce be a transitional period during which interested sectors of the business economy will no doubt be somewhat confused and perturbed. This is inevitable with any changes of the scope and dimension envisaged, but a prophecy of an unduly protracted period of chaos rests on slim grounds. It is possible that price level change adjusted statements will be presented as supplementary statements in the initial stages of the change, eventually becoming the primary documents with orthodox accounts relegated to secondary importance. Thus comparability will be preserved in the transition period. There are also insufficient reasons to fear that members of the accounting profession might not prove equal to the task: their abilities in this direction have been amply demonstrated. ²¹ Further, as has been pointed out, price level adjustments are most essential for those companies which are quoted on the stock exchanges, and such companies have competent accounting personnel. ²²

The case against the replacement cost theory ²³

The replacement cost theory is often treated as synonymous with the concept of a replacement fund, that is, the income of an enterprise is

²¹. See Jones, Price Level Changes and Financial Statements Case Studies of Four Companies, op. cit., p. iv.


²³. Many of the criticisms of price-level accounting are developed at some length in Wilcox and Greer, op. cit.
determined after provision has been made for the replacement of assets consumed in earning that income.  This would appear to presuppose that the enterprise has an indefinitely long life; it is clear that the concept is not meant to apply to those enterprises which exploit wasting assets. The assumption is not altogether unreal: the life span of the large industrial and commercial corporations is a long one and there is some evidence of a trend towards increasing longevity.  There is also the additional factor of uncertainty in the termination of corporate existence; the latter, unlike the life of a man, is not determinable by actuarial standards. These considerations are buttressed by legislative provisions for the protection of creditors.

The convention that income is properly determined by the difference between the sale price and the original cost of the commodity sold works well enough in periods of stable prices or where each transaction is treated in isolation. In an inflation, however, when replacement costs rise, the consumption of income without taking such increased costs into account must lead to a contraction in the scale of operations of the enterprise and eventually to its liquidation. The historical costs convention is seen as a definition of income that has served well in the past, rather than as an axiomatic truth irrespective of changed economic conditions.

24. This is the definition of economic income given in Some Accounting Terms and Concepts, op. cit., p. 30, which further notes that it constitutes one of the more important distinctions between the economic and accounting concept of income. Some accountants would reject the replacement cost concept, regarding it as an invalid confusion of income measurement and cost recovery on the one hand and funding, a managerial function, on the other. The rationale of this viewpoint is taken up in the following chapter.

There are various objections to the employment of replacement cost depreciation. One is that fixed assets are seldom replaced in kind, but the replacement concept assumes the maintenance of the physical capacity of the plant, not each actual machine. A weightier criticism is that the maintenance of physical capacity makes sense only in a static or slowly evolving economy. The modern economy is characterised by technological advances, often of a revolutionary nature; against this background the controversy between money capital and real capital loses much of its significance. It is also claimed that in view of technological progress the cost of new equipment of stated capacity tends to fall from year to year, so that maintaining the value of equipment by reinvesting depreciation funds will involve some expansion of physical capacity. If this viewpoint is correctly taken, then conventional depreciation methods do provide some counterweight to the erosion of fixed assets by rising prices.

It has often been claimed that one of the merits of historical cost depreciation is that it pinpoints efficiency, since a firm with a management far sighted enough to purchase its fixed assets when prices are low will show consequentially larger profits (because of the lower depreciation charge). This marriage of past and present efficiencies

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26. "If a machine is replaced with one that reduces the direct labour costs, or increases productivity, it would hardly seem reasonable to base depreciation on the cost of this new machine before it has been purchased." D. H. MacKenzie, op. cit. This is hardly a fair criticism; proponents of replacement cost depreciation would recommend incorporating an allowance for the increased productivity in the adjustment.

implicit in the argument is illustrative of the muddled thinking too often brought to bear on accounting problems.

There are certain criticisms centred round the concept of a replacement fund and its sufficiency. It would hardly appear necessary to point out that even where an amount equivalent to the depreciation charge is set aside each year and invested in a fund, the market value of which keeps pace with rising replacement costs, only that portion which was set aside in the first year would have appreciated by the necessary extent. But such a fund would meet eventual replacement costs if the annual premiums were based on current price levels; no further charge need be made in any year for increases in the price level over that in a past year.

It is also probably true that depreciation allowances charged in the first years of life of a new enterprise constitute a general reserve, and that current costs of replacement are met out of depreciation provisions in current years on an increasing volume of fixed assets. This is not to argue that depreciation should not be charged in the initial years. We are concerned here with one specific aspect of the replacement problem, that is, whether more than sufficient resources have not been retained to provide for the replacement of fixed assets. True, this would conflict with the economic concept of income as the amount that can be distributed without encroaching on the accumulated resources of the enterprise. But the more generally accepted concept of income as change in economic net worth would require a depreciation charge which is equivalent to the consumption of the fixed capital in the period. In any case the existence of such reserves would be a bulwark against encroaching prices. But these hidden reserves, by their very nature, are limited in
extent and once exhausted cannot be replaced. In some years, however, substantial fixed capital expenditure might be financed out of accumulated depreciation allowances unspent in earlier years of depression.  

It has also been claimed that difficulties would arise when the price change does not lie on a consistent trend, but there are instead irregular short-term fluctuations. Thus when the replacement cost of an asset rises for a number of years and then declines shortly before replacement is due, the company would be holding surplus cash resources while its income statements in prior years might have recorded deficits on account of the inflated depreciation charge. Under reversed circumstances, insufficient cash resources are matched by substantial accumulated earnings. The import of the criticism is not altogether clear, but these sorts of situation would arise irrespective of whether price level depreciation is adopted or not.

Abstracting from extraordinary situations, doubt has also been expressed that replacement cost depreciation would provide for the amortization of an asset's original cost, taking good years with the bad. This is attributed to two factors: (a) since expansion takes place and new plant additions are made at or near the peak of a trade cycle, the purchase price of a machine would be higher than its average cost over the entire period of a cyclical movement, and (b) because of


29. This assumes full employment of resources in both capital goods and consumer goods industries before the peak of the cycle.
technological improvements the real cost of machinery, either in terms of productivity or effective life, tends to decrease. The replacement cost depreciation figure is equal or higher than the original cost only when inflationary tendencies have a greater effect than the above influences. 30

Largely because of tax considerations, an alternative approach widely adopted in the United States in the 1920's was the appraisal and writing-up of fixed capital, on which values the revised depreciation charges were then based, despite considerable opposition from an influential section of the accounting profession. Though the appraisals were performed in the main by qualified engineers and valuers, it was believed that deliberate overstatement amounting to gross misrepresentation took place in a large number of cases. 31 The subsequent write-downs necessitated by the depression of the following decade, given in the table below, add weight to the earlier misapprehensions. On the other hand, the reappraisals in the corporate sector in the United Kingdom in recent years appear to have been conducted in a fair and objective manner. One rather unexpected feature was brought to light; there is some indication that part of the large discrepancies between the book values and replacement cost new values of fixed assets which have necessitated in their revaluation can be attributed to the excessive writing-off of fixed assets by way of larger than necessary depreciation provisions in past years. 32

30. See also Jean St. G. Kerr, "Three Concepts of Business Income", Australian Accountant, April 1956.


32. See, for example, Imperial Chemical Industries Ltd., Annual Report For the Year 1950, p. 32.
TABLE. WRITE-UPS AND WRITE-DOWNS OF PROPERTY, PLANT AND EQUIPMENT, 1925-1934: 272 LARGE INDUSTRIAL CORPORATIONS

(Unit: US $1,000,000)

<table>
<thead>
<tr>
<th>Year</th>
<th>Write-ups</th>
<th>Write-downs</th>
<th>Net Write-ups</th>
</tr>
</thead>
<tbody>
<tr>
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<td>28.3</td>
<td>12.8</td>
<td>15.5</td>
</tr>
<tr>
<td>1926</td>
<td>65.9</td>
<td>24.4</td>
<td>41.6</td>
</tr>
<tr>
<td>1927</td>
<td>23.2</td>
<td>16.4</td>
<td>6.8</td>
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<tr>
<td>1928</td>
<td>26.3</td>
<td>68.4</td>
<td>-42.2</td>
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<td>1929</td>
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<td>128.6</td>
<td>-114.2</td>
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<td>1930</td>
<td>24.4</td>
<td>16.7</td>
<td>7.7</td>
</tr>
<tr>
<td>1931</td>
<td>5.9</td>
<td>194.7</td>
<td>-188.8</td>
</tr>
<tr>
<td>1932</td>
<td>n.s.*</td>
<td>251.5</td>
<td>-251.4</td>
</tr>
<tr>
<td>1933</td>
<td>0.1</td>
<td>117.3</td>
<td>-117.2</td>
</tr>
<tr>
<td>1934</td>
<td>n.s.*</td>
<td>117.4</td>
<td>-117.3</td>
</tr>
</tbody>
</table>

Note: n.s. denotes 'not significant'.


Lastly we may take note of the argument that the making of an increased provision on account of higher replacement costs "has the ultimate effect of relieving posterity from the necessity of finding additional capital to meet raised price levels; and if the present generation bears this cost it will in effect be denying itself of part of the product of its own industry, in order to make a gift by way of capital accumulation to those who come hereafter."

33. S. W. Rowland, Depreciation Reconsidered, Gee and Company (Publishers) Ltd., 1933, p. 3.
Stock is the other item in the accounts for which some method of replacement cost accounting has been felt to be necessary. There is one criticism relating to fixed assets which applies with considerably less force to stock, since stock is often replaced in kind. But proponents of replacement cost accounting would probably wish to apply the concept even where the enterprise deals in a constantly changing stream of commodities. There is, however, a large body of opinion which deprecates the use of the "last-in, first-out" principle in accounts, which is the most widely used method of correlating sales with replacement cost. Its supporters have long abandoned the theory that Lifo is a method of inventory valuation; they claim rather that it is

34. A special committee of the American Institute of Accountants in its report considers "the prime purpose of the 'last-in, first-out' principle .... is to bring about, in the determination of profits in the financial accounts, a substantial correlation between sales prices and those raw material prices which have been directly causative of such sales prices". (Quoted in Changing Concepts of Business Income, op. cit., p. 39.). This viewpoint suggests that actual replacement of the stock is not a prime consideration in employing Lifo.

a flow of cost method. But it can hardly be denied that the wide acceptance of Lifo is not based on any theoretical considerations; it lies in the effects on tax liability in inflationary periods. In the United States, where express authorisation was written into the law in 1938, the employment of Lifo has become extremely popular. By contrast this method has only limited application in the United Kingdom, where the courts have always been unfavourably disposed towards its adoption for tax purposes.

At best it is but a partial approach to the price level problem. It does not represent a departure from the principle of cost recovery, the adherence to which has given rise to some of its main deficiencies. Lifo tends to eliminate stock appreciation profits, thus sufficient resources are retained within the enterprise to maintain a constant stock turnover. But the method has also the unfortunate effect of relating the figure of closing stock (in the balance sheet) to a price level of many years or decades ago. The proposal that companies employing Lifo in their


37. About one-third of the 600 companies included in the AICPA Survey of Accounting Trends and Techniques, as shown in the corporate reports for 1958, use Lifo. Arthur Anderson and Company, Accounting and Reporting Problems of the Accounting Profession, September 1960, p. 67.

38. Minister of National Revenue v. Anaconda American Brass, Ltd. (1955), All England Law Reports, 1956, Vol. 1, p. 20 et. seq. It was held that Lifo is not an acceptable method for determining income for income tax purposes. The actual physical flow cannot be regarded as irrelevant, and a realistic assumption must be made to identify the flow and the inventories with historic costs. This viewpoint appears to be contrary to an obiter dicta of Mr. Justice Croom-Johnson in Inland Revenue Commissioners v. Cock, Russell and Co. Ltd. (1959), The Times Law Reports, Vol. IXV, 1949, p. 726, "Profits for income tax purposes ... are to be computed as a business man employing sound principles of commercial accounting would compute them, subject to any statutory modification of such principles".
accounts should disclose the replacement value of their closing stock has often been made but this has not been generally accepted. It has been claimed also that Lifo fails to eliminate price fluctuations that took place within the accounting period; this point has little validity when purchases are made at frequent intervals. A more substantial objection is that the smooth working of this method depends on a relative stability of the base stock in quantitative terms. Otherwise, not only is the matching of cost and revenue jeopardised, but the method is susceptible to abuse by management who can influence the reported income for the year by manipulating the level of closing stock.

Where the purchasing policy is a seasonal one, or speculative and irregular, Lifo would probably fail to give as close an approximation to economic income (that is, sales less cost at current price levels) as some alternative method such as "next-in, first-out". But for a majority of industrial and commercial enterprises it seems to provide a practicable method of replacement cost accounting for stock, and in the United States one that is acceptable to the income tax authorities. Under certain circumstances, the method is not so effective as employing actual replacement costs or specific index number adjustments to the stock figure. There is one objection that is not relevant, that in the absence of changes in the general price level, the so-called inventory profits are real and should not be eliminated. 39 The replacement cost concept and the general purchasing power concept represent two different approaches to price level accounting with fundamentally different objectives.

39. See Accounting Concepts and Standards underlying Corporate Financial Statements, Supplementary Statement No. 6, op. cit. Wilcox and Greer op. cit., also criticize Lifo against the context of the purchasing power approach.
The case against the purchasing power theory

The purchasing power concept seeks to determine income after "revenues and charges against revenues are stated in terms of units of the same purchasing power". The way to achieve this is to make adjustments based on "the over-all purchasing power of the dollar, that is, changes in the general price level as measured by a GENERAL price index." Adjustments based on the current value or replacement cost of assets are specifically excluded. This method does not represent a departure from cost, rather it seeks to restate historical costs in current dollars of equivalent purchasing power. It seeks to maintain intact the capital in terms of the units of purchasing power represented by the capital investment. It is clear, therefore, that where the replacement cost of stock or fixed capital equipment is changing at a different pace (or direction) from that of the general price level, the physical capacity of the enterprise is not maintained. Whether price level accounting should concern itself primarily with replacement is an important question that will be considered in the following chapter.

A main objection to this method derives from the alleged inaccuracy of a general price index; the pros and cons of this case have been noted earlier. A weightier consideration is the difficulty of applying these index number adjustments at frequent intervals in order to obtain adjusted unit costs of production. Such unit cost figures might be


required monthly or weekly for purposes of price fixing, budgeting or formulating other managerial policies. So far the purchasing power school has been concerned mainly with income measurement and the proposed systems embrace end-of-year price level adjustments. Difficulties of a complex nature are likely to arise if it is desired to make short term current price level adjustments which are then carried into constantly changing stocks of work-in-progress, finished parts, etc. The criticism is not, however, altogether relevant to the role of a purchasing power concept in income determination.

Not all accountants would agree that these complex difficulties are indeed insurmountable. In the first place, the entire accounting structure employed in the firm would have been reorientated towards price-level accounting; the mechanics of price level adjustment would be built into the accounting and costing system. Secondly, where transactions are coded by date of occurrence and the amounts converted initially into beginning-year dollars, then adjustments at the end of a current month would involve no more than converting all accounting figures by a single factor, to take account of the price level change between the beginning of the year and the current month. (It is presumed that a monthly index is employed and that it is considered not desirable to have more frequent adjustments). Admittedly, difficulty would be experienced with perpetual inventory records. The solution of this and other problems might require some ingenuity and the use of sampling techniques.
Edwards and Bell have argued that while the general price level adjustment is an important step towards truthfulness in accounts, it does not provide the necessary data for the evaluation of past decision on which business policy making can be based. It is proposed instead that the current values of the firm's assets should be recognised and current operating profit determined before the adjustment for the general price level change is made.

**Tax considerations**

Much of the interest in price level accounting has arisen in the post-war years of inflation. When prices rise it is alleged that the employment of orthodox accounting conventions, including the "first-in, first-out" method of inventory valuation, does not maintain capital in real terms. To meet this problem it has been recommended that replacement costs which exceed the depreciation charge based on historical cost should be met out of transfers to reserves. But even where a cautious dividend policy is pursued, it is claimed that high rates of taxation on an unduly inflated profit figure often prove prohibitive and firms are then unable to finance the maintenance of their fixed capital equipment, much less an expansionist policy, out of retained profits. This argument is often objected to on various grounds. One is that economic development would be retarded if there is insufficient outlet for an expanding capital market, and it is also argued that even where dividends have been paid

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42. The Theory and Measurement of Business Income, op. cit.

43. See, for example, Recommendations on Accounting Principles, NL2, op. cit.

out, that part which is not consumed would be reinvested in industry though not necessarily in the same firm. With respect to the above points, while it is desirable for new investment opportunities to be created to absorb new funds in the capital market, it might be less desirable for a part of such funds to be utilised for the maintenance of existing industrial capacity, as opposed to an expansion of such capacity. Further, it is much more expensive for a firm, and for industry as a whole, to resort to the capital market for funds compared with methods of internal financing, with undesirable effects on industrial efficiency and the rate of economic development. Smaller firms, in particular, will be adversely affected as it is relatively more expensive for them to resort to methods of external funding.

It is true, of course, that part of the profits taken by way of taxation is reinvested in the public sector, often in the provision of social overheads that lead to increased industrial efficiency, taking a longer term of view. But how genuine is the complaint that the burden of taxation in recent years has become a penalty for effort? It would appear, so far as the United Kingdom is concerned, that in the last decade taxes on income, capital and expenditure, when expressed as a ratio of the gross national product, have been on the decline. 45 Further, countries

<table>
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<th>Expenditure</th>
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<tbody>
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<td>1951</td>
<td>31.3</td>
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</tr>
<tr>
<td>1952</td>
<td>30.3</td>
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</tr>
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</tr>
<tr>
<td>1954</td>
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<td>1957</td>
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<tr>
<td>1958</td>
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<tr>
<td>1959</td>
<td>25.9</td>
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</tr>
<tr>
<td>1960</td>
<td>25.1</td>
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</tbody>
</table>

"It should be said that to include national insurance and health contributions in taxation makes no difference to the general picture." F. Livesey, in letter to The Observer, Sunday, February 18, 1962.
such as West Germany and France, which have been taxed more heavily, have also exhibited higher rates of economic growth. However, economic growth rates are subject to a large, and imperfectly understood, number of factors. Part of the reason for the economic revival on the Continent might be attributable to a relatively lenient tax treatment of retained earnings.

While one company by adopting price level accounting would pay less tax when the price level rises, the same result is unlikely to obtain for the corporate sector as a whole. There is, of course, the possibility of a planned cut in government revenue should the lower adjusted profits in fact successively dampen the upward swing of the business cycle; fiscal policy is concerned not only with the raising of revenue for finance, but also the mopping up of surplus purchasing power.

Some critics are more concerned with the inequitable distribution of the incidence of taxation between companies. It has been demonstrated, however, that assuming it is desired to maintain the level of government revenue then a substitution of replacement cost accounting for historical cost accounting in the quoted company sector in the United Kingdom in 1950 and 1951 would have the following effects: (a) companies with larger than average stock appreciation and increases in the prices of its durable assets would gain, (b) many companies most important to the prosperity of the economy, that is, companies in the basic and export industries, would be adversely affected, and (c) the practical effects on the incidence of taxation would not have been

significant, though the selected years experienced the greatest amounts of stock appreciation since the war. These results appear to suggest that if the incidence of company taxation generally is too great, the rates of taxation are more in need of reform than the tax base itself. 47

Some Social problems

We may, then, cautiously conclude that accounting conventions produce a distortion in reported profits. This distortion, in times of rapid price change, may be significant enough to render the profit figure of doubtful utility as a policy guide to management and owners. A new income concept which attempts to correct for price level changes, however, might raise economic and social problems which extend beyond the boundaries of income measurement. 48 Some of these problems are:

(a) The incidence of tax has always been related to money income. If it is generally agreed that it would be more equitable to tax companies on their real incomes, the problem of the other taxpayers in the economy remains. There is, of course, one important distinction. The consideration in the corporate sector is one of maintaining existing industrial capital, with far reaching results on the rate and direction of economic development; that in the case of the other taxpayers is more a question of mitigation of personal hardships.

(b) Apart from the problem of an equitable readjustment in the tax burden, the question also arises as to whether the new income concept is to apply to other economic relationships, affecting in particular the legal rights between debtors and creditors, and generally all long term contractual obligations. When prices fall, the new income concept would permit a return of part of the money capital; this might tend to weaken the existing legislative safeguards for creditors' protection with respect to a return of owners capital.

48. See, in particular, Recommendations on Accounting Principles, N 15, op. cit.

It has been pointed out that this criticism holds only in the case of the purchasing power approach and does not apply to the replacement cost approach. Accounting for Inflation, op. cit., p. 57.
V. PRICE LEVEL ADJUSTMENTS: PRINCIPLES

Purchasing power historical cost versus current cost

There are two main contending schools of thought among proponents of price level accounting. Though the differences are sometimes presented as a choice between the employment of an overall general price index or specific price indexes which are relevant to the particular firm or industry, the dichotomy between the two schools is, in fact, a wide and basic one.

The advocates of a general price index are concerned primarily with changes in the value of the measuring unit in accounts. The use of a general price index is a statistical technique intended to correct errors introduced by such changes. It does not constitute a departure from a historical cost base nor from the conventional concept of income as sales less historical costs. Indeed the proposed system is sometimes referred to as a purchasing power historical cost system. In the general price level accounting system, historical costs are converted into constant-value units and all items in the accounts are expressed at the price level of a selected base date or period. There is also sometimes


2. In some proposals the average-of-year price level is used, in others the accounts are expressed in end-of-year prices. The latter system has the merit that adjusted balance sheet items are also in end-of-year dollars.
dissent as to the most appropriate general price index, though, as in most countries where not more than one such official index is published regularly, the sophistication of the distinction lies on an academic plane. In the United States, the Wholesale Price Index and the Consumers Price Index, both published by the Bureau of Labour Statistics, have their respective supporters. On the whole, the Consumers Price Index is preferred, partly because it corresponds closely to the implicit price deflators employed in the computation of the gross national product; it is also less volatile than a wholesale price index. 3

Theoretically the choice will depend on whether profits are paid out to shareholders or ploughed back into the firm. In the former case, a consumers price index would be the relevant one to employ, since it is the owners' purchasing power that it is desired to maintain intact. Should the profits be retained in the firm, however, the use of a wholesale price index will conform more closely to an income concept that is concerned with the firm's command over the goods and services that constitute its inputs. Where, as in the large number of cases, profits are partly distributed and partly retained, some composite figure compiled from combining the two indexes might be the best solution. 4 But even where all profits are distributed, still not all dividends are consumed and part will be reinvested in industry.

3. For an account of the implicit price deflators developed by the United States Department of Commerce, and the advantages generally of employing the Consumers Price Index, see Jones, Effects of Price Level Changes on Business Income, Capital, and Taxes, op. cit., Appendix A.

4. See Accounting for Inflation, op. cit., p. 57.
An income figure revised for changes in the general price level would not, of course, satisfy the conditions set out by one economic concept, that of maintaining the real resources of the firm. Nor does it measure the value of the services consumed in the income earning process. To achieve these aims it has been proposed that the adjustments should pertain not to changes in the purchasing power of the dollar, but to changes in the current prices of the specific assets employed in the firm.

The theoretical justification of current costs can be briefly stated. The discussion here will be confined to an aspect of stock flow, that of pricing the issue of stock to production. To the economist the relevant concept of cost is opportunity cost, which is related to the problem of allocating scarce resources between alternative uses. Thus the satisfaction of one want always involves doing without something else. The true cost then is the foregoing of the alternative. The alternative foregone in issuing material to production is selling the material or holding it. The opportunity cost in the first case is the value of sale at current prices, in the second case, the value of sale at current prices plus the interest on the proceeds from the date of valuation to the date of sale. If the issued stock were valued at

5. Ibid., pp. 52 et seq. See also Some Accounting Terms and Concepts, op. cit., p. 30.

replacement cost, that is, the cost of purchase at current prices, this would be an approximation to the opportunity cost concept. (At one remove, if we allow the possibility of the unit issued to production being replaced before a subsequent issue is made, the application of Lifo will give effect to what resembles a replacement cost base.)

Edwards and Bell have developed two alternative concepts of profit based on a current cost approach: realizable profit which is based on the valuation of assets and liabilities at their opportunity costs or market exit values, and business profit which is based on market entry values, that is, the current costs of acquiring the inputs used. 7

The current cost approach is often identified with the narrower replacement cost concept. Various such price-level systems have been proposed; in the main they advocate adjustments by means of (a) market values, (b) appraisals, or (c) specific price indexes. Conceptually, the use of market values - the test of the market place- is superior to that of applying specific price indexes to the accounts. Edwards and Bell, for example, countenance the employment of appraisals or price indexes only where market values are unobtainable or inappropriate because of technological change. It should be emphasized, however, that market values are a good indication of economic values only when certain conditions are present - a large number of buyers and sellers who bargain at arm's length and actual transactions take place at prevailing prices. Such markets are unlikely to exist for many second-hand assets. Further, market values and appraisals would introduce a subjective evaluation into the accounting process and open the door to fraud and deliberate distortion

7. Edwards and Bell, ibid.
of the income figure. Index numbers, where these are published by the government or independent bodies, are at least objective and not susceptible to manipulation by management.

The arguments in favour of making adjustments in terms of general purchasing power are:

(i) This is the correct approach if we assume that inflation has become a serious economic problem and that the statistical error in accounts induced by inflation is significant,

(ii) The use of replacement cost indexes or other devices will give, at best, a partial correction for the statistical error in the accounts; this will tend to vary inversely with the dispersion in the secondary price levels,

(iii) Specialized index numbers are difficult to employ under conditions of rapid technological change, as for example, when the replacement cost of an existing piece of equipment is unduly high because it is fast becoming obsolete, and

(iv) A general price index prepared by a government authority gives certain advantages of promptitude, impartiality and practicability. The use of different indexes by individual firms can lead to window-dressing and fraudulent manipulation of accounts. It has also been claimed that a uniform index gives a more equitable distribution of the tax burden between firms.

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On the other hand, advocates of the alternative system believe that the price dispersion error is more significant than the error caused by inflation. 9 It is not proven, however, that the dispersion is so great that it invalidates the concept of the general price level adjustment. After all, economists and entrepreneurs alike constantly make decisions based on the assumption that prices in general are moving up or down. The problem rather is, how will general purchasing power adjustments affect a firm employing specialized plant in producing a specialized product? So far as maintaining the physical plant or productive capacity of this firm is concerned, it is evident that serious deficiencies or over-provision might arise. With respect to the more general case, the most cogent arguments for specific price level adjustments are centred round the entrepreneurial functions. These adjustments are clearly necessary towards the formulation of a sound capital budget policy with respect to plant maintenance and replacement and the expansion of production facilities. They are also relevant to dividend policy, where emphasis is laid on the productive capacity of the firm rather than on what this productivity represents, in terms of general purchasing power, to its owners.

Certain criticisms of the purchasing power approach which relate to a wider sphere than that of the individual firm have been made. 10 To be logically consistent the principle must be extended to all assets including money and money assets. This in fact is advocated under the variant systems of stabilized accounting. It is argued that such


10. Accounting for Inflation, op. cit., pp. 57 et seq.
attempts to remove the inflationary element in the accounts will only accentuate the inflationary process, since otherwise part of the excess purchasing power present in an inflation would have been absorbed by rising prices, which deprive consumers and businesses of some of their ability to obtain the things they originally intended to purchase. This argument would appear, however, to contain a weakness: the firm's command over goods and services can only be maintained at the expense of its owners and the government. A second criticism that stabilized accounts imply the inevitability of continued inflation and reduces confidence in the currency and the public willingness to hold is basically a psychological argument which cannot be verified in any objective sense. There is more weight to a third argument, that stabilized accounting which aims to maintain purchasing power in the corporate sector in times of inflation requires the principle, in order to maintain consistency, to be extended to other economic relationships, such as wages, fixed interest and all other incomes. Such an extension of principle to the other sectors of the economy is not called for under the replacement cost approach. It is also said that the purchasing power school is inconsistent in its treatment of capital gains and losses; this point is developed in a subsequent section.

The distinctions between the two sets of proposals are important. On a conceptual plane, we are once more faced with the problem of defining real capital. The use of a general price index conforms more closely to the definition of capital as command over goods and services, while the employment of specific price indexes reflects the emphasis on replacement costs and maintaining the scale of operations. Real capital
in the latter case is thus conceived in terms of physical units of plant, or, in a more sophisticated version, units of productive capacity.

The significance of the distinction for accounting theory needs to be stressed. The use of a general price index does not constitute a departure from historic cost accounting, whereas the substitution of current prices in accounts introduces a new concept of income as sales less replacement costs. It is well nigh impossible to predicate a choice between these two rival proposals on theoretical grounds alone. Both claim to reflect the Hicksian theory of income determination. In the one, emphasis is laid on the consumption policy of the owners, and in the other, on the productive capacity of the firm. Both viewpoints are valid; perhaps the first is more related to the welfare of the individual investor, the second to industrial growth and economic progress.

Where it is proposed to apply both specific and general prices indexes (in that order)\(^{11}\), then the system really incorporates both a new concept of income and adjustment for the statistical error in accounts.

**Comprehensive versus partial adjustments**

There is a further problem which is closely related to the differences in the two concepts of real worth discussed above. The historic cost error arises from differences in price levels at two different periods of time, so that assets consumed in the current period are valued in conventional accounting at the price level of earlier periods (in which they were acquired). The two items in the determination of operating

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\(^{11}\) Edwards and Bell, *op. cit.*
income that are most affected by price level changes of this nature are the depreciation of fixed assets and the cost of goods sold. But a change in the economic worth of an enterprise which arises from a price level gain or loss can be attributed to holding as well as trading activities. While it is true that the composition of assets is primarily a financial and not a trading problem, it might yet constitute the most important entrepreneurial function, particularly when the uncertainty of the economic climate is reflected in significant price movements in the firm's inputs, or finished products or both. Holding gains, like trading gains, are a guide to managerial efficiency.

A further classification, then, can be made between those accountants who would confine price level adjustments to the operating statement only and others who take a comprehensive view of business income.

The purchasing power approach is essentially a comprehensive one. It has been pointed out, however, that there is an inconsistency in this system in the treatment of capital gains. Assets in the balance sheet are adjusted to the current purchasing power of their historical cost. Thus purchasing power price movements of assets are recognised and excluded from income as they occur. Capital gains or losses on the relative price movements of assets (that is, where they diverge from movements in the general price level), however, are recognised only on sale of the assets. Thus the income figure includes both operating income and the capital gain (or loss) on assets sold on account of the difference between current cost and adjusted historical cost. 12

A comprehensive approach can also be found in some of the current cost accounting systems. A particularly rigorous development of such an approach is that contained in the system of Edwards and Bell. The authors advocated the use of market values rather than replacement cost indexes, except where market values are not obtainable. Conceptually current costs and market values can be assumed to be the same, except where the market is imperfect, as with specialized equipment. In this system, a more consistent treatment of capital gains, also termed holding gains, is obtained.

Holding gains are of two kinds: the gains or losses on fixed assets and long-term liabilities and those on money and monetary assets and liabilities. Apart from the depreciation charge, the appreciation in the current values of fixed assets and long-term liabilities are unrealized. Further, that portion which is part of the general price rise represents a monetary or unreal profit; only the excess of the difference in current values over the difference generated by the inflationary process can be considered real.

The treatment of holding gains and losses on money and monetary assets and liabilities is basically the same in both the purchasing power and current cost approach. With regard to these assets unreal income cannot arise.

There is a real loss on holding money and money assets (such as accounts and bills receivable) when the general price level rises and a real profit when it falls. The converse is true for current liabilities, which may be regarded as a hedge for money assets: thus some accountants

13. Edwards and Bell, op. cit.
speak of a net monetary position. It is more difficult to classify the gains from holding money and monetary net assets, and in view of the rapid turnover of such items the assumption is usually made that all such purchasing power gains and losses recorded in the period have been realized. 15, 16

The term 'comprehensive' has been used above in a technical sense to apply to those systems which place emphasis on adjustments to the balance sheet as well as the income statement, and in some systems regarding such adjustments as part of income. Advocates of the other school argue that their own treatment gives an adequate expression of true income. This school is mainly confined to proposals which advocate or sanction the use of specific price indexes to ensure that the replacement costs of fixed assets and inventories are wholly taken into account. This is the approach of Mathews and Grant in their study of the effects of inflation on the Australian corporate sector. 17 It is also the approach contained in the proposals for price-level accounting of the (English) Institute of Cost and Works Accountants. 18

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11. For example, see Mason, op. cit., pp. 10-11.

15. Doubts have been expressed with regard to this assumption. For example, see Baxter, "Inflation and the Accounts of Steel Companies", op. cit., p. 253.

16. For a detailed analysis of the importance of holding gains, see Edwards and Bell, op. cit.

17. The authors emphasize that their proposals do not constitute a system of replacement cost accounting. It is a system of historical cost accounting for purposes of profit measurement, with supplementary adjustments to provide a record of the current cost of depreciation and stocks sold or used. Mathews and Grant, op. cit., p. 21.

accounting system contained in the proposals of the (English) Association of Certified and Corporate Accounts is very similar in its emphasis on the current valuation of fixed assets and inventories. While they recommend that this principle should be extended to the remaining assets, the proposal is given very cursory treatment and, in any case, the effects of their valuation on a current base are insulated from the income account.

It is of interest to note the arguments of Mathews and Grant against making price level adjustments in respect of money and monetary assets and liabilities. Firstly, increases in the value of inventory caused by inflation are usually financed by a corresponding increase in short term liabilities, in particular bank overdrafts and creditors. There is, therefore, the possibility that the revision to income on account of inventory revaluation and the consequent effect on a reserve account will be nullified if we also take the effect of the inflation on the larger volume of money liabilities into account. Secondly, while there are strong practical grounds for providing for the maintenance of real capital, it is more difficult to justify attempts to maintain the purchasing power of money assets, partly because these would represent a departure from the orthodox accounting role, and partly because they would raise wide social problems of equity in taxation and debtor-creditor relationships.  

19. *Accounting for Inflation, op. cit.*

Should capital gains be regarded as income

Alexander considers that one of the three main conceptual problems in income theory is the inclusion versus exclusion of capital gains. An expected gain, as for example, that on an appreciation bond, is clearly income. It would appear that for most purposes an unexpected gain should also be regarded as income. For tax considerations, the ability to bear taxes is certainly higher. Capital gains cannot be regarded, as has been contended, as merely a revision of an estimate; there must have been a profit at some stage. But capital gains tend to be concentrated in time, that is, at the point of sale of the asset. Hence it would appear equitable to tax such gains at a reduced rate.

It is interesting to note that in accounting procedure, where a historical cost figure for depreciation has led in an inflation to higher reported profits, this will lead to the spreading of taxation on an important class of capital gains over the life of the asset, since such gains will appear as a component of operating income. When prices fall, there will be a corresponding tax allowance for the capital loss.

Not all advocates of comprehensive price level systems would agree on the above viewpoint. It must be admitted that at least so far as the long-term assets and liabilities are concerned, the windfall gains

21. Alexander, op. cit., in Baxter and Davidson, op. cit., p. 199. The other two conceptual problems are real versus money income, and accrual versus realization as the criterion for timing of a gain or loss.

22. Ibid., pp. 196 et seq.
are contingent on a continuation of the current price trends, or at least on the maintenance of the current price level. Therefore, while it might be useful to compute such unrealized gains there is no general consensus of opinion as to whether such gains should be included in the income statement, or if they are so shown, that segregation of real and unreal or monetary holding gains is important.

Mason presents some of the arguments for and against the inclusion of purchasing power gains and losses in the income statement thus:

"There are differences of opinion as to the proper location in the adjusted financial statements of the purchasing-power gains and losses. Some feel that all such amounts should appear in the income statement in order to show more completely the current effect of price-level changes. It can be argued, however that until the bonds are paid and the cash balance is spent, such gains and losses are unrealized and should, therefore, not appear in the current operating statement. Still another interpretation is that the rapid turnover of the current assets and liabilities justifies showing the gains-and losses on the net current monetary position in the income statement, but that so-called "gains" or "losses" on bonds payable are not income or loss to the business enterprise as such but are rather capital adjustments between the bondholders and stockholders - as prices rise, there is a tentative or provisional shift of interest from the bondholders to the stockholders and when prices fall, the reverse movement takes place."^22a

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There is also an important theoretical consideration in favour of excluding purchasing power gains from income. It has been asserted that they partake more of the nature of capital profits of a temporary character, rather than ordinary income. They should therefore be reinvested so as to secure the owners in perpetuity an additional income equal to that which is consumed during the transition period. 23

APPENDIX. A NOTE ON DEPRECIATION

Fixed assets are conventionally shown at cost of purchase less accumulated depreciation. This is now a statutory requirement under the English 1948 Companies Act, so far as the published accounts of public companies are concerned. 24 Under the straight line method, the annual depreciation factor is determined by a simple equation - cost less


24. The purpose of this requirement is not altogether clear (and so far as this writer knows, the point has never been discussed). An unwarranted respect for historical costs would appear insufficient reason. It is probable that for a going concern, a ratio might exist between its fixed assets and the depreciation provision which could be considered healthy. Under the 50 Per Cent Theory it is believed that where plant in a stable firm consists of various assets of different ages fifty per cent would have been depreciated (see James C. Bonbright, The Valuation of Property, New York and London: McGraw-Hill Book Co., Inc., 1937, p. 209). But the ratio will depend on a number of factors: whether the firm is expanding or contracting, whether it purchases second-hand plant or sells existing plant. There seems scope here for an empirical study.
scrap value divided by the estimated number of years of life. In many cases the scrap value is regarded as nil or insignificant. The life of the asset which is the shorter of the life determined by (a) physical wear and tear, taking the maintenance policy of the firm into account, (b) obsolescence, and (c) where a machine has been installed to exploit a wasting asset, the period of exploitation, or in the case of a machine with a specialized function the period determined by the effective and sufficient demand for its products.

The convention of providing for depreciation has a long history more ancient than the double entry principle itself. As far as Roman times, the author of a text on architecture laid down the rule that in valuing a masonry wall, one-eightieth of its cost should be deducted for each year it has stood, assuming that such a wall has a life of eighty years. Here is a clear recognition of depreciation based on historical cost and of the straight line method as well.  

But it is clear that there is considerable confusion with regard to the nature of the depreciation factor, as practised by accountants. It has been described variously as a loss, a provision for a loss, a recovery of a loss, a decrease in the value of assets and a maintenance of assets. It is evident it cannot be all these things.

According to Bonbright, the technical meanings attached to the term "depreciation" are variants of four basic concepts:  

(a) impaired serviceableness


26. Ibid.

(b) fall in value
(c) difference in value, and
(d) amortized cost.

Bonbright, however, was concerned primarily with problems of property appraisal. The more restricted connotation that accounting theory gives to the term is borne out in the following definitions:

"Depreciation is an accounting charge for the cost of durable property spread over its economic life. Depreciation covers wear and tear from use, physical deterioration from age and exposure to the elements and obsolescence, that is, loss of usefulness arising from availability of newer and more efficient types of goods serving the same purpose" 28

"Depreciation accounting is a system of accounting which aims to distribute the cost or other basic value of tangible capital assets, less salvage (if any), over the estimated useful life of the unit (which may be a group of assets) in a systematic and rational manner. It is a process of allocation, not of valuation. Depreciation for the year is the portion of the total charge under such a system that is allocated to the year. Although the allocation may properly take into account occurrences during the year, it is not intended to be a measurement of the effect of all such occurrences" 29

"Broadly speaking, depreciation is the loss, not restored by current maintenance, which is due to all the factors causing the ultimate retirement of the property. These factors include wear and tear, decay, inadequacy and obsolescence". 30

"Plant cost is an extreme form of prepayment; depreciation accounting is the means by which such prepayment is assigned to production". 31

Depreciation in the accounting sense is strictly a systematic method of cost allocation; it is a bookkeeping entry designed to spread the cost of purchase of the asset in some equitable manner over its effective life. The confusion may be traced to what the accountant is doing and what is generally assumed (by the layman, if not by the accountant himself) that he is doing. He is not: (a) measuring the decrease in the value of assets, (b) setting aside funds for the replacement of assets, or (c) charging cost to production. Let us take each of these points in turn.

Depreciation must be distinguished from depletion which is the using up of a wasting asset, such as a mine. 32 The depletion concept reflects a reduction of value. But the situation is different for a fixed asset which is not also a wasting asset. The value of the


32. But contrast this principle with the definition of the National Association of Railroad and Utilities Commissioner (Report of Special Committee on Depreciation, "Depreciation Principles and Methods", 1938, pp 8-10) which includes "among the causes to be given consideration .... the exhaustion of natural resources." (Quoted in Accounting Terminology Bulleting, op. cit, p. 21).
asset may fall through a decrease in future earning capacity, either in absolute physical terms through wear and tear, in relative physical terms through the production of more efficient machines, or in money terms through a decline in the demand for its output. The value of the services rendered by the machine may decline evenly over time through wear and tear or the original volume of services may be maintained for the greater part of its life with a steep fall in the last few years. 33 The depreciation provision, on the other hand, when plotted presents a smooth curve which does not take recognition of non-mathematical factors. Depreciation must also be distinguished from fluctuations in market price, as for example, the fall in market value of a one day old car.

Depreciation, of course, does not "provide funds". The confusion here is, firstly, between a bookkeeping entry and a separate financial transaction. Secondly, the object of the capital maintenance rule is to maintain the capital invested in the enterprise intact, in money terms at least, and not the individual assets. The point, however, might have been overemphasized. Admittedly, only trading revenue can provide funds, but a charge for depreciation does retain funds which might otherwise have been distributed. Further, given a stable price level and the general state of arts, and where profits are being made, then a strong case might be made for a replacement of asset motivation in the depreciation concept. Certainly most economists believe this is the most important

function in providing for depreciation, which figure they take to represent the value of the fixed assets consumed in production. The decision to replace the asset has, of course, no relationship to the depreciation provision, and it is difficult to understand how this misconception of the accountant's function in charging depreciation could have arisen. The decision to replace must be based on an opportunity cost concept, how best to utilise scarce resources; it is furthermore an entrepreneurial function.

The misunderstanding between accountants and economists on the nature of depreciation arises partly from the different emphasis they have laid on its two aspects. The accountant has been concerned with the debit side of the depreciation entry, with cost recovery and income measurement. The economist, on the other hand, has been largely concerned with its credit aspect, that is, the maintenance of fixed capital consumed in the production process.


35. Keynes, however, distinguishes between user cost depreciation and depreciation on account of the effluxion of time and obsolescence.

36. Keynes was also concerned with the effect of the large depreciation provisions in companies accounts on the levels of economic activity and employment. J. M. Keynes, The General Theory of Employment Interest and Money, op. cit., pp. 98-104.
It has also been claimed that one of the principal purposes of providing for depreciation is "to recover the cost of the asset from the selling price of the product of the asset during the useful life of the asset". 37 A problem is posed when certain costs are incurred in an earlier period, but the services rendered extend over subsequent periods. These costs, irrespective of how they are allocated to later periods, might be very different from current price levels; past costs are then mistakenly identified with 'actual' costs of production. 38

The essence of historical cost accounting is to relate yesterday's costs to to-day's income and the degree of distortion in the income figure in a period of changing price levels depends on the capital intensity of the productive process and the effective life of the machines. 39 The more capital intensive the mode of production, the

37. Another principal purpose is "to maintain capital investment intact". Machinery and Allied Products Institute, Depreciation Reserve Policies, Chicago, 1936, p. 7.


39. The effect of historical cost depreciation can lead to strange results. Thus a firm, which has paid a high figure for an asset, will show a greater net worth in the balance sheet and a smaller profit in the income account (through a larger provision for depreciation) than an identical firm making otherwise identical profits but which had bought the same asset at a lower price. The study of the balance sheets and income statements of the two firms would therefore lead to conflicting conclusions most puzzling to a potential investor. Fundamentally, the ability to earn profits which in turn determines net worth, does not depend on the cost of purchase of assets in an earlier period, except insofar as this has affected the cash position.
longer the economic life of the asset and the more violent the price change, then the greater is the income distortion that arises from the writing off of unexpired historical costs. It is evidently illogical to treat as a cost of current production an expense that is related to prices decades ago and the distortion is particularly large where a period of intensive inflation, such as the war years, intervenes. The situation has been succinctly stated: "after a fall of prices, depreciation overrates the using up of capital......since prices and activity (are) both much lower......after a rise of prices, the opposite is true". 40

Much of the agitation in recent years for a new concept of depreciation can be traced to tax considerations. Historic cost depreciation would appear to impose an inequitable tax burden on capital intensive firms. In the United States, at least, considerable amelioration is given to firms with large investments in inventories when prices and replacement costs rise, through the acceptance of the Lifo concept in accounts for tax purposes. The replacement cost concept for fixed plant, however, has not gained similar recognition either in the United States or the United Kingdom. In the latter country, some encouragement in new investment is fostered by the granting of initial allowances and investment allowances. In the United States some form of relief has been obtained by the recognition of accelerated depreciation allowances. 41


41. But a number of firms continue to employ the straight line method for various reasons: lack of appreciation of the tax advantages given by an accelerated depreciation method, fear of disturbing agreed life estimates of existing plant, undesirable effects of reporting a lower income figure such as loss of goodwill, etc. With regards
These take, in the main, two forms: the reducing balance method (which has always been the accepted tax method in the United Kingdom) and the sum-of-the-years' digits method. Though the amounts written off are restricted to the capital cost of the asset, the larger write-offs in the earlier years provide a permanent tax gain, taking the present value factor into account, and assuming that the firm remains profitable and the tax rate constant. This gain is multiplied many times for a firm which replaces a portion of its assets annually, and in particular for a rapidly expanding enterprise. 152

These and other tax concessions of a similar kind serve to spotlight the urgency and magnitude of the problem. But they have an essentially makeshift nature and their primary function is to lighten the tax burden of firms with heavy fixed capital investments. They do not directly impinge on the replacement problem or that of measuring the value of services consumed. As we have seen, 153 price level adjustments do not in themselves provide for the retention of the right amount of funds for the replacement of assets, nor for the availability of such funds when replacement takes place. These are entrepreneurial functions, not accounting functions.

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151. (Contd.) to capital investment, less than half of a large number of firms included in an enquiry in 1959 stated that they would raise their capital expenditures if allowances were liberalized. See Leonard E. Morrisey, The Many Sides of Depreciation, published by the Amos Tuck School of Business Administration, 1960, pp. 11-16.

152. Ibid., pp. 9-13.

153. See arguments presented in Chapters III and IV.
Nonetheless, there exists a division of opinion in the current cost school as to whether the depreciation provision should be based on current replacement cost or whether past deficiencies should be made good and included in the current year's provision. The second approach conforms to the Pigovian concept of income, but it does not measure the current costs of using fixed assets. The prevalent trend favours the first approach, which though it does not accumulate an exact amount of cover for replacement, "it does in fact provide the opportunity for doing so ..... (since) these cost recoveries are held in the form of assets." The approach conforms to the concept of measuring the current values of service units consumed in the productive process on a practical plane, it has been pointed out that where inflation has been rapid or adjustment for past inflation has been long delayed, prior deficiencies can be very substantial. Most adjustments in foreign countries have attempted to correct for deficiencies in subsequent years, but the scope of the revalorization measures introduced in France and Italy in the post-War years have extended to past as well as subsequent years.

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44. "From the joint work of the whole mass of productive factors there comes an (annual) in-flowing stream of output. This is gross real income. When what is required to maintain capital intact is subtracted from this, there is left net real income". A. C. Pigou, "Maintaining Capital Intact", Economica, August 1941, p. 271, quoted in Accounting for Inflation, op. cit., pp. 52-3.

This approach is recommended in The Institute of Cost and Works Accountants, The Accountancy of Changing Price Levels, op. cit., p. 53.

45. Accounting for Inflation, op. cit., p. 89.

46. Ibid., pp. 110 et. seq. See also George Terborgh, Realistic Depreciation Policy, A MAPI Study, 1954, p. 135.
The depreciation provision in a purchasing power system also provides a partial solution to the replacement problem. When the general price level rises, the depreciation figure will be appreciably higher than that under historic cost accounting, and the gap will increase directly with the extent of the price rise. There are two situations in which a less desirable result will obtain in a purchasing power system than in the conventional system. One is where the general price level and the replacement costs of specific assets are moving in opposite directions; the other is where the general price level is above both replacement and historic costs, and the divergence between the replacement cost and the general price level is greater than that between the replacement and historic costs.

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The crux of the depreciation problem lies in the "characteristic of durable goods that they comprise a bundle of inputs (or cost units) which produce a stream of outputs coming forth over a sequence of short periods, and, as Wicksell and Hayek have emphasized, there is in most instances no way of linking particular units of input with particular units of output in the sense that we can say that $a$ units of input produce the output of period I, $b$ units of input the output of period II, and so on. All we can say is that all the inputs embodied in the durable good are jointly responsible for the whole stream of output." 47 In other words,

there is "a technical jointness of supply of the services of the equipment over the successive short periods." 48 Thus the depreciation problem can be likened to a very special type of joint costs problem. The inadequacy of joint costs allocation for purposes of policy decisions is now generally recognised, but the method does provide some workable means of inventory valuation. The various depreciation conventions cannot be said to perform a similar task for fixed assets.

What function, then, should a depreciation concept serve? An answer on which there is wide agreement among accountants is that depreciation should provide a means of matching costs against revenue. Some accountants believe that the proper cost in this context is the cost of exhaustion of usefulness of the asset, that is, it is the measure of the value of service units consumed in the production process. 49 Such a concept is, of course, much more meaningful and has more relevance for decision making than an allocation of the purchase price; it is incorporated into the price-level accounting system proposed by the (English) Association of Certified and Corporate Accountants. 50 Alternatively, the proper cost can be conceived as a measure of the loss of service potential of the asset; this concept differs from the service units concept in that it takes the discount factor into account.

The fallacy of the historical cost depreciation concept lies in confusing cost with value. The cost of acquisition of an asset measures

49. See Accounting Terminology Bulletin, op. cit., p. 22. It would appear that the accountant is often asked to perform what the economist considers an impossible task.

50. Accounting for Inflation, op. cit.
its initial value, but is not the outlay that justifies capitalization and subsequent depreciation. Rather it is the value that has been acquired that should be capitalized, since if there is no such value, there is nothing to capitalize. Depreciation, then, is properly regarded as the amortization of value. The pattern of depreciation is given by "the movement of asset values over the service life" (of the asset) ... when cost is taken as an indication of acquisition value, the excess of cost over terminal salvage, universally accepted as the lifetime depreciation, becomes the lifetime loss of value. If loss of value is the appropriate measure for the entirety, it is logically appropriate for the parts." 51 This would also constitute an argument for price-level depreciation. However, a depreciation figure obtained as the difference between two market values will not necessarily be the same as the value of the service units consumed in the period. This is because the pattern of depreciation appropriate to the firm will differ from the market pattern, because of differences in maintenance policies in individual firms. It is thought that market pressures would force all firms to adopt the same optimal maintenance policy, but this will be so only if assets are classified by type of output as well as by physical characteristics. 52

The (English) Association of Certified and Corporate Accountants recommend in their price-level system that the annual pattern of depreciation should be based on the intensity of use of the machine in that year.

52. Edwards and Bell, op. cit., pp. 175-6.
The underlying theory is developed at some length. The capital value of an asset (or group of assets) is dependent on the present value of the future net earnings of the asset. The capital value of the asset at the beginning of an accounting period is the sum of its capital value at the end of the period plus its expected earnings during the period; therefore "the expected exhaustion of (the) capital value of an asset...is equivalent to the loss of future income involved in its utilization (and) it is this cost which constitutes depreciation". In the case of inflation, the market value of the asset at the end of the period will be higher than expected; similarly in the case of obsolescence its value will be lower. But had subsequent events been foreseen at the beginning of the period, then the capital value at the beginning would have been similarly adjusted. The difference between expected and realized capital values at the close of the period constitute a capital gain or loss. Thus the depreciation charge is dependent on the intensity of use of the asset (allowing for normal obsolescence), expressed at current price levels. It is clear that as a measure of the value of services consumed in the period, the proposed method is undoubtedly superior to rule of thumb methods, such as the straight line and reducing balance. But the annual pattern of depreciation (expressed as a percentage) should probably contain a constant factor which would purport to measure depreciation through the effluxion of time; this sophistication may not be necessary provided the asset remains in

---

53. Accounting for Inflation, op. cit., pp. 62 et. seq.

54. Ibid., p. 63.
active service throughout its economic life. Further, the authors
did not specify how they propose to measure intensity of use; perhaps
units of output or electricity consumed or some similar measure
depending on the circumstances would be suitable criteria.

One further criticism that can be levied against the intensity of
use approach is that it does not take the time value of money into account.
It has also been suggested that the depreciation method should be one in
which the depreciation pattern will not distort the rate of return on
the asset. It is believed that this would be achieved if depreciation
is based on the internal rate of return on the fixed asset. This
rate, also known as "the marginal efficiency of capital" is familiar
to economists. 55 It is the rate of interest which equates the present
value of the earning stream of the asset with the initial cost. If
expectations are unchanged, then the same rate is used to determine
the present value of future earnings at the end of the year. The
depreciation is the difference between the two values at the beginning
and end of the period. If expectations are changed, then a new internal
rate of return is calculated on which the present values and depreciation
are based. 56

Several criticisms, however, can be made of the internal rate of
return approach. The asset might have a higher present value when
discounted at some other rate, say, the market rate of interest taking risk.
into account, than its initial cost, representing a capital gain, at the

55. J. M. Keynes, op. cit. pp. 140 et. seq.

56. John Coughlan, "Industrial Accounting", Accounting Review, Vol. XXXIV,
outset (given some degree of market imperfection) or at any period of its economic life. Further, the internal rate of return must be recalculated each time expectations change. 57 Also, dual rates of return will exist whenever there is a terminal loss. 58 The method is therefore ambiguous when applied to such assets as a lease with dilapidations clause, or assets for which there is a final outlay such as costs of dismantling and removal.

Other things being equal, some economists recommend the cost of capital as being the proper rate, 59 since this should have been the rate employed in making the initial capital budgeting decision to invest. The cost of capital approach does not suffer from the disadvantages of the internal rate of return; further, the earnings from all assets are discounted at the same rate.

There are, nonetheless, several problems. In the first place, a firm's cost of capital is a complex figure where the capital structure comprises different forms of equity and debt capital. 60 Secondly, the


discount rate has to be recalculated every time there is a change in the expected cost of capital; this criticism might not be valid if the long-run cost of capital is employed. Thirdly, the cost of capital depends on external demand and supply factors and expectations in the money market as well as the capital good market, with emphasis on the former. It might also depend to some extend on the gearing in the firm's capital structure, though some economists believe that the average cost of capital remains the same and is equal to the capitalization rate for pure equity capital, since the lower cost on a larger proportion of loan funds would be matched by an increase in the cost of equity on account of the greater risk with a higher gearing ratio. Others argue that the market will pay more if there is low gearing for the same totality of risk, a sort of super premium for safety, on account of the behaviour of institutional investors. In any event, we have wandered a considerable distance from the concept of depreciation as a measure of the cost of exhaustion of usefulness of the asset.

The rate of return approach, whether it comprises the internal rate of return method or the cost of capital method, is essentially subjective and depends on the evaluation of future income streams. Thus it is not likely to be incorporated in a price-level accounting system which is not itself based on the evaluation of future expectations. The above discussion


has served to illustrate some of the approaches to a complex problem for which there is no determinate solution, the divergence between the economist's and the accountant's concepts of depreciation, and certain inherent deficiencies in both.
VI. PRICE LEVEL ADJUSTMENTS: METHODOLOGY

A. PURCHASING POWER HISTORICAL COST SYSTEMS

The Sweeney method

The purpose of the price level systems which advocate the employment of a general price index is to eliminate the effects of price level changes and state each item in dollars of constant purchasing power. The first major pioneering effort is found in the system of stabilized accounting proposed by Sweeney in 1936. Two alternative systems are developed:

(1) adjustment in terms of general purchasing power
(2) adjustment in terms of replacement cost.

Stabilization in terms of general purchasing power

This method is essentially a restatement of, rather than a departure from historical costs. Sweeney recommends the use of a general consumers price index, which monthly figure, assumed to represent the average change in the prices of consumer goods for the month, would be used to deflate transactions in that particular month in terms of current dollars. The current period adopted in the system is the last month of the financial year.

2. This system is described in a subsequent section.
3. Since a monthly index of consumers prices was not available, Sweeney made use of a general price index published by the Federal Reserve Bank of New York.
The Balance Sheet items are stabilized first.

(a) Fixed assets must be "aged", that is, analysed according to dates of acquisition, before they can be restated in current dollars of the year in which stabilizing accounting is first put into effect. This procedure is often the most time consuming, but it will not be necessary to repeat the analysis in subsequent years.

(b) For inventory, it is assumed that the Fifo method of pricing issues is in operation. The conversion factor \( \frac{4}{4} \) employed will depend on the rate of turnover. For example, assuming stock is turned over four times a year, the conversion factor will be based on the average index figure in the last quarter.

(c) Money and money assets, that is, claims expressed in fixed dollar amounts such as accounts receivable, are already expressed in terms of current dollars and require no adjustment.

(d) Equity capital is stabilized by the conversion factor which is appropriate for the year (or month) in which the capital was contributed.

(e) The provision for depreciation is stabilized by the conversion factor adopted for the relevant fixed asset.

(f) Current liabilities, as with money assets, are not stabilized.

(g) The figure of stabilized retained earnings, which in Sweeney's system is a residual figure, is given by the surplus or deficit arising on the difference between the stabilized items on the two sides of the balance sheet.

---

4. The conversion factor is the price index for the current period divided by the price index for the relevant period which relates to the transaction.
(h) The increase in stabilized retained earnings comparing the amounts at the beginning and end of the year, represents the retained earnings for the current year. This gives the stabilized net income, after dividends paid are taken into account.

In computing the stabilized income for the year, Sweeney considered it essential to separate the realized and unrealized gains or losses. The procedure for computing the realized gains and losses on money and money assets and liabilities is as follows:

Assuming a rising price level
(a) the realized loss on money and money assets held during the year is given by the sum of the opening balance and receipts during the year less the sum of the closing balance and disbursements (including dividends paid) during the year, all items expressed in stabilized dollars.
(b) the realized gain on money liabilities is given by the sum of liabilities at the beginning of the year and liabilities incurred during the year less the sum of liabilities at the end of the year and liabilities discharged during the year, all items expressed in stabilized dollars.

The procedure for computing the unrealized gains and losses on money and money assets and liabilities is as follows:

Assuming a rising price level
(a) the unrealized loss from the holding of cash is the difference between the cash held at the end of the year in current dollars and its purchasing power at the date(s) of receipt, assuming that outgoings are on a Fifo basis.
(b) The unrealized loss on other money assets is computed in a similar manner.
(c) The unrealized gain on money liabilities is computed in a similar manner.
Thus the net unrealized earnings figure is obtained and realized net income for the year can be derived as a residual figure. It is the difference between the stabilized net income for the year and net unrealized earnings. Realized net income is also the sum of operating profit and the realized gains on money and money assets and liabilities.

Stabilized operating profit is the difference between sales and the cost of goods sold and other expense items, adjusted by conversion factors appropriate to the months in which the sales took place or the expenses were incurred. Sweeney, however, considered it impracticable to adjust for expenses, in view of the large number and complex varieties of expense items. Thus the figure of stabilized operating profit is obtained in the indirect manner described in the preceding paragraph, while that of cost of goods sold and other expenses is obtained as a residual balancing figure.
Illustration

The following data pertain to Company Y:

**Comparative Balance Sheet**

(As reported)

<table>
<thead>
<tr>
<th></th>
<th>December 31, 1961</th>
<th>December 31, 1962</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net current assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>$ 60,000</td>
<td>$ 75,000</td>
</tr>
<tr>
<td>Inventory</td>
<td>90,000</td>
<td>100,000</td>
</tr>
<tr>
<td><strong>150,000</strong></td>
<td>175,000</td>
<td></td>
</tr>
<tr>
<td>less Current liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net current assets</td>
<td>$125,000</td>
<td>$150,000</td>
</tr>
<tr>
<td><strong>Fixed assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed assets</td>
<td>$200,000</td>
<td>$200,000</td>
</tr>
<tr>
<td>less Accumulated depreciation</td>
<td>(70,000)</td>
<td>(80,000)</td>
</tr>
<tr>
<td>Total net assets</td>
<td>$130,000</td>
<td>$120,000</td>
</tr>
<tr>
<td><strong>Equities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bonds payable</td>
<td>$ 80,000</td>
<td>$ 80,000</td>
</tr>
<tr>
<td>Capital stock</td>
<td>150,000</td>
<td>150,000</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>25,000</td>
<td>40,000</td>
</tr>
<tr>
<td>Total equities</td>
<td>$255,000</td>
<td>$270,000</td>
</tr>
</tbody>
</table>

**Income Statement For the Year 1962**

(As reported)

|                          |                   |
| Sales                    | $115,000          |
| less Cost of goods sold  | $390,000          |
| Gross profit             | $25,000           |
| less Depreciation        | 10,000            |
| Balance to retained earnings | $15,000    |

5. This illustration and the subsequent appraisal lean heavily on the arguments presented in Blaine, *op. cit.*
<table>
<thead>
<tr>
<th></th>
<th>Cash sales</th>
<th>Purchases on account</th>
<th>Payments on account</th>
<th>Conversion factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>First quarter</td>
<td>$100,590</td>
<td>$200,000</td>
<td>$50,000</td>
<td>1.08</td>
</tr>
<tr>
<td>Second quarter</td>
<td>100,000</td>
<td>50,000</td>
<td>50,000</td>
<td>1.05</td>
</tr>
<tr>
<td>Third quarter</td>
<td>200,000</td>
<td>50,000</td>
<td>100,000</td>
<td>1.02</td>
</tr>
<tr>
<td>Fourth quarter</td>
<td>15,000</td>
<td>100,000</td>
<td>200,000</td>
<td>1.01</td>
</tr>
<tr>
<td>Fourth quarter, 1961</td>
<td></td>
<td></td>
<td></td>
<td>1.10</td>
</tr>
<tr>
<td>January 1, 1962</td>
<td></td>
<td></td>
<td></td>
<td>1.10</td>
</tr>
<tr>
<td>December 31, 1962</td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
<tr>
<td>January-December average, 1962</td>
<td></td>
<td></td>
<td></td>
<td>1.04</td>
</tr>
</tbody>
</table>

The annual inventory turnover is four times, so that the inventory at January 1, 1962 has been acquired at the average price level for the fourth quarter of 1961, and the inventory at December 31, 1962 has been acquired at the average price level for the fourth quarter of 1962. The inventory cost flow is based on the FIFO method.

The equity capital was subscribed and the fixed assets purchased when the conversion factor stood at 1.20. The rate of depreciation on the fixed assets is at 10% straight-line.

For simplicity, transactions have been classified by quarterly periods rather than months. The conversion factors are based on the price index for December 31, 1962.
The comparative balance sheet stabilized in the general price level of the fourth quarter of 1962 is given below.

**Adjusted Comparative Balance Sheet**

*(in December 1962 dollars)*

<table>
<thead>
<tr>
<th></th>
<th>December 31, 1961</th>
<th>December 31, 1962</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversion factor</td>
<td>Conversion factor</td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>1.10</td>
<td>1.01</td>
</tr>
<tr>
<td>Inventory</td>
<td>1.10</td>
<td>1.20</td>
</tr>
<tr>
<td>Current liabilities</td>
<td>1.10</td>
<td>1.20</td>
</tr>
<tr>
<td>Fixed assets</td>
<td>1.20</td>
<td>1.20</td>
</tr>
<tr>
<td>Accumulated depreciation</td>
<td>1.20</td>
<td>1.20</td>
</tr>
<tr>
<td>Total net assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bonds payable</td>
<td>1.10</td>
<td>1.20</td>
</tr>
<tr>
<td>Capital stock</td>
<td>1.20</td>
<td>1.20</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Total equities</td>
<td>$293,500</td>
<td>$295,000</td>
</tr>
</tbody>
</table>

* A residual figure.
Computation of realized gains and losses on money and money assets and liabilities

Sales and cash receipts

<table>
<thead>
<tr>
<th></th>
<th>As per accounts</th>
<th>Conversion factor</th>
<th>Adjusted</th>
</tr>
</thead>
<tbody>
<tr>
<td>First quarter</td>
<td>$100,000</td>
<td>1.08</td>
<td>$108,000</td>
</tr>
<tr>
<td>Second quarter</td>
<td>100,000</td>
<td>1.05</td>
<td>105,000</td>
</tr>
<tr>
<td>Third quarter</td>
<td>200,000</td>
<td>1.02</td>
<td>204,000</td>
</tr>
<tr>
<td>Fourth quarter</td>
<td>15,000</td>
<td>1.01</td>
<td>15,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$415,000</strong></td>
<td></td>
<td><strong>$415,000</strong></td>
</tr>
</tbody>
</table>

Cash disbursements and decreases in current liabilities

<table>
<thead>
<tr>
<th></th>
<th>As per accounts</th>
<th>Conversion factor</th>
<th>Adjusted</th>
</tr>
</thead>
<tbody>
<tr>
<td>First quarter</td>
<td>$ 50,000</td>
<td>1.08</td>
<td>$ 54,000</td>
</tr>
<tr>
<td>Second quarter</td>
<td>50,000</td>
<td>1.05</td>
<td>52,500</td>
</tr>
<tr>
<td>Third quarter</td>
<td>100,000</td>
<td>1.02</td>
<td>102,000</td>
</tr>
<tr>
<td>Fourth quarter</td>
<td>200,000</td>
<td>1.01</td>
<td>202,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$400,000</strong></td>
<td></td>
<td><strong>$400,000</strong></td>
</tr>
</tbody>
</table>

Purchases and increases in current liabilities

<table>
<thead>
<tr>
<th></th>
<th>As per accounts</th>
<th>Conversion factor</th>
<th>Adjusted</th>
</tr>
</thead>
<tbody>
<tr>
<td>First quarter</td>
<td>$200,000</td>
<td>1.08</td>
<td>$216,000</td>
</tr>
<tr>
<td>Second quarter</td>
<td>50,000</td>
<td>1.05</td>
<td>52,500</td>
</tr>
<tr>
<td>Third quarter</td>
<td>50,000</td>
<td>1.02</td>
<td>51,000</td>
</tr>
<tr>
<td>Fourth quarter</td>
<td>100,000</td>
<td>1.01</td>
<td>101,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$400,000</strong></td>
<td></td>
<td><strong>$400,000</strong></td>
</tr>
</tbody>
</table>
Realized loss on cash

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance, January 1, 1962</td>
<td>$66,000</td>
</tr>
<tr>
<td>add Adjusted cash receipts</td>
<td>432,150</td>
</tr>
<tr>
<td></td>
<td>498,150</td>
</tr>
<tr>
<td>Balance, December 31, 1962</td>
<td>$76,350</td>
</tr>
<tr>
<td>add Adjusted cash disbursements</td>
<td>410,500</td>
</tr>
<tr>
<td></td>
<td>486,850</td>
</tr>
<tr>
<td>Realized loss</td>
<td>$11,300</td>
</tr>
</tbody>
</table>

Realized gain on money liabilities

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance, January 1, 1962</td>
<td>$27,500</td>
</tr>
<tr>
<td>add Adjusted liabilities incurred</td>
<td>420,500</td>
</tr>
<tr>
<td></td>
<td>448,000</td>
</tr>
<tr>
<td>Balance, December 31, 1962</td>
<td>$25,250</td>
</tr>
<tr>
<td>add Adjusted liabilities discharged</td>
<td>410,500</td>
</tr>
<tr>
<td></td>
<td>435,750</td>
</tr>
<tr>
<td>Realized gain</td>
<td>$12,250</td>
</tr>
<tr>
<td></td>
<td>950</td>
</tr>
<tr>
<td>Net Realized gain</td>
<td>$950</td>
</tr>
</tbody>
</table>
Computation of unrealized gains and losses on money and money assets and liabilities

Cash

The unrealized loss is:

\[ \$15,000 \times 1.01 + 60,000 \times 1.02 - 75,000 = \$1,350 \]

Current liabilities

The unrealized gain is:

\[ \$25,000 \times 1.01 - 25,000 = \$250 \]

Bonds payable

The unrealized gain is:

\[ \$80,000 \times 1.10 - 80,000 = \$8,000 \]

Net unrealized gain

\[ \$6,900 \]
The stabilized income statement is given below.

### Stabilized Income Statement

**For the Year Ended December 31, 1962**

#### Realized

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$432,150</td>
</tr>
<tr>
<td>less Cost of goods sold</td>
<td>$18,500</td>
</tr>
<tr>
<td>Gross profit</td>
<td>$13,650</td>
</tr>
<tr>
<td>Depreciation</td>
<td>$12,000</td>
</tr>
<tr>
<td>Operating profit</td>
<td>$1,650</td>
</tr>
</tbody>
</table>

**add** Realized gain on money and money assets and liabilities  
Realized net income for the year  
\$ 2,600

#### Unrealized

**add** Unrealized gain on money and money assets and liabilities  
\$ 6,900

Total net income for the year  
\$ 9,500 *

* This is the difference between adjusted retained earnings at the beginning and end of the year.
The Mason method

A fundamentally similar system to the Sweeney approach has been proposed by the American Accounting Association. The basic concepts and methods have been described by Mason and others associated with the research project on price-level accounting sponsored by the Association.

The deflating factor recommended is the Consumers' Price Index published by the United States Bureau of Labour Statistics. The base period could be the base year of the index, the first year of the company, or the current year. It is believed that the last month in the current financial year would make the most suitable base period for the conversion of the accounts.

Using the same illustration as for Sweeney's method, the comparative balance sheet adjusted under the Mason approach would be identical with Sweeney's stabilized figures. The total net income for the year is therefore the same under both methods, $9,500.

The differences in the Mason approach are located in the different treatment of the adjustments to the income statement. There is an explicit assumption of an even flow of transactions throughout the year, so that it is appropriate to apply the average annual index in making the adjustments. 9


7. See, in particular, R. C. Jones, Price Level Changes and Financial Statements Case Studies of Four Companies, op. cit., for an application of the proposed techniques to case studies and subsequent interpretation of the adjusted data.

9. Where the flow of transactions is seasonal or irregular, the condition is fulfilled only if the price index remained at the same level throughout the year, and the condition is not fulfilled if there has been an even rate of change in the price level.
Unlike Sweeney, the Mason approach includes direct adjustments to the cost of goods sold.

Inventory, January 1 $90,000 (1.10) $99,000
Purchases during the year 400,000 (1.04) 416,000
Inventory, December 31 100,000 (1.01) 101,000
Cost of goods sold

$414,000

The adjusted income statement is given below.

Adjusted Income Statement For the Year 1962

<table>
<thead>
<tr>
<th></th>
<th>Reported</th>
<th>Conversion factor</th>
<th>Adjusted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$415,000</td>
<td>1.04</td>
<td>$431,600</td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>390,000</td>
<td>(various)</td>
<td>414,000</td>
</tr>
<tr>
<td>Gross Profit</td>
<td>25,000</td>
<td></td>
<td>17,600</td>
</tr>
<tr>
<td>Depreciation</td>
<td>10,000</td>
<td>1.20</td>
<td>12,000</td>
</tr>
<tr>
<td>Net operating income</td>
<td>$15,000</td>
<td></td>
<td>$5,600</td>
</tr>
</tbody>
</table>

The adjusted amount of retained earnings shown in the balance sheet is a residual figure. They represent the accumulations of retained earnings since the beginning of the firm's life, and the amounts are completely adjusted for price level changes in preceding years plus or minus the gains and losses on monetary assets and liabilities. The adjusted operating income for the year and the adjusted retained earnings for the

10. It is assumed in the illustration that the Fifo method of inventory pricing has been used. Mason also explains the technique for adjusting inventory priced on a Lifo base. Mason, op. cit., p. 17.
year can be reconciled by taking into account the purchasing power gain on the bond liability and the purchasing power loss on the net current monetary position.

### Net Current Monetary Position

(As reported)

<table>
<thead>
<tr>
<th>December 31, 1961</th>
<th>December 31, 1962</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$60,000</td>
</tr>
<tr>
<td>less Current liabilities</td>
<td>25,000</td>
</tr>
<tr>
<td>Net current monetary position</td>
<td>$35,000</td>
</tr>
</tbody>
</table>

The $35,000 at the beginning of the year suffers a fall in purchasing power of 1.10 - 1.00 points; the increase in the net monetary position of $15,000 suffers a fall in purchasing power of 1.04 - 1.00 points. The total loss is thus $4,100.

### Statement of Adjusted Retained Earnings

For the Year 1962

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted operating income</td>
<td>$5,600</td>
</tr>
<tr>
<td>Purchasing-power gain for the year:</td>
<td></td>
</tr>
<tr>
<td>Gain on bonds payable</td>
<td>$8,000</td>
</tr>
<tr>
<td>Loss on net current monetary position</td>
<td>(4,100)</td>
</tr>
<tr>
<td></td>
<td>3,900</td>
</tr>
<tr>
<td>Adjusted retained earnings or total net income</td>
<td>$9,500</td>
</tr>
</tbody>
</table>
The Corbin method

Corbin was guided in his case study of a department store's accounts over a twenty year period by the recommendations on price-level accounting of the American Accounting Association Study Group on Business Income. The Corbin method, therefore, conforms to the basic principles of the system described by Mason and adopted in other case studies.

There are, however, two important differences.

(a) Corbin made use of monthly price indexes instead of the annual average figure in his adjustments. His income statement, therefore, resembles Sweeney's adjusted figures rather than Mason's.

(b) The gain or loss from being a debtor or creditor, that is, on the net monetary position, is a residual figure which ties the income statement into the retained earnings analysis in the balance sheet.

Let

\[ s_1 = \text{adjusted surplus or retained earnings at year-beginning} \]
\[ s_2 = \text{adjusted surplus or retained earnings at year-end} \]
\[ g = \text{gain or loss on net balance of monetary items} \]
\[ i = \text{adjusted net income excluding gain or loss on net balance of monetary items} \]

\[ i + g = \text{adjusted net income including gain or loss on net balance of monetary items} \]
\[ d = \text{adjusted dividends} \]

\[ s_1 + (i + g) - d = s_2 \]

\[ g = s_2 + d - (s_1 + i) \]

The Corbin approach differs from that of Sweeney in that detailed adjustments are made to the cost of goods sold and other expense items, while the net figure of purchasing power gain (or loss) is derived as a
residual balance. Thus in Corbin's system, as in Mason's, no distinction is made between realized and unrealized gain (or loss) on inventory items.

The cost of goods sold is computed as follows:

Inventory, January 1 $90,000 (1.10) $ 99,000
Purchases, adjusted quarterly 420,500 519,500
Inventory, December 31 100,000 (1.01) 101,000
Cost of goods sold $418,500

The adjusted income statement is given below.

Adjusted Income Statement
For the Year ended December 31, 1962

Sales $432,150
less Cost of goods sold 418,500
Gross profit 13,650
Depreciation 12,000
Operating profit 1,650
Gain on monetary items 7,850 *
Total net income for the year $ 9,500

* A residual figure
An appraisal of the three methods

The Mason approach specifically assumes there is an even flow of transactions throughout the year. Alternatively, where the price level might have risen (or fallen) at the beginning of the year it remains at the same level throughout the year. Under any other condition, the employment of an annual average index figure is likely to give misleading results. It must be admitted that either of the above condition might well be unrealistic. Most businesses are subject to seasonal as well as irregular fluctuations in their transactions, while modern economic conditions are not conducive to the maintenance of a stable price level throughout the year.

While the adjusted total net income figure is the same in all three systems, adjusted operating income obtained under the Mason approach is $5,600, which is significantly different from the figure of $1,650 given by the Sweeney and Corbin methods. This substantial difference has arisen wholly on account of the failure of the Mason approach to take short-term fluctuations in the volume of transactions and the price level into consideration.

There is a collateral effect on the estimates of purchasing power gains and losses. The Mason approach gives a loss on the net current monetary position of $4,100; while the net purchasing power loss (both realised and unrealized) from holding cash, after taking the purchasing power gains on current liabilities into account, under the Sweeney system is only $150 (loss on cash, $12,650 - gain on current liabilities, $12,500). The discrepancy has arisen from the implicit assumption in the Mason system that the net current monetary position has increased steadily
from $35,000 at the beginning of the year to $50,000 at the end of the year. The true net current monetary positions at the beginning of the year and at the end of each quarter are given below.

Net Current Monetary Positions, 1962.

<table>
<thead>
<tr>
<th></th>
<th>January 1</th>
<th>First quarter</th>
<th>Second quarter</th>
<th>Third quarter</th>
<th>Fourth quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$60,000</td>
<td>$110,000</td>
<td>$160,000</td>
<td>$260,000</td>
<td>$75,000</td>
</tr>
<tr>
<td>Current liabilities</td>
<td>25,000</td>
<td>175,000</td>
<td>175,000</td>
<td>125,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Net current monetary position</td>
<td>35,000</td>
<td>(65,000)</td>
<td>(15,000)</td>
<td>135,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Conversion factor</td>
<td>1.10</td>
<td>1.08</td>
<td>1.05</td>
<td>1.02</td>
<td>1.01</td>
</tr>
</tbody>
</table>

It should be emphasized, however that for those businesses not subject to seasonal or other fluctuations in their sales, purchases and credit policies, the Mason method does offer a relatively simple and acceptable method of price-level adjustment. It is true that realized and unrealized gains and losses are not distinguished, but in view of the rapid turnover of most money assets and liabilities the distinction might not be of much significance. It would still be desirable to state the purchasing power gains or losses on long-term liabilities separately from those on current monetary items. Mason is aware of the simplifying nature of his basic assumption. "If there are any significant seasonal variations and if the change in the price level during the year is sizeable, it may be necessary to use a more refined procedure." 11

11. Ibid, p. 16.
The defect in the Sweeney system is that it does not provide for a price level adjusted statement of cost of goods manufactured. The defect in the Corbin system lies in the lack of classification of the gains and losses on money and money assets and liabilities. An approach which provides for the independent calculation of cost of goods sold and by purchasing power gains and losses combining complementary techniques in the Sweeney and Corbin methods would overcome these defects.  

B. CURRENT COST SYSTEMS

Stabilization in terms of replacement cost

Unlike the better known system of stabilized accounting usually associated with Sweeney, stabilization in terms of replacement cost represents a departure from historic costs. The procedures do not differ fundamentally between the two systems.

The recommended techniques for stabilizing in terms of replacement cost are:

(a) Fixed assets, inventory and investments are stabilized in terms of replacement cost. In most cases a replacement cost index is used, but Sweeney treats reproduction cost and appraisal as synonymous with replacement cost.


(b) Fixed assets are shown at replacement cost new less a provision for depreciation, which is calculated at the appropriate percentage of the stabilized figure.

(c) The depreciation expense for the year is stabilized on the basis of the general price level and not the replacement cost of the respective assets.

(d) The treatment of other items in the balance sheet and income statement are the same as in the purchasing power stabilization system.

Corbin's replacement cost adjustments

Corbin took one further step which is not included in the recommendations of the Study Group on Business Income. He made further adjustments for the assets, already expressed in current dollars, which are based on specific index numbers and other indirect valuation methods (presumably to reflect replacement costs). The difference between the purchasing power historical cost and current values of assets is shown as unrealized in the capital section of the balance sheet. Thus only asset and proprietorship amounts are changed by the additional adjustments, while net income remains the same.

An English approach

The current cost approach is also advocated by the (English) Association of Certified and Corporate Accountants.

---


The proposed technique for adjusting fixed assets consists in:

"(a) applying depreciation rates, based on the proportionate exhaustion involved in asset operation during the current period, to the undepreciated current replacement cost, and

(b) deducting this charge from the remaining value of the asset which held at the commencement of the period, after having revalued this on to a current basis.

"The first operation secures a recovery of the costs of exhaustion of an asset on a current cost basis, the second brings the remaining value of the asset into the same dimension of value ....

"The actual calculation underlying the technique may either be

(a) of a detailed kind based on costs indicated in manufacturers' certified current price lists;

(b) of a grouped kind based on index numbers of fixed asset costs, or, in suitable cases,

(c) based on revaluations." 16.

In order to balance the accounts, an asset revaluation reserve, which is regarded as a capital reserve, is introduced on the liabilities side of the balance sheet.

It is recommended that "Depreciation ought to be charged according to the actual intensity of use of an asset during a given period on the basis of current asset replacement costs." 17 The pattern of depreciation thus differs from those in other price level systems where depreciation is determined under the straight line or reducing balance methods. The

17. Ibid., p. 65.
authors did not suggest possible measures of plant use, but presumably
criteria based on units of output or units of power consumed in the
period would be acceptable.

With regard to inventories, it is recommended that raw materials and
semi-processed goods consumed as well as the stocks of raw materials,
semi-processed goods and finished goods on hand at the end of the
period should be valued on the basis of current costs. Current costs
are defined as current replacement costs at the time of absorption or at
year-end for residual stocks. "Actual replacement costs used should
be those quoted in suppliers' current price lists, latest invoiced
prices or, in special cases, those arrived at by the application of
index numbers." 18 It is recognized that, in the absence of a
mechanized costing system, considerable difficulties might arise in
applying these techniques to a large and diverse number of stock items;
in such event, some approximatory technique such as Lifo might be
practicable, depending on the relevant circumstances of the particular
enterprise.

Money and monetary claims need no adjustment, since they are
identical with current values. Securities, trade investments and investments
in subsidiaries should be shown in the balance sheet at current market
values "with proper reconciliation being affected in the capital
reconciliation account and a contra entry, representing the loss or gain
over the period, made in the asset revaluation reserve." 19 The
revaluation, therefore, has no effect on the income figure.

18. Ibid., p. 81.
19. Ibid., p. 84.
An Australian approach

Mathews and Grant recommend certain procedures that should be adopted in theory to counteract the accounting effects of inflation on the profit statements of companies, and proceed to apply these procedures to a quantitative analysis of the incomes and savings in the Australian corporate sector from 1945-46 to 1952-53.

The concept of current income is expressed by the following equation:

\[
\text{Current income} = \text{Accounting profit} - (\text{Stock appreciation} + \text{Depreciation adjustment})
\]

Stock appreciation is the difference between the opening stock valued at historical cost and at current cost. Current cost for this purpose is taken to be the recorded cost price of stocks most recently acquired and recorded on closing stock schedules of price lists.

The depreciation adjustment is the difference between depreciation based on historical cost and depreciation based on current replacement of fixed assets. Replacement cost may be ascertained from price lists, but generally specific price indexes which measure the replacement cost of groups of assets which are representative of those employed in the firm are adequate. Current replacement value is assumed to be the average replacement value in the accounting period; in a period of steadily rising prices, this is approximately the same as the replacement value in the middle of the accounting period.

Mathews and Grant envisage adjustments to fixed assets and inventory are in themselves adequate to correct the inflationary effect and are not in favour of making adjustments to other items in the balance sheet and operating statement.

Realizable profit and business profit

A comprehensive theory of business income has been formulated by Edwards and Bell. They develop two alternative concepts of income which incorporate price level change: realizable profit and business profit. Both are current cost concepts which emphasize the greater importance of changes in secondary price levels relative to changes in the purchasing power of money.

The concept of realizable profit calls for valuation of the assets and liabilities at their opportunity costs or market exit values. That is to say, they should be estimated at values that could currently be realized if the assets were sold outside the firm without further processing at the best prices immediately obtainable. If prices are constant, then realizable profit is the difference between opportunity costs at the beginning and end of a production cycle. This is the operating profit which has arisen because some of the assets have changed their form. The theory is then developed to incorporate changing prices. Assuming that production is timeless and only holding activities take time, then capital gains would arise from the difference in opportunity cost values at the beginning and end of a holding interval, from a change in dates alone. The use of exit values involves a production

or accrual criterion which constitutes a significant departure from the realization principle in accounting theory. (There are also considerations of utility which make the realizable profit concept less attractive than the alternative concept under a number of economic conditions). 22

The alternative concept that is advocated is business profit, which is based on market entry values, that is, the current costs of acquiring the inputs used. From the balance sheet approach, business profit for the period is the difference between the current value of assets less current value of liabilities at the two dates. As an income concept it is based on the realization principle. Thus it can be derived within the historic cost structure of the orthodox accounting system. Business profit is defined as current operating profit plus realizable cost savings. Realizable cost savings are the increase in current costs of assets held during the period; by means of this approach current values are incorporated into the balance sheet.

In computing business profit a subsidiary profit concept is first developed; realized profit (which is equal to accounting profit). The two components of realized profit are current operating profit and holding gains. Holding gains comprise both realized capital gains and realized cost savings. The relationship between realized profit and

22; Edwards and Bell consider that for going concerns current cost data may be more meaningful than opportunity cost data. The former relate to a long run view, the latter to a short run. Further, the realizable profit concept represents a more substantial departure from accepted accounting principles. Hence the techniques of price-level accounting have been developed only for the business profit approach.
and business profit can be stated thus: gains in the current values of
assets are recorded as they arise as realizable cost savings, which are
transformed into realized cost savings (or realized capital gains) on the
consumption (or sale) of the assets. Though realized profit is equal
to accounting profit the former is a superior profit measure. Accounting
profit is composed of accounting operating profit and realized capital
gains which are gains on proceeds from the irregular sale of assets over
their historic costs. The defect in this conventional measure lies in
the admixture in accounting operating profit of two separate elements:
current operating profit which is the excess of sales over costs at
current prices, and realized cost savings which are the excess of
current cost over historic cost of inputs.

**Computation of business profit and realized profit**

(a) **Inventories**

The relationships between the different income concepts of
accounting profit, realized profit and business profit can be seen
in the accounting for inventories.

(i) **Accounting profit** = sales at current prices - historic cost of
    materials used

(ii) **Realized profit** = Current operating profit + realized cost savings

    Current operating profit = sales at current prices - current cost
    of materials used

    Realized cost savings = Current cost of materials used - historic
    (or Fifo) cost

The current cost of materials used is determined by the quantity
sold or consumed multiplied by the weighted average purchase price in
the period. This is an approximation only; theoretically each time
a unit is sold or consumed its current cost should be obtained on that
date.

(iii) Business profit = Current operating profit + realizable cost
    savings

Realizable cost savings for the period is the sum of the realizable
cost savings on the initial and final inventories. This assumes that
the initial inventory was held until the mid-point in the period, and
the final inventory was then purchased.

Realizable cost savings on initial inventory

= Initial inventory (units) x (average purchase price - purchase price
  at beginning of period)

Realizable cost savings on final inventory

= Final inventory (units) x (purchase price at end of period -
  average purchase price)

(b) Fixed assets

The current costs of fixed assets should be based on the market
purchase price of new assets, but where quality changes are significant
two other methods may be employed:

(a) appraisal

(b) price index numbers. The United States Bureau of Labour Statistics
    compiles composite indexes for various groups and sub-groups
    of fixed assets.

The procedure for calculating the depreciation charge does not
vary from that in conventional accounting:

(a) estimating asset life,

(b) estimating the pattern the asset services will form over time (or
    production), and

(c) applying this pattern to the base.
Realized cost savings = Current cost depreciation - historic cost depreciation

Realizable cost savings are calculated similarly as for inventories. The realizable cost savings in the period is the sum of the realizable cost savings on the current cost of the asset at the beginning and end of the period.

Let \( n \) = number of years of economic life of the asset
\( a \) = number of years from date of purchase to beginning of period
\( c_1 \) = current cost of asset at beginning of period
\( c_2 \) = current cost of asset at end of period
\( c_a \) = average current cost of asset in period

Realizable cost savings = \[ \frac{n-a}{n} \times (c_a - c_1) + \frac{n-(a+1)}{n} \times (c_2 - c_a) \]

(c) Other assets and liabilities

(i) Cash and other short-term cash claims such as accounts receivable and payable, require no adjustment.

(ii) Securities promising no fixed returns should be valued at current cost. This will give rise to realizable cost savings; when sold, they will yield realized capital gains. The income from the securities is in terms of current values and requires no adjustment.

(iii) Fixed return securities. In the case of bonds receivable and payable, adjustments to a current cost base are necessary for the capital sum and also the periodic payments, since these are contractual and not currently declared.
Illustration

A firm has issued at par $600,000 worth of 4% 5-year bonds in a previous year. At the beginning of the current year, the market value of the bonds was at par but dropped to $597,073 at year-end on account of a rise in the interest rate to 5%.

Realizable cost savings are:

\[
\text{On bonds (}$600,000 - 597,073$) = $2,927
\]

\[
\text{On interest expense}
\]

\[
(Average \text{ market interest rate } 4\% - \text{ contracted rate } 4\%) \times 600,000 = $3,000
\]

\[
5,927
\]

Realized cost savings are $3,000 on the interest expense. The current cost of the loan capital is $24,000 + $3,000 or $27,000.

Theoretically all contracted items, such as rent income and expense, require adjustment similar to bond interest.
Illustration

The same illustration is shown below as that employed for the purchasing power approach.

Certain additional information is available:

<table>
<thead>
<tr>
<th>December 31, 1962</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic cost</td>
</tr>
<tr>
<td>Assets</td>
</tr>
<tr>
<td>Cash</td>
</tr>
<tr>
<td>Inventory</td>
</tr>
<tr>
<td>Fixed assets, depreciated</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Liabilities</td>
</tr>
<tr>
<td>Current</td>
</tr>
<tr>
<td>Fixed (bond)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Equities</td>
</tr>
<tr>
<td>Capital stock</td>
</tr>
<tr>
<td>Realized surplus</td>
</tr>
<tr>
<td>Unrealized surplus savings</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

The quantities and unit prices for inventories were:

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty.</th>
<th>Unit price</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory January 1, 1962</td>
<td>90,000</td>
<td>$1.00</td>
<td>$90,000</td>
</tr>
<tr>
<td>Inventory December 31, 1962</td>
<td>83,333</td>
<td>1.20</td>
<td>100,000</td>
</tr>
<tr>
<td>Purchases, 1962</td>
<td>374,000</td>
<td>1.07 (av.)</td>
<td>$400,000</td>
</tr>
</tbody>
</table>
Market values for the fixed assets were not obtainable. Their current costs have been based on a specific price index. The assets were bought at $200,000 when the index stood at 120. The index at the beginning and end of the current year was respectively 180 and 204. The economic life is 20 years and straight line depreciation is appropriate.

The current value of the bond at the beginning of the year was at par. Bond interest has been ignored.

**Inventory**

Current cost of materials consumed = \(380,667 \text{ units} \times 1.07\)

\[= 407,300\]

Realized cost savings = \(407,300 - 390,000\)

\[= 17,300\]

Realizable cost savings = \(90,000 \times (1.07 - 1.00) + 83,333 \times (1.20 - 1.07)\)

\[= 17,100\]

**Fixed assets**

Current depreciation = \(\frac{1}{20} \times \frac{1}{2} \left( \frac{180 \times 200,000}{120} + \frac{204 \times 200,000}{120} \right)\)

\[= 16,000\]

Realized cost savings = \(16,000 - 10,000\)

\[= 6,000\]

Realizable cost savings = \(\frac{13}{20} \left( \frac{192 - 180}{120} \times 200,000 \right) + \frac{12}{20} \left( \frac{204 - 192}{120} \times 200,000 \right)\)

\[= 25,000\]

**Bond**

Realizable cost savings = \(80,000 - 70,000\)

\[= 10,000\]
Adjusted Income Statement
For the Year 1962

Sales $415,000
less Cost of goods sold 407,300
Gross profit 7,700
less Depreciation 16,000
Current operating loss $8,300

Realized cost savings
On cost of materials $17,300
Depreciation 6,000 $23,300
Realized profit $15,000

Current operating loss 8,300

Realizable cost savings
On inventories $17,100
fixed assets 25,000
bond 10,000 $52,100
Business profit $43,800

Concepts of real profit
Edwards and Bell believe that the general price level should be taken into account only after adjustments for changes in the prices of individual assets and liabilities have already been made. Current operating profit is stated in average current year dollars and no further correction is necessary. Elements of fictional profit exist
only in the measures of holding activities, on account of movements in the prices of assets and liabilities in proportion to the general price change. The elimination of such fictional profits transform the money concepts of business profit and realized profit into real profit concepts.

Illustration

<table>
<thead>
<tr>
<th></th>
<th>December 31, 1959</th>
<th>December 31, 1960</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed assets, at cost</td>
<td>$ 2,000</td>
<td>$ 2,000</td>
</tr>
<tr>
<td>less Allowance for depreciation</td>
<td>900</td>
<td>1,000</td>
</tr>
<tr>
<td></td>
<td>$ 1,100</td>
<td>$ 1,000</td>
</tr>
<tr>
<td>Valuation adjustment</td>
<td>550</td>
<td>700</td>
</tr>
<tr>
<td>Current cost</td>
<td>$ 1,650</td>
<td>$ 1,700</td>
</tr>
</tbody>
</table>

The general price index was 80 at the time the assets were purchased, 98 at the beginning of the current period 1960, 100 at the average-of-the-period, and 102 at the end of the period.
The fictional realizable cost savings are:

On initial balance, \( \frac{4}{93} \cdot 1,650 = 67.35 \)

On increments, \( \frac{2}{100} \cdot (1,700 - 1,650) = 1.00 \)

Fictional realizable cost savings

In end dollars (index = 102) \( 68.35 \)

In average dollars (index = 100) \( 67.01 \)

The computation of fictional realizable cost savings is necessary for net money claims, securities, inventories, fixed assets and bonds.

The fictional realized capital gains are:

\[ \frac{100 - 80}{80} \times 100 = 25 \]

These fictional capital gains have been expressed in average dollars. In end dollars, they amount to $25.50.
The computation of fictional realized gains is necessary for net money claims (in this case all realizable cost savings are considered as realized gains), assets sold during the period, materials consumed and depreciation expense.

An appraisal of the current cost systems

Sweeney's stabilized accounting system is primarily concerned with the use of a homogeneous measuring unit, and not with the method of valuation as such. Replacement costs in his system express the current general purchasing power of the assets as much as price level adjustments of their historic costs. Sweeney gives the following explanation for his treatment of depreciation expense. "Because stabilized accounting is primarily concerned with the maintenance of capital on the basis of general purchasing power, it depreciates original cost adjusted for any intervening change in the general price level, instead of depreciating cost of replacement." There is a certain lack of conceptual clarity in this approach, however, since if the asset values shown in the balance sheet are meant to reflect economic realities, then a change in such values should be incorporated in the income statement. This would also be in line with current accounting thought that a change in a reserve account should be reflected in the income statement. Much the same criticism applies to Corbin's replacement cost adjustments.

The outstanding merit of Mathews and Grant's proposals lies in their simplicity. "The procedures recommended do not constitute a system of replacement-cost accounting. They contemplate the continuation of historical cost accounting for purposes of profit measurement, with

supplementary adjustments to provide a record of the current cost of
depreciation and stocks sold or used. 24

It is claimed that the current income figure in this approach
provides substantially for the maintenance of the real value of the
investment in plant and inventory. It is therefore a better guide for
the formulation of tax and dividend policies. Because of their simplicity
and the use of supplementary statements, these proposals are more likely
to win approval from a large section of the accounting profession and
business community.

The concept, however, has several defects. Current values are
not reflected in the balance sheet. In the income statement, seasonal
patterns in sales and purchases and other expense items are not taken into
account. Thus it can be argued that the proposed adjustments fall short
of matching revenues and costs and expenses at current prices. The
adjusted depreciation expense is based on the average replacement value
half-way through the accounting period. The valuation of the opening
inventory at the cost price of stocks most recently acquired will not,
however, bring the treatment of cost of goods sold in line with that of
depreciation expense. It is pointed out that it has been assumed that
stocks have turned over at least once during the year, so that the
closing inventory is valued at current prices. 25 But where there
has been a rapid turnover, these current prices will pertain to a later
part of the period and in order for the cost of goods sold to reflect

average current prices of the year, the volume of opening and closing inventory must be the same.

There is one further discrepancy which might arise. The figure of purchases in the trading account refers, on the average, to an earlier period than sales, thus we are comparing two unlike quantities. The distortion might be substantial, since purchases far exceed the average inventory held. But the distortion per unit must be smaller because of the shorter time-lag between purchases and sales than between the two inventory figures. How much less will depend on the rate of stock turnover.

The authors contend that there are strong theoretical arguments against making adjustments to items other than the physical assets, viz. inventories and fixed assets, and that the deflation of incomes, in terms of constant purchasing power, belongs to the realm of the statistician rather than the accountant. Nonetheless, when there are substantial purchasing power gains and losses from the holding activities of the firm (which do not cancel one another), then the proposed adjustments are likely to fall short of performing the primary function of accounting which is "to accumulate and communicate information essential to an understanding of the activities of an enterprise ...." 27

The authors of the price-level accounting system advocated by the (English) Association of Certified and Corporate Accountants believe that their proposals secure:

"(a) a proper computation of business income, and
(b) a correct valuation of capital assets, by bringing all values
into the same time dimension." 28

As with other proponents of current cost systems, the authors believe that the maintenance of the physical capacity invested in industry is of paramount importance. They are less concerned with the distortion and loss of comparability of the accounting documents caused by changes in the value of money. The proposal to base depreciation on the intensity of use of the machine has certain merits. 29 The principle of current valuation is applied to all assets, with the contra entries, representing the losses or gains over the period, made in the assets revaluation reserve. Capital gains and losses are effectively insulated from the income statement and are not regarded as income. Thus obeisance is made to the principle of recognising income only on realization at the sacrifice of introducing a fundamental illogicality into the system.

Edwards and Bell's thesis constitutes a rigorous framework of accounting income theory. Of the two income concepts, realizable profit and business profits, they have selected the latter for a detailed exposition of applied theory, partly because business profit does not represent a radical departure from conventional accounting principles, and partly because it provides management with a long-term view. If current operating profit "exceeds interest on the current cost of the firm's assets at the beginning of the period, (then) the productive

28. Accounting for Inflation, op. cit., p. 94.
29. See Chapter V.
process of the firm is worth continuing." 30 It thus indicates the most profitable of various alternative production processes and evaluates the firm as a going concern. It is the alternative concept of realizable profit, however, which is based on the opportunity costs (market exit values) of the assets and liabilities, that has special relevance to the short-run problems of the enterprise. This profit figure indicates whether the firm should have operated during the period. Since management must make a choice on practical grounds between accumulating market entry values or market exit values, it would appear that business profit is the more useful concept of the two.

Conceptually, current market prices are a better approximation to economic values than the employment of index numbers or appraisals. The use of index numbers is assumed to give values which approximate market values, but this will not be so where the market is imperfect, or where there has been a technological change with reference to the specific asset or to the broad class of assets on which the index is based. Market values, on the other hand, take the impact of technological change automatically into account. Where market values are based on the replacement cost new of machines or where recono is made to adjustments by means of index numbers, then accounting values might further deviate from economic values because of the necessity to impute a depreciation factor. This qualification can be extended to apply to the valuation of goods-in-process which are not traded. 30a

30a. Lutz and Lutz, op. cit., p. 213.
There are often substantial practical difficulties in employing market values. For example, machinery is embedded in the cement floor of a factory building. How are the separate market values for the machinery, the building and the land on which it stands to be established? If separate values cannot be established, what then constitutes an asset's value? Further, market values introduce a subjective evaluation into the accounting process - an important consideration where the revised income figures are intended to bring about a redistribution of the tax burden among corporate taxpayers.

There is a further criticism of a practical nature. Though the authors state that techniques can be devised to make price level adjustments on a day-to-day basis, or at the year-end, the illustrations contained in the text pertain wholly to the latter. The difficulties of incorporating price level adjustments in the accounting structure on a short term basis, whether for the purposes of comparing performance with pre-determined standards or in providing adjusted unit costs of production, constitute one of the more serious objections raised by Wilcox and Greer.

From our illustration, it can be seen that the reported accounting profit of $15,000 is composed of:

(a) Current operating loss ($8,300)
(b) Realized cost savings on cost of materials 17,300
(c) Realized cost saving on depreciation $6,000

31. See Chapter V.
32. Wilcox and Greer, op. cit.
Since the operating loss is stated in current dollars, it can be compared with the operating profit of $1,650 obtained in the stabilized accounting system. The differences can be traced to the following factors:

(a) The sales figure in the stabilized system is stated in terms of year-end dollars. It has been adjusted for seasonal changes in sales and in the general price index.

Sales have not been adjusted at all in the current cost system.

(b) In the stabilized system the initial and final inventories and purchases are expressed in year-end dollars to give the adjusted figure of cost of goods sold.

In the current cost system, the cost of goods sold is obtained from the quantity sold times the weighted average purchase price in the period. Theoretically each time a unit is sold, its current cost should be obtained on that date.

(c) Depreciation expense in the stabilized system is given by applying the historical cost depreciation rate to the original cost of the asset expressed in year-end dollars.

Depreciation expense in the current cost system is given by applying the historical cost depreciation rate to the replacement cost new of the asset, taking the average for the period. In the illustration, the replacement cost has been based on the specific price index.

It can be seen that differences are bound to arise in the figure of operating profit under the two systems. Where there is a wide divergency between the current values of the assets and changes in the general price level (as was the case in the illustration), then these differences are likely to be substantial. Even where changes in the value of money and in secondary price levels are of the same order of magnitude, there
will still be differences on account of the different treatment accorded to sales and cost of goods sold in the respective systems. While the current cost approach fails to adjust for variations in sales, its treatment of cost of goods sold is conceptually superior to that in stabilized accounting. But assumptions under either system can be modified or changed if they prove to be unrealistic in the practical world. A choice between adopting either one of these two main schools of price-level accounting must be predicated on other, and more fundamental, grounds.
VII. CONCLUSION

"For it is only when a person has a certain belief, and is sure of the principles on which his belief rests that he can be said to possess scientific knowledge, as, if he is not more sure of his principles or premises than of his conclusion, his scientific knowledge, if he possesses it, will be only accidental." ¹

Empirical evidence has shown that a period of rising prices is attended by a continuing erosion of industrial capital, the handmaid of the process being "generally accepted accounting principles." It is possible, then, for the amounts paid out by way of taxes and dividends to be unduly high relative to current income and a danger exists of such payments being made out of capital. This can be rephrased: realized savings (that is, *ex post* savings) in industry are less than anticipated savings (that is, *ex ante* savings) in the preceding period, and for some industries and firms current savings might be negative, with deleterious effects on the rate of economic growth. It is also argued that the reported profit figure is unduly large when prices are rising, and unduly small when prices are falling. Thus the way accountants measure profit contributes to the waves of business optimism and pessimism and accentuates cyclical fluctuations. ² Further, it is


². Some economists contend such fluctuations perform a useful and essential role. See for example, Schumpeter, The Theory of Economic Development, op. cit.
claimed that a money income tax base gives rise to an inequitable allocation of the tax burden among firms.

Since a consideration of equity is necessarily subjective, this leads us to the central problem of defining our objective. Unfortunately we find, not one ideal concept of income, but a number of conflicting concepts. The one that is most often quoted and, therefore, presumably commands the widest support is the Hicksian concept of income as the difference between the discounted net worth of an enterprise at two points of time. In turn discounted net worth depends on the pattern of the future earnings stream and the rate of interest. The assumption is made that this future stream and its time distribution is known or can be estimated by the owners. There is also some disagreement as to which discount factor is the appropriate one to employ. Some economists would use the going rate of interest, an approach that stems from the classical economic concept of the short-term marginal cost of funds. Others, however, argue that in the long run it is the firm's cost of capital that should be employed for finding the present value of its earnings stream. This cost of capital can be conceived as a borrowing rate. If this is assumed to be a constant, it would be identical with the capitalization rate of a pure equity stream, or it can be assumed to be an increasing function of the outstanding debt. Alternatively the cost of capital can be conceived as a lending rate "measured by the expected rate of return on equity investments outside the firm that appear to the entrepreneur to involve a degree of riskiness similar to those contemplated within the firm." Under conditions of uncertainty, we

must take into account also changes in the owners' expectations about future earnings and their pattern in time, and changes in the interest rate and the price level. The theory of income outlined above is highly subjective, though conceptually it gives the best measure of the change in the owners' well-offness. But is is not relevant to the accountant's task.

A related concept to the increase in net worth theory is that of tangible equity-change income. This is defined as "the change over the year in the value of the corporation's equity exclusive of the capitalised value of its own expected future earning power (going value)." The difference between the sum total of the present values of the net assets, which are the discounted values of their respective earnings streams, and the net worth of the enterprise as a whole is going value or goodwill. A consideration of changes in goodwill is excluded from the income concepts in all price-level systems, either explicitly or otherwise, because of "the nebulous character of this margin and the subjective element that might be involved in its estimation." It is also sometimes argued that since goodwill can only be known on the actual sale of the firm, it is a liquidation concept and is of no consequence to the firm so long as it remains a going concern.

The accountant, then, might attempt to measure tangible equity-change income from the present values of the assets. The lower limit to the present value of future receipts is set by an asset's selling

5. See Alexander, op. cit., pp. 111 et. seq.
6. Accounting for Inflation, op. cit., p. 85. See also Edwards and Bell op. cit., p. 45.
price, that is, what the asset would realize if sold in the market. The upper limit is set by its replacement cost, since if present value is higher than replacement cost, it would benefit the entrepreneur to purchase more machines or duplicate his business. But there are large qualifications. With regard to the floor level there are several considerations. The market for secondhand assets is an imperfect one. Few entrepreneurs have the facilities to make frequent sales of individual pieces of their fixed equipment. Also, an asset is often part of a machine complex which must be considered as a whole; in some firms this interdependence might extend to the entire organization. Further, many entrepreneurs continue in a particular line of business for various reasons, even where it would have been more profitable to have disposed of it. The upper limit too might be inoperative because of monopolistic rights or a situation in which there is indivisibility of capital and a limited market. But it is believed that market values do approach present values of assets fairly closely under normal conditions. In particular, replacement costs give a close approximation to discounted future net receipts in industries which are not contracting industries.

A reconciliation between the accounting income concepts propounded by Edwards and Bell and the variants of tangible equity-change income are given below.

8. Ibid.
9. Edwards and Bell, op. cit.
Realizable profit = operating profit (production profit) + capital gains
= Tangible equity-change income (assets at selling prices)

Business profit = current operating profit (realization profit)
+ realizable cost savings
= Tangible equity-change income (assets at replacement costs)

Edwards and Bell have argued convincingly that business profit would be the preferable one of the two income concepts to adopt. Current operating profit, furthermore, also conforms to another economic concept of income as sales less costs expressed in current dollars. But the concept of sales less costs in current dollars is capable of two different interpretations along the lines of the controversy posed by the two main price-level accounting systems.

It is essential to stress that the final arbiter of any proposed change must be founded in the enhanced utility of the financial statements to management and investors. Management is concerned with the optimum allocation of resources. Thus a current cost income concept which implies the maintenance of the productive capacity of the enterprise is not only the most useful but also the only relevant concept to the decision making process. Investors, however, are motivated by a different goal: they seek to maximise the yield on their investments.

10. Ibid., pp. 98-109.
11. Some economists, for example Keynes and Slichter propose this concept. See Chapter I.
From the viewpoint of the consumption policy of the owners, a purchasing power concept which seeks to maintain a constant stream of real income is more desirable. Alexander suggests that this is also the more acceptable concept to economists and some accountants. 12

The two concepts do not necessarily produce similar resultant income figures, except by accident. Where the production costs of capital goods specific to the industry or firm are increasing rapidly, an income concept based on maintaining a constant stream of income in terms of command over goods and services in general might not leave the productive capacity of the plant unimpaired. The same results obtain when stock prices are rising faster than the general price level, but the consequences, as a rule, are not so dire as with the erosion of the fixed equipment. Similarly, the maintenance of the physical scale of operations might not be adequate to provide the owners a constant stream of income in money or real terms. One of the conditions of the former is an unchanged money demand for a constant output; the latter requires, in addition, an unchanged relative position of the specific price level in the structure of general prices.

Income is an all-inclusive concept. Accountants have long been familiar with the notion that there are different costs according to the purpose they are intended to serve. Similarly, it would appear necessary to incorporate both income measures if it is desired to correct for the price level change as well as to reflect replacement costs of the physical assets.

Edwards and Bell hold that secondary price levels are the important consideration since current costs are the crucial costs for decision making, and thus also for the evaluation of managerial performance. But real data adjusted for changes in the general price level are also necessary. They give the real rate of return on the resources employed and the real burden of taxation; further, the comparability of the profit figure is enhanced. Thus in their system, current market values are first incorporated in the accounts, after which the holding gains and losses are deflated to give a measure of business profit in real terms.

There is, however, an alternative approach. Many accountants believe that one of the most important functions of financial statements is to facilitate the comparison of net worth and operating results of one firm or one period with another. This comparability is lost when the value of the monetary unit itself is changing. Current cost adjustments, insofar as they take into account only changes in the current values of physical assets, restore only part of the comparability. Thus it is argued that the financial statements should be deflated in terms of a general price index in order to correct for the statistical fallacy. Replacement cost adjustments might then be made for all assets provided reasonably objective adjustment factors are available. Advocates of this approach would probably emphasize that the purchasing power adjustment made in the first instance merely seeks to correct a statistical error and restore comparability to the accounts. It does not introduce a new income concept. Current cost adjustments, however represent a departure from the traditional concept to what might be termed a neo-Pigovian theory of income.
Postscript

There is one objection to the implementation of price-level accounting which is difficult to answer: "...in an economy in which many contractual relations are expressed in money terms certain inequities would be introduced by measuring business income in real terms while government obligations, corporate bonds, and bank deposits were still fixed in money terms." Theoretically, the only satisfactory solution would be to extend the principle in the concept of real income to the totality of economic transactions in society. But there is another consideration. Full employment, economic progress and prosperity are dependent, to a large extent, on the economic development of the private sector, in which the corporation is the single most important economic unit. The point to be resolved, therefore, is posed by a weighing, on the one hand, of considerations of equity against certain inherent dangers to the economic well-being of the corporate sector and the country as a whole, on the other.

Most countries which have felt the damaging effects of inflation on industrial efficiency have taken action to alleviate the situation. In the main, such action has consisted of partial measures ranging from the granting of initial and investment allowances for fixed assets in the United Kingdom, and the employment of Lifo techniques and accelerated

13. Ibid., p. 199. See also Chapter IV.

depreciation in the United States to the revaluation measures of Belgium and the series of revalorization measures in France and Italy after the war. 15

There have not been many examples of a comprehensive approach to the price level problem. One was the adoption of stabilized accounting in Germany in the runaway inflation of the 1920's. Another is the practical application of the current cost concept in the consolidated accounts of N. V. Philips' Gloeilampenfabrieken in recent years. 16

The problem of income determination in the corporate sector is, in the last analysis, found to be intimately related to the rate of economic growth. A study group of the American Institute of Accountants wrote in 1952: "Ultimately .... the definition of income may become a political question, and be determined by the attitude of legislators toward savings (and) industrial growth" 17, 18

15. For a general description of these measures, see Accounting for Inflation, op. cit., Appendix, pp. 99-114. In "revaluation", an asset is expertly assessed and then written up at its current selling price under 'revalorization' the asset value is written up by reference to a general price index. Ibid., p. 106.


18. In one country at least, income determination has been made a tool for maintaining a high rate of business investment and economic growth. "At the end of the fiscal period the directors have to decide how much profit to report. They consider such things as the effect that the reported profit may have on forthcoming wage negotiations, the amount of dividends they want to pay, and a proper relation between dividends and income. When the directors have determined

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