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THE DETERMINATION OF INCOME IN ACCOUNTING AND ECONOMICS

by

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DETERMINATION OF INCOME

H O S S

## A B S T R A C T

Income is conceived in accounting as the excess of revenues realized over costs incurred during a period of time. This excess is equal to the increase in the money capital of the business over the period. The primary principle underlying income determination in accounting is the cost principle, which dictates that nothing but cost should be stated on the books of account in respect of the different items of property possessed by the firm, and no income can be recognized that is not realized by a transaction of sale. The cost principle is based on three postulates and a number of standards of practice. The postulates are the postulate of permanence, the realization postulate, and the monetary postulate. The chief standards of practice are the standards of conservatism, consistency, objectivity, and practicability.

Income is conceived in economics as representing the maximum amount that a firm can disburse to its owners during a period of time and still expect to disburse the same amount in real terms in each subsequent period. This maximum amount is equal to the excess of revenues over costs. Revenues are broadly interpreted to include the receipts of the period plus the value of the property on hand at the end of the period, and costs, are broadly interpreted to include the payments of the

period plus the value of the property on hand at the beginning of the period. Income is also equal to the growth in the capital value of the enterprise over the period. In its latter context, the process of income determination becomes one of comparing the capital value of a business at the end with that at the beginning of the period. In figuring out the value of property or of a business, the economist gives no heed to cost. Value as conceived in economics is a function of expected future income and the interest rate. It is arrived at by capitalizing at a certain rate of interest the future stream of income expected from a piece of property or a business.

The main points of difference between\* the accounting and economic concepts of income may be summarized as follows:

1. The two agree on the total amount of income earned by a business over its entire life, provided the price levels and the interest rate remain unchanged in the meantime. A difference would arise as soon as the life of a firm becomes long enough for prices and the interest rate to change.

2. Income allocated to individual periods by accountants is normally different from that allocated by economists because of the economist's disagreement with the accountant's cost principle and its underlying realization postulate.

3. In periods of changing price levels, the difference

between the two concepts is apt to be particularly pronounced. Besides the divergence arising from the economist's non-acceptance of the realization postulate, a further divergence arises from the non-acceptance by economists of the accountant's monetary postulate and money concept of income.

Recent developments in accounting theory and practice, including an increasing use of Lifo and replacement-cost depreciation do bring the accounting concept of income closer than ever to the economic concept, but they fall far short of providing satisfactory answers to the main issues between the two.

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## CHAPTER I

### INTRODUCTORY CONSIDERATIONS

#### Significance of the Subject.

The subject of income determination is of paramount significance in many respects. It is important for accounting purposes as well as for a variety of business and economic purposes. Admittedly accounting records and accounting reports have a multitude of functions to perform besides the determination of periodic income. However, it is now generally agreed that "a fair determination of income for successive accounting periods is the most important single purpose of the general accounting reports of a corporation."<sup>1</sup> The measurement of periodic profit or loss is regarded as the "primary purpose that justifies the practical application of accounting to business."<sup>2</sup>

The increasing recognition of the importance of income determination in accounting in recent years has been marked, in the first place by a greater attention being devoted to the net income figure, its significance, measurement, and presentation, and in the second place by the shift of emphasis from the Balance Sheet to the Profit and Loss Statement. The efforts

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1. Study Group on Business Income, Changing Concepts of Business Income (New York: The Macmillan Company, 1952), p. 19.
  2. Arthur stone Dewing, Financial Policy of Corporations (New York: The Ronald Press Company, 1953), Vol.1, p. 519.

made in the direction of increasing the significance of the net income figure have taken shape in new practices introduced by certain companies, in certain bulletins issued by the American Institute of Accountants, and in various theories suggested in accounting literature. Attempts have been made in practice, for instance, to appropriate a portion of periodic income with a view to providing for the ultimate replacement of a fixed asset or to providing for a possible future contingency. Various bulletins have been issued by the American Institute of Accountants setting forth the general principles that should be applied in the determination of income, appraising certain practices, distinguishing between the charges that figure out in income calculations and the ones that should be carried directly to the earned surplus account, and dealing with similar matters.<sup>1</sup>

The shift of emphasis from the Balance Sheet to the Profit and Loss Statement is sometimes considered as the most significant development in accounting in recent years. This development has been largely influenced by the increasing use of accounting records as a guide to investment policy.<sup>2</sup>

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1. For full discussion of recent developments in accounting see Samuel Broad, "Recent Efforts to Increase the Significance of the Figure of Net Income," Selected Readings in Accounting and Auditing (New York: Prentice-Hall, Inc., 1952), pp. 323-327. See also Chapter V of this paper.
  2. George May, Financial Accounting (New York: The Macmillan Company, 1953), p. 24.

"The basic trend in accounting over the years has been the increasing importance of the income statement. This is more than a shift in emphasis from the balance sheet to the income account. It is more than a recognition that the income account is more revealing of the corporation's financial affairs than is the balance sheet. The fact is that each year more and more is being demanded from the income statement of corporations by all segments of our social structure."<sup>1</sup>

The subject of income determination is no less important in economics than it is in accounting. For one thing, this is because in economic analysis the profit motive is assigned a key role in the behavior of business enterprises. Business conduct is generally explained in terms of the desire of a business firm to maximize its profits.<sup>2</sup> A business enterprise is conceived for economic purposes as

"an aggregation of assets devoted to the earning of profits in which certain individuals possess rather well-defined rights. That is, we think of the enterprise as owning certain assets which it uses in various ways to make a profit for the benefit of its owners."<sup>3</sup>

Although it is generally admitted that the profit motive is by no means the only driving force in business behavior, yet it is recognized as one that has the most obvious influence on business decisions, and the one that is relevant in the majority of cases. When one considers the actions of

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1. George Bailey, "The Increasing Significance of the Income Statement", Selected Readings in Accounting and Auditing, p. 148.
  2. Albert L. Meyers, Elements of Modern Economics (3rd.ed.; New York: Prentice-Hall, Inc., 1953), pp. 31-32.
  3. Norman S. Buchanan, The Economics of Corporate Enterprise (New York: Henry Hold and Co., 1948), p. 15.

a large number of individuals, the error that results from failure to take cognizance of noneconomic motives may be relatively small.<sup>1</sup>

As far as the profit motive is concerned, what is relevant is the prospect of income and not the fact of past income. Income determination can be significant in relation to the profit motive in two respects. In the first place, where the firm is viewed as an organization designed to make profits, the realization of profits would be the primary measure of its success.

"Social criteria of business performance usually relate to quality of products, rate of progress, and behavior of prices. But these are tests of the desirability of the whole profit system. Within that system, profits are the acid test of the individual firm's performance."<sup>2</sup>

In the second place, the income for any period as determined may influence the outlook to the future and the prospect of income, and thus have an indirect bearing on the action to be taken.

The determination of income is also considered to be of outstanding importance in economics in view of the role played by profits in business cycles.

"There are conflicting theories in regard to the relationship between profits and the business cycle. Obviously, profits are greatly affected by cyclical fluctuations in business, but there may also be a causal relation running in the opposite direction. In fact there are two almost diametrically opposed theories that suggest an active role played by profits in bringing about business depre-

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1. Meyers, *op. cit.*, p. 33.

2. Joel Dean, *Managerial Economics* (New York: Prentice-Hall, Inc., 1951), p. 3.

ssion. The first of these views is that when profits are too small the unfavorable outlook reduces risk-taking by businessmen, causes a decline in their long-term commitments, and so leads to contraction, stagnation, and unemployment. The second view is that when business profits become too large, consumer spending is thereby restricted, with the result that orders fall off, industry slackens, and depression ensues."<sup>1</sup>

Accounting procedures tend to exaggerate the reported rate of return in a period of rising prices and to understate it in a period of falling prices. The validity of accounting procedures is clearly of paramount importance to the extent that the decisions and actions of individuals are influenced by the accounting results.<sup>2</sup>

The determination of income is also of interest to the economist in so far as it bears upon the question of income distribution between the different factors of production, as well as upon the question of saving and investment, which need not occupy us here.

Income determination, besides being significant from the standpoint of the economist and the accountant, is also of great importance to several other parties, including the existing owners of a business, creditors, prospective investors,

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1. Malcolm P. McNair and Richard S. Meriam, Problems in Business Economics (New York: McGraw-Hill Book Company Inc., 1941), pp. 6-7.

2. Maurice Moonitz, The Valuation of Business Capital, American Economic Review, May, 1951, p. 157

the government, and others.

Significant as the subject of income determination has been shown to be in itself, the importance of weighing out the accounting concept of income against that of the economist cannot be overemphasized. Accountants are increasingly becoming conscious of the need to cooperate with the economist in the field of income determination.

"Before we can be sure of our principles we must have the assistance of the economist in elucidating the nature of income"<sup>1</sup>

"It was foreseen by all for many years that a clearer appreciation of the fundamental economic tenet underlying accounting procedures would undoubtedly lead to an improvement of these procedures"<sup>2</sup>

#### General Remarks.

The word income would not be meaningful if it does not refer to a definite period of time and to a particular recipient. The usual period for which income is calculated is one year, and such period will be assumed throughout this paper except where a different period is stated. From the standpoint of the entity receiving it, income may be classified into individual income, business income, and national income. Whenever the contrary is not indicated, the term will be used in

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1. Harry Norris, Accounting Theory, (London: Sir Isaac Pitman and Sons, Ltd, 1946), p. 7.
  2. Mary Murphy (Editor), Selected Readings in Accounting and Auditing, p. 322.

this paper in the sense of business income.

The line of demarcation between income and profit is not always clear, especially when one tries to compare the meanings of the two terms as used in accounting and economics. While the two terms are often used interchangeably in accounting literature, the trend of opinion is toward restricting the word profit to the gain derived from regular operating activities and toward using the term income in a broader sense to include profit plus or minus non-operating expenses or revenues. In economics, too, the two terms are sometimes used interchangeably,<sup>1</sup> although the trend of opinion is toward restricting the term profit to "pure" or "economic" profit, and toward assigning to income a broader sense to include pure profit and imputed costs. In this paper, the term income will be used to refer to the broader sense of the word in both accounting and economics.

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1. For instance, Griffin in his Enterprise in a Free Society, p. 67, says, "The three functions of the business enterpriser ... are: conception, risk taking, and management ... The major economic reward for performance of these functions is profits." Here Griffin uses the term profits for what is more commonly known as income.

## CHAPTER II

### THE COST PRINCIPLE IN ACCOUNTING

#### Introductory Considerations

The Committee on Terminology of the American Institute of Accountants defined accounting as the "art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of a financial character, and interpreting the results thereof."<sup>1</sup>

This definition, which has since been widely adopted and quoted in accounting literature, assigns to the accountant an apparently routine function of recording, classifying, and summarizing data, as well as a broader interpretive function. It should be remembered, however, that even the former, so called routine, function requires the exercise of proper judgement on the part of the accountant in choosing between the various courses of action open to him for recording and classifying data if the results he presents are to possess the expected significance to the parties concerned. Perhaps, it is mainly this great weight that is given to judgement in the dual function of accounting that makes it in the opinion of many more of an art than anything else.

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1. George May, Business Income and Price Levels,  
An Accounting Study (July 1, 1949), p. 14.

The latitude of judgement left to the accountant is delimited by certain general principles which he is bound to observe in discharging his routine function, and to understand thoroughly in discharging his broader interpretive function. According to the American Institute of Accountants, the word "principle" is used in accounting to connote "a general law or rule adopted or professed as guide to action; a settled ground or basis of conduct or practice".<sup>1</sup>

The contrary view is sometimes held that accounting is more of the nature of an applied science than of the nature of an art. It is asserted in support of this view that accounting practice rests on definite principles, that the procedure of accounting is a logical one, that accounting drives at building a consistent body of logical relationships among the monetary values with which it deals.<sup>2</sup> It is not uncommon, therefore, to find accounting referred to at times as an art, and at others as a science.

Various accounting principles have from time to time been put forward in relation to the different phases of recording, classifying, reporting, and interpreting data. The most important single principle that has been almost universally

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1. George May, Financial Accounting, A Distillation of Experience (New York: The Macmillan Company, 1953), pp. 37-38.

2. Arthur Stone Dewing, The Financial Policy of Corporations (5th ed.; New York: The Ronald Press Company, 1953), Vol. I, p. 511.

emphasized as affecting income determination is unquestionably the cost principle. This principle is based on a framework of generally accepted postulates and standards. It is to be observed that whereas the so-called postulates are implicit in accounting practice and have been in large measure revealed in attempts to rationalize old practices rather than formulated to build up such practices, the so-called standards have always been expressly recognized by the accountant as desirable guides in determining the course of action to be selected from amongst an array of possible alternatives.

The main postulates on which the cost principle of accounting is based are often referred to as the postulate of permanence, the realization postulate, and the monetary postulate,<sup>1</sup> while the standards that guide accounting practice are identified as standards of conservatism, consistency, objectivity, and practicability. These postulates and standards, it is asserted, should be accepted not as demonstrable truths but as being useful in producing significant results. Their validity is then to be pragmatically tested by their utility, and they should thus be revised whenever the criteria of their usefulness change. It is to be noted that the distinction between principles on the one hand and postulates and standards on the other hand as the terms are used in accounting is not

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1. Study Group on Business Income, Changing Concepts of Business Income, (New York: The Macmillan Company, 1952), pp. 19-20.

always clear . In certain writings what is here identified as a postulate or a standard is sometimes referred to as a principle. It is not uncommon in accounting literature to see, for example, the realization postulate,<sup>1</sup> and the standard of conservatism and consistency spoken of as principles.<sup>2</sup>

It is clear that the postulates named above cannot be considered as of the same order as the cost principle, and consequently cannot be equally described as principles. As will be seen later, the postulates are in large measure no more than useful assumptions that converge at one point to produce - in the words in which a principle has been defined - the "general law or rule adopted or professed as guide to action", here identified as the cost principle.

#### The Postulate of Permanence.

It is assumed in accounting that, in the absence of any legal or contractual limitation on the life of a business enterprise, and in the absence of any other discernable factor that might terminate its continued existence, the life of the business enterprise will extend indefinitely into the future. This postulate gained an early recognition in accounting literature, and was pointed out as far back as 1892 by Dicksee in his "Auditing".<sup>3</sup>

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1. May, Business Income and Price Levels, p. 6  
 2. May, Financial Accounting, p. 45.  
 3. May, Business Income and Price Levels, p. 3.

Besides being useful for practical purposes, as are all postulates and standards of accounting practice claimed to be, this postulate is considered to be valid to a large and increasing extent by reason of the lengthening life expectancy of business enterprises that survive infancy.<sup>1</sup> This is specially marked by the increasing use of the corporate form of enterprise. Corporations are considered as legal entities whose existence is independent from those who own them. Their continued existence is thus not interrupted by the death or circumstances of any of their proprietors. Besides the legal considerations just indicated, mention may also be made of the fact that the corporate form of enterprise generally has a better access to managerial skills and financial facilities, which are also factors in lengthening the life of a business enterprise. The tenor that corporations generally have better access to managerial skills and financial facilities is warranted to the extent that the corporate form of enterprise can be associated with separation of management from ownership and with large-size organization.

The postulate of permanence has a great bearing on the accounting question of allocating incomes and related expenses between periods. Under the assumption of indefinite life, the business enterprise is viewed as "a continuous stream of activities, with those of the moment conditioned by those of the

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1. Study Group On Business Income, op.cit., pp. 46-47

past and in turn conditioning those of the future ..."<sup>1</sup> with the result that the allocation process, which is so deeply rooted in accounting practice, can only be artificial and conventional.<sup>2</sup> Upon this postulate also would much depend the propriety of capitalizing long term expenditures and amortizing the cost of fixed and intangible assets so capitalized. The amortization of the cost of fixed assets, for example, better known in accounting as depreciation, based as it is on the estimated useful life of such assets, implicitly assumes that the life of the firm is at least longer than that of any of the units being depreciated.<sup>3</sup>

#### The Realization Postulate.

Narrowly applied, the realization postulate is relevant to income from sales of merchandise or services, and may be summarized in that income should be recorded only when revenue is realized, and that is generally considered to occur when a transaction of sale, measurable in money terms, is consummated. A transaction of sale, where merchandise is involved, is said to be consummated with the passing of title,<sup>4</sup> which is normally taken as coincident with the delivery of merchandise.

It would seem that this is primarily a legal rather than

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1. Study Group on Business Income, op. cit., p. 21.

2. May, Business Income and Price Levels, p. 9.

3. Study Group on Business Income, op. cit., p. 23.

4. Arnold W. Johnson, Intermediate Accounting, (New York: Rinehart and Company, Inc., 1953), p. 494.

a purely accounting matter. The principal point is that if income is to be regarded as earned, it should be supported by the receipt of the value of the sale in cash or in the form of a legally enforceable claim against the purchaser. In the case of sales of services rather than merchandise, income is considered as earned when services are rendered and cash is received or a legal claim is established.

Although this postulate is held to be generally applicable, yet under special conditions its application is usually relaxed. Under special conditions the practice of recording income in proportion to production or to cash collections, is tolerated and even urged. It is permissible to consider income as earned on the basis of physical production even before any transaction of sale is concluded if the product in question is a staple traded in on a well-organized market - a condition deemed essential for assessing the realizable sales price at which income will be credited - or if a sales contract has been made with a responsible buyer.<sup>1</sup> Following this line of reasoning the farmer, for instance, is justified in considering the value of a product like wheat as revenue of the period of production because the sale of such a product is assured by its very nature and possibly by the existence of well-organized markets therefor.<sup>2</sup> The validity of this view is weakened

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1. Johnson, op. cit., p. 495.

2. Ibid, p. 494.

by the susceptibility of the prices of staple products to frequent and sharp changes even in well-organized markets.

Application of the realization postulate is also being increasingly relaxed in accounting for large construction contracts that take years to complete. Income is considered as earned in such cases in proportion to the work accomplished, and not only at the time the whole job is completed, as the postulate suggests. Such accounting treatment is justified on the grounds that in accounting for long-term contracts application of the postulate would entail wide fluctuations in reported income from period to period which bear no relation to the earning capacity of the contractor during the periods under scrutiny.<sup>1</sup>

Accounting for installment sales provides another instance where the realization postulate is not always applied. Four different methods of accounting for installment sales may be distinguished, each one of which is based on a different concept as to when income may be considered as earned. In only one of these methods, where installment sales are consolidated with ordinary sales, the realization postulate is strictly observed and income is considered as earned in the period of sale. According to the remaining three methods, recognition of income on installment sales is made in proportion to cash collections. According to one method the profit on sale should

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1. May, Financial Accounting, p. 31.

be recorded only after sufficient cash has been collected to cover cost; another method would consider the profit on the sale to be earned with the first cash collections; while the third and more strongly advocated method would consider each cash collection as both a return of cost and a return of profit.<sup>1</sup>

The cases cited in the foregoing paragraphs should not be regarded as departures from a principle but rather as special cases where an assumption - the postulate - is not considered as useful and thus is not to be applied. This is necessarily so because the realization test of income is consistently being used here in the sense of a useful postulate and not in the sense of a principle. It is variously maintained in justifying the exceptions pointed out above that the postulate portrays the general view, while the exceptions thereto, may rather be regarded as simply problems of implementation.<sup>2</sup>

So much for the realization postulate in so far as it applies to income from sales of merchandise or services. The postulate is equally applicable to income on all kinds of assets that might be possessed by the business enterprise. Broadly conceived, the realization postulate implies that no gain or loss should be recorded on the books unless the asset on which the gain is deemed to be made or the loss incurred

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1. Johnson, op. cit., pp. 96-97.

2. Study Group on Business Income, op. cit., pp. 103-104.

has been sold. This eliminates from the accounts all changes in the value of assets, including securities and fixed assets, until the change is realized by actual sale. Here again exceptions may be noted in connection with the cost or market rule of valuing merchandise and short-term securities and with the replacement cost treatment of tools.

The realization postulate has been justified on various grounds. Some claim that it is useful in reflecting the practical thinking of the businessman,<sup>1</sup> others claim it is useful in safeguarding income distributions by virtue of the more certain results it yields,<sup>2</sup> still others support it on the basis that the alternative of recognizing unrealized income is too complicated and too uncertain to be practicable.

Prior to World War I the postulate was hardly acceptable. Periodic valuation of assets and the consequent recording of appreciations were common, and more markedly so in the United States than in England.<sup>3</sup> It is only recently, particularly over the last few decades, that the postulate has gained its present strong foothold.<sup>4</sup> The reason for this shift in emphasis from periodic valuation to the realization postulate, as a committee of the American Institute of Accountants pointed out in 1932

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1. May, Business Income and Price Levels, p. 6.
  2. F. Sewell Bray, The Measurement of Profit, (London; Oxford University Press: 1953), p. 4.
  3. May, Financial Accounting, p. 90.
  4. Ibid, p. 92.

in a letter to the New-York Stock Exchange, is to be sought in the growing complexity of business units and the increasing importance of capital assets in such business units which rendered the valuation approach impracticable.<sup>1</sup>

#### The Monetary Postulate.

Accounting is concerned with economic values. It presupposes that the most significant of such values is that of exchange, and also that these values can be reduced to a common denominator in terms of money. This is sometimes regarded as the one fundamental presupposition of accounting.<sup>2</sup> The monetary unit is used in the accounts as the symbol of expression, a quality of stability being assumed in its value,<sup>3</sup> or variously, the fluctuations in its value being properly ignored.<sup>4</sup>

It is sometimes argued that this assumption of stability, often referred to as the monetary postulate, owes its wide acceptance in accounting practice to the period preceding World War I, when its application was claimed to have produced materially significant results. The events of World War I, however, and its aftermaths in Europe - resulting as they did in a severe inflation - the increasing acceptance of the philosophy of managed currencies, and similar developments, have all tended to undermine the hitherto unquestioned acceptance

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1. May, Business Income and Price Levels, p. 5.

2. Dewing, op. cit., pp. 513, 517

3. Bray, op. cit., p. 2.

4. George O. May, "Business Income", Selected Readings in Accounting and Auditing (New York: Prentice-Hall Inc., 1952), p. 329.

of the monetary postulate.<sup>1</sup> This explanation is criticized on the grounds that even prior to World War I, prices were far from being stable, and the fluctuations were in certain periods too sharp to pass the attention of any one. If, then, the monetary postulate is to be justified at all, it is argued, it can only be justified by its conformity with the concept of income referred to in the following paragraph.<sup>2</sup>

The postulate of stability in the value of the monetary unit has been defended on the ground that it is a necessary assumption in business since business is carried out in money terms. It is further held in support of this postulate that financial accounts are primarily no more than reports of stewardship in which only the monetary capital of the business enterprise need be accounted for,<sup>3</sup> and that end may be achieved without regard to the fluctuations besetting the value of the monetary unit. This presupposes the adoption of a special concept of income, namely that income is a purely money concept.<sup>4</sup> According to this view, then, to assume a quality of stability in the value of the monetary unit is admittedly a fiction,<sup>5</sup> but fluctuations therein may properly be neglected on the assumption that income arises equally from manufacturing or trading

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1. May, Financial Accounting, p. 47.

2. Study Group on Business Income, op. cit., p. 114.

3. May, "Business Income", Selected Readings in Accounting and Auditing, pp. 338-339.

4. Study Group on Business Income, op. cit., pp. 75-76.

5. Ibid, p. 46.

operations as well as from changes in the value of the monetary unit. To state the same view differently, the postulate is held to be valid in so far as income determination is concerned, where income is viewed as a purely money concept, and any problems to which it may give rise in practice are not to be resolved in income calculations but rather by special provisions.

The monetary postulate, more than any other postulate in accounting, has been strongly attacked in recent years and its validity most seriously questioned especially by economists, if only for their disagreement with the concept of income it embeds.

#### The Standards of Accounting Practice.

In the application of general accounting principles a number of alternatives present themselves as possible solutions to a given problem. The accountant would select the course of action which in his judgement is most appropriate in the circumstances. In making his decision he is traditionally prone to give weight to the course of action that would produce the more conservative result, that is consistent with the practices of previous periods, that permits of more objective ascertainment of the values established in the accounts, and that is more practicable. Accountants are thus guided in practice by four standards, namely conservatism, consistency, objectivity, and practicability. In cases where two or more

of these standards prove incompatible with one another, it devolves upon the accountant to decide which of them should be allowed to prevail.

By conservatism is understood a "disposition to resolve doubts in the measurement of assets or profit on the side of understatement."<sup>1</sup> A conservative attitude in accounting has not been uncommonly exalted as being coterminous with prudent policy.<sup>2</sup> The emphasis on conservatism may be explained as a carry-over from the view that the primary purpose of income accounting is the determination of the amount that may be withdrawn from the business by its proprietors without impairing the capital of the business. Conservatism was also considered as a prime virtue in accounting when attention was mainly centered around the Balance Sheet and the accounts were greatly influenced by the requirements of the credit grantor.<sup>3</sup> Now that the emphasis has in large measure shifted from the Balance Sheet to the Profit and Loss Statement, greater attention has been directed to consistency without much detraction from the time-honored sway of conservatism over accounting practice, and some still cherish the opinion that "within reasonable limits departures from strict consistency in the direction of conservatism are justifiable".<sup>4</sup>

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1. May, Financial Accounting, p. 20.

2. Harry Norris, Accounting Theory (London: Sir Isaac Pitman & Sons Ltd., 1946), p. 59.

3. May, Financial Accounting, p. 20.

4. May, Business Income and Price Levels, p. 67.

Conservative practices are apt to result in the understatement of the value of inventories and fixed assets, as certain costs which may properly be capitalized, i.e., added to the value of the asset on the books, are charged against the revenue of the period because their amounts are doubtful or because the extent to which they benefit future periods is uncertain. In conservative practices, also, costs incurred in developing future markets and future methods - e.g. expenditures on advertising and research - are charged as expenses of the period in which the expenditure was made. In strict theory a large part of such expenditures may be established in asset accounts on the grounds that, like all assets, their benefit extends over a number of accounting periods. Conservatism dictates, as well, that income should not be recorded except as and when realized, for until then it remains uncertain.<sup>1</sup> In its latter context conservatism serves to reinforce the realization postulate previously pointed out.

Consistency is the second standard that governs accounting practice. It implies uniform application of principles as between successive accounting periods.<sup>2</sup> This is not meant to impart rigidity to accounting practice, as it is recognized even by those who insist on consistency that accounting practice

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1. Maurice Moonitz, "The valuation of Business Capital - An Accounting Analysis", The American Economic Review, Vol. XLI (May, 1951), p. 163.

2. Bray, op. cit., p. 43.

cannot be divested of elements of flexibility that make it adaptable to changing situations. Consistency, then, should not be construed as anything more than an admonition to apply uniform practices as between successive periods, and whenever such uniformity is not adhered to, to disclose any departures therefrom and their effects on the financial statements.<sup>1</sup>

Consistency is particularly significant if the comparability of the reported results of operations as between different accounting periods is to be maintained. If conservatism has been suggested as a desirable standard no less in balance sheet reporting than in income reporting, consistency has been suggested as desirable particularly in income reporting. The increasing insistence on consistency is largely associated with the shift of emphasis in recent years from the Balance Sheet to the Profit and Loss Statement. The universal emphasis on consistency in auditors' reports in use in the United States since 1932 is notable. So is the invariable insistence on consistency in laws, court decisions, and recommendations of accounting bodies affecting income determination and asset valuation in both Great Britain and the United States.

Another standard is the standard of objectivity. Accountants consider their responsibility to lie in disclosing the facts of a business enterprise that correspond with

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1. May, Financial Accounting, p. 45.

the monetary values with which they are concerned. This does not deprive accountants of the right to use their judgement but simply means that the rationale of the use of judgement in accounting rests on its subservience to the objective of disclosing the facts of a business: The reliability of such facts is tested by their freedom from subjective influences and the extent to which they are supported by objective evidence. The standard of objectivity, then, dictates that accountants should test the propriety of the results they obtain by their correspondence with facts, and the reliability of the latter by the adequacy of the objective evidence supporting them.

In selecting a course of action from a multitude of alternatives, accountants also give an outweighing consideration to practicability in its dual implication of applicability by traditional accounting methods and worthwhileness in relation to the costs of implementation. To meet the test of applicability by traditional accounting methods; a course of action should be capable of expression in money terms and also adaptable to the double entry system of book-keeping. In assessing the worthwhileness of a certain course of action, the accountant should strike a balance between the cost of implementing it and the benefit that is anticipated from its adoption. Accounting involves certain costs by way of salaries payable to the accounting staff, rent applicable to space occupied by the accounting department, stationary and supplies, depreciation on accoun-

ting and calculating machines, and the like. An accounting system is worth applying only if the advantages expected therefrom outweigh the costs it entails.

The Cost Principle as a Corollary of the Postulates.

The Balance Sheet of a firm contains, among other things, a supposedly full list of the assets possessed by the firm in question at a given moment of time, including current, fixed and tangible items. The fundamental presupposition of accounting pointed out in connection with the monetary postulate is that all such assets can be reduced to a common denominator by being valued in terms of money.

The current group comprises cash and assets that are convertible into cash or its equivalent in the normal course of operations and within a relatively short period of time, usually not exceeding one year. This group embraces, besides cash, money claims against other firms or individuals, merchandise stock, and possibly various prepaid expenses when the latter are not distinguished under a separate class. The fixed assets group on the other hand comprises tangible assets that are not intended for sale and are expected to be serviceable for at least more than one accounting period.

The valuation placed in accounting on assets is of paramount importance in income determination. There can be no dispute as to the value to be assigned to the balance of cash on hand at the balance sheet date, since it represents

the amount of liquid money on hand, and money, according to the monetary postulate, is itself the standard of value in accounts. There can also be little dispute as to the value to be assigned to money claims against others, especially if they are of short duration, since the amounts of money receivable thereon are greatly definitive and certain.

A crucial problem of valuation, however, arises in connection with the merchandise stock and fixed assets of a firm, not only because their value is relatively large and uncertain but also because merchandise is the one asset on which the major part of income is earned in the normal course of operations and fixed assets have a great bearing on reported results through the effect of periodic depreciation charges.

The central question that poses itself in connection with the valuation of merchandise stock and fixed assets is whether these should be established in the accounts at cost or at some other figure that might be deemed more representative of their value. The contrast between cost and value is used here in the sense that the former refers to the sacrifice involved in acquiring an asset, whereas the latter refers to the advantage that is expected to result from the ownership of an asset.<sup>1</sup> Both, cost in the sense of a sacrifice and value in the

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1. James C. Bonbright, The Valuation of Property (1st. ed.; New York: McGraw-Hill Book Company, Inc., 1937), Vol. I, p. 19.

sense of an expected advantage, lend themselves to different interpretations in practice, but for the moment the broad distinction between the two is sufficient to bring into relief the general connotations of the two terms and the fact that at any time after the sacrifice is made for the acquisition of an asset the money expression of this sacrifice might be at variance with the money expression of the expected benefit.

The point to be remembered in considering the question of whether cost or value is relevant in the accounts is that, if assets are to be reported at a value different from original cost, the difference would necessarily reflect itself in a corresponding effect on the net worth of the firm through the income account. The general principle in accounting is that the variation between the value and cost of assets should not be allowed to affect the income of any period and all assets should thus be reported at actual cost. It may be noted that special methods have been devised in the accounting for fixed assets that make possible the recognition of value on the books without affecting the income of any period.<sup>1</sup> This means that fixed assets might be reported on books of account at values different from cost, but it also means that as far as income accounting is concerned the cost principle remains inviolate.

The rationale of the cost principle governing the valua-

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1. Johnson, op. cit., pp. 341-355.

tion of merchandise stock and fixed assets is to be sought in the postulates previously exposed. The postulates have been discussed in previous sections from the standpoint of their general aspects and implications, but nothing has been mentioned regarding their more significant bearing on the cost principle, which forms the subject matter of this section.

The cost principle is largely based upon, and not unnaturally associated with the realization postulate, as can be inferred from such phrases as "the realization postulate and the related cost principle".<sup>1</sup> According to the realization postulate, income should not be recorded unless it is realized, and realization is assumed to take place when a transaction of sale is consummated. It follows that if income of any kind on merchandise and fixed assets is to be disregarded until it is realized - as the postulate dictates - nothing but cost should be entered on the books of account. To enter a higher figure is tantamount to recognizing as earned an income that is not realized by a transaction of sale.

From the postulate of permanence, in which the continued existence of the firm is assumed, it follows that the liquidation of the assets that are necessary for the normal conduct of business is neither contemplated nor in prospect.<sup>2</sup> Hence any attempt to reflect the realization or realizable value of

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1. Study Group On Business Income, op. cit., p. 25.  
2. Ibid. p. 70.

merchandise stock and fixed assets that are considered necessary for the conduct of business is rendered irrelevant. The assumption of continued existence also lends support to the view that, since fixed assets are not intended for sale then the expenditure made on their acquisition may properly be regarded as of the same nature as deferred costs. According to this view, asset accounts should not describe tangible material things but simply express in money terms stored-up benefits accruing to succeeding periods. Such benefits, to be sure, may be related to, and appraised by reference to, physical things like material and plant, but this does not mean that the Balance Sheet figure for these benefits is likely to correspond closely with the current values of the physical things themselves. "The common confusions - found both in and out of the accountancy profession - about the relationship of the cost and the market value of assets, are thus dissolved along with the physical notion of the Balance Sheet figures".<sup>1</sup> In brief, this argument may be summarized in that merchandise and fixed assets should be viewed as deferred costs, and since deferred costs are generally reported at the amounts actually spent for the benefit of future periods, then merchandise and fixed assets should be accorded a similar treatment and reported at cost. Clearly the argument loses its plausibility the moment the propriety of handling deferred costs at the amounts actually spent is questioned.

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1. Norris, op. cit., p. 18.

According to the monetary postulate, the changes in the value of the monetary unit are properly neglected, or the value of the monetary unit is assumed to be stable. This leads to the conclusion that in as much as changes in the value of assets are occasioned by changes in the purchasing power of money, there can be no difference between cost and value if the stability is assumed in the value of the monetary unit. In other words, if changes in the purchasing power of money are neglected, nothing but cost can be relevant where the difference between cost and value is solely due to such changes.

In summary of this section it may be stated that appreciation in the value of merchandise stock and fixed assets is not to be recorded if it is going to affect the income of any period. This rule stems from the three accounting postulates. According to the realization postulate an appreciation in the value of assets cannot be considered as earned income so long as the asset in question remains on hand. According to the postulate of permanence the realization of all assets necessary for the conduct of business is not contemplated, hence any attempt to take account of the realization or realizable value is irrelevant. According to the monetary postulate, the value of the monetary unit is assumed to be stable, hence no difference between cost and value can arise from changes in the value of the monetary unit. The same reasoning holds where a decline, instead of an appreciation occurs in the value of merchandise stock or fixed assets.

No reference has so far been made to the valuation of intangible assets. This question is too complex to be considered here at length from all its aspects, suffice it to state that the cost principle is held to be equally relevant here too. This means that, in general, intangible assets should not be recorded on the books of account unless they are paid for and in no case should they be recorded at anything above the costs incurred in their acquisition or in their development.

#### The Cost Principle as Bolstered By The Standards Of Accounting Practice.

The cost principle has been further advocated on account of its conformity with the standards of accounting practice. Besides being practicable, its application would more often than not yield more conservative, consistent, and objective results than is obtainable by alternative rules of valuation.

In periods of rising prices the cost principle as applied to merchandise stock obviously produces a conservative income figure, as the amount that is deducted from the cost of goods sold for merchandise stock is apt to be lower if the cost rather than the market value of merchandise is used. In periods of falling prices no such conservative reporting of results is secured unless the cost principle is supplemented by the rule of cost or market whichever is lower, which forms the subject matter of the next section.

Although there is no obvious relationship between the

cost principle and the standard of consistency - as the latter is simply an admonition to stick to the same principle from period to period and not necessarily to the cost principle - yet the definitiveness of the cost principle might facilitate compliance with this admonition.

The strongest argument advanced in support of the cost principle, however, is its conformity with the two standards of objectivity and practicability, particularly the former. It is often stated that "one of the chief merits of actual cost as a basis of valuation, especially when this cost offers itself as an alternative to hypothetical cost of reproduction, lies in its supposed ease of ascertainment and in its high degree of objectivity".<sup>1</sup> The affinity between the cost principle and the standards of objectivity and practicability has been recognized by the leading professional accounting organizations, including the American Institute of Accountants, the American Accounting Association, and the Institute of Chartered Accountants in England and Wales.<sup>2</sup> It has been asserted also time and again by eminent authors on the subject, including George May in his Financial Accounting.<sup>3</sup> Thomas H. Sanders in an article entitled "Inflation and Accounting"<sup>4</sup> and many others.

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1. Bonbright, op. cit., p. 141.

2. May, Business Income and Price Levels, p. 25.

3. p. 102.

4. Harvard Business Review, Vol. XXX (1952), p. 51.

In a report to the Committee on Stock List of the New York Stock Exchange, dated September 22, 1932, the Committee on Cooperation with Stock Exchange of the American Institute of Accountants said on the subject:

" In an earlier age, when capital assets were inconsiderable and business units in general smaller and less complex than they are today, it was possible to value assets with comparative ease and accuracy and to measure the progress made from year to year by annual valuations. With the growing mechanization of industry, and with corporate organizations becoming constantly larger, more completely integrated and more complex, this has become increasingly impracticable ... The task of appraisal would be too vast, and the variations in appraisal from year to year due to changes in price levels or changes in the mental attitude of the appraisers would in many cases be so great as to reduce all other elements in computations of the results of operations to relative insignificance." 1

The Principle of Cost or Market Whichever is Lower.

According to the Cost Principle, merchandise stock at the balance sheet date should be recorded at cost. In practice, this general principle is consistently observed except where market value is lower than cost, in which case the former is considered as the more relevant. By market value is sometimes meant the replacement cost<sup>2</sup> of the merchandise stock, but more often a value derived from the current selling price of the stock. In the latter context, market value is construed at times as referring to the gross realizable value or

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1. May, Financial Accounting, pp. 73-74.

2. R.S. Edwards, "The Rationale of Cost Accounting", Studies In Costing (London: Sweet & Maxwell, Ltd., 1952), p. 104.

net realizable value after deduction of direct selling costs,<sup>1</sup> and at other times as referring to the current realizable value reduced by the amount of gross profit at the average rate.<sup>2</sup> The choice between cost or market may be made in respect of individual items comprising the stock, in respect of classes of items, or in respect of the stock taken as a whole.<sup>3</sup> The principle is not only applied in valuing the merchandise stock of a trading firm but also in valuing other kinds of inventories, including raw materials, goods in process, and finished goods for a manufacturing firm, as well as in valuing short-term security investments.

The principle of cost or market whichever is lower has been supported on varying grounds by accountants. It has been represented as an indispensable rule for the valuation of inventory in periods of falling prices if conservative results are to be secured in the accounts. Approximating this view is the contention that it serves to produce conservative accounting results by providing for unrealized losses without recognizing unrealized gains.<sup>4</sup> According to this view, then, the Cost-or-market principle is regarded as an exception to both the realization postulate and the general cost principle.

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1. Report of the Committee on Cooperation with Stock Exchange of the American Institute of Accountants to the Committee on Stock List of the New York Stock Exchange, 1932 (May, Financial Accounting, p. 75).

2. Norris, op. cit., pp. 76-77.

3. Report of the Committee on Cooperation ..., loc. cit.

4. Johnson, op. cit., p. 499.

The principle of cost or market whichever is lower has been more forcefully defended on the ground that it does not invalidate the general cost principle, but simply attaches a special meaning to the term "cost". According to this argument the principle under scrutiny, like the cost principle, requires that merchandise stock should be valued at cost, but provides further that only "useful" costs should be carried forward from one period to another.<sup>1</sup> Costs can be considered as "useful" only if, according to one view, they are recoverable in a future period, or only if, according to another view, they enable the earning of the average gross profit in a future period. In the former case cost is taken as equivalent to gross or net realizable value, and in the latter case as equivalent to realizable value reduced by the gross profit at the average rate. According to the useful-cost argument, costs are considered as lost and should not be accorded a place on the balance sheet to the extent that they cannot be recovered or do not permit of earning the normal rate of gross profit.

An alternative argument in favour of the cost-or-market principle is advanced by Harry Norris in his Accounting Theory.<sup>2</sup> Norris contends that the principle in question can be in accord with the cost principle if the physical notion of merchandise stock is discarded. In his own words,

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1. Study Group On Business Income, Op. cit., p. 29.

2. pp. 70-73

"The situation is that though totals carried forward may have to be computed by reference to details of different quantities of different physical things on hand, the totals so derived are only abstract aspects of the business position; they do not attach to the stock itself in detail. It follows from this view that costs of acquisition of goods are, in their accounting aspect, a homogeneous flow of monetary outgoings, and that the stock figure to be eliminated in ascertaining the net cost figure for deduction from sales revenue, must be a cost figure however much the method of its calculation may seem to indicate that it is something else."

This confirms the view that merchandise stock should be invariably valued at cost, but obviously does not explain why market value may at times have any bearing on the valuation of stock. Norris explains this by giving the case of a retailer of ladies' gowns whose trade is greatly affected by changing fashions. Then he goes on to make the generalization that "the situation is the same in most classes of undertaking", and is not peculiar to the fashion goods business. In buying a season's gowns, Norris contends, the retailer is well aware that some of them will not cover their cost although he cannot tell at the time which particular ones these are. The retailer must, then, expect to make on the successful gowns enough profit to cover the loss on the unsuccessful gowns and leave enough to keep him in business. Accordingly, the retailer concerns himself only with cost aggregates and revenue aggregates, and the accountant must "reflect the situation by recognizing that costs do not attach to individual items of purchases."

This led Norris to the conclusion that "the only basis

on which accounting for profits can proceed is to consider part of the cost of the less successful gowns as an addition to the cost of the more successful ones." The calculation of the part that should be added is governed by the market value of the unsuccessful goods. Market value may be construed as referring to realizable value on the theory that such goods have resulted from an unfortunate transaction, and are thus akin to scrap, on which no question of earning a profit can arise. It may alternatively be construed as referring to realizable value reduced by the gross profit at the average rate, on the theory that in respect of merchandise stock the following year should not suffer from an unfortunate transaction made in a preceding year. The following year should thus be charged with a value that will enable the earning of the average gross profit possible in that year.<sup>1</sup>

The foregoing argument seems to be substantially valid in so far as the case of the ladies' gowns business goes, and may be equally tenable in the case of similar businesses handling seasonal goods. However, the validity of applying the generalization to most classes of undertaking is questionable. The presumption in the argument is that goods are acquired to be sold in the same period and that the stock on hand at the end of the year consists only of slow-moving, inferior, or defective items. This presumption runs contrary to the conception of

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1. Norris, Accounting Theory, pp. 76-77.

a firm as a continuous stream of activities. It is also not always in accord with facts, as the year-end inventory might represent the minimum quantity that should be carried in stock at any time for normal operations, or it might include a quantity stored for speculative or other purposes. The argument does not explain why the lower market value is relevant in the latter cases where the goods in stock are free from any inherent or apparent defect and where the fact that market value is lower might be solely due to changes in demand and/or supply conditions.

## CHAPTER III

### THE MECHANICS OF MEASURING INCOME IN ACCOUNTING

#### The Cash and Accrual Methods of Accounting.

Two methods are available in accounting for the determination of the income of a period, namely the cash method and the accrual method. In its narrow sense, the cash method of accounting regards the net income of a business for a given accounting period as the excess of the cash receipts over the cash disbursements of that period, barring such purely financial transactions as cash payments made in discharging a debt or extending a loan and cash receipts on collecting or receiving a loan, as well as proprietary cash withdrawals and investments. Under this method, a cash disbursement is the only test of an expense and a cash collection is the only test of an income, so that expenses are recognized only and wholly in the period of expenditure and revenues are recognized only and wholly in the period of receipt, irrespective of whether such disbursements and receipts bear any relation to the operations of past or future periods.

Obviously, strict application of the cash method of accounting results in a distorted net income figure, as it fails to take cognizance of expenses and revenues that do not affect the cash account of the period. In practice, this method is modified in the interest of avoiding too great a misstatement

of the income figure by taking account of inventories, credit sales and purchases, and depreciation on fixed assets.<sup>1</sup>

The alternative or accrual method of accounting regards net income as the excess of the revenue, earned over the costs incurred during an accounting period, which may not necessarily correspond with actual cash receipts and payments. Revenues received in cash and expenses paid in cash are allocated to the different periods to which they apply, so that only a portion thereof may figure up in determining the net income of the period in question. In addition, account is taken of expenses applying to the current period which have been paid in the past or which are due for payment in the future, and also of revenues applying to the current period which have been received in the past or which are due for collection in the future. The cash method of accounting - notwithstanding the merit of simplicity claimed in its favour - is rather limited in application because of the admittedly inaccurate results it yields. The accrual method, on the other hand, stands out as the one predominant method that commands universal favour, except in certain limited spheres where the cash method is sometimes deemed more useful, as in the accounting for installment sales. In this paper, the accrual method will be assumed hereafter as the one that is representative of general accounting practice and as the one that is in strict accord with accounting theory.

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1. Arnold Johnson, Intermediate Accounting (New York: Rinehard & Company, Inc., 1953), pp. 489-490.

Income as Accretion to Net Worth Versus Income as Excess of Revenues Over Costs.

The net income earned by a business over a given accounting period may be determined by comparing between the state of that business at two specific dates. The net income is taken as equal to the excess of the net worth of the business at the end over that at the beginning of the period, adjusted for changes in net worth arising during the period from additional investments and withdrawals of funds by proprietors.

Underlying double-entry bookkeeping is the principle of parallelism between the assets of a business on the one hand, and the claims to such assets by their contributors on the other, all expressed in money terms. Assets may be contributed by the business owners as well as by creditors, and net worth is no more than the money expression of the proprietors' claims to the assets of a firm. The foregoing approach to the computation of net income rests on the fact that the net income earned during an accounting period, if not disbursed to proprietors, results in an increased proprietors' claim, i.e., in a higher net worth. This approach to the computation of net income is sometimes designated as the single-entry method,<sup>1</sup> probably because it is the only method for ascertaining net income where the double-entry system of book-keeping is not in use;

The Alternative approach to the computation of net income

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1. Harry Norris, Accounting Theory (London: Sir Isaac Pitman and Sons, Ltd., 1946), p. 3.

is one of matching costs with revenues. The net income of a business is taken as equal to the excess of total revenues earned over total costs incurred during a given accounting period.

From what has been stated, it would seem that the alternative approaches just indicated are basically in agreement, constituting merely alternative methods of calculation rather than distinct concepts of income. Actually, this would be the position, and the two alternatives would yield the same figures for net worth and hence the same figures for net income, if the same principles of valuation are maintained in the one case as in the other. That this is not usually the case, however, has been asserted by more than one author.

The idea of income as accretion to net worth, it is emphasized, tends to throw "a different complexion on things", and its adoption "would inevitably produce different figures".<sup>1</sup> The idea has been presented as fundamentally incompatible with the realization test of income that lies at the roots of the cost principle and that can be associated only with the idea of income determination as a process of matching costs with revenues.<sup>2</sup> In using the idea of accretion to net worth one is likely to be influenced by the view that assets are physical units to be valued at Balance Sheet dates rather than cost ba-

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1. Loc. Cit.

2. Study Group on Business Income, Changing Concepts of Business Income (New York: The Macmillan Company, 1952), pp. 27-28.

lances to be carried forward,<sup>1</sup> as the use of the other idea suggests. It is on the basis of such divergent outlooks associated with the two approaches, and the consequent divergent results, that one is justified in regarding these approaches as basically two distinct concepts of income and not merely as alternative methods of calculation.

The concept of income as accretion to net worth had been in use in the past in both England and the United States, but it has gradually given way to the concept of income as surplus of revenues over costs until it has been almost completely discarded.<sup>2</sup> It is now an established fact that "as things are the concept of profit as a money residue between cost inputs and revenue outputs arising from the performance of business operations is at the very heart of current accounting practice".<sup>3</sup>

Of course, even when net income is conceived as representing the excess of revenues over costs, the increase in net worth would still be the same as the net income, but this correspondence would cease to be significant once the difference in outlooks associated with the two approaches is dissolved. This correspondence would simply boil down to a truism that follows

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1. Ibid, p. 10.

2. George May, Business Income and Price Levels, an Accounting Study (July 1949), p. 81. See also Norris, op. cit., p. 3.

3. F. Sewell Bray, The Measurement of Profit (London: Oxford University Press, 1953), p. 2.

from the very double-entry principle of keeping the books of account.

### THE MATCHING PROCESS.

#### Sales Revenues.

The determination of periodic net income for a firm has been described in the preceding section as being essentially a process of comparing total revenues earned with total costs incurred during the period under review. In practice there is little difficulty or disagreement about the ascertainment of revenues. It is mainly in connection with the allocation of costs that a major problem arises.<sup>1</sup>

The process of matching costs with revenues may best be described by reference to the structure of a typical Profit and Loss Statement, sometimes known as Income Statement, that is usually prepared at the end of each accounting period to present in an orderly and significant manner a summary of the results of a period's operations. The primary source of revenue for any business firm is the sale of goods or services, and that is ordinarily reported on the Profit and Loss Statement as an opening figure under the caption of "Sales" or "Gross operating Revenues". The term "Net Sales" is often used to denote that gross sales have been reduced by the value of goods returned, allowances granted, and sometimes cash discounts

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1. May, Business Income and Price Levels, p. 5.

allowed.<sup>1</sup>

It will be remembered from what has been stated in connection with the Realization Postulate, that the sales revenue as conceived in accounting is the value received during the period in cash or in the form of legally enforceable claims against others, expressed in terms of money, in respect of merchandise delivered to customers. The implication is that only realized revenue can be recognized, and the test of realization is the transfer of title, which is commonly assumed to occur with the actual delivery of the merchandise.

#### The Gross Operating Profit.

The sales revenue is followed on the Profit and Loss Statement by a list of the costs incurred during the period. Two classes of costs are generally distinguished, product costs and period costs. Costs that are closely related to the production of specific revenues are known as product costs, and are properly brought into account in the period in which the related revenues are recognized. The revenues referred to here are mainly those derived from sales. On the other hand, the costs that cannot be associated with specific revenues realized but are chargeable against the revenue of a period as a whole are known as period costs. Generally, product costs include all costs of manufacturing, while period costs embrace the costs

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1. Harry G. Guthmann, Analysis of Financial Statements (4th ed.; New York: Prentice-Hall, Inc., 1953), pp. 197-198.

of general administration, marketing and distribution, and finance.<sup>1</sup> The foregoing classification is commonly used in connection with manufacturing concerns. Applied to trading firms, it boils down to a distinction between cost of goods sold and operating expenses.

It should be borne in mind at this juncture that the classification of costs into product and period costs and into cost of goods sold and operating expenses is not the only one used; other bases of classification are often suggested. Nonetheless the classification noted here is the one that is invariably employed in the conventional Profit and Loss Statement.

Once the cost of goods sold is determined, it is deducted on the Profit and Loss Statement from Sales Revenue, and the difference is described as Gross Operating Profit or Gross Trading Profit. The cost of goods sold is obtained by deducting from the total cost of the goods available for sale during the period that part which applies to the goods remaining in stock at the end of the period under scrutiny. More specifically, it is arrived at by subtracting the cost of merchandise inventory at the end from the sum of the cost of opening inventory and the cost of purchases for the current period. The latter two elements are taken from their respective accounts on the books, and their ascertainment creates practically no problem. It is

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1. National Association of Cost Accountants, "The Uses and Classifications of Costs", Studies in Costing (London: Sweet and Maxwell, Ltd., 1952), pp. 165-166.

the value to be deducted for goods remaining in stock at the end of the period that is substantially dependent on the discretion of the accountant, that has great influence on the final reported net income figure, and that has been for all that the subject of strenuous debate.

There is a general agreement among orthodox accountants regarding the general principle of valuing merchandise inventory at cost. Inventory valuation, in other words, is generally governed by the Cost Principle. A conflict would arise, however, when it comes to a consideration of what is to be taken as correct cost. The controversy revolves around the question whether FIFO or LIFO costing should be followed, and also around the question whether it is proper to include in the cost of finished goods inventory for a manufacturing firm anything for oncost.

It is generally argued that, since the inventory of goods represents a cost that pertains to the following period, the net income figure of the current period should not be affected by the value assigned to this inventory. The ideal rule is to carry forward to the next period the excess of the total costs actually incurred over those which would have been incurred if the quantities purchased, added to the opening inventory balance, were just sufficient to cover the sales of the period without leaving any stock on hand.<sup>1</sup> In that context

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1. Norris, op. cit., p. 68.

inventory cost can mean only one thing - that is actual cost - and the inventory figure would be correct only if it corresponds with the one charged to the purchases account in respect of the goods remaining in stock, so that the same amount can be eliminated from both the purchases records and the inventory records without changing the net income figure.<sup>1</sup>

The foregoing reasoning leads to the exclusive adoption of the policy of valuing inventories at actual invoice cost. The impracticability of this procedure, however, is too obvious to be denied, particularly, as recognized by the American Institute of Accountants,<sup>2</sup> where similar goods are purchased at different times and at different prices, in which case the identity of goods is lost between the time it is acquired and the time it is disposed of. For this reason, a practicable assumption regarding the flow of goods out of the business is deemed necessary, and Lifo, Fifo, and other costing methods suggest themselves as working rules. It is maintained by certain writers that even where it is practicable to identify the units in inventory with specific invoices, valuation on the basis of identity is not always advisable. This is because acceptance of such a valuation rule would facilitate the manipulation of net income by discriminate selection of the units to be delivered on sales. This danger is precluded by the adoption of conventional methods

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1. Ibid., pp. 35-36.

2. Accounting Research Bulletin No 29 (Study Group on Business Income, op. Cit., p. 41.)

like Lifo or Fifo.<sup>1</sup>

The first in, first out method (Fifo) is based on the assumption that the goods sold during the period are the goods first acquired, with the result that the inventory on hand is valued at the latest cost incurred. The last in, first out method (Lifo) on the other hand is based on the assumption that the goods sold are those last acquired, or at least, without reference to the physical flow of goods, that the latest costs should be charged out first. The effect is thus to state inventories in terms of earliest costs.<sup>2</sup>

The first in, first out method is advocated on the premise that it is a reasonable assumption in respect of the physical flow of goods out of the business. Besides, the results it produces are satisfactory in periods of relatively constant prices. Its shortcoming, however, is felt in periods of changing price levels. In a period of rising prices, with the same number of units in stock at the end as at the beginning of the period, the net income figure obtained by using the first in, first out method would include the excess in value of the ending inventory over that of the initial inventory. To that extent net income would not correspond with the increase in assets conceived in

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1. George May, Financial Accounting, A Distillation of Experience (New York: The Macmillan Company, 1953), p. 175.

2. Wilbert E. Karrenbrock and Harry Simons, Intermediate Accounting (Ohio: South-Western Publishing Company, 1949), p. 148.

real terms, although it would correspond with the increase in the monetary value of assets. To the extent that the net income figure includes the excess in value of ending inventory over initial inventory which is solely due to the rise in prices, net income does not reflect the amount that can be disbursed to proprietors if the business is to maintain intact from period to period the size of its assets, conceived in real terms rather than in monetary terms. Similarly in a period of falling prices, with the same number of units in stock at the end as at the beginning of the period, the net income figure obtained by applying the first in, first out method would fall short of reflecting the increase in assets, conceived in real terms, by the difference between the value of ending inventory and that of the opening inventory. Although the inadequacy of the first in, first out method is equally remarkable in periods of falling prices as in periods of rising prices, yet it is mainly on the basis of the greatly unconservative results produced by this method when prices are rising that it is condemned by certain accountants.

The last in, first out method has been devised to counter the defects of the first in, first out method. The former method, by charging out the most recent costs first, comes closer to matching current costs with current revenues and consequently gives a more accurate picture of the income earned during the period than is the case with the first in, first out method. By the last in, first out method ending inventory is stated in terms

of earliest cost, which would be the same as the cost at which initial inventory is stated to the extent that the number of units in stock remains unchanged over the period. This works toward isolating from net income the effect of the change in the replacement cost of goods, and consequently toward bringing the reported net income figure more into line with disposable income.<sup>1</sup>

From what has been stated it may be gathered that the use of Lifo is particularly significant in periods of rising prices. In periods of constant prices, it would yield substantially the same results as would Fifo, while in periods of falling prices it would yield a higher net income figure than would Fifo, in which case the latter might be preferred on considerations of conservatism. This does not mean that frequent shifts from one method to another are urged or even tolerated in accounting. There is in accounting as in law the insistence that once a method is chosen it should be followed consistently from period to period.

It is often asserted that Lifo is specially suitable for businesses and industries in which the investment in inventories is relatively large, and in cases where the spread between the acquisition prices of the goods or raw materials and the selling prices of the goods or finished products is relatively constant.<sup>2</sup>

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1. Keith J. Butterá, "Management Considerations on Lifo", Harvard Business Review, Vol. XXVII (May, 1949), p. 328.  
2. Ibid, p. 310.

It is also claimed to be more useful to firms with slow turnover than to firms with high turnover.<sup>1</sup> The chief criticism levelled against Lifo is that it is not in accord with facts, as it does not reflect the normal flow of goods out of the business, and hence the cost charged against revenue by this method cannot be considered as actual. It is also criticized on the ground that it results in an obsolete balance sheet figure for inventory.<sup>2</sup>

It should be pointed out that Fifo and Lifo are not the only methods used in accounting for costing inventories, as there are several other methods in application. The discussion has been limited here to the former two methods because of the contrasting results they produce and because the remaining methods are in a way either variations of these methods or compromises between them. The base-stock method, for instance, may be regarded as a variation of Lifo, while the moving average method may be regarded as a compromise between Lifo and Fifo and is applicable only where perpetual inventory records are kept.

It would be in order at this point to recapitulate the theme of the preceding paragraphs. The value assigned to an inventory of goods at the end of an accounting period has been

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1. Samuel J. Broad, "Recent Efforts to Increase Significance of the Figure of Net Income," Selected Readings in Accounting and Auditing (New York: Prentice-Hall, Inc., 1952), p. 327.
  2. Edmund Whittaker, "Realism and Cost Accounting," Studies in Costing, p. 181.

shown to be one of the chief determinants of the cost of goods sold, and hence of the net income of the period. The general rule is to value inventories at cost, and in strict theory that means actual cost. The impracticability of ascertaining actual costs has necessitated the adoption of a useful assumption regarding the flow of goods, which has taken form in different methods of costing varying from Fifo to Lifo. The choice between different methods of costing is the first major problem connected with inventory valuation, which is faced by trading firms in respect of their merchandise stocks, as well as by manufacturing concerns in respect of their raw material, work in process, and finished goods inventories. There remains to be mentioned that the conception of cost in inventory valuation is generally modified to fit in with the principle of cost or market whichever is lower. The trend in practice, however, is toward recognizing in cost of goods sold only the cost of ending inventory and showing the difference between cost and market, where the latter is lower, as a special charge to the income of the period.<sup>1</sup>

The second major problem connected with inventory valuation is one peculiar to the determination of income for a manufacturing concern. The problem centers around the question whether it is proper to include in the cost of finished goods

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1. Guthmann, op. Cit., pp. 202-203.

and work in process inventories anything for oncost - variously termed in cost accounting as overhead, burden, or manufacturing expenses.

According to the traditional and common view, three cost elements enter into the production of goods - direct material, direct labour, and manufacturing expenses. The amount of direct material and direct labour applicable to units produced is, by definition, easily ascertainable. It is in connection with the allocation of manufacturing expenses to units produced that a problem arises. Manufacturing expenses, as used in accounting, comprise fixed and semi-variable charges and probably variable charges that cannot be easily allocated to units produced. The conventional procedure would allocate such manufacturing expenses to units produced on a predetermined basis, and would show inventories of finished goods and work in process at a cost that includes, besides direct labour and material charges, a pro rata share of the manufacturing expenses of the period.

The traditional procedure just outlined has been challenged on the ground that since a great part of manufacturing expenses consists of costs that would be incurred irrespective of the volume of production, then such expenses apply to the period as a whole and no part thereof can be carried forward with inventory. This alternative view is the one sometimes identified as the concept of direct costing.<sup>1</sup> In support of this view, it is

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1. Gordon Shillinglaw, "Guides to Internal Profit Measurement", Harvard Business Review, Vol. XXXV (March-April, 1957), p. 91.

claimed that an inventory represents a cost that pertains to a future period, and in that context the value assigned to inventory should not be allowed to affect the net income of the current period. If manufacturing expenses are apportioned between units sold and units remaining on hand, as the traditional procedure dictates, the firm would increase its reported net income by the mere manufacture of more goods, for then a greater portion of these expenses, or at least of those fixed, would be carried forward with inventory, and a smaller portion charged against the revenue of the period.<sup>1</sup> The conclusion is that all inventories of finished goods and work in process should not be valued at anything above their variable costs of production.

#### Net Operating Profit.

The Gross Operating Profit is followed on the Profit and Loss Statement by a list of Operating Expenses, commonly classified into Selling Expenses and General Expenses. The total of Operating Expenses is deducted from Gross Operating Profit, and the residue is described as Net Operating Profit.

The Selling Expenses group embraces all the charges incurred relative to the activities of marketing and distribution carried out by a firm, including freight and commissions on sales, advertising, depreciation on store and delivery equipment, and all other kinds of store and delivery expenses. The

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1. Norris, op. cit., pp. 13-14.

General Expenses group on the other hand comprises all the expenses incurred relative to the administrative and other functions of the firm, including management and office salaries, rent or depreciation on building, depending on whether the building occupied is rented or owned, and other similar expenses.

In strict theory, an advertising expense ought to be spread in proportion to goods sold from the time the relative advertisement appears to the time the last sale is made by the aid of that advertisement. The uncertainty of the amounts that should be carried forward as applicable to future periods, however, has given force to the general practice of charging off the whole of an advertising expense in the period in which the relative expenditure is made.<sup>1</sup> Other operating expenses that can be related to the operations of specific periods are allocated to such periods, so that on any Profit and Loss Statement the operating expenses listed would represent the amounts applicable to the period covered irrespective of whether these were prepaid in a past period or are due for payment in a future period. There is little difficulty in ascertaining the expense applicable to a given period on inventoriable items like store or office supplies, and in ascertaining the amounts applicable to a given period for charges varying with time, like rent and salaries. It is mainly in connection with the depreciation of fixed assets that a controversial question arises.

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1. Norris, op. cit., p. 83.

The problem of depreciation has greater significance to a manufacturing concern than to a trading firm because of the larger stake the former generally has in depreciable fixed assets. From the standpoint of a manufacturing concern, depreciation on factory building, if owned, plant and equipment, and tools constitutes one of the important elements in manufacturing costs, and thence in the determination of Gross Operating Profit. Consequently, it would have been more appropriate to consider the question in connection with Gross Operating Profit, but it has been conveniently left to this section because depreciation charges figure as well among the operating expenses of both manufacturing and trading concerns.

The general position in accounting in regard to depreciation is based on the view that a fixed asset may be regarded as a store of future usefulness that is constantly being depleted,<sup>1</sup> and the cost of such asset may be regarded as a prepaid expense that should be amortized over its estimated useful life.<sup>2</sup> In other words, the cost of an asset is viewed for depreciation purposes as a price paid for anticipated services, and should be amortized as these services expire. The rationale for the exclusive use of cost as a base of depreciation is to be sought in the Cost Principle previously exposed.

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1. Ibid., pp. 54-55.

2. Eugene Grant, "Fundamental Aspects of the Depreciation Problem - Relationship to Competitive Industry," Studies in Costing, p. 294.

Fixed assets are "subject to wear and tear by use, and to deterioration by mere lapse of time," so that their life is a function of both of these factors.<sup>1</sup> The implication is that assets deteriorate even if left unused, but they deteriorate faster if used. There are methods devised in accounting that deal with the use factor alone and others that deal with the time factor alone, and only in rare cases any attempt is made to combine the two factors in a single formula.<sup>2</sup>

In determining the periodic depreciation charge the accountant takes into consideration three factors, the original cost of the asset, its residual value, and its estimated life expressed in years, in operating hours, or in terms of its expected total output. The difference between the original cost of an asset and its residual value is referred to as the depreciable value.

The procedure that takes cognizance of the use factor is either based on output or on operating time. According to one method, the total output expected from a machine over its life is estimated, and the periodic depreciation charge is calculated by dividing the depreciable value of the machine by total expected output and multiplying the quotient by the number of units actually produced during the period. According to an alternative method, the total operating hours of a machine over

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1. Norris, op. cit., p. 57.

2. Loc. cit.,

its serviceable life are estimated, and the periodic depreciation charge is calculated by dividing the depreciable value by estimated total operating hours and multiplying the quotient by the number of hours actually worked by the machine during the period.

The more common methods of depreciation are the ones based on the time factor. Various methods of this kind have been devised in practice, including the straight-line method, the diminishing balance method, the sinking fund method, the annuity method, and several others. The simplest and most common method is the straight-line method, whereby the periodic depreciation charge is determined by dividing the depreciable value of the asset by the number of years in its estimated life. By the so-called diminishing balance method a fixed rate is applied against the diminishing book value of the asset, resulting in a smaller depreciation charge from period to period. The chief merit claimed for this method is that, since maintenance charges increase as the asset gets older, then a diminishing depreciation charge tends to stabilize the total charge to revenue from period to period. According to the Sinking Fund Method, depreciation is charged by the increase in an actual or hypothetical sinking fund. The sinking fund - whether hypothetical or actual - would increase by equal installments invested every period, and by the interest earned on the balance of the investment. This method produces a higher depreciation charge every period, and has little

to commend it specially where no actual sinking fund is built up. Lastly, the annuity method assumes that the cost of a fixed asset is an investment that yields income. Depreciation is charged every period by a constant amount, interest income is credited at an assumed rate applied against the unamortized cost of the asset, and the difference is credited as amortization of cost for the period. The primary merit claimed for this method is that it separates "matters of finance from matters of trading."<sup>1</sup>

#### Net Income.

The Net Operating Profit is followed on the Profit and Loss Statement by recurrent but incidental revenues and expenses. Revenues include, among other things, interest earned, dividends received, and possibly cash discounts if these are not deducted from purchases in the Cost of Sales section. Expenses include, among other things, interest incurred and possibly cash discounts if these are not deducted from Sales Revenue. Net Operating Profit is adjusted by the balance between the total of such nonoperating revenues and the total of such nonoperating expenses, and the result, in the absence of any unusual charges or credits, is designated as Net Income of the period.

According to one theory, unusual charges, which are at once incidental and non-recurrent, such as a fire loss, a gain or loss on the sale of fixed assets or securities, an adjustment

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1. Ibid, pp. 54-55.

to the accounts of previous years, and the like are excluded from income determinations by being entered directly into the Surplus Account. According to the so-called "clear-surplus"<sup>1</sup> or "all-inclusive"<sup>2</sup> concept of income, all such charges should be included in the net income of the period in which they occur or in which they are discovered.

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1. Guthmann, op. cit., p. 60.

2. May, Business Income and Price Levels, p. 37.

## CHAPTER IV

### INCOME IN ECONOMICS

#### General Definition.

There is practically no single definition of income to which all economists subscribe. Varying definitions have been put forward by different economists taking different standpoints.<sup>1</sup> There seems to be, however, a substantial degree of agreement among economists on the general idea that income represents an excess of revenues over costs, conceived in relation to a capital investment on which it is earned.

The general economic idea of income is most adequately expressed by J.R. Hicks as follows:

"the purpose of income calculations in practical affairs is to give people an indication of the amount which they can consume without impoverishing themselves. Following out this idea, it would seem that we ought to define a man's income as 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. Thus when a person saves, he plans to be better off in the future; when he lives beyond his income, he plans to be worse off."<sup>2</sup>

This conception of income has won great favour among

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1. See citations in Irving Fisher, The Nature of Capital and Income (New York: The Macmillan Company, 1923), pp. 345-356. Also citations in Study Group on Business Income, Changing Concepts of Business Income (New York: The Macmillan Company, 1952), pp. 7-8.
  2. J.R.Hicks, Value and Capital (2nd ed.; London: Oxford University Press, 1950), p. 172.

economists. It has been adopted by many of them,<sup>1</sup> and has often been referred to by non-economists as being adequately representative of the general economic position in regard to income.<sup>2</sup> We would thus feel justified in taking this definition for the purpose of this paper as a point of departure for a discussion of business income as conceived in economics.

#### The Determination and Allocation of Ultimate Total Income.

The total income earned by the owners of a business firm over its entire life may be computed by subtracting the total amounts invested by the owners in the business throughout its life from the sum total of the amounts received by them during the life of the business and on liquidation.<sup>3</sup> The income figure so calculated is sometimes referred to as ultimate total income.<sup>4</sup> Provided that the firm has a very short duration, and barring all price-level changes, this method of measuring busi-

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1. It has been adopted, for instance, by Sydney S. Alexander in a monograph he prepared for the Study Group on Business Income in 1947 (Study Group on Business Income, op. cit., pp. 8-9). Also by Albert L. Meyers in his Elements of Modern Economics (3rd ed.; New York: Prentice-Hall, Inc., 1953), p. 23.
  2. See, for instance, Sewell Bray, The Measurement of Profit (London: Oxford University Press, 1953), p. 35. See also George May, "Business Income," Selected Readings in Accounting and Auditing (New York: Prentice-Hall, Inc., 1952), p. 336. See also Thomas Sanders, "Inflation and Accounting", Harvard Business Review, n°3, Vol. XXX(1952), p. 52.
  3. Maurice Moonitz, "The Valuation of Business Capital", American Economic Review, May, 1951, pp. 158-159.
  4. John B. Canning, The Economics of Accountancy (New York: The Ronald Press Company, 1929), pp. 94-97.

ness income, it is claimed, may be regarded as the only one that can be free of error.<sup>1</sup> When the business has a long duration, this approach to the computation of income is rendered inappropriate, the more so if the business is planned to have an indefinite life. For, in the first place, where the firm has a long or indefinite life it would be unreasonable to wait until final liquidation before the income of that firm can be determined. In the second place, income accrues over time and is not all realized on liquidation as this method of calculation might suggest. In the third place, when the period covered is relatively long, certain changes, particularly in the price level, might set in and obscure the picture of income conveyed by the method of calculation in question. This method of computing income, therefore, must ordinarily be modified to refer to specific accounting periods of reasonable length and to take account of the effects of price level fluctuations.

It will be appropriate, to start with, to ignore the bearing of price changes on the determination of income, and to assume that ultimate total income is determinable beforehand with absolute certainty. Following out the idea of ultimate total income, one may say that the income of a given accounting period is simply a portion of the total income to be earned over the life span of the firm, allocated to the period under scrutiny. Given the total income to be earned

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1. Maurice Moonitz, op. cit., pp. 158-159.

by the owners of a firm over its entire life, two methods of allocation to individual accounting periods are available, namely linear allocation and exponential allocation.<sup>1</sup> By linear allocation the ultimate total income is apportioned equally over the various accounting periods. This is a convenient and simple way of allocation but by no means the one that is generally acceptable in theory. Business income is earned in relation to capital invested. Linear allocation does not reflect this relationship as does the alternative method of exponential allocation. By the latter method, ultimate total income is distributed over the various accounting periods in the life of a firm in such a way that a constant ratio is maintained between the profit of any period and the capital investment as of the end of the previous period. This ratio is called the rate of profit. It is also considered to be the rate of growth of capital,<sup>2</sup> in the sense that it is the rate at which the capital investment of a firm increases over an accounting period provided no disbursements are made to owners. The value of an investment increases every period by the allocated income and diminishes by the amounts disbursed to owners. Evidently it follows that, if no disbursements are made during a period of time to owners, the value of an investment at the end would be greater than the value of the investment at the beginning of

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1. Kenneth E. Boulding, Economic Analysis (Revised edition; New York: Harper and Brothers Publishers, 1948), p. 786.

2. Ibid, p. 789.

the period by the income of that period. This leads to the conclusion that the income of a period can be determined by comparing between the value of an investment at the end with that at the beginning of the period, and the problem of income determination becomes one of valuing an investment at two different dates.

#### The Capitalization Approach.

The preceding section has made clear that, ignoring the effect of price level changes on income calculations and assuming ultimate total income to be determinable with certainty, two methods of computing periodic income present themselves. Periodic income may be computed by applying the exponential rate of profit against the initial investment of the period. Alternatively, it may be computed by comparing between the value of an investment at the beginning with that at the end of the period. The result in both cases is necessarily the same, because the exponential rate of profit is at one and the same time the rate of growth of capital. If however, the two assumptions are relinquished, that is, the moment we recognize that the prospect of ultimate total income might have to be revised in any period, the exponential rate of profit ceases to be appropriate for reflecting the growth of capital, and a difference emerges between income as pre-conceived and income as actually realized, i.e., between what may be termed ex ante and ex post income. Further consideration will be given to ex ante and ex post income

later in this section.

The capital invested in an enterprise has a value to its owners only if it is expected to yield income in the future, and the greater the income expected the greater the value of the related capital to its owners. "The fundamental principle which applies here is that the value of capital at any instant is derived from the value of the future income<sup>1</sup> which that capital is expected to yield."<sup>2</sup> The value of future income at a given date is the "present worth" of that income at that date. The process of finding the present worth of future income is commonly referred to as a process of "discounting" or "capitalizing" future income.

Under the capitalization approach to the valuation of capital at a given date, assets acquire a value equal to the discounted value of future receipts forthcoming from customers, and debts acquire a value equal to the discounted value of future disbursements to outsiders. The difference between the two aggregates is the capital value of the enterprise as of a given date.<sup>3</sup> The capital value of the enterprise can be found in this way both as at the beginning and as at the close of an accounting period, and the excess of the latter over the former

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1. By income here Fisher evidently means "realized income", i.e., net receipts of future periods. For fuller explanation of Fisher's idea of realized income, see below p.

2. Fisher, op. cit., p. 188.

3. Moonitz, op. cit., pp. 158-159.

would be taken as the income of the period.

Thus far two methods have been suggested for the valuation of an investment at a given date, the first is one of compounding the initial investment of owners and the other is one of discounting future net receipts. A question may now be raised as to whether the two are compatible. If the rate at which the initial investment is compounded is the same as the rate at which future receipts are discounted, the same value for capital at the beginning and at the end of a period, and hence the same income figure, would be obtained in the one case as in the other. This is necessarily so because, according to the principle of exponential allocation of ultimate total income, the amounts which will be received in future periods and on liquidation are equal to the value of the capital invested at a given date plus income thereon. The value of capital invested at a given date, then, should be capable of measurement by eliminating the element of income from all future receipts, and this is what is actually accomplished in discounting future receipts at a rate of profit.

Another question poses itself in regard to the relation between the increase in the capital value of an enterprise on the one hand and the excess of receipts over disbursements during any period on the other. It is clear from what has been stated before that the value of capital at a given instant is a function of future income and is not affected by the events of the

current period except in so far as these bear on future expectations. Consequently, a difference between the two is not to be regarded as of unusual occurrence as far as any particular period is concerned. The possible existence of such discrepancy between the excess of receipts over payments and income for any period brings into relief a distinction drawn by Irving Fisher between what he calls realized income and what he calls earned income. According to Fisher realized income is equal to the net receipts of a given period, while earned income, is realized income plus such appreciation or minus such depreciation of capital as is not caused by, or accounted for in, realized income. Earned income is that which capital can yield without alteration in its value.<sup>1</sup>

It is possible for future expectations of receipts and disbursements to be revised in any given period. An increase in capital value resulting from a favourable revision of future expectations is treated as a capital gain of the period in which the revision occurs. Similarly a decrease in capital value resulting from an unfavourable revision of future expectations is treated as a capital loss. Capital gains and capital losses are to be distinguished from capital appreciation or depreciation. The latter are not caused by changed expectations. They are rather occasioned by the fact that, while net receipts might not be evenly distributed over the different accounting periods

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1. Fisher, op. cit., pp. 234-36, 333.

in the life of an enterprise, income is made uniform by the use of a single rate of growth or discount.

There is left for consideration in this connection the propriety of using the exponential rate of profit in determining the capital value of an enterprise. This rate of profit can be described as an "internal rate"<sup>1</sup> in the sense that it is determined by relating magnitudes particular to a firm. Application of this rate results in stating the value of an enterprise in terms of the funds originally invested by the owners. If earned income, as conceived by Fisher, is disbursed to owners every period, the result of using the exponential rate of profit in calculations is a constant value for capital expressed in terms of the funds invested by the owners. This is not always compatible with the fundamental principle that "the value of capital at any instant is derived from the value of the future income which that capital is expected to yield."<sup>2</sup> For application of such rate of profit would attach the same value to a money investment yielding a certain amount per period and an equal money investment yielding twice as much per period. The first money investment should ordinarily be assigned half the value of the second, and this can be achieved only if the income stream flowing from each money investment is valued on a common external base. That common base is generally found in the market

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1. Boulding, op. cit., p. 792.

2. cf. supra, p. 67

rate of interest. The rate of interest that is relevant here covers two things "(1) The rate of interest based on time preference and (2) a payment for the risk involved"<sup>1</sup> in a particular business. Such rate is a better guide to the capital value of a business because its use produces a value that yields an equivalent income in other opportunities of employment of capital, allowing of course for the difference in the risk involved.

Hicks defines income as the maximum value which one can consume during a period of time, and still expect to be as well off at the end as he was at the beginning of the period. He considers three senses in which this conception of income may be construed, the difference between them centering around the interpretation to be given to the phrase "as well off." He refers to these three interpretations as approximations to the central concept, as none of them can infallibly reflect all its implications.

The first approximation is based on the assumption of a stable price level and a constant rate of interest, i.e., on the same assumption adopted heretofore in this section. Under these conditions, income would be the maximum amount which one can spend during a period of time while maintaining intact the capital value of prospective receipts in money terms.<sup>2</sup> Applied to the case of a business enterprise, income would be the maxi-

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1. Meyers, op. cit., p. 272.

2. Hicks, op. cit., p. 173.

imum amount that can be disbursed in dividends to owners, which leaves the same value for capital at the end as at the beginning, expressed in terms of money. In the absence of any capital gains or losses, this equates income with interest on the initial capital of a period, as will be pointed out below. The firm would be as well off at the end as at the beginning in the sense that its earning capacity is not impaired, i.e., it can still expect to earn the same amount of income per period as in the past.

In the second approximation, account is taken of expected changes in the rate of interest at which an investment is valued. If the rate of interest expected to rule in one future period is not the same as the rate of interest expected to rule in another future period, then a definition of income based upon constancy of money capital ceases to be satisfactory. Under such circumstances, income may be more appropriately defined as the maximum amount that an individual can spend during a given period, and still expect to be able to spend the same amount in each subsequent period.<sup>1</sup> This does not change anything in the capitalization principle; it simply means that the net receipts of different future periods might be discounted at different rates of interest. Income will be calculated by applying the rate ruling in a particular period against the capital value of

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1. Ibid, p. 174.

the business at the beginning of the period. Since the rate used in determining income is allowed to vary from period to period, then the capital value of the business should also be made to vary if the same income is to be earned every period, that is, if the firm is to be as well off in one period as in another.

The third approximation to the central concept of income introduces the possibility of an expected change in prices in certain future periods. Where the price level is vulnerable to changes, income should be defined as the maximum amount of money which an individual can spend during a given period, and still expect to be capable of spending the same amount in real terms in each subsequent period.<sup>1</sup> Applied to a business firm income should be defined as the maximum amount of money which it can disburse to owners during a given period and still expect to be capable of disbursing the same amount in real terms in each subsequent period. The difficulty in applying this approximation, Hicks recognizes, lies in deciding about the index number of prices that can be considered as relevant.

The principal point in this third approximation to the central concept of income is to exclude variations in prices from the calculation of capital values. "One of the best ways

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1. Ibid, pp. 175-76.

theoretically conceivable would be to take the actual capital goods existing at the end of the period, and to value them at the prices which any similar goods would have had at the beginning; any accumulation of capital which survives this test will be an accumulation in real terms."<sup>1</sup>

Even if the difficulty of selecting the proper index number is resolved, Hicks maintains, the third approximation falls short of being a perfect definition in cases involving durable consumption goods. "Income is not the maximum amount the individual can spend while expecting to be as well off as before at the end of the week; it is the maximum amount he can consume."<sup>2</sup> If part of the expenditure of a period is made on durable consumption goods, that will tend to make expenditure exceed consumption, and if part of consumption consists in using up durable goods acquired in past periods, that will tend to make consumption exceed expenditure. The possible existence of such discrepancy between expenditure and consumption is apt to add to the complexity of income determination. It may be noted here that Hicks discusses the subject of income from the standpoint of an individual, in which case it would be essential to distinguish between consumption and expenditure. From the standpoint of a firm, income would simply be the amount that it can disburse to its owners while expecting to be as well off at the

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1. Ibid, p. 180.

2. Ibid, p. 176.

end as at the beginning of a period. Consequently, this question of durable consumption goods does not arise in connection with business income. The problem of durable capital goods and depreciation thereon is resolved in assessing the value of the enterprise at two different dates preliminary to the determination of income.

Hicks, then, goes on to distinguish between ex ante income and ex post income.<sup>1</sup> All the definitions of income hitherto noted are ex ante definitions in the sense that they deal with income as pre-conceived at the beginning of a period. If expectations are not exactly realized, the value of a prospect - i.e., the capital value of an enterprise - at the end of the period will be greater or less than expected. The difference between the capital value of a business at the end as expected and as it actually comes out to be is a capital gain or loss, or as Hicks labels it, windfall profit or loss. Ex post income is obtained by adding windfall gains to ex ante income or by subtracting windfall losses from ex ante income. The concept of ex post income, Hicks asserts, does not lend itself to extensive use in economic theory.

"Ex post calculations of capital accumulation have their place in economic and statistical history; they are a useful measuring - rod for economic progress; but they are of no use to theoretical economists, who are trying to find out how the economic system works, because they have no significance for conduct. ... it can

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1. Ibid, pp. 178-180.

have no relevance to present decisions. The income which is relevant to conduct must always exclude windfall gains..."<sup>1</sup>

The statement that ex post income has no relevance to conduct must be qualified to take cognizance of the influence that past income may have on the prospect of income.

" The prospect of profits and the fact of profits are, of course, related; no amount of optimism that might lead to a hope for profits can continue year after year if the profits do not actually materialize; and, conversely, the existence of profits at the moment does stimulate the hope for profits in the future. ..."<sup>2</sup>

It is in order now to recapitulate the gist of the preceding discussion. Income has been shown to be equal to the increase in the capital value of an enterprise between two given dates, and the magnitude of income for any period is thus made to depend on the valuation placed on the enterprise at the beginning and at the end of an accounting period. The value of an enterprise at a given instant is the present worth of a future stream of income. On the assumption that future income is predictable with accuracy, the capital value of an enterprise depends on the rate at which future income is discounted. The rate of profit obtained for exponential allocation purposes is not always an adequate guide to value, and the current rate of interest is employed instead in dis-

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1. Ibid, p. 179.

2. Clare E. Griffin, Enterprise in a Free Society (Chicago: Richard D. Irwin, Inc., 1949) pp. 129-130.

counting future expectations. If no changes in the interest rate or in prices are expected, and if income is wholly disbursed to owners every period, the outcome of applying the capitalization concept of income, barring the existence of any capital gains or losses, is obviously a constant value for capital expressed in money terms throughout the life of the firm. Income would also be constant from period to period, and would be equivalent to interest at a fixed rate on a constant capital value. This is in accord with Fisher's definition of earned income as he says,

" If interest be assumed invariable and all future income foreknown, this definition [that of earned income] is equivalent to another, viz. the uniform and perpetual income which a given capital might yield.."<sup>1</sup>

It also reflects the idea of Hicks as he states,

" ... the calculation of income consists in finding some sort of standard stream of values whose present capitalized value equals the present value of the stream of receipts which is actually in prospect. It is a standard stream in that it maintains some sort of constancy, as against the actual expected stream of receipts, which may fluctuate in any manner whatsoever."<sup>2</sup>

In the absence of capital gains <sup>or</sup> losses, or what may be termed windfall gains or losses, ex ante income would be identical with ex post income. Capital gains or losses create a discrepancy between ex ante income and ex post income and

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1. Fisher, op. cit., p. 333.

2. Hicks, op. cit., p. 184.

disturb the uniformity of the latter as between various periods.

Income as Excess of Revenues Over Costs.

The income earned by a business enterprise over a given accounting period has been shown in the previous section to be equal to the increase in the capital value of the enterprise over the period. This increase would be equal to the excess of the revenues over the costs of the period if the meaning of "revenue" is extended to include virtual receipts and if the meaning of "costs" is extended to include virtual expenses. This calls for adding to the expenses of the period the value of the property possessed by the business at the beginning of the period, and adding to the revenues of the period the value of the property of the business at the end of the period. That is, in calculating the income for a given period, one must think of the business as if it "bought" from itself all things it possessed at the beginning of the period and add these to the actual cash payments made in the purchase of inputs to arrive at the total of "virtual" expenses. Similarly, one must think of the business as if it "sold" to itself all the things it possessed at the end of a period and add these to the cash received from the sale of outputs to arrive at the total of virtual receipts. The income of the period would then be the difference between total receipts and total expenses so conceived.<sup>1</sup>

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1. Boulding, op. cit., pp. 424-425.

The income figure so calculated is always equal to the one produced by comparing the capital value of an enterprise at the end with that at the beginning of the period. This is necessarily so because, as has been shown in the previous section, the increase in capital value is equal to the difference between receipts and disbursements plus capital appreciation or minus capital depreciation. It follows that the receipts and disbursements of the period figure out in the determination of income equally in both approaches. The adjustment for capital appreciation or depreciation added in the first approach is also accounted for in the second approach by being added to, or subtracted from, revenue with the value of property possessed by the business at the end of the period.

Since income in economics can be calculated by comparing between the revenues and the costs of a given period, both broadly conceived, it will be worthwhile to inquire into the character and composition of these two groups of variables. Revenues, it is agreed, comprise receipts from the sale of outputs and the value of property on hand at the end of the period. The value of the property on hand at the close of the period is determined with reference to the future stream of income which it promises. More specifically the value of any item of property is the discounted value of the future stream of income which it is expected to produce. This valuation rule applies with equal force to all kinds of property, including merchandise inventories. On the

other hand, the list of deductible costs include, among other things, wages, payments for services of all kinds received during the period, taxes, and depreciation on durable items of property. Further consideration will be given here to the question of depreciation in view of its important effect on the income of any period, and also in view of the fact that it constitutes one of the issues around which dispute rages between accounting and economics.

Two concepts of depreciation may be distinguished in economics. According to one, the depreciation charge is conceived as equal to the opportunity cost of the durable property, that is, the value of the most profitable alternative use foregone by putting the property to its present use. The obvious alternative to using a piece of property over an accounting period is selling it at the beginning of the period.<sup>1</sup> Upon this view, the opportunity cost of a durable piece of property, and hence the depreciation charge, may be measured by the fall in its value during the period. The second concept views depreciation as representing "the exhaustion of a year's worth of limited valuable life."<sup>2</sup> The depreciation charge so conceived is measured on the basis of the replacement value of the property. According to this second concept,

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1. Dean, Joel, Managerial Economics (New York: Prentice-Hall, Inc., 1951) p. 17.  
2. Ibid, p. 17.

"depreciation ... implies that the income in any one year must carry a burden in the form of an accumulating fund which, at the end of the life of the building, or the machine, or the pole, should, if properly computed, be adequate in amount to defray the cost of the new building, buy a new machine, or set a new pole. It must be an adequate fund. It must be adequate not only to replace the identical building or machine or pole, but adequate to replace the old fixed property with property equal in efficiency to the most modern equipment used by any of the competitors of the business. In no other way can the earning capacity of the fixed property be maintained; in no other way can the going concern value of the business be safeguarded!"<sup>1</sup>

A question may now arise as to the compatibility of these two concepts of depreciation with the central concept of income exposed before. The closest approximation to the central concept of income has been found to be one that defines income as the maximum amount of money that a firm can disburse to owners during a period of time while expecting to be capable of disbursing the same sum in real terms in each subsequent period. This calls for maintaining intact the earning capacity of the firm in real terms. Replacement-value depreciation, broadly interpreted to fit the purpose of the economist, evidently subserves this central concept in that it aims at providing for the replacement of existing durable property not in identical units but in units with the same earning capacity. It should be noted, however, that replacement-value

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1. Arthur Stone Dewing, The Financial Policy of Corporations, (5th ed.; New York: The Ronald Press Company, 1953), Vol. I, p. 548.

depreciation does not suggest any particular method of calculating periodic depreciation charges; it simply suggests a value upon which depreciation is to be based. In deciding upon the method of calculation to be used, one has to fall back on the central concept of income itself. Since the value of a piece of property at any given date is equal to the capitalized value of the future stream of income to which it gives rise, then it seems logical to take the depreciation charge of a given period as equal to the fall in the capitalized value of the durable property over the period. The result obtained in this way may or may not be identical with opportunity-cost depreciation, depending on whether or not the market value of property is reflective of the valuation a firm places on its durable property.

### Pure Profit.

The income that flows into a business in any given period is usually analyzed by economists into three ingredients, namely imputed wages of management, imputed interest on capital, and pure profits. By wages of management is meant the value of services performed by the owners of a business; it is the income that owners could earn if employed elsewhere. It is the opportunity cost of management. Imputed interest on capital is meant to reflect the interest that the funds invested by the owners of a business could command if lent out to others. It is the opportunity cost of capital. In figuring out the interest to be imputed, the economist must resolve the problem of what interest

rate is to be taken as relevant. By deducting imputed wages of management and imputed interest on capital one arrives at what economists label as "economic profits" or "pure profits".<sup>1</sup> In calculating pure profits, then, economists deduct from total virtual revenues the total of virtual expenses that include imputed wages of management and imputed interest on capital.

It is universally recognized in economics that in a free enterprise economy competition tends to eliminate pure profit. In the actual world, however, a pure profit element, positive or negative, is almost always present.<sup>2</sup> Various theories have been advanced to explain the origin of pure profits.

The concept of pure profit is useful for various managerial purposes, but does not furnish a guide to consumption. It helps to reveal the profitability of capital and management in their present employment as against alternative employments. It provides a basis for comparing the results of two or more business firms. Knowledge of the origin of pure profit furnishes a rational ground for settling claims that factors of production might make against such pure profit. It also serves to guide action toward protecting and improving the earning power of the firm.<sup>3</sup> The different theories that have been advanced to explain

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1. Richard M. Alt and William C. Bradford, Business Economics, Principles and Cases (Illinois: Richard D. Irwin, Inc., 1952) p. 8.
  2. Frank H. Knight, Risk, Uncertainty and Profit (Boston: Houghton Mifflin Company, 1921), pp. 18-19.
  3. Alt and Bradford, op. cit., pp. 10-12.

the origin of pure profits are important in so far as they subserve all these, and probably other, managerial purposes. But they have no bearing on the determination of income conceived as a guide to consumption. Income according to the central concept, is the maximum amount that can be consumed without impairing the earning capacity of the firm. That maximum naturally includes not only pure profits but also interest on capital and imputed wages of management. Accordingly, a detailed discussion of the different theories of profit is considered beyond the scope of this paper and only a brief reference to the most outstanding of them will be undertaken.

According to some, pure profits should be considered as a reward for risk bearing. A distinction is sometimes drawn between measurable risk and unmeasurable risk. The term risk is used to denote a measurable probability, and the term uncertainty to denote specifically an unmeasurable probability. Frank Knight, the initiator of this distinction, asserts that it is uncertainty in the latter context and not risk that forms the basis of a profit theory.<sup>1</sup> It follows from this view that the rate at which interest on capital is imputed should allow for the risk involved, so that the residuum left out after deducting interest on capital can be attributed to uncertainty.

A second theory would ascribe economic profits to the

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1. Knight, op. cit., p. 20.

existence of some element of monopoly resulting from a factor possessed by the firm. This element may take the form of an advantageous location, patent rights, franchises, cartel agreements, or simply product differentiation.<sup>1</sup> In a word, profits are viewed as resulting from imperfect competition. Akin to this view is the one that explains profits in terms of friction and disequilibrium and the failure of the economy to adjust itself readily to change.<sup>2</sup>

A third theory, commonly known as the innovation theory of profits, would tie pure profits to dynamic development and would conceive of pure profits as partaking of the nature of wages paid to entrepreneurs putting into practice a new idea.

"Generically, this new idea is either a method to produce an existing product at less cost, to expand its sales at existing prices, or to make a new product that will sell at higher prices."<sup>3</sup>

A word may be in order at this point in respect of the relation between economic profits and windfalls. To the extent that economic profits can be foreseen, they would result in a higher capital value of the firm. The rise in capital value of an enterprise would be considered as windfall gain of the period in which the anticipated economic profits are recognized. In subsequent periods no economic profits can be recognized as

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1. Alt and Bradford, op. cit., p. 15.

2. Dean, op. cit., p. 8.

3. Ibid., p. 6.

such if interest is imputed on capital value as of the beginning of each period. That is, if economic profits are foreseen with certainty and their value capitalized, they would be included in imputed interest on capital value in subsequent periods. The existence of economic profits as such in any one period is conceivable only if interest is imputed on the amount of funds invested by the owners of a business and not on capital value.

## CHAPTER V

### ACCOUNTING VERSUS ECONOMIC CONCEPTS OF INCOME

#### The Conflict Summarized.

It is often asserted that an outstanding difference between the accounting concept and the economic concept of income arises because of the accountant's failure to take cognizance of imputed interest on capital and imputed wages of management where the business is managed by its owners. It should be made clear in this connection that this difference arises only when comparing income as conceived by accountants with pure profit as conceived by economists, but not when comparing income as determined by both accountants and economists. That is, the difference is terminological and not conceptual. The ensuing discussion will be confined to the fundamental conceptual differences between the two theories under consideration.

Income is conceived in accounting as the excess of revenues realized over costs incurred during a period of time. This excess is equal to the increase in net worth over the period. Income is conceived in economics as representing the maximum amount that a firm can disburse to its owners during a period of time and still expect to disburse the same amount in real terms in each subsequent period. This maximum amount is equal to the excess of revenues over costs as conceived in

economics, and also to the growth in the capital value of the enterprise over the period. Ultimate total income is a term used to denote the difference between total amounts received by business owners during the life and on liquidation of a business on the one hand and total amounts invested by business owners on the other.

In calculating ultimate total income for a firm both, accountants and economists, end up with the same results if the price level and the interest rate remain constant in the meantime. Ultimate total income under the latter conditions stands the accounting test of income in that it is the result of matching costs actually incurred with revenues realized. It also stands the economic test of income in that it is the maximum amount that can be consumed without impairing the earning capacity of owners' capital in terms of real income. With the same interest rate and the same price level in effect at the inception as at dissolution of the enterprise, business owners would be, in economic terms, as well off at the former date as at the latter if they simply possess the same amount of cash at the two dates. This is what is actually achieved by application of the concept of ultimate total income - viz. safeguarding the money capital of business owners.

In accounting the concept of ultimate total income stands valid irrespective of the length of the life period of

the firm. It is actually the closest approximation to the central concept of income in accounting. Business is regarded in accounting as a continuous stream of activities, and the allocation of income to individual accounting periods is admittedly only artificial and conventional.<sup>1</sup> In economics the concept of ultimate total income ceases to be valid once the life period of the firm becomes long enough for prices and the rate of interest to change. For then the same amount of cash in the hands of business owners would no more be an indication that they are as well off in terms of real income at one date as at another.

The statement may then be risked that as far as the concept of ultimate total income is concerned accounting and economics are in agreement provided, in the first place, the price level remains stable and, in the second place, the interest rate remains unchanged. A divergence between the results of the two concepts is bound to spring out as soon as the life period of the firm becomes long enough to warrant or make desirable the allocation of income to specific accounting periods, even where the price level and the interest rate remain constant. The divergence is not in ultimate total income per se, but in the income allocated to individual accounting periods. The source of this divergence is the economist's disagreement with

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1. cf. p. 13

the accountant's cost principle and its underlying realization postulate. According to the realization postulate of accounting no income can be recognized on assets until such income is realized by a transaction of sale evidenced by the receipt of cash or a legally enforceable claim against others.<sup>1</sup> Hence, all assets remaining on hand at the end of an accounting period can only be stated at cost. The economist adopts a different position. He conceives of income as a stream of values related to a capital investment and varying with time. Income as conceived in economics does not all arise in the period of sale but rather represents a temporal growth in the capital value of the enterprise. The capital value is determined with reference to future receipts and disbursements, in which case historical cost has no relevance. With such divergent conceptions of income, accounting and economics are bound to yield different results for individual accounting periods, even under assumption of a stable price level and a constant interest rate.

When the assumption of stable prices is relinquished, the difference between the accounting and economic concepts is apt to be particularly pronounced. The economist unswervingly aims at maintaining intact the real capital of the firm - broadly interpreted as coterminous with earning capacity in terms of real income. In periods of stable prices, the same real income is earned every period if the same money income is earned.

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1. cf., p. 13

Assuming the interest rate to be constant, the same money income can be earned if the money capital of the firm is maintained intact. In periods of changing price levels, the same real income cannot be earned from the same money investment. Consequently, account should be taken in income calculations of changing prices in a manner that will leave the real earning capacity of the firm unimpaired. A question poses itself at this juncture as to the appropriate index number of prices to take in measuring real capital. J.R.Hicks admits,<sup>1</sup> as many others have done, that there is no completely satisfactory answer to this question. No attempt will be made here to deal with this question, and for the purpose of this paper some sort of a retail-price index for consumers' goods will be assumed as relevant, which will be conveniently, though vaguely, referred to hereafter as consumer-price index. In support of such assumption one may argue that, since income is usually defined from the standpoint of its recipients, then its value in real terms should be judged with a view to the disposition which its recipients will make of it. Income is generally viewed as an amount available for consumption. Therefore, its value should be judged in terms of the purchasing power it commands over consumption goods.

Maintaining intact the earning capacity of a firm in real terms does not necessarily mean maintaining intact the

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1. J.R.Hicks, Value and Capital, (2nd edition; London: Oxford University Press, 1950), p. 175.

physical capital of the firm. In periods of rising prices, the firm might have to expand its physical capital to maintain its earning capacity in terms of real income from period to period, or it might conceivably be in a position to contract its physical capital without impairing its earning capacity in real terms.

Consideration of this question should start with the adoption of certain simplifying assumptions. In the first place technological changes in production will be ignored.

" An improvement in quality [of machinery] can decrease the capital cost of producing current output ... Quality changes can take place in a great variety of ways. An obvious one is through increasing the capacity of a machine without increasing its price. ... But factors of this type are extraordinarily difficult to measure. It is difficult to find much discussion or measurement of quality improvements."<sup>1</sup>

In the second place, price changes will be assumed to have no repercussions on the rate of interest. In the third place, it will be assumed that the firm operates under conditions of perfect competition, that is, the volume of production will have no effect on the price of inputs, and the firm is capable at any time of selling at the ruling prices as much goods as it can produce or handle. The latter is a necessary simplifying assumption to isolate the effect of cyclical or secular price changes.

General price changes affect a number of price aggregates

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1. E. Cary Brown, Effects of Taxation, Depreciation Adjustments for Price Changes (Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1952), p. 131.

three of which are of significance in income calculations. They affect the retail price level of consumption goods, the replacement cost or reproduction cost of merchandise stock and fixed assets, and output selling prices. The effect of general price changes on wage-levels would of course figure up in the reproduction cost of merchandise. Output selling prices determine the stream of future receipts, and replacement costs determine the stream of future disbursements. It is the spread between the two streams that determines the capital value of the enterprise at a given date.

Maintaining the real earning power in periods of rising prices may or may not mean maintaining the same physical volume of merchandise inventories and fixed assets, depending on the relation of the three groups of prices to one another. If output selling prices, replacement costs, and the consumer-price index all rise proportionally, the real income of the firm will be maintained if the physical volume of capital is maintained. For then money income resulting from the same physical capital can be expected to increase in the same proportion as consumer price index, thus maintaining real income at the same level. If, however, the rise in output selling prices is less than proportional with the rise in the consumer price index and replacement costs, maintaining the same physical capital is likely to mean a lower real income from period to period as long as the trend continues. This is because the disproportionate rise in repla-

cement costs in relation to selling prices might result in a narrower spread than before between future receipts and disbursements, and hence in a lower money income. Even where the money income remains the same or increases, the disproportionate rise in consumer-price index alone would render such money income short of reflecting the same real income before the rise as after it. Under such conditions, therefore, real capital can be maintained only by allowing the physical capital to expand. The same situation arises where the rise in replacement costs is more than proportional with the rise in selling prices. The opposite situation is also conceivable, where in periods of rising prices the firm is in a position to contract its physical capital without impairing its earning capacity in terms of real income.

It is now in order to compare the economist's conception of income in periods of rising prices with that of the accountant. In income calculations the economist works toward safeguarding the earning power of the firm in terms of real income, which may or may not amount to safeguarding the physical capital of the business. The accountant on the other hand concerns himself only with historical costs. He does not allow for the expansion of physical capital including merchandise inventories and fixed assets, if such expansion is needed to maintain intact the real earning capacity of a firm. In periods of rising price levels, the cost of ending inventories is bound

to be higher than the cost of initial inventories. The excess is reflected in a higher income figure. If the whole income is disbursed to business owners every period, the firm would be less able to replace its physical inventories after the rise than before it. The situation is similar with fixed assets. Fixed assets are depreciated by the accountant on the basis of original cost, so that in periods of rising replacement costs the firm would be left without sufficient funds to replace its fixed assets as they are retired. By sticking to the cost principle in inventory valuation and fixed asset depreciation, the accountant holds himself accountable only for preserving the money capital of the business. Income, in other words, is conceived in relation to money capital rather than in relation to real capital. This is what is meant by the statement that income in accounting is a money concept.<sup>1</sup>

It may be appropriate at this stage to recapitulate the main points of difference between accounting and economics in regard to income determination.

1) Accountants and economists agree on the concept of ultimate total income under conditions of stable price levels and constant rate of interest. A difference arises as soon as the life period of the firm becomes long enough for changes to take place in the price levels and the rate of interest.

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1. cf., p. 19

2) Income allocated to individual periods by accountants is normally different from that allocated by economists. The source of the divergence is the economist's disagreement with the accountant's cost principle and its underlying realization postulate.

3) In periods of changing price levels, the difference between the economic and the accounting concepts of income is apt to be particularly pronounced. Besides the divergence arising from the economist's non-acceptance of the accountant's cost principle and realization postulate, a further divergence arises from the non-acceptance by economists of the accountant's monetary postulate and the accountant's money concept of income.

#### Appraisal of Accounting Determination of Income.

An attempt has been made in previous chapters to expose the theory of income determination in accounting. The theory has been shown to be based on certain conventions taking the form of postulates and standards of practice. It should be admitted, however, that no theory can be justified on the basis of conventions and accepted usage alone; for this would mean that anything that is generally agreed upon can be taken as proper and right. If the procedure followed in determining income is to have any significance, income should be conceived as a fact, as having objectivity, as something definitive and quite apart from what one does to measure it. Conventions are acceptable as premises for a theory in income accounting only

if, and to the extent that, they subserve the attainment of the objective and definitive truth at which the theory aims - namely, net income. Of course what is presented in accounting as net income is not considered as an unquestionable fact, not even by the most orthodox of accountants; for it should be recognized after all that absolute truth is never attainable, and approximation to truth is all that one seeks. Nevertheless, a definitive and objective conception of income is always in the background of income determination and appraisal in accounting.<sup>1</sup>

The fact of net income is not sought for its own sake, but for certain uses which it is intended to serve. The question whether accounting net income corresponds with facts should then be resolved pragmatically by considering its propriety to satisfy the uses for which it is intended.

Financial accounts, and the net income figure with which they culminate, are intended to serve various uses. They are to serve as a report of stewardship, as a guide to wise dividend action, as a guide for creditors, as a guide for prospective investors in an enterprise, as a guide to the value of investments already made, as basis for price and rate regulation, as a basis for taxation,<sup>2</sup> as index of management performance, as a basis for future planning,<sup>3</sup> and probably to serve diverse other uses.

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1. Harry Norris, Accounting Theory, p. 6.

2. George May, Financial Accounting (New York: The Macmillan Co., 1953), pp. 19-20.

3. Gordon Shillinglaw, "Guides to Internal Profit Measurement," Harvard Business Review, March-April 1957, Vol. 35, p. 84.

An adequate appraisal of accounting records and accounting net income from the standpoint of all these uses is apt to lead us beyond the scope of this paper. Nevertheless an additional word is in order concerning the view that accounts should serve as a report of stewardship.

The strongest argument commonly advanced in support of orthodox accounting procedures in income determination is that accounts are intended to serve as a report of stewardship. With this function attached to the accounts, the position of the accountant is regarded as analogous to that of a trustee of funds, who is held accountable for the amount of money placed in his hands. The implication is that income should be determined by the accountant with a view to maintaining intact the money capital of the business. This may be achieved by simply adhering to the Cost Principle, and considering as earned income all the growth in the money capital of a business over a given period of time. Plausible as the analogy may seem, one is entitled to inquire into the practical uses of a report of stewardship of this kind under conditions of changing price levels. It is true that accounting net income is compatible with the view that accounts should serve as a report of stewardship, but it is not clear how such a report can be useful to any of the parties interested in a business where the purchasing power of money is changing. Income serving as a report of stewardship is of little significance in itself, and if appraisal of accounting net income is to be made it has to be made with

reference to the other uses claimed for it.

An adequate appraisal of accounting net income would shed light on the question whether accountants should accept the economic concept of income as a sounder and more useful concept than the present so-called accounting concept. It is sometimes asserted that the problem is really a business choice, because accounting can readily adapt itself to the requirements of either business or economics. It is primarily the responsibility of management to select methods of accounting which are in its opinion best suited to the needs and purposes of the firm<sup>1</sup>.

"Accounting can easily accept and reflect any one concept which will be generally applied by business and which will have support of economists and statisticians, as well as business, provided there can be general criteria against which to test judgement both in the application of the concept and its measurement, and provided further that the new concept will be applied in an orderly way and over a long period of years ...  
... Accountants should not take an inflexible ... attitude. If public usefulness requires a change, they should be ready to change. But accountants can ask that responsible business make up its mind as to what it wants. If responsible business is willing to say that the orthodox methods of accounting determination of earnings are wrong and that corporate earnings are properly reported only on economic concepts, this year and future years, good times and bad, then accountants can develop theories and methods with some assurance of practical application".<sup>2</sup>

This view, carried to its logical conclusion, would mean that there can be no conceptual conflict between economics and

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1. George May, Business Income and Price Level, p. 9.  
2. George Bailey, "Concepts of Income", Harvard Business Review, November, 1948, pp. 690-691.

accounting in respect of income determination. The conflict is rather between economic theory and accounting practice, the latter being based on business views and expediencies and not on anything that can be properly described as distinctive accounting theory. The view in question reduces accounting theory to the status of a mass of principles of implementation, in which the accountant insists that any proposed concept should be consistently applied from period to period and should possess a measure of objectivity that permits of verifying the figures thereby produced. A question poses itself here as to whether the economic concept of income discussed in the preceding chapter, based as it is on future expectations in respect of receipts, disbursements, price levels, and interest rates, is too subjective to be acceptable from the standpoint of the accountant.

#### Recent Developments In Accounting.

The outstanding shortcomings inherent in the accounting net income figure have been recognized by accountants, and diverse attempts have been made to explain or remedy these shortcomings. Some accountants claim that there can be no single definition of income that would serve all purposes, and emphasize that one should beware of placing too much stress on any single figure of net income.<sup>1</sup> In view of the wide range of uses which net income is intended to serve, the question, "what is business income" would be as untenable as the question, "what

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1. Samuel J. Broad, "Recent Efforts to Increase the Significance of the Figure of Net Income," Selected Readings in Accounting and Auditing, p. 323.

is the colour of the chameleon".<sup>1</sup> The net income figure arrived at by traditional accounting methods should normally be qualified to meet specific situations and answer particular questions. The income figure that can be taken as a test of managerial efficiency is not the one that can serve as a basis for dividend action, for price or rate regulation, or for income tax returns. This is not meant to divest income of the objectivity and definitiveness it should possess. It simply means that the net income figure produced by the accountant every period cannot be significant for all conceivable purposes, and should hence be used with full recognition of its limitations.

The view just presented is akin to another that is often advanced by accountants in defense of accounting income in the face of its inadequacy in periods of rising prices. It is argued by many accountants that the net income figure produced by orthodox accounting methods is acceptable for accounting purposes. The need to replace fixed assets at higher costs in periods of rising prices should not enter in income calculations; it should rather be provided for by appropriations of current or retained income. The question, it is asserted, is not one of income determination but one of financing. It is a question to be resolved by management and not by the accountant. One must keep distinct the financing problem and the accounting pro-

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1. Study Group on Business Income, Changing Concepts of Business Income, (New York: The Macmillan Co., 1952), pp. 18-19.

blem in respect of higher replacement costs in periods of rising prices.<sup>1</sup> When wide discrepancies exist between the original cost and the current value of a fixed asset, it is the responsibility of management to make appropriations of income in contemplation of the replacement of such an asset at higher price levels. This is the position adopted by the American Institute of Accountants.<sup>2</sup> It is also substantially the position adopted by the Council of the Institute of Chartered Accountants in England and Wales.<sup>3</sup>

"Perhaps the most useful procedure may be to work first toward a sound, logical, and sharp determination of income and earnings based on the accounting concept freed from the disturbing influences of the other concepts. Then there can be a separate or additional presentation of the effects of economic forces..4

A more effective coordination between accounting and economic concepts of income is made possible by the adoption in accounting of the last in, first out method of inventory valuation and replacement cost depreciation. The last in, first out method, by stating the inventory existing at the end of a period at earliest costs and charging against the revenue of the period the latest costs, would measure revenues and costs in units of approximately the same purchasing power. In this way Life would

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1. Dan Throop Smith, "Business Profit during Inflation," Harvard Business Review, March, 1948, p. 224.
  2. Thomas Sanders "Inflation and Accounting," Harvard Business Review, Vol. 30 No.3 (1952), p. 52.
  3. Mary Murphy (Editor), Readings in Accounting and Audition, p. 256.
  4. Ibid, p. 322.

eliminate from income all or most of the change in the replacement cost of inventories, and would work toward conserving the physical size of inventories in income calculations and not only the value of such inventories.<sup>1</sup> The use of Lifo for tax purposes has been sanctioned in the United States for the first time only in 1938. Its use, however, is still restricted to a relatively small number of corporations, notwithstanding the strong tax incentives which this method offered during the war years when prices were constantly rising.<sup>2</sup> Acceptance of this method is still as limited in accounting literature as it is in practice because of the shortcomings inherent in it.<sup>3</sup> That Lifo helps to bring the accountant's concept of income closer to the economist's should not be overemphasized. Even though it is superior to Fifo from the standpoint of the economist, yet the choice between the two methods is still a choice between historical-cost methods and neither fully meets the economic concept of income.<sup>4</sup>

Corresponding to Lifo in inventory valuation is replacement cost depreciation in the case of fixed assets. The Lifo method of inventory valuation and replacement cost depreciation of fixed assets reflect actually the same line of thinking in relation to two different classes of assets, so that one may be

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1. cf., pp. 50-51

2. J. Keith Butters, "Management considerations on Lifo," Harvard Business Review, May, 1949, p. 308.

3. cf., p.

4. Joel Dean, Managerial Economics, (New York: Prentice-Hall, Inc., 1951), p. 23.

justified in concluding that acceptance of Lifo cannot be reconciled with rejection of replacement cost depreciation.<sup>1</sup> Replacement cost depreciation has been interpreted differently by different authors. Some authors interpret it as calling for setting up two reserve accounts, one being credited every period by the amortization of the cost of property and another being credited by an extra amount to cover higher replacement costs in periods of rising price levels.<sup>2</sup> Others understand by this method as one calling for writing up the value of assets on the books to reflect the cost of replacement and charging depreciation every period on the basis of the new value of such assets. The latter concept is the one that is more practicable, and for that the one which has been applied by a number of companies in the United States after World War II.<sup>3</sup> There is also the view that the depreciation policy of a firm should not so much aim at replacing an asset as it should aim at expressing the periodic depreciation charge in terms of the same purchasing power as the revenue of the period. This end may be achieved by drawing a depreciation policy along lines similar to the following:

"(1) The property accounts and underlying records should be kept on the basis of cost ... in the same manner as heretofore; if the records do not show the properties in use by year of acquisition it will be necessary in the future to make such segregation ...

"(2) Depreciation on cost ... should be computed in the same manner as heretofore. Since the pro-

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1. Study Group on Business Income, op. cit., p. 60.

2. Smith, op. cit., p. 224.

3. Brown, op. cit., pp. 43-44.

erties in use will be classified by year of acquisition, as in paragraph (1), it will be possible to compute the amount of depreciation on cost separately for each year's acquisitions ...

"(3) An index number should be determined by the government and published promptly at the end of each accounting period. ... The index number should be so constructed that over a period of years it will be indicative of the change in general price level, that is, it should reflect the fluctuation in the value of the dollar rather than the change in price of any particular commodity. ...

"(4) In addition to depreciation on cost as determined in paragraph (2) there should be deducted from income an additional amount for depreciation such that the sum of the depreciation on cost and the additional depreciation will bear the same ratio to depreciation on cost which the current index number bears to the weighted average of the index numbers for the years when the plant in use was acquired. The sum of the depreciation amounts mentioned may readily be computed by multiplying the separate amount of cost depreciation on each year's acquisitions by a fraction, the numerator of which is the current index number and the denominator of which is the index number for the year of acquisition.

"(5) The additional depreciation computed as in paragraph (4) shall be accumulated in a special reserve account ...1.

The foregoing developments in accounting do not fully meet the economic concept of income. As may obviously be seen, they are all attempts to find remedies to the shortcomings of accounting income in periods of changing price levels, and they are particularly applicable to periods of rising prices. No consideration has been given to the difference between the accounting and economic concepts of income that might exist even in

periods of stable prices, mainly because it is commonly held that such difference is not as significant as the one arising in periods of changing prices.

"The economic and accounting concepts of income do not differ materially when prices are relatively stable. In recent years, however with rising price levels the difference between the two concepts has assumed major importance."<sup>1</sup>

The foregoing developments do not even furnish perfectly satisfactory solutions to problems emerging from situations of changing prices, at least from the standpoint of the economist. The need for further development is increasingly being felt by accountants, and the help of economists is increasingly being sought in the field of income determination.

".... It is not difficult to conjecture far-reaching developments in the accounting techniques of profit measurement just as soon as economic conceptions are fully comprehended in their depth both by men of business and their accounting advisers."<sup>2</sup>

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1. Mary E. Murphy (Editor), op. cit., p. 322.  
2. Sewell Bray, The Measurement of Profit, (London: Oxford University Press, 1953), p. 3.

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