

## LIFO (LAST IN, FIRST OUT) AND FIFO (FIRST IN, FIRST OUT)

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Since the publication of my monograph, Business Income and Price Levels, requests have come to me to discuss LIFO inventorying, (a) historically, (b) in relation to concepts of income and to other methods of inventorying, and (c) in relation to accounting for other types of costs.

Such a discussion seems particularly opportune in view of current expressions on the subject, such as that contained in the chapter on "Concepts of Profits" in the volume "Inventory Accounting and Policies" recently published by the Harvard Graduate School of Business Administration. This volume contains valuable information as to the extent of, and the reasons for, the use of the LIFO method by corporations.

### INVENTORIES:

"Inventories" is a term used to describe those items which were formerly brought into account by means of an inventory and which were, and in England are still, called "stock in trade."

I have always regarded as ill-advised the substitution of a title descriptive of the process for one signifying that to which the process was applied. By a curious perversity not uncommon in accounting terminology the new title gained in popularity just when its appropriateness was disappearing. Today inventories are in important companies determined from accounting records, checked by systematic examinations of sections of the stock on hand. Moreover, whereas formerly inventorying was a step in determining income, the modern view is that the primary step is to decide what costs should be charged against revenue in determining income, and the inventory is the residual. It is for this reason that two methods producing widely different results such as FIFO and LIFO are regarded as alternatives, either of which may properly be adopted.

FIFO AND LIFO:

FIFO and LIFO are terms of art describing conventional methods of pricing either charges against revenue or inventories. They must not be interpreted literally.

If a steel company has a stock of ore, all of one grade but acquired at different times and prices, so stocked that it is equally convenient to draw supplies from any lot, it would facilitate manipulation if the charge against revenues or the amount of the inventory were based on the actual selection. It has, therefore, long been the rule that the accounting should be governed by a conventional assumption that is rational and close to reality in a large number of cases.

FIFO, which assumes that goods are sold or consumed in roughly the order in which they are acquired, is the commonest method of pricing inventories at cost. (Reduction to market need not here be considered.) The method is often modified for the sake of convenience, or to avoid wide short time fluctuations, and when so modified may be described as an "average cost" method. In the illustrative case, neither the charge against revenue for ore nor the inventory thereof would, on a FIFO or average cost base, be different whatever lost supplies might actually be drawn from.

Nor would the choice affect the inventory if LIFO were adopted. In that event, however, the charge might be measured by the cost of ore belonging to the company that was still at an upper lake port awaiting shipment.

LIFO – BASE STOCK:

LIFO, which is a recent innovation, and the older base stock method from which it may be considered to be derived, reflect an approach to the conception or measurement of income which differs widely from that reflected in FIFO accounting. The early history of these methods can most conveniently be studied in English accounting, where they originated, and in interpreting that history certain crucial dates should be kept in mind.

In 1842 the income tax, first levied in 1798 and discontinued after the end of the Napoleonic Wars, was reimposed; in 1845 laws governing accounting of certain public utilities were enacted; but it was not until 1862 that the first widely effective law providing for the creation of corporations with limited liability came into force; in 1868 the Regulation of Railways Act definitely established the method of accounting to be followed by railways.

With these statutes in mind, it seems fairly clear that when periodic accounting began to supplant in large measure “venture” accounting, two modes of thought as to the determination of income or profit emerged; the one applicable to relatively permanent enterprises such as railways, and the other to enterprises not so regarded under which manufacturing and trading companies were included. (I dealt briefly with this point in my monograph, pp 3-4.)

TABLE A (1862):

General manufacturing and trading companies were subject to the Act of 1862, and the following quotations are taken from Table A which formed a part of that Act:

- “79. Once at least in every year the Directors shall lay before the Company in General Meeting, a Statement of the Income and Expenditure for the past year, made up to a date not more than three months before such meeting.
- “80. The Statement so made shall show, arranged under the most convenient heads, the amount of gross income, distinguishing the several sources from which it has been derived, and the amount of gross expenditure, distinguishing the expense of the establishment, salaries, and other like matters: Every item of expenditure fairly chargeable against the year’s income shall be brought into account, so that a just balance of profit and loss may be laid before the meeting; and in cases where any item of expenditure which may in fairness be distributed over several years has been incurred in any one year the whole amount of such item shall be stated, with the addition of the reasons why only a portion of such expenditure is charged against the income of the year.
- “81. A balance-sheet shall be made out in every year, and laid before the Company in general meeting, and such balance-sheet shall contain a summary of the property and liabilities of the Company arranged under the heads appearing in the form annexed to this table, or as near thereto as circumstances admit.”

The emphasis on the income account and the treatment of the balance sheet as a statement of residuals have a modern ring.

#### COST AS MEASURE OF VALUE:

The system that developed under this law should, I believe, be described as calling for the statement of assets at conservative values, cost being often accepted as the best measure, but not the final determinant of value. (Cf. Financial Accounting, Chapter V.)

Inventorying at cost or market whichever might be the lower, with cost determined on a broadly first in, first out basis, or an average of recent costs, became the predominant practice. It has retained that position in England and has long held it in America.

#### DOUBLE ACCOUNT SYSTEM:

The Regulation of Railways Act of 1868 proceeded on the basis of an assumption of permanence; capital invested was regarded as sunk and recorded in an account of Receipts and Expenditures on Account of Capital, only the balance of which appeared in the General Balance Sheet which formed the second part of what is known as the "double-account" system.

#### BASE STOCK:

Some companies engaged in manufacture took the view that in effect a normal inventory, necessary to continued operations, should also be regarded as representing capital sunk and a permanent investment. They, therefore, carried the normal inventory from year to year on the same price basis and charged current costs against current revenue. This method, which was known as the "base stock" or "normal stock" method, presented practical difficulties and its use never became very extensive, but it was employed both in England and in America; it was not a method that contemplated pricing the goods in the inventory at cost.

#### WORLD WAR I – ENGLAND:

During the first World War a combination of high prices and heavy income taxes led to demands for recognition of the base stock concept in determining taxable income.

In England the question was examined in 1917 by the Inland Revenue Department in relation to excess profits duty, the Ministry of Munitions in relation to the munitions levy and by the Committee of accountants advising the latter. It was reexamined after the Armistice in

1918 by a Committee appointed by the Ministry of Reconstruction which took the testimony of some seventy witnesses and received numerous written expressions of views.

The problem was considered in the light of seventy-five years of income taxation and of judicial decisions which were held by the official witnesses for the Inland Revenue to “base the ascertainment of profit in commercial practice” (as did our Revenue Act of 1918).

The revenue authorities took the position that the base stock method should be accepted in the relatively few industries in which it had been employed. The accountants' position was that “there is only one sound general principle of valuing stock” – “the basis of cost price or market value whichever is the lower.” They took the view that the right to use the normal or base stock basis where authorized should be limited so that its users should not escape a tax which others would pay; a suggestion which the Ministry did not adopt. The accountants, the Ministries and the Departmental Committee all favored special relief measures in respect of the drop in prices extended at the end of the war period, which need not be discussed in detail.  
(Excess Profits Duty Cd. 8623, 1917.)

#### DEPARTMENTAL COMMITTEE:

The Departmental Committee rejected proposals to extend the availability of the normal stock basis, but four of its ten members, not including the accountant member of Dr. J. C. (later Lord) Stamp, joined in the following reservation:

“We are of the opinion that the base stock method of eliminating from trading profits the fluctuations in stock values, is preferable to the creation of reserves from profits enhanced by rising markets, and using up such reserves against losses in falling markets, as the more accurate ascertainment, and more equal distribution of actual trading profits, over a longer period than one year, which results from the method we advocate, stabilizes the business and enables loan, or preference capital, to be obtained on better terms.

“Generally also we are of opinion that the Report does not sufficiently recognize the undoubted fact that the annual or semi-annual profits on which the Excess Profits Duties is levied are reputed and not real profits. A subsequent fall in prices may prevent these profits being realized, and thereby an equitable case for the return of a certain portion of the Duty is established.”

The Committee in its Report said:

"There is, so far as we are aware, no statutory definition of 'profits.' Mr. Clark, the official witness from the Inland Revenue, in his evidence before us, referred to three cases. The Sun Insurance Company, v. Clark, which went to the House of Lords. Smith v. The Lion Brewery Company, and the Usher Brewery case. In the first case Lord Moulton used the words 'we have it by our own reasoning and I think by the action of all commercial men that the proper way to ascertain profits . . .'

"Lord Justice Farwell in the second case said, 'the expression 'Profit of a trade' bears its ordinary signification as used by businessmen in business.'

"In the third case Lord Loreburn said 'profits and gains must be estimated on ordinary principles of commercial trade.' All these three dicta base the ascertainment of profits on commercial practice. And it appears that in the absence of a statutory definition the Board of Inland Revenue has felt itself unable to contest the base stock system of valuation where it has prevailed." (Ministry of Reconstruction, Committee on Financial Risks attaching to the Holding of Trading Stocks, 1919 Cd. 9224, England.)

#### WORLD WAR I – AMERICA:

In America the question was considered by the Advisory Tax Board created under the Revenue Act of 1918. That Act laid down inventory rules which, apart from the introduction of LIFO, have remained substantially unchanged. The Advisers quoted the British decisions and suggested that the profit from price rise might be a quasi-capital gain, but that even so it would be taxable under American, if not under English, concepts of income. (T.B.R. 63 CB Dec. 1919-Dec. 1920, p. 57.) Both my partner, Mr. J. E. Sterrett, who was one of the Advisers, and I, then serving in the Treasury, declined on a point of ethics to participate in the consideration of the question, in deciding which Dr. T. S. Adams took an important part. I recall his reiterated expression of opinion that "income is a money concept."

#### LIFO – PETROLEUM INDUSTRY:

The early history of LIFO under that name is told in a Report of the Special Committee on Inventories, which appears at pp 458-466 of the 1936 Year Book of the American Institute of Accountants. The method was recommended by the Board of Directors of the American Petroleum Institute to the membership of that institute on November 12, 1934 and was approved in the report of the Committee of the Accountants' Institute. That Committee said:

"The prime purpose of the 'last in, first out' principle, which the board of directors of the American Petroleum Institute has recommended to the membership of that "Institute, is to bring about, in the determination of profits in the financial accounts, a substantial correlation between sales prices and those raw material prices which have been directly causative of such sales prices.

"In its practical effect in the accomplishment of this objective, the 'last in, first out' principle may be viewed as comparable to the 'base stock' or 'basic inventory' method of inventory valuation, the purpose of which likewise is that the revenue from high sales prices be burdened with the costs causative of such high sales prices, and not leave high price level inventories to be absorbed later by revenue representing a lower price level, upon the turn of the economic cycle." (American Institute of Accountants, Year-Book 1936, p. 463.)

#### CONGRESSIONAL ACTION 1938, 1939:

In 1938, and again in 1939, the Congress approved the use of the method for tax purposes, and in doing so described it as a method of determining cost. This designation was apparently adopted to minimize the extent of the change from existing rules that was involved. It has, I think, given rise to much misconception.

Discussing the method in Financial Accounting in 1943, I expressed the view that this method of describing LIFO was regrettable, and that the method was being used in cases in which it did not seem to be appropriate. I also said that the method had obvious merits in some cases and that: "The strongest argument for the method is that the value of a business is determined by its income; that the income is best measured if sales and costs are reflected in terms of the same price level; and that the replacement value of an inventory which must be substantially maintained so long as the business is conducted has little more practical bearing on the value of the business than the replacement value of the plant itself." (Financial Accounting, pp. 176-7.)

#### ACCOUNTING RESEARCH BULLETIN NO. 29:

The only bulletin dealing with inventory pricing, which has been issued by the Committee on Accounting Procedure, is Accounting Research Bulletin No. 29, July 1947. The Committee mentioned LIFO in Statement 4 and the Discussion thereof, which are here quoted:

"Statement 4 – Cost for inventory purposes may be determined under any one of several assumptions as to the flow of cost factors (such as 'first-in first-out,' 'average,' and 'last-in first-out'); the major objective in selecting a method should be to choose the one which, under the circumstances, most clearly reflects periodic income."

In discussing this statement the Bulletin spoke of the development and general acceptance of several assumptions with respect to the flow of cost factors to provide practical bases for the measurement of periodic income. "These methods recognize the variations which exist in the relationships of costs to sales prices under different economic conditions. Thus, where sales prices are promptly influenced by changes in reproductive costs, an assumption of the 'last-in first-out' flow of cost factors may be the more appropriate." (Emphasis supplied.)

Mr. J. Keith Butters quotes the Bulletin and comments:

"While this statement probably reflects the prevailing view among accountants, the tentative language in which it is expressed is indicative of the unsettled state of accounting thought on the question of inventory pricing." (Inventory Accounting and Policies, p. 128.)

An exposition of the Bulletin by the Director of Research of the Institute was published in the Journal of Accountancy for September 1948. In it he said:

"We will reach more realistic conclusions as to the merits of the different methods of allocating inventory costs between periods if we consider them to reflect assumptions regarding the flow of costs not necessarily related to the goods." (p. 206)

Mr. Butters quotes more fully from this article.

I did not agree with the view expressed in Statement 4 of Accounting Research Bulletin No. 29 and, in the Journal of Accountancy of November 1947, I expressed views which I repeat here:

"To the present writer, LIFO as it is now applied (by department stores, for instance) seems not to reflect a reasonable assumption as to the flow of goods or costs but a special concept of income. It belongs to the school of thought which in England produced the double-account system and the base-stock inventory method. The double-account system rests on the proposition that, in determining either periodic income or income for the life of an enterprise, it is neither necessary nor practicable

to provide for the loss that will arise when the income stream runs dry or becomes seriously diminished. Any such loss is regarded as a capital loss and any provision to be made for it is deemed to be an appropriation of income after income has been determined.

“As one consequence, the separate value of each individual unit of property necessary to the conduct of the business is regarded as an unreal and meaningless concept. The value of such assets is deemed to be collective (and dependent on the maintenance of the income stream). The burden to be met out of revenues is to maintain, restore, or replace such assets – not to absorb or amortize their cost.

“The system was applied to English railroads and other utilities during the third quarter of the nineteenth century by statutes such as The Regulation of Railways Act of 1868, and it influenced the earlier accounting of railroads in the United States though it was not adopted in full. It is not necessary here to appraise this system of accounting. It is sufficient to say that it is by no means irrational. One virtue is that for tax purposes it approximates the concept of income from personal activities of the individual, whose death is certain, though the time of it is unforeseeable but is not taken into account in determining his income. Another of its merits is that it tends in times of fluctuating value of the money unit to bring revenues and costs into account on roughly the same price level. It was this feature that the base-stock method, and later LIFO, sought to introduce into industrial and commercial accounting.

“LIFO is manifestly a method of determining charges against revenue and under it the inventory is merely an amorphous residual that is unrelated to either the costs or the values of the present day. The introduction of LIFO into American accounting is therefore a reason for treating the determination of the charge against revenue as the primary step and the inventory as the residual, instead of adhering to the opposite approach to this question as Bulletin No. 29, following past practice, does.

“A new bulletin approaching the question from this new standpoint would differ considerably from Bulletin No. 29. Statement No. 1, which defines inventory, would remain substantially unchanged. Statement No. 2 might read as follows:

‘The primary objective in accounting for those items which are subject to inventory accounting is to insure a proper charge against revenue in the determination of periodic income in accordance with the concept of income by which the accounting is governed. This involves (a) a proper matching of costs against the revenues that are attributed to the period, and (b) the elimination of such part, if any, of the remaining costs as is found to be in excess of the useful costs properly chargeable against future periods.’

“Bulletin No. 29 perhaps suffers from a failure to recognize explicitly the existence of two types of charges which is implicitly recognized in the discussion.

"The bulletin might next discuss present-day concepts of income. This might be done along the following lines:

'Periodic business income is conceived generally in American law and accounting as the gain derived from capital and labor employed in business operations. The gain is the excess of the revenues of a period over the costs properly chargeable against those revenues.

'In the past, revenues and the cost properly chargeable against them have commonly been measured in terms of money without regard to changes in the value or purchasing power of the monetary unit. In recent years, the LIFO method of inventory has been introduced, the purpose of which is to match costs against revenues more nearly on the basis of the same price level and thus to reflect income more nearly in terms of economic worth.

'This committee has accepted the view that accounting is utilitarian in its nature; it regards the objective of reflecting gain as nearly as possible in terms of economic worth as one that is useful, and, where the monetary unit is unstable, perhaps superior to that of measuring income in terms of money. The Congress, in authorizing the use of LIFO for tax purposes, has made such use conditional on the employment of the same method in the general financial accounting of the taxpayer.

'The committee is therefore of the opinion that the use of the LIFO method to determine the costs which should properly be matched against revenue from sales of goods or services is in conformity with accepted accounting principles.

'The committee believes, however, that the method is neither entirely appropriate nor adequate to accomplish this objective. It regards the adoption of the method as raising the question of the fundamental concept of business income. It believes this subject should receive early and exhaustive consideration from the economic, financial, legal, social, and accounting points of view.'" (pp. 365,6)

The views expressed in this proposal (which was not adopted) are those I hold today.

LIFO TODAY:

Whether sales prices are, or are not, promptly influenced by changes in reproductive cost does not seem to me an appropriate criterion of the applicability of LIFO accounting.

The emphasis in earlier days on identity and indestructibility of the type of goods has, I would agree, been displaced. Today the principal test should perhaps be the extent to which the corporation is able to protect itself against the effects of price variations by its business policies. A business corporation, which can make balanced forward contracts for sales and

principal raw materials, does not need LIFO to express its costs and sales in units of approximately the same purchasing power. And, unless LIFO is to be universally available, it should not be entitled to employ that method merely because it prefers not to make forward contracts but to speculate in prices as well as to make profits from conversion.

In July 1948 the Committee in reply to an inquiry from the Study Group said:

“The lifo method of accounting for inventory costs, as now applied, is an accounting device for applying incurred costs in a manner, the purpose of which is to relate costs to revenues more nearly on the same price level basis than would the fifo method.”  
(Emphasis mine.)

In the Journal of Accountancy of October 1948, the Director of Research again discussed LIFO v. FIFO and in doing so said:

“If we are to adopt the view that the objective of accounting should be to apply against current revenues cost, in terms of current purchasing power, as is suggested by those who propose the reflection of price level changes in depreciation charges, it seems reasonable that the LIFO, or the base stock method, or some similar procedure would be considered the most comparable and, therefore, the most acceptable method of costing inventories for all companies. If, on the other hand, we are to retain the original cost concept of accounting for fixed assets, the LIFO method of accounting for inventories does not have much support in principle. Although it may be argued in this connection that LIFO is not comparable to the proposals suggested for measuring the annual depreciation charge in terms of current purchasing power, since it is concerned only with actual costs, accountants would be closing their eyes to realities if they failed to recognize that the underlying considerations justifying each are very much alike.” (p. 287)

I am not disposed to disagree seriously with this statement, though I entirely disagree with his discussion of the subject in the Journal of September 1948 already referred to, and with the views based largely on that discussion which are expressed on pages 127 to 143 of “Inventory Accounting and Policies.”

AMERICAN ACCOUNTING ASSOCIATION:

The American Accounting Association in its 1948 Revision of Accounting Concepts and Standards Underlying Corporate Financial Statements did not mention LIFO specifically but said:

"For purposes of determining the expense of a period, it is acceptable to assume a flow of the cost of inventoriable items, for example, 'first in, first out.' The residual cost should be carried forward in the balance sheet for assignment in future periods except when it is evident that the cost of an item of inventory cannot be recovered. \* \* \*" (p. 4)

This seems to call for an identification of costs with goods and thus implicitly to reject the LIFO method.

A new chapter in the history of LIFO began with the decision of the Tax Court in the case of Hutzler Brothers Company (8 T.C. 14, 1947) which was followed by the decisions in the Basse case (10 T.C. 328, 1948) and the Sweeney & Co. case (Docket 5374, February 1948). By these decisions limitations on the applicability of LIFO have been overruled and as a result of them new methods of applying it have been accepted. The combination of the retail-inventory method and LIFO by means of price indexes has been expressly approved and further steps have been taken in the same direction. A recent discussion of these methods of implementation will be found in Inventory Accounting and Policies. That volume makes it clear that in the great majority of cases the choice between LIFO and FIFO today is not determined by the profit margin, the business policy or any consideration except expediency.

Final determinations have not yet been made by the Bureau of Internal Revenue on some important points, but broadly speaking, it appears now to be permissible to price the inventory at the end of the year on the same basis as at the beginning to an amount in money equal to the amount on hand at the beginning of the year, only the excess being priced at current levels, any so-called inventory profits being thus virtually eliminated from taxable income. Whether LIFO shall be used is now in the main a matter of tax-accounting policy with (a) the need of adhering in the future to the method selected, and (b) the loss of the right to use the alternative of market value as the main deterrents to its adoption. Attempts are still made to

argue that FIFO and LIFO are both concepts of a flow of costs unrelated to the goods on hand, but even if this is so FIFO is a concept of a flow of cost closely related to the normal actual flow of goods, while LIFO is one which may, and often does, result in measuring the flow of costs by the cost of goods which could not conceivably have entered into the inventory on hand.

The justification of LIFO, if one is to be found, must I believe be found in its result of bringing revenues and costs together more nearly in terms of units of the same purchasing power. In so far as this objective is regarded as valid, it can be achieved with a closer approach to precision, in respect of consumption of plant assets, by the use of price indexes as contemplated in my monograph. There is, I feel, no conceptual basis on which such a treatment of plant assets can be rejected, but LIFO inventorying be rightly accepted.

The only operational distinction that might justify application of the concept to inventories but not to plant assets is that suggested by the words "incurred costs" in the Committee on Accounting Procedure's statement quoted at page 12, supra. But when the "costs incurred" that are charged against revenue are costs of goods that could not conceivably have been used (as in the case of ore at upper lake ports in the illustration on page 2) or when the "money value" method is accepted, the fact that costs have been incurred is not very significant. If the notion of a provision for replacement of LIFO inventories involuntarily (or temporarily) liquidated is accepted, then the distinction vanishes. At most the distinction would justify limiting the price adjustment of depreciation charges to businesses whose plant expenditures for replacement or extension were not equal to or greater than depreciation charges.

The arguments based on theory, simplicity and uniformity are much stronger in the case of plant than in that of inventories. LIFO eliminates profits due to internal price changes as well as purely monetary profits due to a rise in the general price levels. The suggested plant adjustments cover only the latter. It is also simpler and more uniform in application.

If LIFO has the virtue that it tends to bring revenues and costs together in terms of units of the same purchasing power, it must be admitted that it is a highly imperfect method for this purpose. If once the objective were widely accepted, accountants would undoubtedly find

more effective ways of achieving it. I recognize the defects of LIFO but I would not extinguish the candle that throws a needed light on an area of accounting but would urge research designed to provide better illumination. This task, however, falls in the sphere of implementation of accounting concepts and is one for the accountants rather than the Study Group. There is much to be done (including a reexamination of the treatment of purchase and sale commitments) before inventory accounting can be regarded as on an entirely satisfactory footing.

In the meantime, it would be a great advance in presentation of accounts if those corporations which include "inventory profits" in income would disclose the amount (actual or approximate) and those who carry inventories on a LIFO basis, or otherwise at less than current cost, would make a carefully phrased disclosure of current cost (actual or approximate). The possibilities of making income accounts more significant by better disclosure is a fruitful field for exploration.

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