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The Case Against Separation of Current Operating Profit and Holding Gain

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ABSTRACT: Claims about the benefits to be derived from dichotomizing income into current operating profit (COP) and holding gain (HG) are examined in this article. Separability of an asset from the risk of change in its price is shown to be a necessary and sufficient condition for separate evaluation of the operating and holding decisions with respect to the asset. When risk is separable, the appropriate breakdown of income into operating and holding components is defined. When the risk is not separable, no meaningful breakdown is possible. Other claims for a COP-HG dichotomy, *e.g.*, the usefulness of COP in making various business decisions and interfirm and interperiod comparisons, are shown to be unjustified. In the absence of benefits, the direct cost of compiling data and the indirect cost from induced suboptimal decisions make the COP-HG dichotomy positively unattractive. The arbitrary nature of this dichotomy is illustrated through the construction of an equally defensible alternative.

THE proposal to report current-value income in two components, current operating profit (COP) and holding gain (HG), has received wide support. Edwards and Bell [1961] put together a detailed case in favor of the income dichotomy. Only a few arguments have been added to the case since then. Some arguments against the dichotomy have also been made [Drake and Dopuch, 1965], but the full case against the dichotomy has never been presented. The purpose of this paper is to offer a clear, concise, and reasonably complete statement of that case—recapitulating, as needed, the gist of the arguments already made in the literature, and adding several new arguments of our own. In some instances, our arguments may seem to be merely an echo of those already made by others, but a careful comparison will show that such an interpretation is obviously not valid, since we reach a different conclusion.

Our conclusion is unequivocal: There are no valid supports for the claim that the COP-HG dichotomy does, in fact, possess the benefits usually ascribed to it by its proponents (Section 2 of this paper). In fact, the dichotomy has a positive cost insofar as its use may lead to suboptimal decisions (Section 3). The dichotomy is artificial and arbitrary, and equally defensible (or indefensible) alternative schemes of decomposing income

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can be readily constructed (Section 4).

Sections 2, 3, and 4, which constitute the core of the paper, are preceded by a brief review of current value accounting and the income dichotomy. This is to ensure that these two issues, which are often closely entangled in the literature, are kept separate. The results of our analysis are summarized in the concluding section.

Section 1.

Current Valuation and the Income Dichotomy

Current valuation is a relatively straightforward concept: (1) The *wealth* of a firm at any time is defined as the aggregate current dollar value of the firm's net assets; and (2) the *income* of the firm is defined as the change in wealth of the firm over the accounting period.[1]

The above definitions presuppose a resolution of the question of what qualifies as an asset and how the quantities of assets held by the firm are measured. The resolution of these questions, which are common to all methods of valuation, is not an issue here. Accordingly, we assume that they have already been appropriately settled.

Three corollaries of the definition of current valuation should be noted. First, in current valuation, the unit for measuring wealth is current dollars and not some measure of physical capital, such as plant capacity. This distinction is important because an increase in the specific price of plant capacity *increases* the current-dollar wealth of the firm but results in a *decrease* in the firm's wealth calculated in terms of the plant capacity.[2]

Second, the current-dollar wealth of the firm at any time depends only on the assets held by the firm at that time and their current values. The timing or the sequence of decisions by which the firm comes to have these assets is irrelevant.

Third, in measuring current value income, no distinction is drawn between the change in wealth resulting from the production and sale of the firm's product and that resulting from a change in the prices of the firm's assets. If a firm chooses not to return an increase in its wealth to its owners, then its wealth at the beginning of the succeeding period would be that much greater, the increase being in the form of expanded physical capital or increased value of the existing assets.

Edwards and Bell [1961], and many others after them, have advocated a breakdown of current-value income[3] into two main components: (1) *current operating profit* (defined as the excess of current revenue over the current replacement cost of services used in producing the revenue); and the remainder, (2) *realizable holding gain* (or *realizable cost saving*).[4]

> The business profit concept *requires* that operating profit be carefully distinguished

[1] See Alexander [1950, p. 75] and Edwards and Bell [1961, p. 95]. Alexander gives his definition in terms of real purchasing power. Edwards and Bell use the term "business income" for income computed from current replacement values.

[2] A numerical example will illustrate. Consider a firm holding 10 units of plant capacity and 20 units of other assets; with current values of $20 and $10 per unit, respectively, the current-dollar wealth of the firm is $400. If all else remains the same and the current value of the plant capacity increases to $25/unit, the current-dollar wealth of the firm becomes $450, an *increase* of $50. In contrast, were plant capacity the unit of wealth, the wealth of the firm would be 20 units of plant capacity at the beginning and 18 units of plant capacity after the change in price—showing a *decrease* of two units.

[3] Edwards and Bell's "business profit" is the entry-value version of current-value income; it is not synonymous with the latter. However, for the purpose of evaluating the merits of income dichotomy, the distinction among various forms of current valuation, or even between current and historical valuation, is not important.

[4] Edwards and Bell [1961, p. 26] note that Schmidt [1929] argues for division of current value profit into three components: gains due to change in form (manufacturing), place (distribution), and vintage (holding) of assets. Paton's [1918] proposal for income dichotomy has been discussed in Zeff [1976, p. 7].

> from gains resulting from holding activities. [Edwards and Bell, 1961, p. 226] (Emphasis added.)

While the wealth of the firm at the beginning and end of the period is sufficient to determine its income for that period, it is not sufficient to determine the current operating profit or the holding gains. Information on the timing of sale transactions and purchase prices prevailing at the time of these transactions is also needed.

Neither the definition nor the implementation of current value accounting *requires* that income be dichotomized. Conversely, dichotomy of income is not unique to current valuation; historical cost income can also be broken down into two components—current operating profit and "realized holding gain." Thus, the dichotomization of income into COP and HG *is not a valuation issue*. Of course, the dichotomy may well have different interpretations in different systems of valuation, but an argument for or against a particular approach to valuation cannot, by itself, be regarded as an argument for or against the dichotomy.[5] Hence, the dichotomization of income must be argued on its own merits.

To eliminate any misunderstanding rooted purely in the valuation issue, we assume current valuation as the basis of accounting unless stated otherwise. Accordingly, our case against the income dichotomy should not be construed as a case against current valuation. Also, we assume[6] that a primary purpose of accounting information is to serve the evaluation function of both management and external users, thereby contributing to the managerial control of the firm as well as to the formulation of better future decisions by management and external users alike. Therefore, the differences between our conclusions and those of the proponents of the COP-HG dichotomy should not be attributed to a difference in the postulated goals of accounting information. Finally, to simplify exposition, we assume that the general price level remains constant; only the relative prices may change (this does not affect the generality of our arguments).

Section 2

Examination of the Merits Claimed for the Income Dichotomy

In this section, we present a detailed examination of the advantages commonly attributed to the COP-HG dichotomy, grouping them for convenience under the following six headings:

1. Evaluation of past performance
2. Aid to business decisions
3. Physical capital maintenance
4. Interperiod and interfirm comparisons
5. Taxation
6. Additional disclosure

Evaluation of Past Performance

The claim that the COP-HG dichotomy is useful for the evaluation of management's past holding and production decisions is based on the thesis that these two types of decisions are separate and independent, and that management has considerable freedom of choice with respect to each.[7] For instance:

> These two kinds of gains are *often* the result of quite *different* sets of decisions. The business firm *usually* has *considerable* freedom in deciding what quantity of assets to hold over time at any or all stages of the production process and what quantity of assets to commit to the production process itself. . . . The difference between the forces motivating the business firm to make profit by one means

[5] Also see Drake and Dopuch [1965, p. 193].

[6] See, for example, Edwards and Bell [1961, pp. 4–5].

[7] For a comparative review of two other statements of this argument, see Drake and Dopuch [1965, p. 195].

> rather than by another and the difference between the events on which the two methods of making profit depend require that the two kinds of gain be carefully separated if *the two types of decision* involved are to be meaningfully evaluated. [Edwards and Bell, 1961, p. 73], (Emphasis added.)

This thesis is effectively refuted by Drake and Dopuch [1965] and Chambers [1965]. Edwards [1975] and Bell [1975] agree that holding gain and operating gain may be intertwined. We shall not repeat their arguments; the interested reader should consult the above-mentioned references.

However, two basic questions remain: (1) What are the necessary and sufficient conditions for the independence of the production and holding decisions? and (2) What is the proper dichotomy for separate evaluation of the two types of decisions?

Characterization of independence of production and holding decisions. Consider a few situations in which the operating and holding decisions are truly independent of each other. One example is that of a broker who is engaged in the business of matching suppliers and customers and derives his income from commissions. It is not *necessary* to hold inventory in order to operate such a business. Accordingly, the holding decisions of the broker are truly independent of his operating decisions, and the COP-HG dichotomy is useful for evaluating the two types of decisions.

As a second example, consider a trader who buys and sells in different markets, at least one of which is liquid. Although this trader may hold inventory as an operational necessity, he needs to do so only for relativey short periods of time. A decision to hold long or short positions of inventory for extended periods of time is independent of the operating decisions and, once again, the income dichotomy is useful for evaluating the two types of decisions.

Or consider a merchant who holds inventory "on consignment," reserving the right to renegotiate the buying price at the time of sale. The merchant does not have to buy inventory outright. Any decision to do so is clearly independent of the operations of the business. In this case also, the income dichotomy is useful for an evaluation of the two types of decisions.

What makes the operating and holding decisions independent in the above examples is the fact that, in each instance, it is possible for the firm to hold the assets without also having to bear the economic risk of specific price changes. We call the economic risk of specific price changes "holding risk" and define it as being *separable* only if it is possible for the firm to hold the asset without having to bear its holding risk.[8] We then have the following necessary and sufficient condition: Operating and asset holding decisions are independent of each other *only in those* situations where the firm's operating assets carry a separable holding risk.

Most industrial corporations engaged in merchandising or manufacturing must hold inventory and fixed assets. The holding risk of such assets is often not separable because the opportunity to shift it to someone else is simply not available. The availability of plant and equipment on long-term lease does *not* imply that the holding risk of such assets is separable, for in long-term leases, the lessee takes over substantially *all* risks

[8] Note that the definition does not require that the asset-risk actually be transferred to someone else. For this reason, the question of whether firms try to shift diversifiable risk is not relevant to income dichotomy. Incidentally, there is some evidence that firms do try to shift the diversifiable risk through insurance buying and "hedging" behavior.

associated with the assets, including the risk of changes in specific prices. Whether the holding risk of the assets of the firm is separable depends on the type of business as well as the state of development of the relevant risk markets. For example, well-developed futures markets exist in the U.S. for many commodities and currencies, and managers have the opportunity to insulate the firm against holding losses or gains on these assets without affecting its operations.[9] In such instances, a decision to bear any holding risk is a purely speculative decision, and an appropriate income dichotomy may indeed be useful in making a separate evaluation of production and holding decisions.[10]

Having identified a necessary and sufficient condition for the independence of production and holding decisions, we now address the second question: What is an appropriate breakdown of income for evaluating the two decisions separately?

In constructing the income dichotomy, we must be careful to avoid two fallacies, the fallacy of timeless production and the fallacy of decomposed attributes. Had these fallacies been clearly recognized, a considerable amount of controversy about income dichotomy could have been avoided.

The fallacy of timeless production. To assume that production or "form change" occurs in a series of timeless stages, and to conclude that all gains due to the passage of time are attributable to holding activities independent of production is to commit what we call the "fallacy of timeless production." Production, or form change, is defined only with respect to time intervals, not timeless moments. The correct assumption is that *infinitesimally small changes* in form take place in *infinitesimally small intervals* of time—not in "timeless stages." Unlike the sum of timeless moments, which is always timeless, the sum of all infinitesimally small intervals needed for the total change in form is not negligible. The correct conclusion is that the total change of form takes place in a non-negligible "production time."

The fallacy of timeless production is closely related to Zeno's paradox: Consider an arrow released from a bow. At each timeless moment after it is released, the arrow is at some place in the air but not moving, for there can be no movement in zero time; yet in the totality of all timeless moments, the arrow moves from the bow to the target. So the arrow hits the target without moving. Here again, the fallacy is that movement or position change (like production or form change) is defined only with respect to time intervals and not timeless moments. That production does not take zero time is as obvious as the fact that an arrow does not reach its target in zero time. To assume that production takes place in a series of timeless stages is to assume away the time necessarily needed for production. When it is the hole of the donut that is in question, you cannot assume it away.

The fallacy of decomposed attributes. Once the fallacy of timeless production is recognized, it is immediately obvious that a production decision has two conse-

[9] For example, a flour mill could buy spot wheat at four dollars per bushel and *fully* hedge by simultaneously selling a nine-month futures contract at $4.05 per bushel. Then the holding gain (loss) on selling the flour—as calculated according to Edwards and Bell [1961]—would be almost fully offset by the holding loss (gain) on the lifting of the hedge at the same time. The residual loss (if any) and commissions cost must be regarded as premiums which the flour mill has to pay to shift the holding risk to the speculators in the market.

[10] Note that Sterling [1970] confines his analysis to a wheat futures trader, a case very similar to the examples discussed above where assets carry a separable holding risk. Also see Nelson's remarks [1973] on Sterling's paper.

quences: change in form and holding of assets needed to effect the change in form. To regard "holding decisions" as separate from "production decisions" is to treat two attributes of a single object of choice as if each attribute were an independent object, or to treat two consequences of a single decision as if each were the outcome of an independent decision. We call this the "fallacy of decomposed attributes." Let us illustrate this fallacy by two examples.

Suppose a grocer must buy his requirements of both cheese and milk from the same dairy. Then his choice among alternative dairies constitutes only one decision, with the objects of choice, the dairies, having two attributes related to the supply of cheese and milk, respectively. It would be fallacious to argue that the grocer faces two decisions, or that his decision should be evaluated separately with respect to each item, cheese and milk.

Next, consider the variable mix problem of a manufacturer who wishes to optimize the contribution margin from two products, A and B, subject to some resource constraints. Then, each product mix decision has two consequences, the contribution margins from products A and B, respectively. But both outcomes are the result of a single decision, namely, the *simultaneous* determination of the quantities of the two products, so it would be fallacious to argue that the manufacturer faces two decisions, or that the consequences of his decision should be evaluated separately.[11]

The proper breakdown of income. The income breakdown appropriate for separate evaluation of holding and operating decisions should then be:

(1) Holding component. This includes all gains (losses) on those assets of the firm whose holding risk the firm was not obliged to carry in order to conduct its operations. More specifically, the holding component consists of the following:
   - —gains (losses) on speculative assets,
   - —carrying cost of speculative assets,
   - —gains (losses) on operating assets carrying separable risk,
   - —saving of (imputed) risk premium on the separable risk which management chose to carry instead of shifting it to someone else.

(2) Operating component. This is the complement of the holding component, as defined above.

The income dichotomy proposed by Edwards and Bell [1961] is deficient in several respects. Their "holding gain" includes the effect of specific price changes on *all* assets, whether speculative or operating, and, in the case of operating assets, whether the holding risk is separable. They do not charge the cost of carrying the speculative assets to the holding gain component. They do not take into account the (imputed) risk premium which management is able to save by choosing to carry the separable risk (on operating assets) instead of shifting it to someone else. Finally, they specifically exclude from their computation of holding gains changes in labor costs on the specious ground that the current and historical costs of labor coincide [Edwards and Bell, 1961, p. 113]. To the extent that the timing of incurring labor cost is determined largely by operating

[11] The fact that, at the optimum solution, the marginal effect of changing the quantity of each product is identifiable does not imply that the value of the objective function can be meaningfully divided between the two products.

considerations, gains on labor costs held in asset accounts are indeed a consequence of operating decisions, just as we have argued above for other operating assets. However, if, for speculative reasons, labor costs are incurred earlier or later than what is dictated by operating considerations, the related holding gains should also be excluded from the operating profits.

Separation of gains on purely speculative assets has been advocated by Gordon [1963], Drake and Dopuch [1965, fn. 18], Gossett and Newlove [1965], and Burgert [1972].[12] More recently, Petri and Minch [1974] and Bell [1975] have explored the methods of isolating purely speculative assets from operating assets. We shall not repeat the details of their procedures here. It is sufficient to note that in order to isolate the two types of holding, one must delve into management's motivations and measure their expectations, all of which renders such an analysis too subjective to fulfill the requirements of external reporting, although it may well serve the purpose of internal evaluation.

A proper accounting of the (imputed) risk premium on separable risk is an issue which has not been considered in the literature on income breakdown. Procedures for measurement of risk premium need further investigation.

Aid to Business Decisions

It has been claimed that the COP-HG income dichotomy is helpful in making business decisions because (1) COP is indicative of the long-run profitability of the firm (2) alternative production processes can be (and ought to be) ranked for their economic desirability by reference to their COP; and (3) COP is a more *stable* predictor of the long-run profitability of the firm than historical-cost profit, so that using COP for making business decisions will lead to an increased stability at both the firm and the economy level. We believe that these claims are invalid.

As indicative of long-run profitability. The claim that COP measures the *current* profitability of the production process has been shown to be based on the fallacies of timeless production and decomposed attributes. In addition, it is not clear how the premise of current proceeds covering current factor costs can support the conclusion that the firm is profitable in the long run. We show that the connection between the premise and the conclusion is either false or trivial.

Edwards and Bell [1961, p. 99] state their position as follows:

> Current operating profit can be used for predictive purposes if the existing production process and the existing conditions under which that process is carried out are expected to continue into the future; *current operating profit then indicates the amount that the firm can expect to make in each period over the long run.* The assumption that production pro-

[12] See, for example, Burgert [1972, p. 115]:

> In order to bridge the gap between the theoretically ideal situation and reality, the theory has been extended by recourse to the concept of "normal stock," that is, a stock of goods of such quantity that the company can be sure of being able to continue its production process without disturbance. Speculation occurs when real stock differs from normal stock.
>
> ... [O]nly alterations in the value of normal stock are credited or debited to the "revaluation account." Price changes on a surplus or shortage of stock give rise to profits or losses from speculation, which are entered directly in the income statement.
>
> ... It is implicitly assumed that the normal stock of a certain fixed asset, e.g., machinery, consists of a number of entirely new machines. As soon as a machine has been used for a certain period e.g., for a year, then there is a shortage of normal stock. ... In periods of rising prices, such a shortage of normal stock leads to consequences comparable with a "loss by speculation." This loss is taken as such in the income statement under "additional (make-up) depreciation."
>
> ... [T]he income statement for year 2, for instance, has to be charged with depreciation based on the replacement value at the end of that year and also for the "additional (make-up) depreciation" for year 1.

> cesses will not change is rather unrealistic, however. (Emphasis added.)

Vancil and Weil [1976, p. 58] take a similar position, using slightly different terminology:

> An important characteristic of distributable income from operations is that it is sustainable. If the world does not change, the company can maintain its physical capacity next year and have the same amount of distributable income that it had this year.

The "no change" assumption is crucial to the predictive ability or sustainability argument. Let us grant this "rather unrealistic" assumption and examine the content of the argument. Neither Edwards and Bell nor Vancil and Weil specify clearly what they mean by "continuation of existing conditions." One possible interpretation is continuation of existing technology and levels of prices and production of various goods and services. Under this interpretation there are no holding gains (see Drake and Dopuch [1965, p. 202]; current operating profit, total current value income and historical cost income are all equal, and current operating profit is therefore an empty construct. It is ironic that claims of merit for COP are based on precisely the same assumption which caused Edwards and Bell to criticize and reject historical cost accounting:

> To summarize, present accounting practices would be fully valid only if prices, quantities, and qualities of both factors and products were unchanging over time. . . . But this is a situation clearly akin to the stationary state. The certainty it implies bars by definition the very existence of profit as a return for bearing uncertainty. The implicit assumptions of accounting eliminate that which it has set out to measure! [1961, p. 9].

Alternatively, "continuation of existing conditions" may be taken to mean continuation of existing *rates of change* in technology, and in price and production-levels of goods and services. In this case, operating margins on individual goods and services will also change with time. Management will adapt to the changing circumstances by adjusting the operating plans and asset mix of the firm. In such a situation, current operating profit cannot be expected to remain stable or to change at a predictable rate *over the long run.* On the contrary, if the asset mix does not change too quickly (though it could, for instance, due to inventory liquidation), the holding gain may well be the more stable component of income when the rates of price change are constant. Thus, there is little basis for the conclusion that current operating profit will be useful for predictive purposes.

Consider now the second "more limited but realistic approach to the problem of prediction." It is claimed that, in the absence of specific expectations to the contrary, the *relative* current operating profits obtainable today from alternative production processes are indicative of relative current operating profits to be obtained in the future [Edwards and Bell, 1961, pp. 99–100]. This statement is empirically empty, for it is the logical sum of opposites; it is of the same form as, "Unless you specifically expect it not to rain, it will rain." The emptiness of the claim can be seen by noting that it extends equally to holding gains—in the absence of specific expectations to the contrary, the holding gains of this year are indicative of holding gains to be obtained in the future.

A third argument has been brought to our attention during discussions of this paper: If the firm were a monopoly or if it were to use a cost-plus pricing policy, current operating profit would be a good predictor of future income, since such pricing policy will maintain the *unit* margins. However, this argument ignores

the basic economic fact that any firm can control its product price but not the quantity demanded at that price, and, therefore, even if the cost-plus pricing policy stabilized the unit margins, the *total* margins will remain dependent on the demand. Even given evidence that firms do engage in cost-plus pricing, predictability of COP does not follow from such a policy.

Evaluation or production processes. Let us examine, with the help of a numerical illustration, how the COP-based ranking might be used to choose among alternative production processes. A firm has \$100 in cash and faces a choice between two processes, A and B, with factor-bundle A costing \$10 per unit and factor-bundle B costing \$20 per unit. Assume that each production process takes exactly one year from the date of acquisition to the date of sale of products. *Purely* speculative holding of factors or products is not allowed, and all other outlays are the same for both processes. Which production process should the firm choose?

Horngren [1972] would have us make the decision by maximizing net *contribution margin.* For example, suppose the selling prices of products A and B which are expected to prevail one year from now are, with the same uncertainty, \$15/unit and \$28/unit, respectively. Then the choice is process A. (Its contribution margin $= \frac{\$100}{\$\ 10} \times (\$15 - \$10) = \$50$ is more than the contribution margin of $\frac{\$100}{\$\ 20} \cdot (\$28 - \$20) = \$40$ for B.) Horngren also instructs us that the current selling prices of products A or B, or the one-year-from-now cost of factor-bundle A or B is totally irrelevant for this decisions.

In contrast, Edwards and Bell would have us select the production process on the basis of the difference between current selling price and current factors cost to maximize the margin between one-year-from-now selling price and the *one-year-from-now* factors cost. This solution ignores the economic purpose of the case, which is to select the process having a greater margin between the one-year-from-now selling price and factors cost of today.

Edwards and Bell state that current operating profit is a useful measure for choosing among alternative production processes for the same product except when the prices of some factors go down and those of others increase [cf. 1961, pp. 99–100]. In other words, current operating profit is not useful in the all-important case of uncorrelated price changes. But, in these limited circumstances (*i.e.*, when current operating profit is useful), the economic choice among alternative processes can be made more directly simply by minimizing current factor costs; one does not need current operating profit to make such decisions. Under other circumstances—such as those in which the alternatives involve different products, uncorrelated price movements of products and factors of production, unequal production durations, unequal plant lives, and varying degrees of monopoly and monopsony—there is no guarantee that the production process presently yielding a larger current operating profit will also yield a larger current operating profit in the future. Indeed, Edwards [1977] agrees that expansion decisions should be made on the basis of *total* current income and not on COP.

In short, it is economically unsound to rank the processes by current operating profits, except in very special situations; and in these special situations, the ranking can be obtained more directly by using cost data.

Stability of current operating profit. Finally, consider the claims that (1) current operating profit is more stable than the reported accounting profit (*i.e.*, total income under historical cost valuation) and (2) "to the extent that operating activities [as opposed to holding activities] are fundamental to business activities, the stability of current operating profit relative to accounting (operating) profit would be likely to have a stabilizing effect on business decisions and on the economy as a whole" [Edwards and Bell, 1961, p. 229].

Edwards and Bell [1961, Table 13, p. 228; and Figure 8, p. 230] present estimates of current operating profit (COP) and historical cost profit (HCP) for the U.S. corporate sector for the years 1929–1949. From these data they conclude that the reported accounting profit *grossly exaggerates* both the magnitude and timing of fluctuations in current operating profit. Tables 1 and 2 present a summary of our statistical analysis of those data, as well as of the more up-to-date series for the years 1929–1974. Based on this analysis, we conclude that:

(1) The variability (measured by the coefficient of variation) of HCP and COP is almost equal. The coefficient of variation for one-period changes in COP is slightly higher than for the corresponding changes in HCP. The data do not support Edwards and Bell's assertion that the HCP "grossly exaggerates" the variability of COP.

(2) The correlation analysis presented in Table 2 confirms Edwards and Bell's observation that COP lagged behind HCP during 1929–1949. The implication of this observation, not mentioned by Edwards and Bell, is that the HCP of the previous period is a better instrument for predicting COP than the COP of the previous period. However, for the 1929–1974 data there is practically no difference in the predictive ability of COP and HCP.

(3) For 1929–1949, one-period change in HCP predicts the next year's change in COP better (correlation 0.77) than the change in COP predicts the change in COP (correlation 0.47). If COP is regarded as the object of prediction, HCP was clearly a better predictive instrument in the years 1929–1949, contrary to what Edwards and Bell conclude from those data. However, over the 46 years considered (1929–1974), changes in COP and HCP possess little predictive power (as can be seen in the data in the last four rows of Table 2).[13]

The above analysis should not be construed as advocating the use of historical cost accounting. It simply demonstrates that the income dichotomy and current operating profit fail to show the virtues of stability and predictive ability claimed for them.

Consider now the remaining part of the argument, that is, to the extent that operating activities (as opposed to holding activities) are fundamental to business activities, the use of COP for business decisions is likely to have a stabilizing effect at both the firm and the economy level. The stability of dynamic systems requires careful mathematical analysis and often defies intuitive reasoning. Furthermore, stability is a systemic property—it would be naive to believe that a complex system such as the U.S. economy is likely to become more stable if total business income, a variable endogenous to the system, were dichotomized into two components, one of which

[13] For analysis at individual firm level, see Frank [1969]. Simulation studies such as Greenball's [1968a and 1968b] and Simmons and Gray [1969] only tell us the characteristics of what the model assumes. The predictive ability issue is not to be settled by reference to simulations, but by reference to the real world whose events we wish to predict.

TABLE 1

VARIABILITY OF CURRENT OPERATING PROFIT (COP), HISTORICAL COST PROFIT (HCP) AND THEIR FIRST DIFFERENCES (ΔCOP, ΔHCP)
(in billions of dollars)

	COP		HCP		ΔCOP		ΔHCP	
	1929–49	1929–74	1929–49	1929–74	1929–49	1929–74	1929–49	1929–74
Standard Deviation	9.9	29.9	11.6	32.6	3.5	5.6	3.8	6.6
Mean	11.4	37.9	13.3	41.2	1.1	1.8	1.3	2.7
Coefficient of Variation	0.87	0.79	0.87	0.79	3.18	3.11	2.92	2.44

Sources and Notes: The data have been taken from *The National Income and Product Accounts of the U.S. 1929–74. Statistical Tables, Supplement to the Survey of Current Business*, U.S. Bureau of Economic Analysis, U.S. Department of Commerce, 1977. COP is "Corporate Profits with Inventory Valuation and Capital Consumption Adjustments" given in Table 6.18 of the source; HCP is "Corporate Profits Before Taxes," given in Table 6.18 of the same source. The data for 1929–49 used by Edwards and Bell [1961] have since been revised, but the results of the analysis for the unrevised data are the same as those shown above in all essential respects.

TABLE 2

PREDICTIVE ABILITY OF CURRENT OPERATING PROFIT (COP), HISTORICAL COST PROFIT (HCP), AND THEIR FIRST DIFFERENCES (ΔCOP, ΔHCP)*

	Simple Regression Model							
	Product Moment Correlation		*Root Mean² Difference*		*Standard Error of Residuals*		*R-Square*	
Levels of Variables	1929–49	1929–74	1929–49	1929–74	1929–49	1929–74	1929–49	1929–74
HCP_t as a predictor of COP_t	0.98	0.98	2.8	6.7	2.1	5.9	0.96	0.96
COP_t as a predictor of HCP_t	0.98	0.98	2.8	6.7	2.5	6.5	0.96	0.96
HCP_{t-1} as a predictor of HCP_t	0.94	0.98	4.1	6.6	4.2	6.3	0.88	0.96
HCP_{t-1} as a predictor of COP_t	0.97	0.97	2.9	6.9	2.6	7.0	0.94	0.95
COP_{t-1} as a predictor of COP_t	0.94	0.98	3.6	5.6	3.7	5.7	0.88	0.96
COP_{t-1} as a predictor of HCP_t	0.88	0.97	5.6	8.1	5.7	7.8	0.78	0.94
First Differences of Variables								
ΔHCP_t as a predictor of ΔCOP_t	0.78	0.73	2.4	4.6	2.2	3.9	0.64	0.54
ΔCOP_t as a predictor of ΔHCP_t	0.78	0.73	2.4	4.6	2.5	4.5	0.64	0.54
ΔHCP_{t-1} as a predictor of ΔHCP_t	0.32	0.22	4.5	8.1	3.8	6.5	0.10	0.05
ΔHCP_{t-1} as a predictor of ΔCOP_t	0.77	0.01	2.5	8.5	2.3	5.7	0.60	0.00
ΔCOP_{t-1} as a predictor of ΔCOP_t	0.47	0.10	3.7	7.5	3.2	5.7	0.22	0.01
ΔCOP_{t-1} as a predictor of ΔHCP_t	−0.03	0.16	5.4	7.8	4.0	6.5	0.00	0.02

* For sources and definitions of data, see footnote in Table 1.

is relatively stable, and business decisions were then based on the more stable component. Also, it is not clear why management, in its quest for enhancement of the firm's net wealth, should ignore the holding gain component of profit in making its decisions. In any case, the preceding analysis of aggregate data did not reveal any significant difference between the variability of the current operating profit and the historical cost profit.

We shall briefly discuss five defects in the arguments relating to the predictive

ability of COP. First, since the process of enhancement of net wealth of the firm (*i.e.*, the "earnings process") is not captured in the firm's current operating profit series, but is captured in its total (current-value) business income series, the interesting questions are how well *business income* predicts itself, and whether current operating profit or some other construct enables us to predict business income better.

Second, it is fallacious to argue in favor of a dichotomy of income on the grounds that one of the components is more stable over time and predicts *itself* better. If this were the purpose of dichotomizing income, it could easily be accomplished by taking any arbitrary constant for one component of income and allowing the residual component to carry all the variability of business income. What makes a measure useful and theoretically significant is not whether it can predict itself, but the relationship it has to other measures and concepts, or its ability to predict values of other constructs which might be of substantive interest.[14] The case for income dichotomy must rest either on the merits of COP and HG as concepts of substantive interest in their own right or on their ability to predict values of other constructs of substantive interest. The COP-HG dichotomy fails on both these counts.

Third, there is an inherent contradiction in the arguments claiming predictive ability and long-run stability of current operating profit on one hand, and rejection of exit prices for valuation on the other. The uncertainty about whether and at what price the firm can sell its products to realize the operating margin is the basic justification for retaining the sales realization principle. If current operating profit is as stable as the proponents of the stability and predictive ability of COP would have us believe, why should one wait until the actual sale to count the current margin as part of income?

Fourth, the predictive ability argument for income dichotomy all but explicitly assumes that the temporal changes in prices of goods which lead to holding gains are somehow transient and unpredictable, while current operating margins are stable and predictable. In introducing income dichotomization, Edwards and Bell state,

> . . . the final profit reported according to present accounting procedures will be partly a result of holding activities and only partly a result of operating activity. The apparently favorable result of the production decision may lead the firm to make similar production decisions for the future. In this case, however, price changes may not occur, and gains from holding activities will not inflate reported operating profit. [1061, p. 74.]

This is too simplistic a characterization of the business environment. What guarantee can there be that the anticipated current operating profit will be realized?

Finally, predictive ability arguments overlook the economic mechanism underlying the market economy. Continual changes in the gross margins available to merchandisers and manufacturers constitute the fundamental mechanism of a free market for allocating productive resources. If management is unable to exercise some (monopoly) power over its product prices, it strives to increase its margin by technological innovation or by leaving the markets with tight margins and expanding into markets with better margins, this interindustry mobility being governed by technological considerations. Thus, *current operating profit is not a property of the production process*; rather *it is an outcome of the decisions of*

[14] Also see Revsine [1973, p. 131] on this issue.

management in an interactive environment. The outcome may well be different from the one contemplated by management at the time the production decision is taken. The cobweb model of business cycles, the maturation delay of orange orchards leading to a ten-year cycle in the orange industry, and the gestation and growth period of hogs leading to a three-year cycle in the pork-belly business are examples of how management decisions of today, based on today's lucrative operating margins, can lay the grounds for a reduction of the operating margins of tomorrow when the goods in the pipeline become available.

In summary, there seems to be no foundation to the claim that COP can aid in making business decisions.

Physical Capital Maintenance and COP

Those who favor physical capital maintenance as the basis of measuring wealth have argued that COP is income itself and not merely a component of total income. COP has been referred to as distributable or sustainable income on the grounds that it is the amount which the firm can didtribute without impairing its physical capital.[15] A discussion of these arguments will take us deeper into the controversies surrounding valuation of assets, an issue we would like to avoid, restricting the present paper to the income dichotomy only.

The essence of the arguments against using the physical capital maintenance notion is that if the firm is viewed as a source of cash by its owners, its wealth should be measured and its income should be evaluated in terms of dollars, and not in terms of physical capital. The reader should consult the available well-known references for details.[16] We have only one comment to add.

The appeal of COP as the income allowing for physical capital maintenance makes sense in the context of national income and product accounting. For the economy as a whole, it is indeed proper to remove the effects of specific price changes in the calculation of total product or, symmetrically, total income, because specific price changes merely give rise to internal redistributions of wealth among economic agents. But, it seems to us, that at the level of individual economic agents (such as the firm), it does *not* make sense to calculate income using concepts such as physical capital maintenance, which ignore the redistributive effects of specific price changes.

[15] This use of concept goes back to TheodoreLimperg [1964, Part VI. p. 282, cited in Burgert [1972]] who called it "consumable income." Revsine [1973] uses "distributable operating flow" in several different meanings —as *ex ante* current value income [pp. 96–97], income under physical capacity maintenance rule [pp. 34, 97, 126], and current operating profit [p. 99]. More recently, Vancil and Weil [1976] have used the term "distributable or sustainable income," by which they clearly mean exactly the same as current operating profit. They prefer the term simply because it is more descriptive of their *normative* recommendation that COP should be viewed as distributable to the shareholders and the tax collector.

[16] In discussions of valuation problems, many references to "economic income" appeal to the authority of Hicks, leaving the impression (1) that there is consensus among economists on the definition of income, and (2) that Hicks himself settles on a clear statement of that definition. This is far from true. In fact, after a penetrating examination of the notions of income, savings, and depreciation, Hicks [1946, p. 171] arrives at the following conclusion:

> In spite of their familiarity, I do not believe they are suitable tools for any analysis which aims at logical precision. There is far too much equivocation in their meaning, equivocation which cannot be removed by most painstaking effort. At bottom, they are not logical categories at all; they are rough approximations. . . . But if we try to work with terms of this sort in the investigation we are here concerned with, we are putting upon them a weight of refinement they cannot bear.

A detailed discussion of the problem of defining income will take us too far from the main thrust of this paper. For an excellent discussion of the issues involved, see Sidney Alexander's "Income Measurement in a Dynamic Economy," in Alexander *et al.* [1950], Dopuch [1961, pp. 21–32] and Edwards [1961].

The income due to the redistributive effect of price changes is as far from being "illusory" as that due to the production activity itself. To view COP alone as the "true profit" of the firm is to confound the basis of national income and product accounts with that of firm-level accounts.

Interperiod and Interfirm Comparisons

We have already shown that unless the holding risk of the operating assets is separable, the holding gain on all assets necessary for the implementation of operating decisions is as much a consequence of the operating decisions as is the COP. The appropriate basis for making interperiod and interfirm comparisons of operating decisions is the operating component defined earlier in this paper.

Edwards and Bell have argued in favor of using current operating profit for interperiod and interfirm comparisons of efficiency. They present the following example of the usefulness of current operating profit for this purpose:

> A wise management enters an industry at a time when the necessary assets can be purchased at exceedingly favorable prices. As time passes, other firms enter the industry purchasing their assets at substantially higher prices. If all firms now in the industry are equally efficient in their operating activities, the first firm will record a substantially larger "operating profit" than the other firms in the industry. After all, the depreciation charges of the first firm are substantially lower in terms of historic cost than are those for the newer firms in the industry. But this excess does not result from the wisdom with which the management operates its assets; it is the result of the wisdom which the management displayed at the time it purchased the assets and in its many subsequent (perhaps passive) decisions to hold the asset. [Edwards and Bell, p. 224.]

Thus far, we have a straightforward argument in favor of current valuation instead of historical cost as the basis for accounting. Current valuation, it will be recalled, depends solely on the current state of the firm, irrespective of the history of events by which the firm arrives at that state. Accordingly, the business income of any period includes the effect of all economic events, and *only* those economic events, which transpire during the period. However, Edwards and Bell [1961] proceed to justify the dichotomy of business income:

> Suppose for example that the firm's managerial efficiency had deteriorated over time to the point where its reported operating profit was identical to that of the other firms in the industry. The inefficiency of the firm's operating activities would now be disguised by the gains realized through its holding activities. [p. 224.]

But the above is a *non sequitur* as far as the income dichotomy is concerned. In the above example, it is true that the inefficiency of the firm is disguised by the historical-cost income because holding gains which occurred in the earlier period are recognized in the present period. The correct conclusion is that all holding gains that occurred *in earlier periods* should be excluded from this period's profits. It does not follow that *all* holding gains, *i.e.*, holding gains of earlier periods *as well as of the current period*, should be excluded from this period's profit. The inefficiency of the firm in the example will be indicated by the firm's (current value basis) business income; it would be incorrect to base the comparison on current operating profit.

Drake and Dopuch [1965] argue that current operating profit is of limited use in comparing performance, primarily because valuation of each fixed asset requires the use of some specific price index. But the problem with the COP as a basis of performance comparisons is far more serious than the inaccuracy resulting from the use of specific price indexes

instead of specific prices. In the absence of price changes, holding gain is zero and COP is identical to historical cost profit and business income. In the presence of price changes we have already shown that COP provides an incorrect basis of comparison. It is business income and not current operating profit which traces the progress of the firm as an earnings process; and, to be meaningful, comparisons of operating performance should be based on total business income less net gains on assets held for *purely speculative* reasons, with no distinction to be made for this purpose between inventories and fixed assets. *Only when* the holding risk of the assets held for production is separable should the holding gain on such assets be excluded in making operating comparisons. The appropriate breakdown to be used has already been presented.

Income Dichotomy and Taxation

Taxation is a matter of public policy, and tax laws cannot be seriously regarded as a basis for a theory of income, although a theory of income may form the basis for tax laws. The fact that, in the U.S. under the present tax law, taxable amount is called "taxable income" and capital gains and operating profits are treated differently is no justification for a theory of income in which income is broken down so that all holding gains are reckoned together regardless of whether they arise from *speculative* holding of assets or *productive* holding of assets.

The fairness of the tax system is a distribution issue, and no tax policy can be wholly neutral in its impact upon those concerned. To argue that a tax system based on current operating profit would be fairer than one based on, say, (current-value) business income requires an implicit assumption of what constitues fairness. In the COP-based tax system, those who enhance their net wealth through appreciation of asset values will escape taxation (wholely or partly) at the expense of those who gain economic wealth through productive transformations. So, the tax system will certainly not be *neutral* in its distributive effects.

In a recent paper, Edwards [1977] has shown that a tax system based on business income with no distinction between COP and HG is expansion-neutral in the sense that it does not affect the choice of the expansion path. As a matter of public policy, the government may or may not choose an expansion-neutral tax system. Financial accountants, whose job it is to serve the diverse needs of the society for business data, have little justification for jumping into the arena of macroeconomic policy making by trying to help pro-expansion or anti-expansion legislation.

Will a COP-based tax system result in lower taxes for the business sector? There is some evidence that the answer is not necessarily yes [Davidson and Weil, 1978]. In any case, the question has, at best, limited relevance to accounting theory. Taxation is an integral part of a country's fiscal policy. If the tax laws were revised to become COP-based for *all* businesses, then surely tax rates would also need to be adjusted in order to collect for the state a total tax revenue of about the same magnitude as that collected under existing laws. Unless the tax laws grant relief to one sector of the economy at the expense of another, tax advantages gained by changing the basis of taxation are largely redistributive within the particular sector. Whether the dichotomization of income will prove to be a useful device for persuading Congress to transfer the tax burden from the business to the household sector is not an issue of accounting theory and should

probably be relegated to those concerned with lobbying and public relations.

Additional Disclosure

A final argument for an income dichotomy is that the information available under the dichotomy can be no less than the information provided by a single number, and, hence, there can be no disadvantage in reporting the details, for a user can always choose to ignore them. There are three objections to this argument.

First, as we show in Section 4, there are several ways of breaking down income, with corresponding interpretations of the components. The choice of one breakdown over all others must have some rational basis. The reasons advocated for the COP-HG dichotomy have been shown, on close and careful examination, to be indefensible.

Second, the argument that more detail means more information does not have a stopping rule—where do we stop in our pursuit of detail?

And, third, there is an asymmetry in the situation as seen from the information sender's viewpoint compared to the recipient's viewpoint. If the information sender were to disclose more detail than desired by the recipient, then the *sender's* argument would, indeed, be valid that extra detail does not subtract anything from the more condensed information—assuming that the sender also supplies the condensed version, thus avoiding the imposition of an information-processing burden on the recipient. But, if it is the recipient who demands more detail—and the COP-HG income dichotomy must be viewed from this perspective—then the *recipient* cannot support the argument that more detail is no worse than condensed information. The burden is on the recipient to show that the benefits of details desired by him outweigh the cost of making the details available.

Section 3

Cost of Dichotomizing Income

In this section, we address the question of the cost of dichotomizing income. The proposition that the costs must be justified by the corresponding benefits can hardly be disputed. In Section 2, we examined the benefits usually attributed to the income dichotomy and found little direct empirical evidence or valid reasoning to support such claims. Are the costs of income dichotomy sufficiently small to be ignored?

The crucial issue here is what constitutes cost. Considered narrowly, the cost of income dichotomy is simply the incremental cost of compiling and reporting such information. This cost is probably small relative to the cost of the accounting system. But it could be sizable in absolute magnitude and, so, should not be summarily dismissed.

Considered more broadly, the cost of income dichotomy should include losses that may arise due to both information *use* and information *inductance*. Use of dichotomized income as advocated by its proponents could lead to suboptimal decisions by investors as well as managers. We have already argued that investment decisions should not be based on COP, for it is the total (current value) business income that measures the enhancement of the firm's wealth. If we turn now to management decisions, it is questionable in the first place how much control management can exercise over the COP and HG components separately. The effect of the dichotomy is to segment the target variable, income, by reference to factor costs at the time of sale, and management has little control over these costs. In the second place, most asset

holding is an integral part of the operating plan, so the COP and HG components do not represent outcomes of independent decisions. An attempt to manage the two components separately, when in fact they are interdependent, can only lead to suboptimal planning, decision making, and control. The problem is analogous to the well-known problem of control in decentralized organizations.

There is another side to the consequences of income dichotomy in addition to the one related to its use. This is the side related to information inductance [Prakash and Rappaport, 1977]. The information issuer's own decision-making behavior may be affected by the information he is *required* to communicate. Inductance arises not because the issuer uses the information, but because he is concerned about how it might be used by the recipient and how such use might in turn affect him. Accordingly, the issuer alters his behavior or the description of his behavior to produce information closer to what he *believes* it ought to be. For instance, in the firm, the internal evaluation of managers, their compensation, bonuses, and perquisites, may all be tied to criteria based on measures generated by financial accounting. To managers, then, financial accounting rules are indeed "scoring" rules, and there is nothing irrational about their changing the operating and investment decisions to suit the scoring rules.

If financial information were to relate to inanimate objects, or to human beings who did not know that they were being measured or evaluated, there would be no information inductance. One could then accept the dictum that more detail obtained at zero cost of collection and communication can cause no harm, for the user of information can always choose to ignore the detail. This is the essence of the fineness theorem of Blackwell [1953]. But the dictum is not applicable to external accounting, where a human organization is *required* to communicate to external users some information relating to its own performance. If the firm were required to report income in a dichotomized manner, pressures would build for management to believe that it ought to control each component of business income separately. As stated earlier, exercising separate control on each component can only enhance the possibility of suboptimization of the total business income.

For the above reasons, the question of whether the COP-HG income dichotomy is useful must first be answered with a categorial "yes" before the dichotomy can be regarded as a viable alternative. And, in judging the desirability of dichotomized income, one must look at the problem from both sides, the user and the issuer of information, the use and inductance. We find the proposed income dichotomy undesirable on both counts.

Section 4

Alternative Income Dichotomies

In this section, we illustrate the arbitrariness of the COP-HG income dichotomy by constructing an alternative dichotomy and showing that the alternative is as descriptively valid, as feasible, and as defensible (or indefensible) as the COP-HG dichotomy.

Consider a merchandising operation, purchasing goods at time 1 when the purchase price is P_1 and the sale price is S_1, and selling them at time 2 when the prevailing purchase price is P_2 and the sale price is S_2. To keep the exposition simple, assume zero beginning and ending inventories. Then the firm's historical cost profit, business income (in the sense of Edwards and Bell), and exit value income (in the sense of Chambers) are all equal and can be referred to simply as

"total income (TI)." This assumption serves to avoid any confusion between the attributes of valuation rules and income dichotomy. The following "holding gains" and "operating margins" can be constructed.

Holding gain on purchase price

$$\text{HPG} = P_2 - P$$

Holding gain on selling price

$$\text{HGS} = S_2 - S_1$$

Holding gain on operating margin

$$\text{HGOM} = (S_2 - P_2) - (S_1 - P_1)$$

Operating margin at purchase

$$\text{OMP} = S_1 - P_1$$

Operating margin at sale

$$\text{OMS} = S_2 - P_2$$

Operating margin "hybrid"

$$\text{OMH} = S_1 - P_2$$

Contribution margin or Total income

$$\text{CM or TI} = S_2 - P_1$$

In the COP-HG dichotomy, total income is broken down by inserting the purchase price P_2 prevailing at the time of sale in the following manner:

$$\text{TI} = (S_2 - P_2) + (P_2 - P_1). \quad (1)$$

A symmetrical dichotomy is obtained if, instead of inserting the purchase price at the time of sale, we insert in the expression for total income the *sale price* S_1 *at the time of purchase:*

$$\text{TI} = (S_2 - S_1) + (S_1 - P_1). \quad (2)$$

Before proceeding further, let us check the descriptive validity of the alternative dichotomy, $(S_2 - P_1)$ is the operating margin at the time that management makes the decision to commit resources to implement a particular operating decision; $(S_1 - S_1)$ is the gain or loss that comes about due to the fact that the economic circumstances are different at the actual time of sale. Also note that the alternative dichotomy is feasible. For products with established markets, the sequence of selling prices can easily be traced, and S_1 is readily available. For products introduced into the market for the first time, there are some problems of implementation, problems which are not unlike the ones which arise in the case of the COP-HG dichotomy when complete markets do not exist for factors of production.

Let us now consider briefly whether it is possible to make a case for the usefulness of the alternative dichotomy. Certainly, the operating margin at the time of purchase is much closer to the operating decision than the margin realized at the time of sale. The operating margin at the time of purchase can be "controlled" by management for example, by choosing to enter or not to enter the market. In contrast, operating margin at the time of sale *cannot* be controlled by management. Further, it is often claimed that today's operating margins are the numbers to be used both for evaluating alternative production processes and taking future decisions. (Of course, we have argued against this position, but let us see where it takes us.) Since information concerning expectational errors is essential for improving the decision-making process, it seems quite reasonable that the business income of the firm be dichotomized into components, (1) operating margin at the time of making the operating decisions, and (2) the (residual) holding gain on sales, representing the change in selling price during the time required for production.

This alternative dichotomy even has the virtue that the two components are independent of each other. The holding

gain on sales represents the effectiveness of management in foreseeing where the selling prices are headed in the future (and in exercising monopoly power if it exists). To be sure, a negative holding gain on sales is not to be construed as necessarily bad, for management might have anticipated it and taken it into consideration while making the operating decisions. However, if the current-value-basis rate of return (*i.e.*, business income as a proportion of net wealth) were to fall below some norm, then a negative holding gain clearly would indicate mistaken expectations. Thus the alternative income dichotomy is quite useful for (comparative) evaluation of firms, especially in conjunction with the information contained in the total business income.

Finally, note that the total income $(S_2 - P_1)$ can be expressed in terms of any of the other *three* operating margins by appropriately using two of the three holding gains defined earlier:

$$\underset{\text{TI}}{(S_2 - P_1)} = \underset{\text{OMP}}{(S_1 - P_1)} + \underset{\text{HGOM}}{\{(S_2 - P_2) - (S_1 - P_1)\}} + \underset{\text{HGP}}{(P_2 - P_1)} \tag{3}$$

$$= \underset{\text{OMS}}{(S_2 - P_2)} - \underset{\text{HGOM}}{\{(S_2 - P_2) - (S_1 - P_1)\}} + \underset{\text{HGS}}{(S_2 - S_1)} \tag{4}$$

$$= \underset{\text{OMH}}{(S_1 - P_2)} + \underset{\text{HGP}}{(P_2 - P_1)} + \underset{\text{HGS}}{(S_2 - S_1)}. \tag{5}$$

A simple examination of (3) and (4) shows that, for each, if the middle term HGOM (=holding gain on operating margin) were merged with the corresponding "operating margin" term on its left, we would get one of the dichotomies under discussion, and if the middle term were merged with the term on the right, we would get the other. We cannot think of any convincing reason why the middle term should be merged with the term on one side rather than with the term on the other side, or, for that matter, why it should not be left as a trichotomy. Can any one trichotomy be defended?

Section 5

Summary: The Case Against the Income Dichotomy

The COP-HG income dichotomy is commonly acclaimed to have several benefits. It is now well understood in the literature that the operating and holding activities of the firm, whose outcomes COP and HG purport to measure, are in general not independent activities. We have shown that for the two activities to be independent, it is necessary and sufficient that the holding risks of the firm's assets be *separable*; that is, it should be possible for the firm to hold the assets without also having to carry the economic risk of specific price changes. It is fallacious to argue independence of the two activities by assuming timeless production. Furthermore, when the two activities are not independent, it is fallacious to argue that it is possible meaningfully to disaggregate the outcomes of what is clearly a joint decision.

When the holding risk of the firm's assets is separable, the management is indeed free to choose whether to carry the risk independently of the operating decision to hold the assets. The proper income dichotomy in such cases is not the one proposed by Edwards and Bell. Instead, the (imputed) risk premium which the management is able to save by choosing to carry the separable risk should be

charged against the current operating profit and credited to the holding gain. Ideally, a distinction also should be drawn between assets held for purely speculative reasons and those held for operating reasons. And, in all of the above, changes in the labor cost should be treated no differently from those for other factors of production, and should not be excluded from the computation of holding gains as suggested by Edwards and Bell.

For the case when the asset risk is not separable, we examined the claimed benefits and possible costs of the COP-HG dichotomy. First, in regard to benefits, we showed that there is no valid reason or empirical evidence to support the claim that COP is a better indicator of the long-run profitability of the firm than the total current value income, that COP is the appropriate index for ranking the production processes according to their economic desirability, or that COP is a more stable predictor of the long-run profitability of the firm than the historical cost profit. For this reason, COP is not valuable in making interperiod or interfirm comparisons. The appeal of COP as the income which allows for physical capital maintenance is of no consequence if the focus is on the firm and not on the national economy. Specific price changes are significant in accounting for the firm, because a change in wealth due to the redistributive effects of price changes is as far from being "illusory" as is a change in wealth due to production activity itself. Some have argued in favor of the dichotomy on the grounds that, for purposes of taxation, it is desirable to have a disaggregation of the total wealth change into that due to the redistributive effects of specific price changes and that due to production activity. But, surely, taxation cannot provide a justification for a theory of income or its breakdown for purposes of financial reporting.

Turning to the cost of the dichotomy, we argued that the cost must include not only the incremental cost of compiling and reporting the dichotomy, but also the loss associated with suboptimal decision behavior that may result from the use of the dichotomized information, as well as from the inductance effects on management due to a required reporting of the dichotomy. The claim that there is no consequential cost attached to reporting the dichotomy because the recipient of information can always choose to ignore it is false. This claim (and its associated mathematical proof) is based on the assumption that alternative information requirements will have no inductance effect on the issuers of information—an assumption that cannot be defended in the case of financial reporting.

Finally, we showed the arbitrariness of the COP-HG dichotomy by dichotomizing income in an alternative way: (1) operating margin at the time of purchase and (2) the holding gain on the sale price. We showed that this second dichotomy is as descriptively valid, feasible, and defensible (or indefensible) as the COP-HG dichotomy.

In closing, it should be noted that descriptive validity and feasibility of implementation, while necessary, are not sufficient in themselves to recommend the adoption of any particular scheme for financial reporting. Financial accounting is a pragmatic activity; and the merits of suggested accounting procedures need to be judged on the basis of their usefulness commensurate with their cost. It is this acid test that the COP-HG dichotomy fails.

REFERENCES

Alexander, Sidney S, Martin Bronfenbrenner, Solomon Fabricant, and Clark Warburton, *Five Monographs on Business Income* (American Institute of [Certified Public] Accountants, 1950).

Bell, Philip W., "Optimizing Inventory Acquisition and Holding Policy in the Face of Price Changes," in *Collected Papers of the American Accounting Association's Annual Meeting* (Tucson, August 10–20, 1975), pp. 435–451.

Burgert, R., "Reservations about 'Replacement Value' Accounting in the Netherlands," *Abacus* (December, 1972), pp. 111–126.

Blackwell, D., "Equivalent Comparisons of Experiments," *Annals of Mathematical Studies No. 24* (1953), pp. 265–272.

Chambers, Raymond J., "Edwards and Bell on Business Income," THE ACCOUNTING REVIEW (October, 1965), pp. 731–741.

Davidson, Sidney, and Roman Weil, "Income Tax Applications of Various Forms of Accounting for Changing Prices," Proceedings of the Conference on Accounting for Changes in General and Specific Prices: Empirical Research and Public Policy Issues, 1978.

Dopuch, Nicholas, "Toward a Theory of Information Processing in Corporate Reporting—A Proposal for Supplementary Data in the Annual Report," Unpublished doctoral dissertation, University of Illinois, 1961.

Drake, David F., and Nicholas Dopuch, "On the Case for Dichotomizing Income," *Journal of Accounting Research* (Autumn 1965), pp. 192–205.

Edwards, Edgar O., "Depreciation and the Maintenance of Real Capital," in J. L. Meij, ed., *Depreciation and Replacement Policy*. (North Holland, 1961), pp. 46–136.

———, "The State of Current Value Accounting," THE ACCOUNTING REVIEW (April, 1975), pp. 235–245.

———, "The Primacy of Accounting Income in Decisions on Expansion: An Exercise in Arithmetic," in Cees van Dam, editor, *Trends in Managerial and Financial Accounting, Income Determination and Financial Reporting* (Martinus Nijhoff, 1977).

Edwards, Edgar O., and Philip W. Bell, *The Theory and Measurement of Business Income* (University of California Press, 1961).

Frank, Werner, "A Study of the Predictive Significance of Two Income Measures," *Journal of Accounting Research*, (Spring 1969), pp. 123–136.

Gordon, Myron, "Toward A Theory of Responsibility Accounting Systems," *N.A.A. Bulletin* (December, 1963), pp. 3–9.

Gossett, Thomas E., and G. H. Newlove, "Inventory Gains and Losses," *Management Services*, (July–August, 1965), pp. 52–56.

Greenball, Melvin N., "The Accuracy of Different Methods of Accounting for Earnings—A Simulation Approach," *Journal of Accounting Research*, (Spring, 1968), pp. 114–149.

———, "Evaluation of the Usefulness to Investors of Different Accounting Estimates of Earnings: A Simulation Approach," *Empirical Studies in Accounting: Selected Studies 1968*. Supplement to *Journal of Accounting Research*, pp. 27–49.

Hicks, J. R., *Value and Capital*, 2nd Edition, (Oxford University Press, 1946).

Horngren, Charles T., *Cost Accounting*, 3rd Edition, (Prentice-Hall, 1972).

Nelson, Carl L., "A Priori Research in Accounting," in *Accounting Research, 1960–1970: A Critical Evaluation*, edited by N. Dopuch and L. Revsine, (University of Illinois, 1973).

Paton, William A. (1918), "The Significance and Treatment of Appreciation in the Accounts," reprinted in Stephen A. Zeff, ed., *Asset Appreciation, Business Income and Price-Level Accounting: 1918–1935* (Arno Press, 1976).

Petri, Enrico and Roland Minch, "Evaluation of Resource Acquisition Decisions by the Partitioning of Holding Activity," THE ACCOUNTING REVIEW (July 1974), pp. 455–464.

Prakash, Prem and Alfred Rappaport, "Information Inductance and Its Significance for Accounting," *Accounting, Organizations and Society*, Vol. 2, No. 1 (1977), pp. 29–38.

Revsine, Lawrence, *Replacement Cost Accounting*, (Prentice-Hall, 1973).

Schmidt, F., *Die organische Tageswertblanz* (3rd Edition, Gloeckner, 1929).

Simmons, John K., and Jack Gray, "An Investigation of the Effects of Differing Accounting Frameworks on the Prediction of Net Income," THE ACCOUNTING REVIEW (October, 1969), pp. 757–776.

Sterling, Robert R., *Theory of the Measurement of Enterprise Income* (University Press of Kansas, 1970).

Vancil, Richard F., and Roman L. Weil, "Current Replacement Cost Accounting, Depreciable Assets, and Distributable Income," in *Replacement Cost Accounting: Readings on Concepts, Uses & Methods* (Thomas Horton and Daughters, 1976).

Zeff, Stephen A., "Editor's Introduction," in Stephen A. Zeff, ed., *Asset Appreciation, Business Income and Price-Level Accounting: 1918–1935* (Arno Press, 1976).