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DISCUSSION OF PRECEDING PAPER

EDWARD W. MARSHALL:

Mr. Gelles has presented an able and useful paper on Cost Analysis and we are much indebted to him. He mentions three types of cost allocation: (1) Statement Cost, which allocates a fair proportionate share of expenses to the given line of business, (2) Standard Cost which sets up the cost on a proposed standard of efficient operation, and (3) Added Cost which includes only the actual amount of increase in company expenses by reason of entry into the given line of business.

I am particularly interested in this Added Cost approach because, in the life insurance business over the years, I have seen it used as the basis for fallacious reasoning in connection with a proposed course of action. My remarks do not relate in any way to Mr. Gelles' excellent presentation or his conclusions.

In my experience, here is the way the Added Cost approach is sometimes used as an argument for accepting a certain type or entering a given line of business. A going company already has its organization, its home office building, its executive staff and equipment. Even if the new line of business or venture were not undertaken, nevertheless the Company would still have that same overhead expense. Thus the new line would involve but a slight extra cost for a few clerks, a few records and a small amount of added overhead expense. Therefore, the argument concludes, a company need only charge this new line with the *extra* or Added Cost which would be involved, instead of its whole proportionate share.

This is sometimes a very persuasive thought, particularly if the new activity is something which seems desirable. But the argument has a fundamental fallacy. If this new line of business should have these relatively lower costs permanently assigned to it, why should we not assign lower costs to all future new business of every kind, life insurance or otherwise? After all, the new insurance issues of 1953 by themselves would cause very little *added* overhead expense beyond that now incurred by a company. Then why not charge lower premiums or accept an extra cost from some other direction, on the new insurance?

Similarly we might use the same reasoning as to the following year's issues and the next year's issues, etc.

The obvious fallacy is that, some day, the present outstanding business, which is now supporting the present overhead expense, will be greatly reduced and ultimately will disappear. What business then would bear the overhead expense which still would go on? Quite clearly the business to which we assigned only the Added Cost would duly pay at least its share of the *full cost* after all.

The same reasoning seems to hold for new lines of business as well as for new insurance. Over the years, to preserve equity in a mutual company with participating policies, and to avoid possible premium inadequacies in any company, I believe we should allocate overhead expense as nearly as possible in a truly proportionate manner between the various classes and lines of business.

One of the many virtues of new business of whatever type with adequate premium is to make possible the reduction of unit overhead cost by spreading it over a larger volume of business. The Added Cost approach, however, assumes that the old business will not thus receive the benefit of a reduction in unit overhead cost because of new business subsequently issued, but rather gives the new business or line of business a subsidy for which the older policyholders would have to pay.

The proper approach seems to me to recognize that new lines or types of business must, over the years, bear their full proportionate share of overhead cost. At their outset, however, they cannot afford to do so, and they can equitably "borrow" from the company's surplus a loan to be repaid over the life of the block of current issues involved (or sooner). This sort of financing is, of course, standard practice in the life insurance business. It does not involve the Added Cost approach, and maintains full equity between the various blocks of business. In considering the temporary financial impact on the company as a whole, it could realistically take into account the fact that only added cost is felt for the moment. However, this does not remove the necessity that, on the grounds of equity and sound insurance financing, the block of new business should, over the years, bear its full proportionate overhead cost computed from its inception.

Again let me emphasize that these remarks do not involve any criticism whatever of Mr. Gelles' excellent paper. In fact, he points out that the Added Cost is hardly the basis by which business can be considered self-sustaining. My remarks were merely the result of personal experience that the Added Cost idea can be and is misused at times in the life insurance business.

ROBERT T. JACKSON:

Mr. Gelles' paper contains much valuable information on a subject which is becoming increasingly important to the life actuary. The Added

Cost theory represents but a small part of Mr. Gelles' interesting paper and he is unquestionably aware of its limitations. Those limitations may not, however, be equally evident to others in the life insurance industry. Hence the following comments are offered on the propriety of using the Added Cost rather than the Statement Cost Allocation in setting premium rates.

The Statement Cost Allocation is defined by Mr. Gelles as that cost which allocates a fair proportionate share of expenses to each line of business, while the Added Cost includes only the actual increase in company expenses by reason of entry into a specific line. Having found that there may be a substantial difference between these two costs, Mr. Gelles goes on to suggest that less expense per thousand may be allocated to a new plan such as perhaps Term or juvenile insurance so as to meet the general market price. To quote from Mr. Gelles' paper: "The introduction of a new plan will not increase operating costs proportionately. However, such costs are increased by less than the amount available in the new plan's premiums. Company operation as a whole is improved if the new plan is issued. . . ."

The use of the Added Cost theory in setting a premium and dividend structure represents serious theoretical problems for the actuary. Just which of the plans offered are to be considered as the foundation of the business to bear their full share of the overhead expenses and which are to be considered as added plans to bear only the additional costs incident to their issue? Furthermore, having determined the answer to this question for 1952, perhaps by the simple expedient of considering new policy forms as those to bear only the added cost, what is the situation in 1972? Have the new policy forms of 1952 become part of the general business to be allocated their full share of overhead and must we therefore increase the premiums on those forms?

It appears to me that in a growing industry such as the life insurance business has proved itself to be, there are more direct and practical reasons for rejecting a pricing policy based on the Added Cost approach despite the general acceptance of that economic doctrine. The difference in results between the Added Cost and the Statement Cost Allocation arises because at any point of time there is in the organization some unused capacity—of building space whether in the home office or branch office, of managerial, clerical or agency ability, or of machine output. Since the argument will in general apply equally well whatever type of capacity is involved, I shall confine my illustration to the effect of the introduction of a new line on usable home office building space. So long as the same home office building is used, the costs of maintenance and depreciation will not rise because there is, say, a 1% increase in the volume of new business due to the introduction of a new line, and by hypothesis under the Added Cost theory the new line which has contributed the additional 1% of business need not bear its proportionate share of the costs of the present home office building. However, as Mr. Gelles points out, the time when new capacity must be added may thereby be brought nearer—in fact, not only may, but will, if we assume a normally increasing volume of business which, with minor exceptions, has been the history of life insurance over the last hundred years. Logically, then, if our new line has hastened the date of transfer to a new, more expensive, home office building, must it not from the date of change to the new quarters, until such time as that change would normally have been required, bear more than a proportionate share of the additional cost required to operate the new building, thereby balancing off any "savings" during the tenancy of the old building?

If this reasoning is correct, it follows that the Added Cost theory, except in a business relatively stable in size, cannot properly be used as part of a pricing policy though it still may be valuable in determining the immediate out-of-pocket costs of entering a new line of business. Perhaps the Added Cost approach can yet be justified, on the theory that the largest insurance companies are the most efficient economically. However, many actuaries of medium-sized companies would be quick to reject that theory.

IRVING ROSENTHAL:

This paper will reward the careful reader. It deals boldly and untraditionally with an area of particular importance to the insurance business at the present time in view of the controversy now raging over the wisdom of "uniform" allocation of expense. The paper is essentially a further development of the ideas introduced in the author's earlier paper "Overhead and Unit Costs,"[1] which incidentally will bear rereading in this connection.

Mr. Gelles sees cost analysis as a comprehensive process bearing fruit in three distinct spheres. The three spheres, connected yet partially independent, are (*a*) pricing, (*b*) cost control and (*c*) policy determination. A fourth aspect, allocation for financial statement purposes, is mentioned but not given extended treatment. If I understand Mr. Gelles correctly, he regards the methods used for statement allocation as likely to be fundamentally similar to the allocation involved in the pricing process when both kinds of allocation are left to the province of company management. Indeed this would have to be the case if the price structure of a

[1] *TASA* XLVII, 286.

company is expected to produce satisfactory financial results as measured by the Gain and Loss Exhibits for the various branches of its business.

I might mention, in passing, that if allocation for statement purposes followed rigid predetermined rules laid down by a state bureau, while the pricing procedure was left to the discretion of company management, a fundamental inconsistency would be introduced which would only be eliminated by standardization of pricing procedures.

Mr. Gelles brings out many interrelationships between the three main spheres referred to. The pricing process aims at the best attainable over-all result in quantity and quality of self-sustaining (or profitable) business. To some extent pricing is controlled by requirements of continuity in time and smooth grading of the internal structure (by age and plan). Hence the use of broad, graduated averages of the emerging cost facts is required. If we except overhead expense, company policy determination can affect these results only to a minor degree. More potent is the company's policy or procedure in the allocation of the sticky mass of overhead expense. (Overhead expense as used here and in Mr. Gelles' paper does not mean all home office or field office expense but only such expense as is relatively insensitive to changes in work volume.)

Mr. Gelles maintains that overhead expense should be allocated with skill and flexibility so as to make the company price structure an effective instrument in carrying out company objectives. It is essential that the allocation of overhead expense should not be frozen by rigid predetermined rules. One of the surprises of the paper is the comfort which proponents of this view of allocation of overhead expense can draw from the paper[2] referred to by Mr. Gelles, written by Mr. J. J. Higgins, Chief of the Uniform Accounting Bureau of the New York Insurance Department. While Mr. Higgins does not speak for the New York Insurance Department and presents the opposing views on controversial subjects, his paper furnishes an arsenal of thoughtful argument against rigidly standardized pricing processes in the insurance business. As is apparent from both Mr. Gelles' paper and Mr. Higgins' paper, flexibility in this regard requires freedom for company management to deal with the allocation of overhead expense in the light of individual company problems and objectives.

Mr. Gelles properly places great emphasis on the sphere of operational cost control and a good deal of his paper is concerned with techniques in this sphere. Not only is operational cost control needed for realistic evaluation and control of company procedures, but out of the work of cost control there emerges a flow of reliable factual information which facilitates

[2] "Problems in Expense Allocation," *Proceedings of the Insurance Accounting and Statistical Association*, 1951, p. 132.

the job of determining many of the unit operational and functional costs involved in the pricing process. Mr. Gelles points out that cost control procedures are most effective in the area of work processes which vary directly with volume of operation. Their application to the area of sticky overhead expense is more limited and difficult. Cost control aims at making actual operating costs conform to standard (or ideal) costs. When standard operating costs are achieved, they become one of the components of the financial statement costs which are used to test the soundness of the company's price structure and the success of its management policies.

Another feature of the paper is the treatment of Added Cost, or Differential Cost as it is sometimes called. This is involved in many aspects of company operation, such as the feasibility of instituting or terminating a special service or the feasibility of adding a line of insurance, such as Juvenile, which for valid market reasons cannot be priced to include the same proportionate charge for overhead expense as is the case with adult policies.

The relation of Added or Differential Cost to the pricing process and the allocation of expenses for financial statements presents one of the knottiest problems in the field of cost analysis. I believe Mr. Gelles would be the first to agree that his observations on Added Cost are more in the nature of tentative suggestions pointing out the paths of further study than firm and unequivocal conclusions.

(AUTHOR'S REVIEW OF DISCUSSION)

MANUEL GELLES:

The comments on Added Cost by Mr. Marshall and Mr. Jackson suggest a further discussion of what this cost measure actually means. It is definitely not a basis for calculation of premiums. However, the Added Cost measure has some important, and in fact essential, uses. It shows the amount withdrawn from surplus in order to establish the new line, before allowing for premium receipts in excess of claims (including claim expenses and reserves), commissions and taxes.

In considering a new line the company is confronted with several alternatives with respect to how extensive an operation it wishes to set up. It can inaugurate a completely independent division bringing in experts in the field, and set up an extensive promotional and sales program. On the other hand, the company can attempt to integrate the line in a number of aspects with already existing facilities, using to the maximum extent employee time and equipment which is available or can be made available by reorganization of work. For example, premium billing and policy issue among other functions can be so integrated. There are obviously alternatives between these two extremes depending on company policy and objectives. An important consideration is the amount of Added Cost involved in connection with each of the various alternatives. There are, of course, many other considerations involved in going into the new line, but the Added Cost measure is essential in cost considerations. It sets out in concrete monetary terms how ambitious a business venture is contemplated and how much can be carried by existing facilities.

Another use of Added Cost is in comparing the cost of entering one line, such as A & H, with another, such as Group. In the latter case the Added Cost would as a rule be considerably larger and would presumably play an important part in the company decision with respect to entry into that business.

Alternative Added Cost figures, either for entry into a particular line at different levels of operations or for entry into different lines, reflect a less extensive expansion (smaller Added Cost) or a more ambitious contemplated operation (larger Added Cost). Added Cost for each type of operation can be measured against the corresponding projected Statement Cost Allocation representing the particular operation on a self-sustaining basis. If Added Cost is *greater* and the possibility of the new operation becoming self-sustaining (by Statement Cost Allocation) *less*, these are reasons for not entering the new line. The most favorable condition occurs when Added Cost is comparatively small and the possibility of a self-sustaining line by Statement Cost Allocation measure is comparatively great.

This suggests a company policy objective in terms of keeping Added Cost at a minimum consistent with successful operation. This is another way of saying that existing facilities should be used as much as possible. An added line affords the opportunity, as is pointed out in the paper, for a tightening of the existing organization. The extent to which this is done may be obtained from operational control measures such as those described in the paper. At the same time a small Added Cost should not be a screen for an initially overstaffed organization. Although this may seem to contradict what has been said of the desirability for a small Added Cost, it is apparent that if there is a good operational cost control method in existence in the organization, there is no contradiction at all since any overstaffing should then become evident.

No one can disagree with Mr. Marshall's statement that we should expose any attempt to use Added Cost measure (or for that matter any other actuarial or cost concept) in an incorrect way. Using the Added

Cost measure as a justification for indiscriminate issuance of block after block of business that cannot sustain itself is, of course, a gross misapplication of this measure. In fact, this procedure would very likely defeat itself before long if Added Cost were obtained in a realistic fashion. As pointed out in the paper the addition of a new line brings closer the time when facilities must be expanded. This means that the Added Cost for the second and subsequent blocks of non-self-sustaining business would very likely be greater than the Added Cost for the first block, since certain added facilities and personnel would need to be introduced that were not necessary for the first block.

Cost economies inherent in using existing facilities are highlighted by Added Cost measures. A company that ignores these measures may encourage the tacit assumption that expansion into a new line requires more new organization and facilities than are warranted on the grounds of good business economy.

The reverse of Added Cost is a measure useful in the contraction of an operation, an example of which is establishment of a minimum size policy of more than $1,000 for new issues. Eliminating policies under $2,000, say, may result in fewer issues. A measure of the contemplated reduced cost would be available from operational cost analysis. (Whether or not it is advisable to attempt to reduce costs in this way is another question.) Mr. Rosenthal refers to Differential Cost which measures the change in cost (Added or Reduced) resulting from some change in operations. There are other considerations that determine company actions. Such considerations are often of greater importance than cost considerations, but the change in expenses that may result from the contemplated action is of importance.

Added Cost is much more closely related to operational cost control than to pricing. It has only an indirect relation to the latter, as will be indicated presently. On the other hand a good Added Cost analysis depends ultimately, for the validity of its figures, on a good operational cost analysis.

Suppose that the Added Cost measure were not explicitly used in connection with the company's entry into a new line of business. It would nevertheless be introduced implicitly through Statement Cost Allocation figures. The difference between the Statement Cost Allocation for the existing lines before the new (A & H) line is entered upon and the projected Statement Cost Allocation for existing and new lines combined equals the Added Cost of the new line. The simple fact is that Added Cost is an essential part of expansion of operations and is a valuable cost tool when shown clearly and explicitly. Once having entered the business the company can check back on its original estimate and decide by a recalculation of this cost how close an estimate was made.

It should be stressed that the Added Cost measure, its recognition and proper use, do not constitute a theory in the sense that Mr. Jackson suggests. Added Cost is a fact in the same sense that items in the Balance Sheet are facts. As pointed out above, it is the change in net income caused by the extension of company operations. From that point of view it is more realistic than Statement Cost Allocation, involving very little of the element of judgment implicit in the latter.

I do not think there should be a direct relation of Added Cost to the price for insurance, nor is any suggested in the paper. The figures and text immediately following Mr. Jackson's quotation from the paper describe within what limitations, if market considerations and other conditions call for it, business expansion may take place with a new plan bearing less than proportionate share of overhead expenses. The criterion set down in the paper for the addition of such a plan is that there results from such addition a clear increase in the company margin from operating expenses with consequent definite monetary benefits for the existing policyholders. This makes it necessary, in effect, that the new plan cannot form more than a limited proportion of total new business and does not replace any appreciable portion of those issues which do bear a proportionate share of overhead. A detailed analysis of the critical points in this respect appears in my paper "Overhead and Unit Costs," *TASA* XLVII, 286.

Mr. Rosenthal's discussion emphasizes the relation of allocation and control of expenses to a company's problems and its ways of meeting them. These ideas as well as those set forth in the paper and the discussion underline the fact that "uniform" cost allocation is totally unrealistic in terms of an actively competitive market and of differences from one company to the next in management policy and objectives.