Marketing Costs

A Method of Allocating to Individual Commodities

By FRANK M. SURFACE

Assistant Director, Bureau of Foreign and Domestic Commerce

U. S. Department of Commerce, Washington.

MANY students of marketing believe that the key to more efficient commodity distribution lies in the detailed study of distribution costs and operation and in the translation of those findings into the principles of management. Just as Frederick Taylor revolutionized production technique and management through greater attention to details, so it seems possible that the marketing technique of the future may be revolutionized by a similar attention to comparable details in that field.

During the last half dozen years the Bureau of Foreign and Domestic Commerce has attempted to make some contributions in this field through the development of practicable methods for determining the costs of handling individual commodities, serving individual customers and performing other individual operations in a merchandising establishment. These studies have included the manufacturer's distribution costs, the wholesaler's costs and the costs of handling commodities at retail. Out of these studies and those being carried on by other organizations, there is gradually being built up the theory and practice of distribution costing. For the most part this subject is still too new to have gained wide acceptance by marketing men—either independent consultants or those directing the marketing policies of individual companies. Many discussions with marketing men in various lines have led me to believe that it might be worth while to attempt a non-technical discussion of some of the methods of distribution-cost allocation.

The development of the theory and practice of distribution costing as used in the Department of Commerce has been largely the work of Mr. Wroe Alderson and a small staff working under his immediate direction. To these men belong the credit of pioneering work in this field. My own efforts here will be confined chiefly to the attempt to present one phase of this subject as simply as possible with the elimination of all unessential details.

For the present discussion, I shall confine my remarks to the allocation of costs to commodities in what may be regarded as a reasonably typical wholesaling establishment. By similar but somewhat different methods it is possible to assign costs to customers, from which studies some very important deductions can be made. Similar principles are also applicable to the manufacturer's distribution costs and to the retailer's costs. References to these are omitted in order to avoid complications.

Perhaps we can simplify our approach to the cost problem if we consider first just what a merchant does that involves costs. We may set down three things:

1. He maintains a place of business.
2. He handles commodities.
3. He serves customers.

All of the activities he carries on can be grouped about these three. Furthermore, since the maintanance of a place of business is associated with handling commodities and serving customers, its cost can be divided between the two. Hence, the two basic elements in merchandising are commodities and customers. All commodities do not cost the same to handle and all customers do not cost the same to serve.

Our problem, therefore, is to devise some practicable method of allocating the ordinary expense items of an operating balance sheet to commodities on the one hand and to customers on the other.

Certain costs accrue to commodities irrespective of customers, while certain other costs are incurred only because of serving customers. For these as well as for other considerations, the Department has divided marketing costs into three functional groups designated respectively as maintanance, movement and contact activities. These groups may further be divided into subgroups. The number of such sub-groups would depend upon particular conditions and upon the degree of refinement judged necessary to give satisfactory results.

Maintenance activities are those concerned with keeping a place of business and a stock of merchandise. These are the costs of "offering for sale" and so long as the firm stays in business such costs accrue irrespective of whether a customer appears or a sale is made. Under this heading would be included the cost of rental or its equivalent, the care of the store or warehouse, cleaning, heating, lighting, etc., and also the cost of maintaining a stock of merchandise, i.e., interest, insurance, etc., on inventory investment. The two principal sub-groups under this heading are designated: investment and storage. The first of these subgroup costs may be allocated to commodities satisfactorily on the basis of the proportion of inventory value. Storage can best be allocated on the basis of the proportion of square feet of warehouse space occupied.

Movement costs are those connected with making a sale and moving the commodity into the hands of the customer. These include selling, waiting on customers, listening to demands, assembling goods, delivery, invoicing, checking, buying and replenishing of stock. All of these activities are made necessary through the advent of the customer.

The activities under this group may be divided into four main sub-headings. These are buying, selling, clerical work, and physical handling. Although conditions differ with different kinds of commodities, it may be said in general that the cost of buying and selling and the cost of clerical work vary with the number of times each commodity is sold. Therefore, for purposes of cost allocation these activities are grouped together under the term "order routine" and their costs are allocated to individual items on the number of times each item appears on a sales invoice. In this, as in other methods outlined here, there are often particular conditions in a given business or with particular commodities which make it necessary to use more factors than are considered here in order to arrive at satisfactory results.

Physical handling is the other group of movement activities which must be allocated. This might be done on the basis of weight or bulk, but a little consideration indicates that for most ordinary merchandise it is the number of units moved which is most important from a cost standpoint. Thus, for most packaged merchandise, it is the number of cases rather than the weight which determines the cost of handling. In other words, it is the time-consuming rather than the energy-consuming character that is most important. In our studies, wherever possible, we have attempted to use a standard handling unit—

defined as a case of merchandise small enough to be handled by one man and which is ordinarily shipped out without repacking. Commodities packed differently or those requiring unusual handling can be referred to this standard unit by means of ratios. These ratios can be determined satisfactorily by means of time studies or other special observations.

The third group of functional costs set up is designated as contact costs. They may be divided into two sub-groups; first, reimbursement costs or the cost of maintaining a return flow of money to balance the outward flow of commodities. This includes the cost of receiving payment and of collecting accounts. It should include all direct costs of credit and collecting, bookkeeping costs on accounts receivable, bad-debt losses, interest on money tied up in accounts, customers' cash discounts, etc. Reimbursement costs can be allocated to commodities on the percentage of total sales volume.

The second sub-group designated as promotional costs includes that portion of advertising and selling effort which may be regarded as institutional promotion apart from strictly commodity promotion. For most mercantile establishments, it would include nearly all of the advertising expense, that part of the buying expense caused by efforts to secure lower prices, loss leader sales where the object is to get customers to the store, etc. Promotional costs have as their object the securing of a larger volume of business and ultimately a larger gross margin. Percentage of total gross margin has, therefore, seemed as fair a basis upon which to assign these promotional costs to individual commodities as could be secured.

There have thus been set up the following six functional sub-groups of expenses, each with a separate factor for allocating to individual commodities.

CHART I

FUNCTIONAL CLASSIFICATION OF MARKETING COSTS

	Costs Allocated to Commodities on
Maintenance	
Investment	Average value of stock on hand
Storage	Square feet of floor space occupied
Movement	
Physical handling	Number of standard units
Order routine	Number of invoice lines
Contact	
Reimbursement	Per cent of total sales
Promotion	Per cent of gross margin

For special cases it is often necessary to use a larger or smaller number of expense sub-groups and somewhat different factors for assigning costs to commodities. The present factors have been found satisfactory with a number of diverse kinds of businesses.

Assuming these groups and factors satisfactory, we may inquire as to the exact steps that need to be taken in order to assign costs to individual commodities.

First, there are certain facts which must be compiled or obtained from the records of the company. We must have a satisfactory figure for the average inventory investment in each item. If annual inventories are available, these may be sufficient. If the amounts of particular items stocked vary widely at different times, this should be taken into account. It is usually better to average two regular inventories where possible.

The amount of floor space occupied by each commodity will usually have to be determined by special measurements in the warehouse. The average time consumed in various handling operations and the basis for determining the ratio necessary for converting various containers into standard handling units will also have to be obtained from special studies.

Frequency of order for each commodity can be obtained by counting the number of lines on the sales invoices in which each item occurs. Total sales volume, the number of units sold, and the gross margin can also be computed from the invoices for the period covered.

In addition to this, it is necessary to have a complete statement of all expenses for the period covered including estimated rent if the buildings are owned by the proprietor, an estimated salary for the proprietor if no formal salary is taken, interest on capital owned, etc.

The expense account will usually be in the form of an operating statement with various main headings such as administrative expense, selling expense, warehouse expense, etc. Under each of these main headings, there will be detailed records covering salaries, traveling expenses, equipment purchases, depreciation, interest, insurance, etc., etc.

The first problem is to convert these operating expense figures into terms of functional expenses such as investment, storage, handling, etc., which can be assigned to commodities. With regard to many items in the operating statement, there is no problem in assignment to the proper functional group. For example, warehouse rent goes under storage; delivery men's salaries under physical handling, etc. For other items, it may be necessary to divide a given operating expense between two or more functional groups. Thus, warehouse salaries may be partly for physical handling and partly for care of stock, the latter coming under storage. Salesmen's salaries are partly for commodity selling and assigned to order routine while part may be promotional. Time studies or conferences with officials may be used to decide these points and determine an equitable assignment.

With the details eliminated, the final set-up might be similar to that given in Chart II, the data for which are taken from an actual case studied by the Department of Commerce, many of the details of which have been published in "Problems of Wholesale Electrical Goods Distribution," by Wroe Alderson and Frederick Haag. (Bureau of Foreign and Domestic Commerce, Distribution Cost Studies, No. 9, 1931.)

In this case a wholesale firm doing an annual business of about $300,000 had total expenses of $50,500 divided in main operating headings as shown in the first two columns of the table. The remaining columns give the percentage allocation of these operating expenses under the six functional groups. It will be noted that 89.91 per cent of the total expense could be directly allocated to the functional groups. The remaining 10.09 per cent consisting of office and administrative expenses could not be distributed directly, and these have been assigned to the respective groups in the same proportion as the total of the directly distributed expense.

In the bottom line of the chart, the percentage figures are reconverted into dollars, thus giving a complete redistribution of the $50,500 of total expenses in terms of the six functional groups.

We are now ready to assign these expenses to individual commodities, and this assignment is carried through for two items in Chart III. For example, investment costs were to be assigned to commodities on the basis of the proportion of inventory value which a given commodity formed of the total inventory. Item A represented 3.41 per cent of the total average inventory of the firm. This percentage applied to the $9,206 of total inventory expense gives $314 as the invest-