

THE ALLOCATION OF ADMINISTRATIVE EXPENSE
BY LINES FOR CASUALTY INSURANCE COMPANIES

BY

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It is an astonishing fact in the light of present day knowledge, that the industrial development of this and other countries should have progressed so long, without producing until comparatively recently a science of cost accounting. Today an adequate cost system is a commonplace necessity for any progressive manufacturing concern. It exercises certain very important functions. First, it indicates and calls attention to fluctuations in cost from period to period in individual departments as well as in the product as a whole. It thus supplies a fair measurement, making due allowance for external conditions, of the efficiency and economy of the administration. Second, it furnishes a reliable means of allocating cost between different classes of products and so makes it possible to fix prices correctly on each. Third, it indicates when prices are fixed by competition or other outside influences, which line may be pushed to the greatest advantage, and which line must be handled more economically in order to show a profit. In other words, such a system points the way to wise economy in the weaker lines, and may prevent injurious retrenchment in the lines on which the company's prosperity depends.

One of the more recent developments of costing practice is the agreement by certain trade associations on a standard method of cost accounting. This is to be followed so far as possible by all members of the association with the object of eliminating unintelligent competition. Without such uniformity it sometimes happens that one large dealer, through ignorance of his true costs, will establish a price at which neither he nor his competitors can show a profit.

It is hardly necessary before this group to draw the obvious analogy between the costing requirements outlined above, and those of casualty insurance. The same needs exist for efficiency and economy to which correct expense allocation is the surest guide. Mounting costs, producing expense ratios excessive as

compared with premium income and loss ratios, have made the whole problem acute. The time has come when costs must be correctly allocated, as a preliminary to the study of necessary economy, as well as to form the basis of executive and selling policies, which shall continue to insure solvency and produce profits under adverse conditions.

In spite of the advance made in the past few years in the science of costs in manufacturing and mercantile lines, so far as I know, the entire literature of casualty insurance costing consists of the paper by Mr. Claude E. Scattergood on "Cost Accounting in Casualty Insurance," presented before this society in 1916, some pertinent remarks in Mr. William Leslie's recent paper on "Distribution of Surplus by Casualty Companies Writing Participating Insurance," and a brief memorandum presented by the writer of this paper for the Current Notes section of the last number of the PROCEEDINGS of this Society, of which the present paper is an elaboration. It is not intended in this article to lay out plans for a cost system, but rather to offer some suggestion on expense allocation which may be applied in such detail as may be advisable, to accounting systems now in use.

Insurance expenses naturally fall under certain general heads as—

- (1) Acquisition
 - (a) Commissions
 - (b) Other Acquisition
- (2) Administration
 - (a) Underwriting and Recording
 - (b) Statistical and General Accounting
 - (c) General Administration
 - (d) Investments
- (3) Service
 - (a) Inspections
 - (b) Loss Expense
- (4) Taxes

The assignment of expenses to these divisions presents no particular problem.

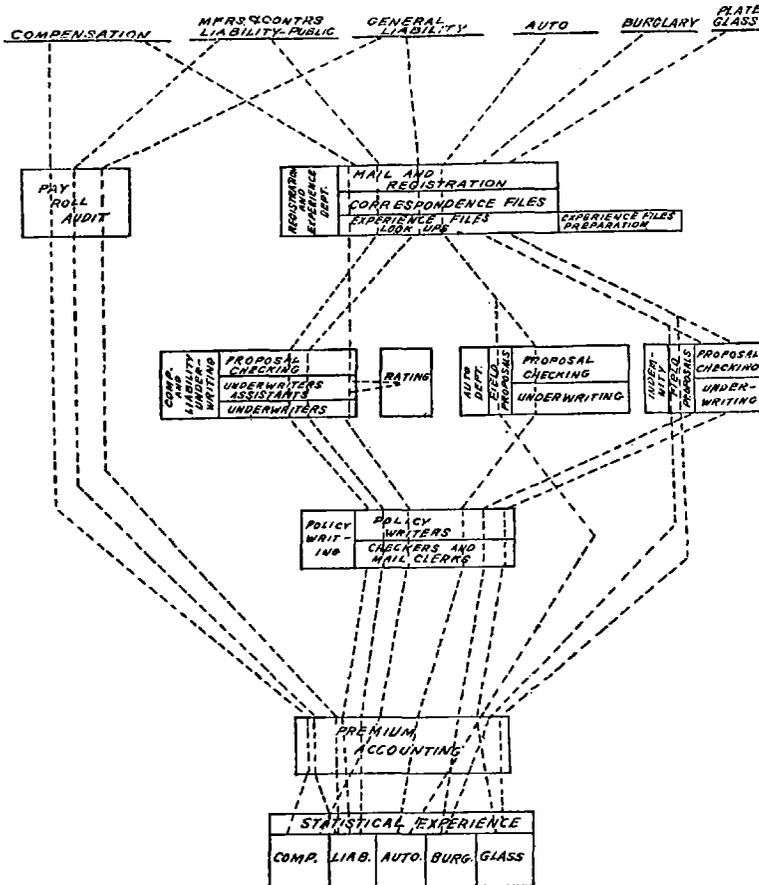
The question of acquisition expense is receiving so much attention at present that a discussion of it in this paper is unnecessary.

In allocating the home office administrative expense, the same principles can be followed which have been pretty firmly

established in cost accounting in manufacturing and commercial lines. The work to be done will fall roughly under the following divisions: first, the division of the office into groups, homogeneous as to the kind of work done; second, the ascertaining of a common unit of measurement to be applied to the different lines of business handled in each group; third, the finding of the cost of operating each group over the period under consideration (this may include salaries, charge for floor space, stationery and supplies, a share of the departmental supervision and charges for service from other departments); fourth, the finding of the cost per unit of work in each group, including both direct and indirect charges; fifth, the assembling of the charges in all groups to each line of insurance, and the addition of the general overhead charges for the company as a whole.

Taking up first the division of the office force into groups, a beginning will have been made by the division of the home office force into departments or administrative units. The next step will be the sub-division into groups of each department which handles more than one line of insurance. In the department which handles the underwriting and recording work, a convenient method of establishing the group divisions is to take a typical proposal of each kind handled and to follow it through its course of the office, noting each separate process involved in the work. Such a routing and sub-division of departments can perhaps best be illustrated by a diagram, showing the routing of different lines of insurance through a series of departments. This chart does not represent an actual company and does not pretend to be complete as it is illustrative only. It represents a company doing Automobile, Compensation, General Liability, Burglary and Plate Glass business.

It is assumed that all the proposals pass through the groups under the titles "Mail and Registration," "Correspondence Files" and "Experience Files." From the latter Division Compensation, Manufacturers' and Contractors' Liability and General Liability proposals pass through the Compensation and Liability Underwriting Department, where they go in turn to the Proposal Checking group, the Underwriter's Assistants and the Underwriter, a part of the Compensation business going through the Rating Division. From the Underwriting Division the proposals pass to the Policy



Writing Division, through the Premium Accounting to the Statistical. The business of the Automobile Department is divided into two main sections. The "Field Proposals" section handles business written in the Field and the "Home Office Proposals" section handles the business referred to the Home Office. Business passing through the Field Proposals section goes directly to the Accounting and Statistical Department. Business passing through the Home Office Proposals section goes to the Policy Writing department and then to the Accounting and Statistical. The Burglary and Plate Glass business passes through the Indemnity Underwriting, Burglary and Glass, divided between

Field Proposals and Home Office Proposals and from there follows the same route as the Automobile business. The Policy Writing Department handles all Policies written at the Home Office. The premium accounting for all lines is handled through a single division. The Statistical Experience work is divided into sections handling the different kinds of work. The Payroll Audit Department handles Compensation, Manufacturers' and Contractors' Public Liability and a little Automobile business which routes from there to the Accounting and Statistical Division.

Having established the working groups for the departments outlined above the second step is the establishment of units of measurements in each group. In the Mail and Registration and Correspondence Files groups, the cost will be divided between lines of insurance, in ratio to the number of each kind of proposal handled. In the experience file, it is necessary to consider the preparation of the experience, which would be affected by the number of claims in each line. It might be possible to divide this group between experience preparation and experience look-ups. The former would be proportional to the number of claims handled and the latter to the number of proposals. This completes in brief the outline of the work of the first department and gives a sub-division for each group, but there will be also a department head, miscellaneous clerks and runners to be accounted for, as well as floor space, furniture, stationery, etc., chargeable to the department as a whole. These must be distributed as an overhead on the direct charges, that is, in the same ratio as the total charges for each branch of insurance from all the groups together. It is immaterial so far as the principle of the matter is concerned, whether all these charges for expenses applicable to the particular departments are charged to the department and split in total; or whether each expense account, as for instance rent, is first split against the various departments and then sub-divided according to the percentage of the division of clerical salaries in each. In the latter case the aggregate of departmental charges may be reduced to a mean percentage applicable to the total rent charge. A little higher degree of accuracy will be produced in the case of rent and stationery charges if the number of clerks chargeable to each line of insurance is used instead of the salaries paid.

The Compensation and Liability Underwriting Division handles Workmen's Compensation, Manufacturers' and Contractors' Liability and General Liability.

In the proposal checking group it will be a simple matter by the means of time tests to establish weights representing the relative time required to handle the average proposal for each class of business.

These weights must be applied to the number of proposals in each line to give the basis for the division. The time of the underwriter's assistants and of the underwriters can hardly be measured so that a judgment division of their time between lines is about the only method possible. Where Public Liability is written concurrently with Compensation or Employers' Liability, the additional work entailed in the Underwriting Division is exceedingly small. It would seem that some charge should be made to the Public Liability group and that it should not all be allowed to ride entirely on the Compensation or Employers' Liability. On the other hand it cannot stand one-half the expense incurred. The most reasonable way of handling this would seem to be to give the Employers' Liability a weight as compared with Compensation in the same rate as the average rate of premium for the two lines. This method of weighting will be discussed more fully under the head of Payroll Audit.

In the Automobile Department the only problem is the division of expense between Liability, Property Damage and Collision. Since a single policy covers one, two or three of the lines, with practically no additional work involved after the first, there seems to be no better way than to divide the Underwriting and Policy Writing cost among the lines in ratio to the total premium for the year.

The Indemnity Burglary and Glass Underwriting Department is divided in the same way as the Automobile Department, but handles two separate lines. A test could be made in each group to establish weights for the two kinds of insurance handled, and the cost could be divided on the basis of the weighted number of each kind of proposal.

The Policy Writing Division should be distributed between lines of insurance according to the number of policies written at the Home Office, subject to such weighting as may be found necessary. Special treatment may be required for the clerks

or typists handling endorsements, to give due weight to the large number handled in some lines, as Automobile. In coming to the Premium Accounting Division and to the Statistical Division, we have to consider not only the policies written, but the items originating in the Payroll Audit Division, as well as cancellations, partial premium payments and the like. For these divisions, then, the best unit of measurement will be the number of paid premium items. The Statistical Division will handle also Loss Experience, which brings in an additional element. This work is so generally done on Hollerith or Powers cards that the number of cards punched for each year for both premiums and losses will usually be available and will furnish a very fair basis of measurement.

Enough has been said to outline the general method employed. In almost every department there will be clerks or groups of clerks which present some problems which will have to be settled by the application of common sense as it is impossible to lay down enough rules to cover every case.

The Audit and General Accounting Departments may fairly be classed as a general charge, but an analysis of these departments may suggest methods by which at least some of the clerks may be definitely allocated according to the duties performed. For example, an Audit clerk whose duties were confined to auditing the work of the Investment Department would be charged in the same way as the salaries of that department. Clerks auditing claim payments only could be allocated accordingly. After all direct charges have been made, the method of distributing the remaining overhead will necessarily be somewhat arbitrary. It is, therefore, highly advisable to make every effort to make the overhead group as small as possible. No salary should be allowed to go to it until due consideration has been given with the possibility of treating it as direct charges.

There is the group of departments which might be described as internal service departments, whose work is chargeable to other departments rather than direct to any line of insurance. This group may include Stenographic, Tabulating, Telephone Operators, Purchasing and Supply Departments, Office Supervision and Welfare. The Stenographic Department will usually keep records which will show the departments served so that the work may be charged to these departments and be

distributed in the same ratio as their respective departmental salaries. In the Tabulating Department the work may be divided to lines on the basis of the card forms handled or may be charged to the divisions served. This department lends itself very readily to the use of the machine hour rate so generally used in manufacturing costs. The machine rental, cost of floor space and power, and the salary of the machine tender can be reduced to an hourly rate to be charged for the use of the machine. It is probably as well to take the total cost of operating the sorting machines and divide it according to the actual hours of operation for the different divisions, and to do the same with the tabulators. The remaining clerks may be divided as an overhead on the machine time, or may be charged directly if the character of the work lends itself to such treatment. The Telephone Operators should be charged against other departments according to the number of telephone extensions used. The salaries and expenses of the Purchasing and Supply Departments should be treated as an overhead charge on the supplies issued. Office Supervision and Welfare Work should be charged to Departments according to the number of clerks in each.

After all the charges which can be disposed of by direct allocation have been assigned, there will remain a considerable total of general charges still to be disposed of. The writer believes that the best method of doing this is to treat the general charge as a percentage overhead on the directly assigned charges, that is, to distribute them in the same ratio as the total of the assigned items. There might be arguments in favor of distributing the salaries of the general executives between lines in ratio of the premium volume, but the argument would hardly hold for such classes of overhead charges as General Accounting or Audit Department.

Investment expenses, if it is thought necessary to divide them among lines of insurance, should be apportioned according to the reserves which make up investable funds of each department.

In the Payroll Audit Department a unit of division is readily at hand in the number of audits made for each line of insurance, but this figure will require considerable adjusting before it can be applied to produce accurate results. In the first place, it is necessary to take account of the concurrent audits. The additional cost of a Public Liability Audit for example made

concurrently with a Compensation or Employers' Liability audit will be negligible, but will probably be carried on the records of the Payroll Audit Division as one audit. It will be necessary then to determine the number of concurrent audits and to deduct this from the total number made over a given period. The net figure remaining, divided into the total cost of the Payroll Audit Division, will give an average cost per audit which will serve as a basis for subsequent computations. Take for example, the charge to be made to Public Liability on account of an audit. Assume that it has been found that approximately 90% of such audits are made concurrently with Compensation audits. Then 10% of the Public Liability audits must be charged for at the full average cost. The cost of the remaining 90% must be allocated between Compensation and Liability. It is hardly fair to charge Liability with merely the difference between the cost of a Compensation audit alone and of the two audits together, as this difference is negligible. If the cost were being divided for each individual audit, a division in proportion to premium would seem to be a fair one. However, in dealing with the whole group together some other method must be found. A division based on average premiums would be incorrect because premiums on Compensation Policies carrying Public Liability will on the average be higher than the average for all Compensation Policies taken together. The answer seems to be to make the apportionment on the basis of relative average rates.

Assuming that the average rate for Public Liability is \$.20 and the average for Compensation is \$1.20, then of the combined premium one-seventh belongs to Liability and six-sevenths to Compensation. This would seem to be a fair basis for dividing the cost of the audit. Therefore, the charge for Public Liability audits will be the number of such audits made, times 10%, plus 90% of the total number divided by seven, giving the chargeable number of audits, which will be multiplied by the average cost per audit to give the total charge.

Among the Liability audits will be found Team and Automobile risks, which cannot reasonably be charged at a figure representing the average cost of all audits, including Compensation. Since Compensation furnishes the greatest number of audits this raises a question as to the relation between the cost of the average Compensation audit and the cost of the minimum audit,

under which the two above groups might be expected to fall. The cost of an audit will be largely affected by the number of classifications involved. An estimate given by a Payroll Auditor of the average number of classifications per audit will almost invariably be too large, as the large audits which may require several days to make and which may cover sheet after sheet of classifications, while they make a strong impression upon the auditor, are very much the exception. A test of over one thousand audits indicated that the average audit carries not over three classifications, and that the simplest kind of an audit on which it is hardly necessary to do more than go through the motions, will cost, during its passage through the Field and the Home Office, approximately one-half as much as the average audit. It will, therefore, not be far wrong to take the number of minor Liability forms and charge for them at one-half the average cost, taking account also of the fact that Teams, and some of the other forms as well, will frequently be made concurrently with regular Compensation Audits.

The division of inspection costs has had considerable study in connection with the Boiler Statistical Plan. The companies which have adopted that plan will probably be able to furnish a fair segregation of their inspection costs by line. But for all companies it is necessary to have some method of arriving at these costs as they will differ widely between the different lines of insurance. Inspections lend themselves readily to costing on the basis of the Inspectors' daily report, to which the overhead items may be added on the basis of the time actually spent in Field inspections. Probably the simplest and most workable plan is to take the total number of inspections made and the total number of inspection hours spent at each kind of insurance, including the time necessary to make reports, and to divide the company's total inspection costs for the period under consideration by the total number of inspection hours. This will give a cost per hour, including direct and indirect costs. This figure multiplied by the total number of inspection hours for each kind of business will give the total charge for the period to each line.

Reference has been made to time tests as a means of establishing weights for some of the units of work. The method of making such time tests is to take a number of proposals, or whatever unit is under consideration, representing each kind of insurance

handled by the group. These should be followed through the processes which it is desired to study, and a record kept of the exact time necessary to pass them through the routine work. Under some conditions it may be advisable to make detailed tests with a stop watch of the different parts of the process. Care must be taken that the conditions of the tests are as nearly identical as possible for the different kinds of insurance, and that the groups of proposals, or policies handled, are large enough to reproduce substantially, the average sized risk. It may be necessary to make tests on several different days, and to average the results. It may be advisable also in some groups to study the number and character of irregular cases which require special treatment. Unless tests are quite extensive it is obvious that the time required for handling the work under test conditions will not be that which will be reproduced in the ordinary day's work. Therefore, the results will represent relative time between different lines rather than a rate of production which can be expected over considerable periods. In addition to its value in the cost allocation, it is possible that a very important by-product of such study will be the introduction of greater efficiency into the methods of handling the office work.

Of the expense items, the largest will probably be travelling expense, rent, furniture and fixtures, stationery and supplies. Wherever possible expenses should be charged directly by lines. Otherwise they should be charged to the department served, or if necessary, to general overhead. Traveling expense accounts will naturally be distributed in the same ratio as the salary of the individual or the aggregate salaries of the department to which they pertain. Rent or floor space, as noted above, can be assigned to departments and split according to the salaries or the number of clerks in each. Stationery and supplies can usually be charged directly by lines, or to departments. If no record is kept of the issue of small office supplies by departments, they can be charged on a formula based on the total number of clerks chargeable to each line, or a very similar result will be reached if the aggregate salaries are used in place of number of clerks.

The furniture and fixture account raises an interesting point as it represents an asset having a life running over a number of years, but since the Insurance Departments will not accept it as an admitted asset, it is usually charged off in the year in which

the expenditure is incurred. Having once charged off the cost of a given lot of equipment, probably against the department for which it was originally ordered, the Accounting Department has no further interest in the matter and the equipment may then be moved in or out of storage or sent to another department without any further charges being made. The result is, that a new department, organized perhaps in a time of expanding business and high-priced equipment, might be charged in the first year of its existence, with a lot of expensive furniture and mathematical machines which would represent the greater part of its equipment needs for a good many years to come. On the other hand a department which was organized during a period of slack business might be furnished entirely out of storage or by drawing on other departments and secure its entire equipment at a negligible cost so far as the books of the company were concerned. The proper method for charging a department for equipment is to spread the charge over the life of the equipment in use in the department. This method is effective where furniture and fixtures are carried as an asset and depreciation is charged off each year according to the equipment in use in each department. It is possible, however, to produce substantially the same effect by treating the expenditure for this account in each year as if it represented merely the cost of maintaining the existing equipment, and charge it as if it were a depreciation charge,—that is, in proportion to the value of the equipment in use in each department at the beginning of the year.

When ratios have been established for charging the salaries and expense for all departments on the basis of a years' work, the same ratios may be used for the following year subject to adjustments at the year end, if there has been a decided shift in the relative volume of business between lines, or if economies have been introduced which effect some lines more than others. A thorough resurvey should be made at least once a year and the ratios either checked or corrected for use in the following year.

It is hoped that enough has been said to bring out some valuable discussion on this subject of expense allocation. The subject is a large one and should have the benefit of many view points. The problems presented will vary greatly in different companies but it should be possible to solve all or most of them on some common ground, that will produce reasonably correct

results that shall be consistent as between companies. It is time that the insurance companies gave this matter of expenses careful study and established at least a few basic principles of correct cost allocation so that expense ratios produced by different companies may have the same significance and so that each class of insurance may carry its own burdens.