

## THE FUNCTION AND PLACE OF THE STATISTICAL DEPARTMENT IN A MULTIPLE LINE CASUALTY COMPANY

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At some point in the growth of any multiple line casualty company it becomes necessary to consider what form of functional organization is most economical and most efficient for the purpose of producing statistical material and results. This paper constitutes an inquiry into the place of statistical work in the functional scheme of a multiple line casualty company.

It is no longer necessary to argue that statistics represent the fundamental basis of good insurance management or that certain statistics must be produced in any event because of the requirements imposed by state supervision. These are facts which most companies recognize as creating the necessity for doing some statistical work. It is not so evident, however, to some companies that the best way in which to develop an efficient means of getting out statistical data is (1) by eliminating statistical operations from the daily duties of other departments, and (2) by creating a separate unit having sole responsibility for such work and coordinated to the greatest possible extent with the work of the other operating units of the company.

An analysis of the statistical and related records maintained by multiple line casualty companies makes it apparent that for performing this function there is a varying practice as to the organization set up. For the most part, the mechanism seems to have had an evolutionary growth which has been influenced by requirements of the moment rather than by any formulated plan. In some companies all the work of statistical record making and reporting is concentrated in the department which maintains the books of account, but no differentiation is attempted between the accounting and statistical operations performed by the individual clerks. In other companies the function of statistical record making and reporting is divided among the departments which require the use of such data, thus decentralizing the operations incident to the performance of this function. In still other companies, a separate department is set up for the purpose of compiling, analyzing and interpreting

statistical data. The name by which such a department may be called, whether accounting, statistical or actuarial, is of no particular importance. The significant point is the recognition of a distinct function by its allocation to a definite place in the departmental structure.

#### FUNCTIONS OF MAJOR DEPARTMENTS

In most instances the major operating departments of a fair sized company are:

- I. Underwriting
- II. Claim
- III. Accounting

As the growth of the individual company proceeds, certain branches of activity which had hitherto been subordinated, are separated out and organized into departments. This is very common, for example, in the case of engineering and inspection, sales, payroll audit, and statistical.

The classification and selection of risks is the work of the underwriting department. The claim department undertakes the task of investigating and adjusting claims. The accounting department cares and accounts for the receipts and disbursements of the business. In addition to safety work, the engineering and inspection department serves as an adjunct to the underwriting department in determining the classification of risks. Production work is handled by the sales department and the payroll audit department undertakes the physical examination of the assureds' records for the purpose of determining the proper premium in many lines of business.

The foregoing outline is limited to the basic functions of the various departments. In actual practice each department acquires various collateral functions. This is very common, for example, in the case of the claim and payroll audit departments an important collateral function of which is to assist the underwriting department in the classification and selection of risks.

As a foundation for discussion of the place of the statistical department, let us first consider certain records which are utilized by some of the foregoing departments in exercising their basic functions.

## RECORDS UTILIZED BY MAJOR DEPARTMENTS

The underwriting department in exercising its function of classifying and selecting risks and determining the premium therefor is concerned with the loss experience of the risk (individual risk experience) and the application of the various rating plans. This department is also interested in the general experience of the company on similar risks (classification experience).

The claim department, in addition to investigating and adjusting claims, usually undertakes to estimate the incurred cost on unliquidated claims for the purpose of ascertaining the reserve liability of the company. These individual estimates of incurred loss are also utilized for individual risk experience, classification experience and other experience purposes.

The engineering and inspection department in exercising its function of accident prevention is concerned with the number of accidents occurring on a risk during stipulated calendar intervals per unit of exposure (accident frequency) and the relative cost of these accidents (accident severity). As a matter of service to policyholders, many companies keep track of the aggregate time lost from work due to injuries to employees and make an analysis of accidents by cause of injury.

The sales department in dealing with production of business is concerned with quantitative and qualitative agency data compiled according to individuals and territories. This department wishes to know the volume of business produced by an individual (new and renewal) during calendar periods by line of business and the loss producing character of that business.

The accounting department in addition to exercising its function of caring and accounting for the receipts and disbursements of the business, prepares periodical statements as to the financial status of the business for internal purposes (statement of condition) and external purposes (annual statement, tax returns, etc.). To fulfill these requirements there must be recorded certain accounting summaries. The more important of these summaries are analyses of premiums written and losses paid by line of insurance, character of entry and state. In addition, compensation and liability premiums, losses and loss expenses must be currently analyzed by policy year to compile Schedule P of the annual statement. For certain lines of insurance, loss

payments, salvage receipts, loss reserves, etc., must be analyzed for the purpose of preparing other annual statement schedules. Expense disbursements must be summarized into accounts and departments. Inventories must be made to determine the reserve for outstanding losses and uncollected premiums over ninety days old. At such times also the unearned premium reserve must be obtained.

#### FUNCTION OF THE STATISTICAL DEPARTMENT

The foregoing analysis has dealt with the statistical work necessary for the functioning of certain major operating departments. In addition, and independent of the functioning of these operating departments, certain statistical requirements must be met. One of the most important of these is the furnishing of reports to state departments and bureaus. This item alone has trebled and quadrupled the labor of former years, with a compensating factor, however, in that executives have learned to utilize such data for the conduct of the business.

Special investigations must be conducted as to the progress and condition of the company. Among such investigations may be mentioned the effect of rate changes on the company's rate level for the various lines of insurance, forecast of loss conditions, and other studies with which the actuary or statistician is primarily concerned. Executives must be furnished with data for the purpose of administrative control. Budgetary studies, plans for expanding the company's operations, control of branch offices, etc., fall into this group.

It is apparent that all of this statistical work represents a distinct function which by its nature differs from the basic functions of the various operating departments, *i. e.*, underwriting, claim, etc. It therefore follows that the greatest efficiency can only be secured when this necessary function is assigned to a certain part of the organization properly fitted to perform it.

Moreover, from this review of the statistical work required for internal and external purposes, it is seen that (1) the bulk of the compilations are derived from common original data (premiums, losses and expenses), and (2) the common data need be subdivided and summarized for a variety of purposes. With the development of punched cards and mechanical tabulating equipment

(with which the readers of this paper are presumed to be familiar) there exists an economical means for taking advantage of the fact that the statistical operations deal with common data.

The facts of the existence of (1) a distinct function, and (2) the means of economically performing this function, furnish the reason for creating a statistical department whose basic function is to centralize the statistical work necessary for the conduct of the company's business. In the following discussion, the existence of a statistical department will be assumed.

#### RELATIONSHIP OF STATISTICAL DEPARTMENT TO OTHER DEPARTMENTS

That the statistical department undertakes tasks which bind it very closely to other departments will be brought out in the following discussion.

##### *Underwriting Department*

Compensation and Liability Lines Subject to Audit.

The relationship of the statistical department to the underwriting department with respect to compensation depends in large part on whether it is the practice of the company to compile its experience data currently or upon the expiration of the policy. When the latter plan is followed, the individual risk experience record may be utilized as the punching medium for compiling experience data, and is therefore usually located in the statistical department proper. Where the practice of compiling experience data from current transactions is followed, the punching medium is usually a premium voucher or a loss voucher (containing the requisite coding). The premium voucher may thereafter be utilized for the individual risk experience record, but an incurred loss record must be resorted to for loss information. The question of handling loss records will be again discussed in considering the relations of the statistical department with the claim department.

On public liability lines subject to audit, the same procedure usually holds as for compensation, except that the liquidation of losses does not require a large number of payments.

### Lines Not subject to Audit.

For the automobile coverages, liability lines not subject to audit, fidelity and surety, plate glass, burglary, and accident and health, the plan of compiling experience data on the basis of current transactions is usually followed. The problem here is not complicated by the large number of losses occurring on a single risk (except on automobile fleet risks and certain liability lines) and therefore the compiling of individual risk experience is usually an indexing operation.

### *Claim Department*

The statistical department necessarily has a very close relation to the claim department, in that the latter originates incurred loss records and loss payment records. Loss payments usually enter into the accounting department control before reaching the statistical department. The contact arising from the relationship between the statistical and claim departments is usually a prolific source of annoyance in most companies, especially those companies which compile experience data on the current basis. A loss payment to the claim department represents nothing more than a payment to a policyholder or claimant in accordance with the terms of the policy contract. It is usually without significance as an item of statistical data. On the other hand, the statistical department frequently fails to take into consideration the fact that the basic function of the claim department is the settlement of claims. Such a condition is significant in indicating a confusion of functions.

An important tabulation to be considered is that of the loss reserve. This is often undetaken by the statistical department, and for that purpose there is maintained an individual loss card to which payments and periodic estimates of incurred cost are posted. This practice results in duplication of a primary record of the claim department, which duplication is sometimes justifiable on the grounds of facilitating the routine of the two departments. The loss card also serves as a basis for obtaining an analysis of losses outstanding, where the practice of compiling experience data on the current basis is followed. The information with regard to estimates and payments, which appears on the loss card furnishes the means of reviewing the adequacy of the company's loss reserve.

### *Accounting Department*

The accounting department in its normal functioning relies upon the statistical department in two ways. First, it receives from the statistical department distributions and analyses over which it exercises ledger control, such as the distribution of premiums, losses, and commissions by lines of insurance, the analyses of compensation and liability premiums and losses by policy years, and the summarization of paid expenses into accounts and departments. Second, it relies upon the statistical department for certain items over which it exercises no ledger control, such as loss reserves. The relations of these departments are influenced by the methods used in the writing of the company's business, whether direct or agency.

If the company follows the direct writing plan, the statistical department usually confines its work on premiums transactions to analyzing the total writings. The total as analyzed is controlled by the accounting department in its maintenance of policyholders' accounts. (The use of punched cards for policyholders' accounts in a non-agency company, while a possibility, has not progressed sufficiently for the maintenance of these accounts to be considered in the realm of the statistical department. With the rapid strides in the development of machine bookkeeping there has been no pronounced trend in the direction of maintaining policyholders' accounts on punched cards.)

If the company conducts its business on the agency plan, its agency accounting may be conducted by means of punched cards. In this event the statistical department serves a double role. It summarizes transactions by agents for the maintenance of their accounts. It thereafter analyzes the premium control in a manner similar to that for the non-agency writing company.

### *Sales Department*

The sales department looks to the statistical department for tabulation of premium writings by agents and territories, subdivided by lines of insurance. To estimate the loss producing character of that business incurred losses must be similarly analyzed and earned premiums calculated. Where the volume of business is sufficiently large, policy year exhibits of earned premiums and incurred losses are prepared.

## PLACE OF THE STATISTICAL DEPARTMENT

It has been our endeavor to indicate from an analysis of the work performed in a multiple line casualty company the various ways in which statistical material originates and also the varying uses to which such material is put for the functioning of the various departmental activities (including the executive and administrative branches).

One of the outstanding features of casualty insurance development, as contrasted with that of fire insurance, for example, has been the extent to which statistical data have been relied upon by individual companies, by rate making associations with which they are affiliated, and by state departments. One would naturally suppose under these circumstances that every multiple line casualty company which has attained any measurable degree of growth would have organized a separate statistical unit with suitable specialized personnel. On the contrary, the internal organization of companies is more frequently the result of haphazard growth rather than of the carrying out of a preconceived plan. As a consequence, statistical functions have been more or less lost sight of as a specialized line of activity and the statistical work has been permitted to grow up piecemeal as a part of the functions of several departments whose primary purpose is something other than that of furnishing accurate statistical information. What we have tried to point out in this paper is that it is more economical and efficient to separate the statistical duties from those departments whose real function is to administer the business of the company rather than to analyze it.

If the activities of the statistical unit are subordinated to those of another operating unit, the principal interest of which lies in another direction, there will be a marked tendency to neglect the statistical function in favor of some other major function. There will also be imposed an entirely different viewpoint which will militate against the efficient and economical handling of statistical work. This is for the reason that an opportunistic attitude will be adopted while statistical work from its very nature does not permit of such an attitude but must be planned and directed with an eye to the future. It seems obvious that in every multiple line company a statistical nucleus should be created even though at first it may not appear advisable to give it the status of a coordinate department.



The entire situation can be summed up very briefly by pointing out that it is no longer possible to dodge the fact that a considerable amount of statistical work has to be done and is being done by the home office staff of multiple line casualty companies. Moreover a review of the historical development of the importance of such statistical work over the past ten years will show that company executives have become well aware of the essential value of statistical work and largely depend upon its results as a guide to the formulation of business policies. This is to say that statistics, while formerly regarded as a necessary evil, is now looked upon as necessary and productive. But in the mechanical handling of statistical work there is still room for considerable improvement which can be effected largely by a reasonable centralization of the statistical functions. The extent to which centralization is desirable must be determined after a close study of inter-departmental relationships since the statistical department, because of its position in the flow of records, is an important connecting link in the various departmental activities. Such a study should be made with a view to reaching definite decisions on the relative position which the statistical unit should occupy and as to the proper time for it to assume the status of a coordinate department, independent in its responsibility to the administration.