THE EXPENSE STUDY BY SIZE OF RISK

BY

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Over the years, accurate determination of the loss portion of casualty insurance rates has claimed more of the attention of rate makers than accurate determination of the expense portion. In general, it has been deemed sufficient to determine the loss portion of the rate as accurately as possible and then to increase it by a flat percentage for expenses, such percentage being sufficient to cover the expenses of each line in the aggregate.

The First modification of this principle came with the introduction of Expense Constants. Then more recently the principle of graduated Expense Loadings for large premiums, mostly Workmen's Compensation, was introduced through the medium of premium discounts. These same expense graduations were built into the Standard Retrospective Rating Plans. These modifications, though generally accepted as logical, were based, for the most part, on judgment.

The desirability of more scientific treatment of the expense portion of casualty insurance premiums was called to the attention of this Society in consecutive presidential addresses by Mr. Perryman in November of 1940 and Mr. Pinney in May of 1941.

Both speakers expected such an analysis would be brought about by the forces of competition and by the necessity of justifying insurance charges, including the expense portion, to supervisory authorities and the public. Both felt that competition would be the more compelling force. Mr. Perryman summarized his remarks on the effect of competition as follows:

> "Competition makes its effects felt in casualty insurance in the same way as in any other field: if the price is too high the business goes elsewhere. If a carrier—or a group of carriers—erect a schedule of rates where the level is too high, say on account of too great an expense loading, competitors quoting rates at a more reasonable level will attract most of the business and the schedule of too high rates will have to be revised downwards if the users of it are to stay in business. This, however, is not the only or even the most common case: if the schedule of rates is not constructed on proper scientific lines as regards either the loss or the expense elements, the charges for some kinds of risks, may be those of some classifications, or those in some territories, or those of some sizes, will be too high, and others will be too low. Competitors will seize on the inequalities and will set out to write at lower, but yet profitable, levels, those risks for which the rates are too high. The first carrier will be left 'holding the bag' in the shape of the other risks at inadequate premiums."

But that was before Public Law 15. Actually it was the desire of the National Association of Insurance Commissioners to obtain information upon which to support the graduation in rates of expense provisions by size of risk that brought about the first comprehensive review of expenses by the industry.

Late in 1949 all companies writing annually more than $25,000,000. of Workmen's Compensation, General Liability and Automobile premiums combined were requested by the National Association of Insurance Commissioners to make an analysis of their expenses by size of risk to be submitted to the National Association of Insurance Commissioners. All but a few of the companies complied with this request.

The possibility of such an analysis of expenses by the companies had already been investigated by the New York Insurance Department in 1948. The investigation by the New York Insurance Department was an extensive investigation of the Workmen's Compensation operations of four companies, two stock and two mutual companies. All the field work was conducted by accountants on the staff of the New York Insurance Department under the supervision of Mr. Arthur L. Bailey, Chief Casualty Actuary of the New York Insurance Department.

Before beginning this investigation all of the accountants participating in the work took a course of study in the fundamentals of Workmen's Compensation insurance including rate-making, underwriting, engineering, claim, and audit practices.

The investigation required 513 man days in company offices plus 143 man days in the offices of the New York Insurance Department compiling and analyzing the data developed.

It was not the purpose of the New York Department's investigation to determine actual expense allocations. Its purpose was to determine whether an allocation of salaries by size and type of risk could be made and the problems inherent in such allocation.

This subject had been receiving the attention of the National Association of Insurance Commissioners even before 1948. The history of all the developments leading up to the Expense Study by Size of Risk was summarized by the Special Committee to meet with the Committee of the NAIC in its report to the Workmen's Compensation Committee of the NAIC dated November 21, 1950 as follows:—

"At the December 1946 session of the NAIC there was presented the report of the Actuarial Committee of the National Council on Compensation Insurance regarding the possibility of undertaking a study of the expenses by size of risk. * * * * * * At that session * * * * * * representatives of the Industry appeared before the Workmen's Compensation Committee and urged that a special committee of departmental experts be appointed at an early date to work with an industry committee to devise a call for a detailed breakdown of expense experience by size of risk.

"Following this session the National Council, in accordance with the action of its Actuarial Committee anticipating that a study would be undertaken and there might be some delay in the appointment of the suggested committee of departmental experts, issued a call to its members requesting a reporting of compensation expenses by size of risk as respects general administration expenses and payroll audit for calendar year 1946. * * * * *

"At the June 1947 session of the NAIC, the Chairman of the Workmen's Compensation Committee announced the appointment of the following to study with the industry the question of expenses by size of risk. * * * * *

California—C. C. Lloyd	Pennsylvania—George B. Elliott
Florida—Thomas Shands	Texas—Paul Benbrook
New York—Joseph F. Collins	Virginia—George A. Peery
James Higgins	Wisconsin—Lloyd Yaudes

"Accordingly, when the results of the call for size of risk expense data, authorized by the Actuarial Committee, became available they were presented to the Commissioner's Subcommittee and were reviewed at a number of joint meetings of the Subcommittee and the Actuarial Committee. The Subcommittee rendered a report on this item to the Workmen's Compensation Committee at the December 1947 session. * * * * *

"This report was adopted by the Workmen's Compensation Committee with the Statement.

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> 'The Committee accepts the preliminary report of the Workmen's Compensation Special Subcommittee which contains valuable information on graduation of expenses by size of risk but is not complete because of the lack of essential statistical data. The Workmen's Compensation Committee has accorded the Special Subcommittee the necessary time to complete its study in time for a final report at the June meeting of the Association. The Special Workmen's Compensation Subcommittee was authorized to continue the study along the lines recommended in their report and to take advantage of the generous offer of the New York Insurance Department to furnish the personnel for field studies to be made in accordance with the program to be established by the Special Subcommittee.'

"At the June 1948 session of the NAIC, the Subcommittee reported that the procedure and details for conducting the field studies, authorized at the December 1947 session, had been perfected and the program was well under way. However, 'the complexity of the problem and the length of time required for the making of the field studies has made it impossible for us to meet this request' (i.e. in time for a final report to be made at the June 1948 session.***** The Workmen's Compensation Committee accepted this report with the understanding that the studies would be continued with the objective of making a report to the Workmen's Compensation Committee at the December 1948 Session.* * * * *)

"The report of the Subcommittee, rendered at the December 1948 session, expressed the opinion that the field studies had shown that there is a downward graduation of the ratios of total expense to premium as the size of the risk's premium increases, despite the fact that no such graduation exists for certain items of expense and despite a definite upward graduation for a few items of expense. Also, the actual graduations of expense ratios are nearer to those in the 1943 program than to flat expense provisions with no graduation by size of risk. However, the actual degree of graduation of workmen's compensation expense ratios is not known and steps should be initiated immediately which will make available more complete factual data as to the extent of the graduation for the various types or groups of companies as soon as possible. The Subcommittee, therefore, recommended that a procedure setting forth minimum requirements for the analysis of expenses by size of risk, when such analyses are made on a sampling basis, be drafted for submission to the NAIC at the June 1949 meeting by a Committee of the NAIC after a review of proposals by the industry. It was also recommended among other items, that the procedure encompass other lines of business as well as workmen's compensation insurance as may be directed by the NAIC or appropriate Committees thereof.* * * * * *

"Later the report of the Subcommittee was amended to clarify some of the original phraseology and the amended report was accepted and approved by the Workmen's Compensation Committee.* * * * *

"In accordance with the foregoing, a Committee of the Industry was appointed by the Association of Casualty and Surety Companies, the Mutual Insurance Advisory Association and the National Council on Compensation Insurance. The Committee appointed consists of

American Mutual Liability Insurance Co.	Maryland Casualty Company
Hardware Mutual Casualty Company	National Surety Corporation
Liberty Mutual Insurance Company	Royal Indemnity Company
(Amer.) Lumbermens Mut. Cas. Co. of Ill.	Travelers Insurance Company

"Prior to the June 1949 session of the NAIC the Industry Committee submitted a report outlining procedures for obtaining actual analysis of expenses by size of risk.***** This report was reviewed at a joint meeting of the Commissioner's Subcommittee and the Industry Committee.

"In the subsequent report to the Workmen's Compensation Committee, the Subcommittee recommended a few changes in the details of the procedure outlined by the Industry Committee and further recommended:

> "3. Since the industry committee has gone to considerable effort to produce expeditiously a realistic procedure for obtaining expenses by size of risk, the sub-committee urges that the N.A.I.C. approve, at its June 1949 meeting, the report of the Industry Committee on Graduation of Expenses by Size of Risk and the 'Minimum Requirements to Obtain Actual Analyses of Expenses by Size of Risk' as amended by 1 and 2 above, in order that the companies and rating organizations involved may proceed immediately thereafter to initiate such analyses of expenses by size of risk.
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> 4. It is recommended that those independent carriers and rating organizations now employing expense graduation by size of risk, as well as those contemplating the adoption of such graduation, initiate studies at the earliest possible date covering 'representative' groups of their carriers which are, for calendar year 1949, subject to the requirements of the uniform accounting regulations; that the expenses used as the basis for this analysis, with the necessary studies being made in the latter part of 1949 and early part of 1950, in order that

these studies may be completed by the fall of 1950. In this connection, it is suggested that such rating organizations report to the N.A.I.C at its 1949 meeting what steps they have taken in initiating such studies, and that they plan to present to the N.A.I.C. at its December 1950 meeting summaries of the results completed by that time.

5. It is suggested that this Special Sub-Committee make itself available to the industry or any group of companies within the industry during the summer and fall of 1949 to discuss with them the adequacy of the 'representative' groups of carriers for which studies are contemplated."

* * * * *

"Following the June 1949 session the Industry Committee reported to the Commissioner's Subcommittee that twenty carriers had agreed to undertake the study of expenses by size of risk in accordance with the program previously adopted.

"In the report of the Industry Committee, it was noted 'an analysis of expenses by size of risk is known to be a very substantial undertaking, involving not only thousands of dollars of direct cost but also unmeasurable indirect costs incidental to the deployment of key personnel away from their regular jobs and the interruptions of production departments. In response to a directive from the supervisory officials, the above representative carriers are willing to assume the burden of these studies for the entire Industry with the understanding that such studies will not need to be repeated for a substantial period of time.'

"The report of the Subcommittee to the Workmen's Compensation Committee at the December 1949 session contains the following:

'It is the recommendation of your Sub-Committee: (1) That you commend these carriers for their action, and (2) that you assure the rating organization involved that in your opinion such representation is considered adequate for the study of expenses by size of risk and that it would be an unreasonable burden for such studies to be required to be repeated except after an interval of time of such length that conditions may reasonably be assumed to have changed materially.'"

This was the situation existing at the time the companies were ready to begin their investigation of expenses by size of risk. How is it possible to make proper allocation of expenses? It "cannot be made from theoretical considerations or by taking thought, even enormous quantities of thought: No, a great amount of investigation has to be undertaken" said Mr. Perryman in his address.

A great amount of investigation did indeed have to be undertaken. The study was a cooperative effort by thirteen stock companies and five mutual companies, two of the original twenty companies having found it impossible to complete the study. It was a comprehensive study requiring detailed analysis of a multitude of operations in many different departments, both in the home offices and the branch offices. Because of the magnitude of the task it required almost a year to complete the study which was brought to a conclusion in the Fall of 1950.

There were actually two separate studies. One conducted by the stock companies and one conducted by the mutual companies. This arrangement permitted companies, with similar methods of operation to work together and provided the benefits of two independent investigations.

In this paper I shall describe the procedure followed by the stock company group, as this is the procedure with which I am familiar. Quite likely, however, the mutual company study was similar to the stock company study in its general outlines.

To develop a logical and systematic procedure for the analysis of expenses by size of risk, the stock company group set up a special forum under the auspices of the Association of Casualty and Surety Companies which became known as the "Technical Forum to Study Expense by Size of Risk." This forum held regular meetings throughout the investigation under the chairmanship of Mr. Frank Lang, Manager of the Research Department of the Association of Casualty and Surety Companies. As each phase of the study was completed, results were compared at these meetings and plans were mapped out for proceeding with the next step of the investigation. These meetings were very helpful to the members who, for the most part, were sailing in uncharted seas.

The broad outlines of the study were laid down by the Industry Committee on Graduation of Expenses by Size of Risk in its report of April 26, 1949 to the National Association of Insurance Commissioners. This report was practically required reading for anyone taking part in the study.

It recommended that the expenses to be analyzed should first be allocated in accordance with uniform accounting requirements. It recommended that the analysis be made on the basis of expenses paid rather than expenses incurred. It recommended that commissions and investment expenses be excluded from the study. It recommended the inclusion of other lines of insurance in addition to Workmen's Compensation. All of these recommendations were followed by the companies taking part in the study.

The report also suggested certain techniques and methods to be employed in analyzing expenses. The report was constantly referred to every step of the way. Because of its importance, the report of the Industry Committee has been included in full in the Appendix.

The expenses analyzed were. Inspection Board and Bureau, Payroll Audit, Loss Adjustment, Other General, and Other Acquisition, including field supervision and collection. Each of these categories of expense was subjected to separate analysis.

The lines of insurance investigated were: Workmen's Compensation, General Liability and Automobile Bodily Injury and Property Damage Liability. The size intervals used in the investigation were those recommended for Workmen's Compensation by the Industry Committee as follows.

0	to	$49.
50.	to	99.
100.	to	499.
500.	to	999.
1,000.	to	4,999.
5,000.	to	9,999.
10,000.	to	24,999.
25,000.	to	99,999.
100,000.	and over	

The same size groups were used for Automobile and General Liability except that the first size group was subdivided into 0 to $19. and $20. to $49. for General Liability. This subdivision for General Liability was due to the great number of minimum premium risks which would fall in the 0 to $19. group. It was considered desirable to segregate this group.

As suggested by the Industry Committee, the expenses for these lines of insurance were first allocated in accordance with the requirements of uniform accounting regulations and then allocated according to size of premium. To do this, the companies relied mainly upon two methods of analysis, namely time studies and item counts of various sorts. These methods were supplemented by discussions with the employees performing the operations and their supervisors.

In general the operations susceptible to analysis by time studies were.

Underwriting
Policywriting
Audit
Engineering

The operations analyzed by item counts of various sorts were:

Statistical
Accounting
Filing

In a few instances expenses were apportioned according to premium volume where this seemed to be appropriate. Other expenses were apportioned according to the number of policies. The bulk of the expenses, however, were apportioned in accordance with time studies and item counts or combinations of these two methods.

To illustrate the program of a typical company, let us consider our company's program.

First, we determined the volume of premium and number of policies for each of the premium intervals. For Workmen's Compensation this was accomplished by a tabulation of all our unit report cards for policy year 1947. The results of this tabulation were then projected to the level of Calendar Year 1949. For Automobile, an actual record of our current business for a four week period was kept. This distribution was then projected to the level of Calendar Year 1949. A similar procedure was followed for General Liability except that we used a six week sample period. For all three lines a hand check for all policies in excess of $5,000. was made to make sure that all such policies were included.

Next, Home Office time studies were begun in the underwriting, policy-writing, and audit departments and in some sections of the statistical department.

Simultaneously item counts were made in other sections of the statistical department and in our central filing department. These item counts were carefully thought out to provide an accurate basis for measuring the amount of work per policy for the various premium sizes. It was here that each company had to exercise its judgment in devising plans which would provide a satisfactory basis of analysis, keeping in mind its own peculiar methods of operation.

A simple example of such an item count was the item count used by our company as the basis of the distribution of salaries in the Unit Report Section of our Statistical Department. Obviously large policies will, on the average, require more unit report cards than small ones. We therefore determined, by actual count, the average number of unit report cards for all our policies producing premiums over $100,000. The average number of unit report cards per policy for each of the other premium sizes was then determined by sampling. These averages were multiplied by the number of policies in each size group to determine the distribution of unit report cards according to premium size. Salaries in the Unit Report Section were allocated in proportion to this distribution.

Another company in studying its Records Department made an activity distribution based on the number of withdrawals by size of risk from a sample analysis and the time of the employees in the department was distributed accordingly.

Next, visits were made to selected branch offices which were considered typical. Small as well as large branch offices were visited. During these visits general meetings of the office force were held, at which time the methods for making the time study were explained to the employees. Although these branch office time studies could have been conducted concurrently with the home office time studies, they were not begun until some experience with these studies had been gained in the home office.

At about the same time special time study sheets were sent out from the Home office to field auditors and engineers with specific instructions for keeping these records.

Finally, the results of all these studies were assembled and analyzed.

This final step is illustrated by the following chart which shows the procedure followed by our Company in allocating the salary portion of Other General Expense for Workmen's Compensation.

WORKMEN'S COMPENSATION—OTHER GENERAL EXPENSE

SALARIES

Size Group	*1* %	*2* %	*3* %	*4* %	*5* %	*6* %	*7* %	*8* %	*9* %	*Total* %	*Basis of Allocation*
Accts. Collection	27.6	18.0	27.6	13.7	11.3	0.6	0.7	0.3	0.2	100.0	Item Count
Accts. Other	4.2	4.4	16.0	12.6	28.4	5.9	5.9	4.6	18.0	100.0	Premium Volume
Agency	4.2	4.4	16.0	12.6	28.4	5.9	5.9	4.6	18.0	100.0	Premium Volume
Underwriting	13.0	10.6	13.7	12.2	17.5	3.5	2.9	3.7	22.9	100.0	Time Study
Central Files	68.1	24.9	5.0	0.9	0.7	0.1	0.1	0.1	0.1	100.0	Item Count
Files (Storage)	42.0	21.9	24.3	6.5	4.9	0.3	0.1	—	—	100.0	No. of Policies
Stenographic	13.0	10.6	13.7	12.2	17.5	3.5	2.9	3.7	22.9	100.0	Same as Undw.
Pol. Writing	21.4	11.7	23.3	7.9	22.9	3.3	0.8	2.3	6.4	100.0	Time Study
Statistical											
History	—	0.5	13.4	8.6	17.4	9.5	7.0	5.6	38.0	100.0	Time Study
Unt. Rpt.	38.4	21.0	23.1	7.0	7.5	1.0	0.9	0.4	0.7	100.0	Item Count
Code, Tab.	37.3	20.7	23.1	6.7	7.5	1.0	2.3	0.5	0.9	100.0	Item Count
Misc.	20.7	12.5	19.6	9.7	18.0	3.4	4.1	2.6	9.4	100.0	T.S. & Item Count
Cashier, Mail & Misc.	4.2	4.4	16.0	12.6	28.4	5.9	5.9	4.6	18.0	100.0	Premium Volume
Personnel Supply Systems & Exec.	OVERHEAD ON OTHERS										Overhead on Others
Total	TOTAL OF OTHERS										

The figures used in this calculation were actually the Dollar Amounts, corresponding to the percentages shown above. The amounts posted to the Total column were obtained from our Accounts Department, and had been previously allocated in accordance with Uniform Accounting Requirements. These amounts were then multiplied by the percentages shown above to allocate the salaries to the various size groups. For the bulk of salaries, these percentages were based upon Time Studies and Item Counts as shown in the final column of the Chart.

Once salaries were apportioned it was not difficult to apportion other expenses. Most expenses were allocated in the same proportion as salaries. A few, however, were not. In our Company the only exceptions were Legal, Company Audit and a few miscellaneous items, all of which were of minor importance. These items were allocated according to premium volume.

These expenses were then combined with salaries, resulting in our Company's figures for column (f) of Exhibit 1.

The final step was to express these expenses as a percentage of the premium; for each size group. This disclosed the following graduation of Other General expense:

Premium Size	*Other General Expense*
Under $50	21.0%
50 – 99	12.6
100 – 499	4.9
500 – 999	3.4
1000 – 4999	2.4
5000 – 9999	2.1
10,000 – 24,999	2.0
25,000 – 99,999	2.3
100,000 & over	2.8
Average	4.2%

Results of a single year for a single company, using limited samples cannot be considered completely reliable, especially for larger premium sizes. However, the significance of an individual company's results as an indication of the reliability of the combined results should not be overlooked. According to accepted statistical practice, the reliability of a sample may be tested by comparing results for segments of the sample with each other and with the combined results. It can be seen from the following comparison that the results for our Company were fairly consistent with the results for the thirteen stock companies combined:

Calendar Year 1949
Other General Expenses Paid
by Policy Size

Premium Size	*General Accident*	*13 Stock Cos. Combined*
Under $50	21.0%	23.8%
50 – 99	12.6	12.8
100 – 499	4.9	5.1
500 – 999	3.4	3.4
1000 – 4999	2.4	2.5
5000 – 9999	2.1	3.0
10,000 – 24,999	2.0	2.7
25,000 – 99,999	2.3	2.5
100,000 & over	2.8	2.3
Average	4.2%	4.1%

In general, the results obtained by the individual companies were fairly consistent for each type of expense analyzed, indicating reliable results for the group as a whole.

Allocations for other categories of expense were analyzed in much the same way as Other General Expense. When completed, the final results were filed with the various rating organizations for processing. The combined results for stock companies are shown in Exhibits 1 to 6. The combined results for the mutual companies are shown in Exhibits 7 to 12.

It was understood at the outset that these studies were not intended to test the overall adequacy of expense levels which can be tested in other ways. The studies were intended to test the graduation of expense loadings, other than commissions, in the rating structures.

The Workmen's Compensation program being tested was:

	Admin. & Audit	*Other Acqui.*	*Eng. & Bur.*	*Claim*
First $1000.	7.7%	7.5%	8.2%	2.6%
Next 4000.	4.1	5.0	8.2	2.6
Next 95,000.	4.1	2.5	8.2	2.6
Over 100,000.	4.1	1.0	8.2	2.6

Plus a $10.00 Expense Constant per policy whenever the policy premium is less than $500.00.

Exhibit 2 shows that a distinct graduation of expenses exists for the stock companies. The graduation demonstrated approximates the graduation in the stock company program under review.

The $10.00 Expense Constant which is part of the standard program was justified beyond all doubt. A much larger Expense Constant for premiums under $100.00 was, in fact, indicated.

A different, though definite, graduation was also demonstrated by the mutual companies. Other Acquisition was shown to decline even more sharply as the premium increased than for the stock companies. On the other hand the graduation demonstrated for Other General Expense was less pronounced than for the stock companies. For Audit and for Inspection Board and Bureau the trend revealed was not unlike the stock company trend. It appears that the difference in results for the two groups is greatest in those areas in which the two groups employ different methods of operation, namely Other Acquisition and Other General Expense. Where the two groups use similar methods of operation such as in Engineering and Audit the difference in results is not so great.

These conclusions were reported more fully by the National Council on Compensation Insurance in its report of May 16, 1951 to the Special Sub-Committee of the Workmen's Compensation Committee of the N.A.I.C. The National Council's report is a careful and detailed analysis of the results of the study. This report has been made a part of the Appendix.

The Special Sub-Committee of the Workmen's Compensation Committee of the N.A.I.C. which received the report was in substantial agreement with the conclusions of the National Council. The Sub-Committee's conclusions with respect to Workmen's Compensation were as follows.

"(1) A distinct graduation of expenses by size of risk, for both stock and non-stock carriers, has been demonstrated.

(2) Expense constants are an inescapable part of the mechanics of providing for graduation of expenses in the premium structure.

(3) For policies of less than $100 premium the experience of both stock and non-stock carriers indicates the need for an expense constant in excess of $10 as well as expense provisions in the rates in excess of those now provided. (Although many states now have a $10 expense constant, some have less than $10 and some have no constant at all.)

(4) Your Sub-Committee agrees with the Industry that, through cooperation with supervisory authorities, important operating economies can be achieved on small policies. Therefore, this approach is to be preferred to any attempt at this time to increase the expense constant beyond $10 or to increase the expense provision in the rates for such policies. In our interim report of March 15, 1951 it was suggested that your Committee may wish to make that subject a separate item on its agenda.

(5) Data of the type available cannot be expected to be such as to determine precisely the "breaking points" either at which expense constants should cease to apply or at which graduations in expense provisions should be made. Such 'breaking points' are not of great consequence if consideration is given to the overall average expense provisions produced by the combination of such breaking points and the graduations of expense provisions.

(6) Assuming that the overall expense provisions are now correct, the provisions for the large policies are excessive to the extent that the provisions for the smaller policies have been demonstrated to be inadequate.

(7) Because no data in this study is pertinent to the study of the overall expense provisions, it is believed by your Sub-Committee that data for that purpose should be prepared and analyzed for use in consideration of specific proposals as to changes in expense constants or other expense provisions."

For General Liability and Automobile graduation of expenses is recognized in stock company rates at present in only a few States. However, the study revealed a definite graduation of expenses for General Liability. With respect to Automobile, the graduation was less pronounced than for General Liability and Workmen's Compensation. Perhaps this was to be expected. The graduation demonstrated for Automobile in connection with Other General Expense and Other Acquisition was offset to a large extent by the fact that engineering and audit expenses do not occur for Automobile in connection with small premium sizes. However these results do not preclude the use of premium discounts for Automobile if they are largely a reflection of sliding scale commissions.

The original purpose of the study, to determine the graduation of expenses according to premium size, was thus accomplished. But the study did more than that. It emphatically pointed up the Small Risk Problem.

Part of the solution to the Small Risk Problem was to press for approval of the $10.00 Expense Constant in all states. This step was taken immediately. As a direct result of the study all rate filings made by the National Council since September 1, 1951 have included a $10.00 Expense Constant to be charged whenever the policy premium is less than $500.00.

When Expense Constants were first introduced they were expected to yield 4% of the total premium, thus permitting a reduction of the expense loading from 40.0% to 37.5% including 2.5 points for taxes or 35.0% exclusive of taxes. This was years ago when the average premium was much smaller than it is today. Today, according to the premium distribution reported by the thirteen stock companies, the premium realized from a $10 Expense Constant even if applicable in all States would be only 2.5% of the total premium, requiring an expense loading of 36.0% exclusive of taxes. This becomes 38.5% when increased by the 2.5 points for profit and contingencies now a part of the standard loading.

The computation of this loading is as follows:

ADJUSTMENT OF STANDARD EXPENSE LOADING FOR $10 EXPENSE CONSTANT

Item	(1) *Values at Normal Loading*	(2) *Reduction For Expense Constant*	(3) *Revised % of Unadjusted Manual Rate (1) − (2)*	(4) *% of Revised Manual Rates (3) ÷ .975*	(5) *Expense Constant*
Acquisition	17.5%	.4375 (a)	17.0625%	17.5%	$1.75
Taxes	2.5	.0625 (a)	2.4375	2.5	.25
Profit & Conting.	2.5	.0625 (a)	2.4375	2.5	.25
Claim Adjustment	8.0	—	8.0000	8.2	—
Inspection & Bur.	2.5	—	2.5000	2.6	—
Admin. & Audit	9.5	1.9375 (b)	7.5625	7.7	7.75
TOTAL EX TAXES	42.5%	2.5%	40.0%	41.0%	$10.00

(a) Column (1) x .025
(b) 2.5 − (.4375 + .0625 + .0625) = 1.9375

Consequently, in addition to containing a $10. Expense Constant, all rate filings made by the National Council since September 1, 1951 have been based upon a loading for expenses, profit and contingencies of 38.5% plus the tax allowance. This was also a direct result of the study.

As mentioned earlier, the $10. Expense Constant seems to be seriously inadequate for premiums under $100. Rather than increase the Expense Constant for these policies, however, it was decided to attempt to reduce the cost of handling small policies. A study of ways to achieve such economies is now being made by a committee of the National Council on Compensation Insurance. This is a problem of foremost importance which cannot be quickly solved. At present we can merely list the suggestions for reducing costs which are being considered by the National Council's Special Committee on Small Risks.

1. A simplified Small Risk Manual Supplement both with respect to rules as well as classifications. This would involve the use of a single classification per risk.
2. The introduction of a continuous policy or a three-year policy with certificate renewals.
3. No individual risk statistical reporting and no Administrative Bureau stamping of policies, except for notification of coverage and cancelation of same. (The Staff and the Actuarial Committee are currently working to develop some program in regard to the matter of statistical reporting. Also, with respect to the problem of stamping policies for small risks, further consideration is to be given to the comments received from the Bureaus, recognizing the current requirements of the State Industrial Commissions as to the use of information now in the Bureau files.)
4. Rates amended only for law level changes and for group classification experience reviews every three years. This would be entirely separate from the annual review of classification rates to be applicable to other than small risks.
5. Payroll reporting on a simplified basis. In this connection it was suggested that, possibly, social security reports could be used for this purpose.

CONCLUSION

The magnitude of this study precludes its repetition in the near future. The study was, in fact, undertaken by the companies with the understanding that it would not be repeated for some time. Nevertheless, it is probably safe to conclude that in the future more attention will be given to the expense element of rates than in the past.

It is generally agreed that the companies making this investigation have done a thorough and conscientious job and have developed useful and worthwhile information. However, the importance of this study should not be measured entirely by the statistical information obtained from it. Much of its importance lies in the fact that in making this study, cost accounting methods and techniques were employed for the first time on a wide scale in our industry. In the long run this may prove to be of more importance than the concrete results immediately obtained.

SPECIMEN EMPLOYEE'S DAILY TIME SHEET

The time sheet must be completed every day and will be collected by 9 o'clock the following morning. The amount of time in minutes spent on each piece of work is entered in the proper space. The small block is for the daily total. All time must be accounted for. For example: a ....hour day will total .... minutes. Overtime should be included.

Name			Individual Code	Date
Code	Size of Risk	Compensation	B.I. and P.D. (Other than auto)	Automobile B.I. and P.D.
1	0–49		0–19 / 20–49	
2	50–99			
3	100–499			
4	500–999			
5	1,000–4,999			
6	5,000–9,999			
7	10,000–24,999			
8	25,000–99,999			
9	100,000–and over			
		TOTAL	TOTAL	TOTAL

Total Assigned	Unassignable	GRAND TOTAL

Form number

EXHIBIT 1

NATIONAL COUNCIL ON COMPENSATION INSURANCE — November 21, 1950

ANALYSIS OF EXPENSES PAID BY POLICY SIZE, CALENDAR YEAR 1949
(Excluding Commissions and Taxes)

Stock Companies—Workmen's Compensation

PART I

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
				Paid Expenses Analyzed by Size				
	Annual Premium Size	*No. of Policies*	*Direct Standard Earned Premium*	*Inspection, Boards and Bureaus*	*Payroll Audit*	*Other General*	*Other Acq. Field Sup. and Collection*	*Loss Adjustment*
(1)	Under—$ 50	206,382	5,435,637	128,020	707,498	1,295,163	1,222,367	381,217
(2)	50— 99	103,614	7,441,175	143,430	606,568	955,752	924,609	515,796
(3)	100— 499	145,865	32,327,720	592,918	1,313,969	1,662,123	1,684,765	2,218,527
(4)	500— 999	27,712	19,351,119	395,457	471,070	663,391	701,159	1,344,642
(5)	1,000— 4,999	20,608	41,496,960	824,076	639,621	1,027,891	1,176,115	2,837,173
(6)	5,000— 9,999	2,062	14,135,022	342,756	171,677	422,184	413,328	967,605
(7)	10,000—24,999	1,105	17,362,726	429,053	152,574	472,361	458,273	1,183,541
(8)	25,000—99,999	500	22,665,979	568,049	177,977	570,755	629,826	1,563,815
(9)	100,000 and Over	129	30,726,204	669,065	161,217	695,731	643,135	2,040,205
(10)	Total	507,977	190,942,542	4,092,824	4,402,171	7,765,351	7,853,577	13,052,521
(11)	Adjustment to Net Basis	—	13,241,392	—	—	—	—	—
(12)	Total, (Net)	507,977	177,701,150	4,092,824	4,402,171	7,765,351	7,853,577	13,052,521
(13)	0— 999	483,573	64,555,651	1,259,825	3,099,105	4,576,429	4,532,900	4,460,182
(14)	1,000 & Over	24,404	126,386,891	2,832,999	1,303,066	3,188,922	3,320,677	8,592,339

Companies included:

Aetna Casualty and Surety Company
Employers' Liability Assurance Corporation, Ltd.
General Accident Fire and Life Assurance Corporation, Ltd.
(Eagle Indemnity Company
(Globe Indemnity Company
(Royal Indemnity Company
Hartford Accident and Indemnity Company
Standard Accident Insurance Company
Travelers Indemnity Company
Travelers Insurance Company
United States Casualty Company
United States Fidelity and Guaranty Company
Zurich General Accident and Liability Insurance Co., Ltd.

EXHIBIT 2

NATIONAL COUNCIL ON COMPENSATION INSURANCE

November 21, 1950

ANALYSIS OF EXPENSES PAID BY POLICY SIZE, CALENDAR YEAR 1949
(Excluding Commissions and Taxes)

Stock Companies—Workmen's Compensation

PART II

	(a)	*(b)*	*(c)*	*(d)*	*(e)*	*(f)*	*(g)*	*(h)*
				Paid Expenses Analyzed by Size				
	Annual Premium Size	*No. of Policies*	*Direct Standard Earned Premium*	*Inspection, Boards and Bureaus*	*Payroll Audit*	*Other General*	*Other Acq. Field Sup. and Collection*	*Loss Adjustment*
(1)	Under—$ 50	206,382	5,435,637	2.4%	13.0%	23.8%	22.5%	7.0%
(2)	50— 99	103,614	7,441,175	1.9	8.2	12.8	12.4	6.9
(3)	100— 499	145,865	32,327,720	1.8	4.1	5.1	5.2	6.9
(4)	500— 999	27,712	19,351,119	2.0	2.4	3.4	3.6	6.9
(5)	1,000— 4,999	20,608	41,496,960	2.0	1.5	2.5	2.8	6.8
(6)	5,000— 9,999	2,062	14,135,022	2.4	1.2	3.0	2.9	6.8
(7)	10,000—24,999	1,105	17,362,726	2.5	0.9	2.7	2.6	6.8
(8)	25,000—99,999	500	22,665,979	2.5	0.8	2.5	2.8	6.9
(9)	100,000 and Over	129	30,726,204	2.2	0.5	2.3	2.1	6.6
(10)	Total	507,977	190,942,542	2.1	2.3	4.1	4.1	6.8
(11)	Adjustment to Net Basis	—	13,241,392	—	—	—	—	—
(12)	Total, (Net)	507,977	177,701,150	—	—	—	—	—
(13)	0— 999	483,573	64,555,651	2.0%	4.8%	7.1%	7.0%	6.9%
(14)	1,000 and Over	24,404	126,386,891	2.2	1.0	2.5	2.6	6.8

Companies included:

Aetna Casualty and Surety Company
Employers' Liability Assurance Corporation, Ltd.
General Accident Fire and Life Assurance Corporation, Ltd.
(Eagle Indemnity Company
(Globe Indemnity Company
(Royal Indemnity Company
Hartford Accident and Indemnity Company
Standard Accident Insurance Company
Travelers Indemnity Company
Travelers Insurance Company
United States Casualty Company
United States Fidelity and Guaranty Company
Zurich General Accident and Liability Insurance Co., Ltd.

EXHIBIT 3

Association of Casualty and Surety Companies December 6, 1950

ANALYSIS OF EXPENSES PAID BY POLICY SIZE, CALENDAR YEAR 1949

(Excluding Commissions and Taxes)

Stock Companies—Auto Liability and Property Damage

PART I

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
				Paid Expense Analyzed By Size				
	Annual Premium Size	Estimated No. of Policies Written	Direct Standard Earned Premium	Inspection, Boards and Bureaus	Payroll Audit	Other General	Other Acq. Field Sup. and Collection	Loss Adjustment
(1)	Under $ 50	3,321,114	113,534,582	597,090	92,910	5,968,555	6,902,757	10,091,871
(2)	50— 99	1,292,347	79,737,893	377,128	92,692	3,407,430	4,698,052	7,088,631
(3)	100— 499	248,996	41,712,479	367,928	311,620	1,643,422	2,320,010	3,780,494
(4)	500— 999	21,194	13,625,140	213,861	133,646	560,980	651,478	1,259,275
(5)	1,000— 4,999	13,192	24,432,790	539,224	216,027	808,182	929,620	2,278,632
(6)	5,000— 9,999	841	5,730,386	177,834	57,178	226,523	240,210	529,655
(7)	10,000—24,999	506	7,766,742	199,778	23,038	213,152	237,391	741,903
(8)	25,000—99,999	205	9,567,106	231,480	26,708	206,885	262,512	892,842
(9)	100,000 and Over	42	6,968,857	255,301	14,617	118,895	168,926	584,529
(10)	Total	4,898,437	303,075,975	2,959,624	968,436	13,154,024	16,410,956	27,247,832
(11)	Adj. to Net Basis	—	−4,901,707	—	—	—	—	—
(12)	Total, (Net)	4,898,437	298,174,268	2,959,624	968,436	13,154,024	16,410,956	27,247,832
(13)	0— 999	4,883,651	248,610,094	1,556,007	630,868	11,580,387	14,572,297	22,220,271
(14)	1,000 and Over	14,786	54,465,881	1,403,617	337,568	1,573,637	1,838,659	5,027,561

Companies Included:

Aetna Casualty and Surety Company
Employers' Liability Assurance Corporation, Ltd.
General Accident Fire and Life Assurance Corporation, Ltd.
(Eagle Indemnity Company
(Globe Indemnity Company
(Royal Indemnity Company
Hartford Accident and Indemnity Company
Standard Accident Insurance Company
Travlers' Indemnity Company
Travelers' Insurance Company
United States Casualty Company
United States Fidelity and Guaranty Company
Zurich General Accident and Liability Insurance Co., Ltd.

EXHIBIT 4

Association of Casualty and Surety Companies — December 6, 1950

ANALYSIS OF EXPENSE PAID BY POLICY SIZE, CALENDAR YEAR 1949

(Excluding Commissions and Taxes)

Stock Companies—Auto Liability and Property Damage

PART II

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
			Ratio Paid Expenses to Direct Standard Earned Premium				
Annual Premium Size	Estimated No. of Policies Written	Direct Standard Earned Premium	Inspection, Boards and Bureaus	Payroll Audit	Other General	Other Acq. Field Sup. and Collection	Loss Adjustment
(1) Under $ 50	3,321,114	113,534,582	.5%	.1%	5.3%	6.1%	8.9%
(2) 50— 99	1,292,347	79,737,893	.5	.1	4.3	5.9	8.9
(3) 100— 499	248,996	41,712,479	.9	.7	3.9	5.6	9.1
(4) 500— 999	21,194	13,625,140	1.6	1.0	4.1	4.8	9.2
(5) 1,000— 4,999	13,192	24,432,790	2.2	.9	3.3	3.8	9.3
(6) 5,000— 9,999	841	5,730,386	3.1	1.0	4.0	4.2	9.2
(7) 10,000—24,999	506	7,766,742	2.6	.3	2.7	3.1	9.6
(8) 25,000—99,999	205	9,567,106	2.4	.3	2.2	2.7	9.3
(9) 100,000 and Over	42	6,968,857	3.7	.2	1.7	2.4	8.4
(10) Total	4,898,437	303,075,975	1.0	.3	4.3	5.4	9.0
(11) Adjustment to Net Basis	—	−4,901,707	—	—	—	—	—
(12) Total, (Net)	4,898,437	298,174,268	—	—	—	—	—
(13) 0— 999	4,883,651	248,610,094	.6	.3	4.7	5.9	8.9
(14) 1,000 and Over	14,786	54,465,881	2.6	.6	2.9	3.4	9.2

Companies Included:

Aetna Casualty and Surety Company
Employers' Liability Assurance Corporation, Ltd.
General Accident Fire and Life Assurance Corporation, Ltd.
(Eagle Indemnity Company
(Globe Indemnity Company
(Royal Indemnity Company
Hartford Accident and Indemnity Company
Standard Accident Insurance Company
Travelers' Indemnity Company
Travelers' Insurance Company
United States Casualty Company
United States Fidelity and Guaranty Company
Zurich General Accident and Liability Insurance Co., Ltd.

EXHIBIT 5

Association of Casualty and Surety Companies — December 6, 1950

ANALYSIS OF EXPENSES PAID BY POLICY SIZE, CALENDAR YEAR 1949

(Excluding Commissions and Taxes)

Stock Companies—Liability and Property Damage and Collision Other Than Auto

PART I

(a)	(b)	(c)	(d)		(d1)	(e)	(f)	(g)	(h)
			Paid Expenses Analyzed by Size						
			Inspection						
Annual Premium Size	Estimated No. of Policies Written	Direct Standard Earned Premium	Elevator	Other than Elevator	Boards and Bureaus	Payroll Audit	Other General	Other Acq. Field Sup. and Collection	Loss Adjustment
(1) Under $20*	868,821	10,578,305	62,584	237,299	23,514	253,240	1,321,694	1,478,553	1,086,441
(2) 20— 49*	351,846	11,568,026	117,195	363,576	25,779	315,809	888,161	1,047,742	1,181,002
(2a) 0— 49	1,411,210	25,358,659	233,426	683,734	59,472	714,147	2,829,669	3,116,912	2,681,518
(3) 50— 99	129,502	9,608,344	235,416	414,446	21,804	332,028	698,873	816,587	1,015,445
(4) 100— 499	100,736	21,507,714	546,655	712,971	49,384	589,729	967,516	1,118,299	2,300,116
(5) 500— 999	11,064	8,019,730	198,019	262,500	18,523	176,303	341,775	380,603	858,383
(6) 1,000— 4,999	6,454	13,116,368	223,559	342,655	31,206	228,096	449,869	538,134	1,449,900
(7) 5,000— 9,999	533	3,706,843	53,026	91,994	8,362	53,711	169,053	157,180	388,096
(8) 10,000—24,999	298	4,563,418	49,005	92,937	10,376	50,560	172,304	151,096	480,266
(9) 25,000—99,999	124	5,356,291	56,356	88,218	11,157	67,225	162,661	152,659	578,599
(10) 100,000 and Over	19	4,581,650	32,526	96,322	10,046	14,636	142,496	106,599	482,875
(11) Total	1,659,940	95,819,017	1,627,988	2,785,777	220,330	2,226,435	5,934,216	6,538,069	10,235,198
(12) Adjustment to Net Basis	—	2,612,334	—	—	—	—	—	—	—
(13) Total, (Net)	1,659,940	93,206,683	1,627,988	2,785,777	220,330	2,226,435	5,934,216	6,538,069	10,235,198
(14) 0— 999	1,652,512	64,494,447	1,213,516	2,073,651	149,183	1,812,207	4,837,833	5,432,401	6,855,462
(15) 1,000 and Over	7,428	31,324,570	414,472	712,126	71,147	414,228	1,096,383	1,105,668	3,379,736

*Figures shown on lines (1) and (2) exclude one company which was unable to split policies whose annual premium size is under $50 in accordance with the call. Figures shown on line (2a) include this company.

Companies included:

Aetna Casualty and Surety Company
Employers' Liability Assurance Corporation, Ltd.
General Accident Fire and Life Assurance Corporation, Ltd.
(Eagle Indemnity Company
(Globe Indemnity Company
(Royal Indemnity Company
Hartford Accident and Indemnity Company
Standard Accident Insurance Company
Travelers' Indemnity Company
Travelers' Insurance Company
United States Casualty Company
United States Fidelity and Guaranty Company
Zurich General Accident and Liability Insurance Co., Ltd.

EXHIBIT 6

Association of Casualty and Surety Companies — December 6, 1950

ANALYSIS OF EXPENSES PAID BY POLICY SIZE, CALENDAR YEAR 1949
(Excluding Commissions and Taxes)
Stock Companies—Liability and Property Damage and Collision Other Than Auto
PART II

	(a)	(b)	(c)	(d)		(d1)	(e)	(f)	(g)	(h)
				Ratio Paid Expenses to Direct Standard Earned Premium						
				Inspection						
	Annual Premium Size	Estimated No. of Policies Written	Direct Standard Earned Premium	Elevator	Other than Elevator	Boards and Bureaus	Payroll Audit	Other General	Other Acq. Field Sup. and Collection	Loss Adjustment
(1)	Under $20*	868,821	10,578,305	.6%	2.2%	.2%	2.4%	12.5%	14.0%	10.3%
(2)	20— 49*	351,846	11,568,026	1.0	3.1	.2	2.7	7.7	9.1	10.2
(2a)	0— 49	1,411,210	25,358,659	.9	2.7	.2	2.8	11.2	12.3	10.6
(3)	50— 99	129,502	9,608,344	2.5	4.3	.2	3.5	7.3	8.5	10.6
(4)	100— 499	100,736	21,507,714	2.5	3.3	.2	2.7	4.5	5.2	10.7
(5)	500— 999	11,064	8,019,730	2.5	3.3	.2	2.2	4.3	4.7	10.7
(6)	1,000— 4,999	6,454	13,116,368	1.7	2.6	.2	1.7	3.4	4.1	11.1
(7)	5,000— 9,999	533	3,706,843	1.4	2.5	.2	1.4	4.6	4.2	10.5
(8)	10,000—24,999	298	4,563,418	1.1	2.0	.2	1.1	3.8	3.3	10.5
(9)	25,000—99,999	124	5,356,291	1.1	1.6	.2	1.3	3.0	2.9	10.8
(10)	100,000 and Over	19	4,581,650	.7	2.1	.2	.3	3.1	2.3	10.5
(11)	Total	1,659,940	95,819,017	1.7	2.9	.2	2.3	6.2	6.8	10.7
(12)	Adjustment to Net Basis	—	2,612,334	—	—	—	—	—	—	—
(13)	Total, (Net)	1,659,940	93,206,683	—	—	—	—	—	—	—
(14)	0— 999	1,652,512	64,494,447	1.9	3.2	.2	2.8	7.5	8.4	10.6
(15)	1,000 and Over	7,428	31,324,570	1.3	2.3	.2	1.3	3.5	3.5	10.8

*Figures shown on lines (1) and (2) exclude one company which was unable to split policies whose annual premium size is under $50 in accordance with the call. Figures shown on line (2a) include this company.

Companies included:

Aetna Casualty and Surety Company
Employers' Liability Assurance Corporation, Ltd.
General Accident Fire and Life Assurance Corporation, Ltd.
(Eagle Indemnity Company
(Globe Indemnity Company
(Royal Indemnity Company
Hartford Accident and Indemnity Company
Standard Accident Insurance Company
Travelers' Indemnity Company
Travelers' Insurance Company
United States Casualty Company
United States Fidelity and Guaranty Company
Zurich General Accident and Liability Insurance Co., Ltd.

EXHIBIT 7

NATIONAL COUNCIL ON COMPENSATION INSURANCE

March 1, 1951

ANALYSIS OF EXPENSES PAID BY POLICY SIZE, CALENDAR YEAR 1949
(Excluding Commissions and Taxes)

Non-Stock Companies—Workmen's Compensation

PART III—REVISED

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
				Paid Expenses Analyzed by Size				
	Annual Premium Size	*No. of Policies*	*Direct Standard Earned Premium*	*Inspection, Boards and Bureaus*	*Payroll Audit*	*Other General*	*Other Acq. Field Sup. and Collection*	*Loss Adjustment*
(1)	Under—$ 50	34,137	960,838	36,411	153,014	104,314	303,606	53,466
(2)	50— 99	22,559	1,682,392	52,426	139,836	100,067	299,875	102,837
(3)	100— 499	56,393	14,164,700	447,479	587,652	449,304	1,422,994	872,565
(4)	500— 999	17,463	12,563,877	407,867	322,453	331,194	1,020,396	759,295
(5)	1,000— 4,999	20,133	46,301,007	1,409,651	672,643	969,701	2,948,066	2,702,323
(6)	5,000— 9,999	3,472	26,291,210	752,271	207,375	500,316	1,160,749	1,511,959
(7)	10,000—24,999	2,256	36,808,453	957,900	203,976	680,365	1,389,309	2,102,444
(8)	25,000—99,999	961	45,061,556	1,060,276	205,487	818,846	1,223,223	2,538,666
(9)	100,000 and Over	95	18,952,719	393,862	52,589	312,996	431,111	1,055,866
(10)	Total	157,469	202,786,752	5,518,143	2,545,025	4,267,103	10,199,329	11,699,421
(11)	Adjustment to Net Basis	—	−12,428,690	−28,906	+31,072	+19,660	−11,620	+2,211
(12)	Total, (Net)	157,469	190,358,062	5,489,237	2,576,097	4,286,763	10,187,709	11,701,632
(13)	0— 999	130,552	29,371,807	944,183	1,202,955	984,879	3,046,871	1,788,163
(14)	1,000 and Over	26,917	173,414,945	4,573,960	1,342,070	3,282,224	7,152,458	9,911,258

Companies included:

American Mutual Liability Insurance Company
Employers Mutual Liability Insurance Company of Wisconsin
Hardware Mutual Casualty Company
Liberty Mutual Insurance Company
(American) Lumbermens Mutual Casualty Company of Ill.

EXHIBIT 8

NATIONAL COUNCIL ON COMPENSATION INSURANCE — March 1, 1951

ANALYSIS OF EXPENSES PAID BY POLICY SIZE, CALENDAR YEAR 1949
(Excluding Commissions and Taxes)

Non-Stock Companies—Workmen's Compensation

PART IV—REVISED

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
				Paid Expenses Analyzed by Size				
	Annual Premium Size	*No. of Policies*	*Direct Standard Earned Premium*	*Inspection, Boards and Bureaus*	*Payroll Audit*	*Other General*	*Other Acq. Field Sup. and Collection*	*Loss Adjustment*
(1)	Under—$ 50	34,137	960,838	3.8%	15.9%	10.9%	31.6%	5.6%
(2)	50— 99	22,559	1,682,392	3.1	9.3	5.9	17.8	6.1
(3)	100— 499	56,393	14,164,700	3.2	4.1	3.2	10.0	6.2
(4)	500— 999	17,463	12,563,877	3.2	2.6	2.6	8.1	6.0
(5)	1,000— 4,999	20,133	46,301,007	3.0	1.5	2.1	6.4	5.8
(6)	5,000— 9,999	3,472	26,291,210	2.9	0.8	1.9	4.4	5.8
(7)	10,000—24,999	2,256	36,808,453	2.6	0.6	1.8	3.8	5.7
(8)	25,000—99,999	961	45,061,556	2.4	0.5	1.8	2.7	5.6
(9)	100,000 and Over	95	18,952,719	2.1	0.3	1.7	2.3	5.6
(10)	Total	157,469	202,786,752	2.7	1.3	2.1	5.0	5.8
(11)	Adjustment to New Basis	—	−12,428,690	xxx	xxx	xxx	xxx	xxx
(12)	Total, (Net)	157,469	190,358,062	xxx	xxx	xxx	xxx	xxx
(13)	0— 999	130,552	29,371,807	3.2	4.1	3.4	10.4	6.1
(14)	1,000 and Over	26,917	173,414,945	2.6	0.8	1.9	4.1	5.7

Companies included:

American Mutual Liability Insurance Company
Employers Mutual Liability Insurance Company of Wisconsin
Hardware Mutual Casualty Company
Liberty Mutual Insurance Company
(American) Lumbermens Mutual Casualty Company of Ill.

EXHIBIT 9

MUTUAL INSURANCE RATING BUREAU

March 15, 1951

Exhibit B

ANALYSIS OF EXPENSES PAID BY POLICY SIZE, CALENDAR YEAR 1949
(Excluding Commissions and Taxes)

Non-Stock Companies—Automobile Liability and Property Damage

REVISED

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
			Paid Expense Analyzed By Size				
Annual Premium Size	No. of Policies	Direct Standard Earned Premium	Inspection, Boards and Bureaus	Payroll Audit	Other General	Other Acq. Field Sup. and Collection	Loss Adjustment
(1) Under $ 50	924,094	35,460,992	126,019	11,511	1,365,247	4,422,546	3,442,962
(2) 50— 99	462,864	30,180,646	109,305	17,546	857,884	2,930,298	3,037,925
(3) 100— 499	94,399	15,420,834	125,855	91,170	555,616	1,421,186	1,533,481
(4) 500— 999	7,114	4,694,947	87,575	52,739	243,234	484,886	488,815
(5) 1,000— 4,999	3,723	7,230,761	191,288	38,943	313,167	662,385	783,506
(6) 5,000— 9,999	552	3,738,669	73,874	10,220	127,989	256,426	417,739
(7) 10,000—24,999	252	3,981,826	83,687	11,058	111,767	285,416	451,922
(8) 25,000—99,999	76	3,427,454	90,878	3,613	99,951	226,086	393,224
(9) 100,000 and Over	8	1,372,054	45,732	—	22,607	103,930	165,226
(10) Total	1,493,082	105,508,183	934,213	236,800	3,697,462	10,793,159	10,714,800
(11) Adjustment to Net Basis	—	+1,506,160	+26,803	−3,665	+117,305	+231,343	+202,472
(12) Total, (Net)	1,493,082	107,014,343	961,016	233,135	3,814,767	11,024,502	10,917,272
(13) 0— 999	1,488,471	85,757,419	448,754	172,966	3,021,981	9,258,916	8,503,183
(14) 1,000 and Over	4,611	19,750,764	485,459	63,834	675,481	1,534,243	2,211,617

Companies included:

American Mutual Liability Insurance Company
Employers Mutual Liability Insurance Company of Wisconsin
Hardware Mutual Casualty Company
Liberty Mutual Insurance Company
(American) Lumbermens Mutual Casualty Company of Illinois

EXHIBIT 10

MUTUAL INSURANCE RATING BUREAU

March 15, 1951

Exhibit B

ANALYSIS OF EXPENSES PAID BY POLICY SIZE, CALENDAR YEAR 1949
(Excluding Commissions and Taxes)

Non-Stock Companies—Automobile Liability and Property Damage

REVISED

(a) Annua Premium Size	(b) No. of Policies	(c) Direct Standard Earned Premium	(d) Paid Expense Analyzed By Size: Inspection, Boards and Bureaus	(e) Payroll Audit	(f) Other General	(g) Other Acq. Field Sup. and Collection	(h) Loss Adjustment
(1) Under $ 50	924,094	35,460,992	0.4%	—	3.8%	12.5%	9.7%
(2) 50— 99	462,864	30,180,646	0.4	0.1%	2.8	9.7	10.1
(3) 100— 499	94,399	15,420,834	0.8	0.6	3.6	9.2	9.9
(4) 500— 999	7,114	4,694,947	1.9	1.1	5.2	10.3	10.4
(5) 1,000— 4,999	3,723	7,230,761	2.6	0.5	4.3	9.2	10.8
(6) 5,000— 9,999	552	3,738,669	2.0	0.3	3.4	6.9	11.2
(7) 10,000—24,999	252	3,981,826	2.1	0.3	2.8	7.2	11.3
(8) 25,000—99,999	76	3,427,454	2.7	0.1	2.9	6.6	11.5
(9) 100,000 and Over	8	1,372,054	3.3	—	1.6	7.6	12.0
(10) Total	1,493,082	105,508,183	0.9	0.2	3.5	10.2	10.2
(11) Adjustment to Net Basis	—	+1,506,160	xxx	xxx	xxx	xxxx	xxxx
(12) Total, (Net)	1,493,082	107,014,343	xxx	xxx	xxx	xxxx	xxxx
(13) 0— 999	1,488,471	85,757,419	0.5	0.2	3.5	10.8	9.9
(14) 1,000—Over	4,611	19,750,764	2.5	0.3	3.4	7.8	11.2

Companies included:

American Mutual Liability Insurance Company
Employers Mutual Liability Insurance Company of Wisconsin
Hardware Mutual Casualty Company
Liberty Mutual Insurance Company
(American)Lumbermens Mutual Casualty Company of Illinois

EXHIBIT 11

MUTUAL INSURANCE RATING BUREAU March 15, 1951

Exhibit C

ANALYSIS OF EXPENSE PAID BY POLICY SIZE, CALENDAR YEAR 1949
(Excluding Commissions and Taxes)

Non-Stock Companies—Liability and Property Damage Other Than Automobile

REVISED

(a) Annual Premium Size	(b) No. of Policies	(c) Direct Standard Earned Premium	(d) Paid Expense Analyzed By Size: Inspection, Boards and Bureaus	(e) Payroll Audit	(f) Other General	(g) Other Acq. Field Sup. and Collection	(h) Loss Adjustment
(1) Under $ 50	186,173	3,426,360	172,141	200,283	295,062	957,977	340,318
(2) 50— 99	27,476	1,942,481	114,061	71,653	95,967	330,729	194,825
(3) 100— 499	25,454	5,272,328	287,999	239,341	223,041	686,975	545,143
(4) 500— 999	4,915	3,303,447	138,188	92,248	110,218	313,948	344,880
(5) 1,000— 4,999	3,543	6,942,655	249,888	144,863	192,781	544,316	791,869
(6) 5,000— 9,999	379	2,508,659	74,494	26,491	61,124	131,948	288,064
(7) 10,000—24,999	177	2,810,814	77,723	19,734	58,412	112,457	338,184
(8) 25,000—99,999	58	2,462,481	85,115	11,348	53,142	93,497	304,011
(9) 100,000 and Over	8	1,923,404	35,068	1,846	33,461	39,572	232,592
(10) Total	248,183	30,592,629	1,234,677	807,807	1,123,208	3,211,419	3,379,886
(11) Adjustment to Net Basis	—	−543,764	+13,126	−11,573	+3,373	+8,807	+4,485
(12) Total, (Net)	248,183	30,048,865	1,247,803	796,234	1,126,581	3,220,226	3,384,371
(13) 0— 999	244,018	13,944,616	712,389	603,525	724,288	2,289,629	1,425,166
(14) 1,000 and Over	4,165	16,648,013	522,288	204,282	398,920	921,790	1,954,720

Companies included:

- American Mutual Liability Insurance Company
- Employers Mutual Liability Insurance Company of Wisconsin
- Hardware Mutual Casualty Company
- Liberty Mutual Insurance Company
- (American) Lumbermens Mutual Casualty Company of Illinois

EXHIBIT 12

MUTUAL INSURANCE RATING BUREAU March 15, 1951

ANALYSIS OF EXPENSES PAID BY POLICY SIZE, CALENDAR YEAR 1949 Exhibit C
(Excluding Commissions and Taxes)

Non-Stock Companies—Liability and Property Damage Other Than Auomtobile

REVISED

(a)		(b)	(c)	(d)	(e)	(f)	(g)	(h)
				Paid Expenses Analyzed By Size				
	Annual Premium Size	No. of Policies	Direct Standard Earned Premium	Inspection, Boards and Bureaus	Payroll Audit	Other General	Other Acq. Field Sup. and Collection	Loss Adjustment
(1)	Under $ 50	186,173	3,426,361	5.0%	5.8%	8.6%	28.0%	9.9%
(2)	50— 99	27,476	1,942,481	5.9	3.7	4.9	17.0	10.0
(3)	100— 499	25,454	5,272,327	5.5	4.5	4.2	13.0	10.3
(4)	500— 999	4,915	3,303,447	4.2	2.8	3.3	9.5	10.4
(5)	1,000— 4,999	3,543	6,942,655	3.6	2.1	2.8	7.8	11.4
(6)	5,000— 9,999	379	2,508,659	3.0	1.1	2.4	5.3	11.5
(7)	10,000—24,999	177	2,810,814	2.8	0.7	2.1	4.0	12.0
(8)	25,000—99,999	58	2,462,481	3.5	0.5	2.2	3.8	12.3
(9)	100,000 and Over	8	1,923,404	1.8	0.1	1.7	2.1	12.1
(10)	Total	248,183	30,592,629	4.0	2.6	3.7	10.5	11.0
(11)	Adjustment to Net Basis	—	—543,764	xxx	xxx	xxx	xxx	xxx
(12)	Total, (Net)	248,183	30,048,865	xxx	xxx	xxx	xxx	xxx
(13)	0— 999	244,018	13,944,616	5.1	4.3	5.2	16.4	10.2
(14)	1,000 and Over	4,165	16,648,013	3.1	1.2	2.4	5.5	11.7

Companies included:

American Mutual Liability Insurance Company
Employers Mutual Liability Insurance Company of Wisconsin
Hardware Mutual Casualty Company
Liberty Mutual Insurance Company
(American) Lumbermens Mutual Casualty Company of Illinois

APRIL 26, 1949
(Revised March 6, 1950)

REPORT OF INDUSTRY COMMITTEE ON GRADUATION OF EXPENSES BY SIZE OF RISK

(Incorporating amendments recommended by Commissioner's Subcommittee at June 1949 session of NAIC)

At the December 1948 session of the NAIC a Subcommittee of the Workmen's Compensation Committee of the NAIC presented a Report which recommended in part.

"(1) A procedure setting forth minimum requirements for the analysis of expenses by size or risk, when such analyses are made on a sampling basis, be drafted for submission to the NAIC at the June 1949 meeting by a committee of the NAIC after a review of proposals by the industry. The procedures thus established should be practical and should be of such a nature that the results thereof and the steps followed would be subject to audit by Insurance Department examiners.

(2) The procedure encompass other lines of business as well as workmen's compensation insurance as may be directed by the NAIC or appropriate committees thereof.

(3) The procedure be designed to recognize characteristics of risks other than size (such as Contractors vs All Others for Workmen's Compensation Insurance) for which substantial differences in expenses might be expected.

(4) The cooperation of rating organizations and company associations be sought by the NAIC to obtain actual analyses by size of risk of the expenses of a representative group of their member companies within the year following June 1949."

In accordance with this action a Committee of the Industry was appointed by the Association of Casualty and Surety Companies, the Mutual Insurance Statistical Association and the National Council on Compensation Insurance to represent their membership. This Committee consists of:

American Mutual Liability Insurance Company
Hardware Mutual Casualty Company
Liberty Mutual Insurance Company
(Amer.) Lumbermens Mutual Cas. Co. of Ill.
Maryland Casualty Company
National Surety Corporation
Royal Indemnity Company
Travelers Insurance Company

The Committee met on February 10, March 1, March 2, March 17, March 18, and April 20, 1949 at the offices of the National Council on Compensation Insurance. The following report of the Committee is herewith submitted as an outline of minimum requirements to obtain actual analyses of expenses by size of risk.

It is assumed that prior to the actual analysis of expenses by size of risk the carriers will have made certain allocations in accordance with the instructions and procedures required by the Uniform Accounting Regulations where applicable, namely,

(1) Total salaries and other expenses will have been properly allocated between companies operating under the same management.

(2) Within each company salaries and other expenses will have been properly allocated to

(a) General Administration wherever incurred.
(b) Acquisition and Field Supervision wherever incurred.
(c) Exposure Audit wherever incurred.
(d) Inspection, Bureau and Safety Engineering.
(e) Claims Investigation.
(f) Investment Expense.

(3) For divisions (2a) to (2e), inclusive, salaries and other expenses will have been properly distributed to line of insurance.

(4) For each line of insurance salaries allocated to divisions (2a) to (2e), inclusive, will have been properly distribution to department.

MINIMUM REQUIREMENTS TO OBTAIN ACTUAL ANALYSES OF EXPENSES BY SIZE OF RISK

(1) The analysis will be made on expenses paid rather than on expenses incurred. Commissions and investment expenses will be excluded from the analysis, although the amount of commissions will be reported in total for all sizes of policies combined.

(2) For each line of insurance a premium size schedule should be established according to standard premium per policy, similar to the following schedule for workmen's compensation:

Less Than	\$ 50	5,000— 9,999
50	99	10,000—24,999
100	499	25,000—99,999
500	999	100,000 and Over
1,000	4,999	

The carrier should determine its own distribution of premium to conform with the premium size schedule, for the period under study, by the following methods or equivalent:

(a) By using a recent policy year distribution with necessary adjustments,
or (b) By analysis of payroll audit earned premium data,
or (c) By analysis of written premium data on a sample basis.

(3) The carrier should determine the distribution of salaries and expenses for the line or lines of business being studied, using the methods indicated for the divisions of departments or functions listed below. In determining the expenses to be distributed to size in these divisions, as a minimum requirement traveling expenses should be added to the salary expense of each division. Other kinds of expenses may be distributed to the divisions in proportion to salary expenses of the divisions.

I. DISTRIBUTED BY SPECIAL RESEARCH

(a) Underwriting
(b) Actuarial and Statistical
(c) Individual Risk Experience
(d) Exposure Audit
(e) Inspection and Safety Engineering
(f) File
(g) Acquisition Other Than Commissions
(h) Executive

II. DISTRIBUTABLE ON THE BASIS OF PREMIUM

(a) Claims Investigation and Adjustments*
(b) General Accounting
(c) Taxes
(d) Bureau
(e) Agency and Production Supervision
(f) Advertising
(g) Corporate Legal

III. DISTRIBUTABLE IN PROPORTION TO EXPENSES OF DEPARTMENTS AND/OR FUNCTIONS SERVICED

(a) Personnel
(b) Comptroller
(c) Payroll (Company Payroll Department)
(d) Cafeteria
(e) Health and Welfare (Employee)
(f) Mail, Telegraph, Telephone, Messenger
(g) Printing and Photostating

* It is the opinion of the Committee that there is no significant difference by size of risk as respects claim expense for most casualty lines. Therefore, it is recommended that these expenses be distributed on the basis of premium, and that the limited time available for detailed expense studies be spent in ascertaining the facts on items which are assumed to have such variations. However, for a line or lines of business for which a carrier has reason to expect a significant difference in the expenses of claim investigation and adjustment by size of risk, such expenses may be distributed by special research.

(h) Purchasing and Supply

All departments or functions not listed above should be assigned to the appropriate category, I, II or III.

IV. SPECIAL RESEARCH

Attached hereto are two appendices to guide the carrier in the establishment of methods for distributing expenses of the items for which special research is required.

It should be stressed that differences in the organizations and procedures of carriers make it impossible to prescribe in detail the methods which must be used. It is possible only to state the basic objective and to illustrate appropriate approaches.

In general the objective is to ascertain the portion of the total time of employees which risks in each size group require. These portions should be converted to salary expense, and the salary expense loaded for other expenses. (It should be stressed that in making these determinations, actual time studies may not be necessary. In the survey of operations under consideration efforts should be made to utilize available work unit statistics to apportion the time of employees to the various size groups.)

Hence the items for which special research is required should be broken down, if necessary, into components for which a method can be found of distributing employee time. The disposition of the exposure audit expense and the similar inspection and engineering expense is illustrated in Appendix A.

In the use of sampling methods and time studies to obtain a means of distributing expenses, the carrier's knowledge of its own procedures and records will determine the extent and nature of the methods to be employed.

For some operations, such as the making of field audits, the average time per audit for each size group may be obtained from the auditor's time reports for a sample of policies in each size group. For other operations or groups of operations for which it is feasible to assemble samples of policies or units in various size groups for processing, it may be desirable to time the processing of such samples through the operating sections. Appendix B provides a description of the several steps which may be employed in using this form of sampling procedure.

(5) Having determined the allocation of salaries and other expenses by department or function in accordance with the methods described above, the expenses by size of risk should be summarized and related to the premium distribution to obtain expense ratios by size of risk.

(6) In the conduct of the analysis the carrier should prepare legible work-

sheets and such records should be maintained in good order and should be available for examination.

Respectfully submitted
on behalf of
Industry Committee on Graduation of Expenses by Size of Risk
A. Z. Skelding,
Secretary to the Committee.

APRIL 26, 1949

APPENDIX A

ILLUSTRATION OF THE DISTRIBUTION OF EXPOSURE AUDITING EXPENSES

Item	*Basis*
(a) Field Audit Salaries and Expenses	(a_1) Sampling to determine number of field audits for various policy size brackets.
	(a_2) Time study or equivalent to determine time per audit for various policy size brackets.
	(a_3) Cost to be distributed in proportion to product of a_1 and a_2.
(b) Fee Audits	(b) Sampling to determine number and cost by policy size.
(c) Clerical Costs of Payroll Reports	(c_1) Sampling to determine number of payroll reports for the various policy size brackets.
	(c_2) Time studies or equivalent to determine time per payroll report for the various policy size brackets.
	(c_3) Cost to be determined in proportion to product of c_1 and c_2.
(d) Clerical Costs of Field and Fee Audits	(d_1) Time studies or equivalent to determine time per audit for the various policy size brackets.
	(d_2) Costs to be distributed in proportion to (a_1 + b) times d_1.
(e) Supervision and Miscellaneous Overhead	(e) To be distributed in proportion to foregoing costs by policy size.

DISTRIBUTION OF INSPECTION EXPENSES

Same as for exposure auditing. Time spent on "prospective" risks to be loaded as overhead on determined costs. Time spent on accident analysis for large risks to be distributed to size bracket groups by time studies or equivalent.

April 26, 1949

APPENDIX B

OPERATIONAL COST STUDY

The operational cost study of departments (or functional subdivisions) for which the influence of premium size is measurable by the methods to be described involves the following steps:

1. List the operations performed in each department (or functional sub-division), numbering and arranging them insofar as possible in chronological order.

2. Describe each operation briefly.

3. Indicate the lines of insurance involved in each operation, and also indicate for which premium sizes the operation is (or is not) performed.

4. Determine the number of items (policies or units) that were serviced during the year under each operation. This can be obtained most readily by counting the items handled for a week or a month, then projecting to an annual basis, recognizing known seasonal or other variations.

5. Estimate the number of employee work hours spent during the year in performing each operation. The time allocated to all of the operations should be checked against the total hours of work performed in the department during the year.

6. Estimate the salaries and expenses allocatable to each operation. The total salaries and expenses allocated to all of the operations should balance with the total salaries and expenses of the department for the year.

7. Supervisory and executive time, salaries, and expenses can be classified into four divisions—(a) that applying to a limited number of the operations performed in the department should be allocated exclusively to these operations in proportion to the distribution of the salaries of the supervised workers, (b) that applying to all of the operations performed in the department should be allocated in proportion to the distribution of the salaries of all of the workers in the department, (c) that involved in performing a specific operation should be classified as such and analyzed in the same manner as that of other workers in the department, and (d) unallocatable executive time, salaries and expense, which in the absence of a better basis can be distributed in proportion to premiums.

8. In the case of operations that are recorded on the copy of the policy (or similar record), the number of operations per policy under each line and significant size bracket can be obtained by selecting representative samples of expired policies under each homogeneous classification, and be determining the average number of recorded operations under each classification. This procedure lends itself readily to the analysis of certain premium accounting and statistical operations in the case of

companies which record each such operation on a copy of the policy. The distribution of the total number of policies serviced under each line and premium size was previously obtained. Multiply the number of policies in each homogeneous classification by the average number of operations performed under each classification during the year.

9. In the case of operations that are not recorded on the copy of the policy (or similar record), the number of operations under each line and significant size bracket can be obtained by (a) sampling the work handled during a significant period of time and (b) projecting these figures to an annual basis.

10. To determine the relative variation in time per operation, carefully select homogeneous groups of policies that are representative of the policies that are serviced under each line and significant size bracket, and attach time sheets to each of these groups. These sheets should identify each operation and provide space for indicating the time required to perform each operation on each group. "Representative" clerks should be selected and instructed to perform the operations under "normal" conditions and speed. Two or more homogeneous groups of items under each line and significant size group should be routed through the department, so that the representativeness of the individual samples can be checked. By this process, a time factor per operation can be obtained for each line and significant size bracket.

11. Having previously obtained the total number of operations performed in each homogeneous classification (Step 8 and 9), multiply the number of operations by the average time per operation developed in Step 10 to determine the time spent on each line and size group.

12. Develop the cost for each line and significant size group by distributing salaries and expenses in proportion to time spent, however, if large policies are handled by higher paid employees, use a different time to cost conversion factor for small, and large policies.

13. Develop the average cost per dollar of premium and per policy for each line and significant size group by dividing the total cost by the dollars of premium and number of policies respectively.

NATIONAL COUNCIL ON COMPENSATION INSURANCE May 16, 1951

REPORT OF SPECIAL COMMITTEE TO MEET WITH COMMITTEE OF NAIC TO SPECIAL SUBCOMMITTEE OF WORKMEN'S COMPENSATION COMMITTEE OF NAIC

Study of Expenses by Size of Risk— Workmen's Compensation Insurance

In a report of this Committee dated November 21, 1950, distributions of premium and expenses by size of risk for Stock and Non-Stock Companies were presented to your Subcommittee. This report was presented to the

Workmen's Compensation Committee of the NAIC at its meeting in Los Angeles on December 12, 1950. At that session the special Subcommittee of the Workmen's Compensation Committee was requested to make a study of the report and to submit recommendations to the Workmen's Compensation Committee. At a meeting with members of this Subcommittee held at the National Council on March 13, 1951, it was agreed that an analysis of the workmen's compensation expenses by size of risk would be made and submitted to the Subcommittee at its meeting on May 16, 1951.

It is a recognized procedure in workmen's compensation ratemaking that basic expense loadings in the manual rates are predicated on the requirements of stock companies. The analysis which immediately follows is based upon the expenses reported by Stock Companies in Part I of the November 21, 1950 summary. This distribution is the result of a special study made of paid expenses for calendar year 1949 by thirteen of the leading Stock Companies. This study embraces the following items of expense:

(1) Inspection including Boards and Bureaus
(2) Payroll Audit
(3) Other General Expenses
(4) Other Acquisition, Field Supervision and Collection
(5) Loss Adjustment

No consideration was given to the distribution of commissions by size of risk since rates of commissions are a matter of contract between the companies and their agents.

The purpose of the present analysis and interpretation of the figures reported in the study is to determine the degree to which expenses graduated in accordance with the current Workmen's Compensation Rating Program correspond to the reported figures. It is emphasized that it is not proper to reach any conclusions as to the adequacy of over-all expense requirements on the paid expenses of thirteen companies covering only a single calendar year. This was recognized when the studies were initiated.

The program now being tested is presently in effect in several states contemplating a \$10 expense constant for every policy of less than \$500. The indicated provision for administration and payroll audit is 7.7%* for the first \$1000 of premium for each risk and 4.1% for all premium in excess of \$1000. That for "other acquisition" is:

First \$	1,000	7.5%
Next	4,000	5.0%
Next	95,000	2.5%
Over	100,000	1.0%

There is no graduation of claim expenses or of inspection boards and bureaus.

The results of this analysis are shown on the attached Exhibit II. Column (1) of the exhibit shows the average premium per risk, including a \$10 expense constant calculated as follows: The expense constants which were in effect in 1949 by state, on the basis of the 1949 distribution of premium for Stock Companies indicate an average expense constant of approximately \$6.00. Six

* See Exhibit I for the derivation of this figure.

dollars of premium for each risk under $500 was first deducted and the remaining premium was increased pro rata to produce the original total premium.

The amount of premium that would be derived from a $10 expense constant applicable to every risk under $500 was then obtained and the remaining premium was reduced pro rata in order that the resulting premium plus the premium from the $10 expense constant would produce the original total premium. In other words, the distribution of premium by size of risk was adjusted from a $6.00 expense constant basis to a $10 expense constant basis. The average premiums shown in column (1) were based on the adjusted premium.

The provision for administration and payroll audit, shown in column (2) was obtained by taking 7.7% of the first $1000 of premium per risk and 4.1% of all premium over $1000. The resulting expense by size for all sizes of risks was pro-rated to produce the actual expense for this item for all risks.

The provision for other acquisition was obtained in a similar manner using the percentages shown previously in this report. These percentages represent the differences between full general agents' rates and brokerage rates. This calculation assumes that the distribution of business by type of producer will be the same for all premium sizes.

The provisions for claim expense and inspection were obtained by multiplying the average premium per policy minus the $10 expense constant by .068 and .021, respectively. These ratios were obtained from the exhibit headed Part II of the report of November 21, 1950.

Column (6) shows the total provision for the items of expense under consideration and is the sum of the figures shown in columns (2), (3), (4), and (5).

Column (7) shows the paid expense per policy obtained by dividing the total reported expense by the number of policies.

Column (8) shows the amount by which the reported expense per policy exceeds the provision for such expense.

Column (9) shows the ratio of this difference to the average premium for the size group.

This analysis indicates that the $10 constant on risks of less than $500 is fully justified. The use of a materially higher constant on risks under $100 seems indicated but a more satisfactory approach to this problem is to endeavor to reduce the cost of handling these small compensation risks. A study along these lines has been undertaken by a Committee of the National Council. For the larger risks, the differences between the reported expense and the provisions in the rating program for such expenses appear to be of minor importance.

The analysis herewith presented clearly demonstrates, in the opinion of the Committee, that the reported expenses by size of risk as contained in Part I of the November 21, 1950 summary produce a reasonably close approximation to the provisions of the expense graduation program under review. The Committee therefore, concludes that this program provides a wholly realistic and practical basis for the distribution of expense provisions in compensation premiums.

For convenience, the essential features of the program tested are repeated below:

Expense Constant —	$10 on premium of less than $500
Administration & Audit —	Provision in Expense Constant plus 7.7% of premium up to the First $1000 plus 4.1% over.
Other Acquisition —	First $ 1,000 7.5%
	Next 4,000 5.0%
	Next 95,000 2.5%
	Over 100,000 1.0%
Claim Expense —	8.2
Inspection —	2.6

NATIONAL COUNCIL OF COMPENSATION INSURANCE May 16, 1951

EXHIBIT I

Workmen's Compensation—Analysis of Expense by Size of Risk
Stock Companies

Annual Premium Size	*No. of Policies*	*Standard Premium Without Expense Constant*	*Premium from $10 Expense Constant*	*Standard Premium With $10 Expense Constant [(2) × .975] + (3)*
	(1)	*(2)*	*(3)*	*(4)*
Under $50	206,382	4,258,344	2,063,820	6,215,705
50—99	103,614	6,918,597	1,036,140	7,781,772
100—499	145,865	31,909,621	1,458,650	32,570,530
500—999	27,712	19,632,343	—	19,141,534
1,000—4,999	20,608	42,100,024	—	41,047,523
5,000—9,999	2,062	14,340,442	—	13,981,931
10,000—24,999	1,105	17,615,054	—	17,174,678
25,000—99,999	500	22,995,377	—	22,420,493
100,000 and Over	129	31,172,740	—	30,393,422
Total	507,977	190,942,542	4,558,610	190,727,588

Indicated Offset Factor for $10 Expense Constant $= \dfrac{190{,}942{,}542 - 4{,}558{,}610}{190{,}942{,}542} = .976$ (Use .975)

Adjustment of Standard Expense Loading for $10 Expense Constant

Item	*Values at Normal Loading*	*Reduction Due to Expense Constant*	*Revised % of Unadjusted Manual Rates (2)—(3)*	*% of Revised Manual Rates (4) ÷ .975*	*Expense Constant*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Acquisition	17.5%	.4375	17.0625%	17.5%	$1.75
Taxes	2.5	.0625	2.4375	2.5	.25
Profit & Contingency	2.5	.0625	2.4375	2.5	.25
Claim Adjustment	8.0	—	8.0	8.2	—
Inspection & Bureau	2.5	—	2.5	2.6	—
Administration & Audit	9.5	1.9375	7.5625	7.7	7.75
Total	42.5%	2.5%	40.0%	41.0%	$10.00

EXHIBIT II

Workmen's Compensation—Analysis of Expenses by Size of Risk

Stock Companies

Annual Premium Size	*Average Premium $10 Expense Constant*	*Basic Provision in Rates Adjusted to Reported 1949 Paid Expenses* — *Admin. & Audit*	*Other Acquis.*	*Claim Expense*	*Inspection*	*Total (2)+(3)+(4)+(5)*	*Reported Paid Expense Per Policy*	*Difference* — *Amount (7)−(6)*	*Ratio (8)÷(1)*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Under $50	$30.12	$9.00	$1.78	$1.37	$.42	$12.57	$18.09	$5.52	.183
50—99	75.10	11.79	4.43	4.43	1.37	22.02	30.36	8.34	.111
100—499	223.29	20.97	13.17	14.50	4.48	53.12	51.23	−1.89	−.008
500—999	690.73	42.83	40.75	46.97	14.51	145.06	129.03	−16.03	−.023
1,000—4,999	1,991.82	94.73	98.67	135.44	41.83	370.67	315.65	−55.02	−.028
5,000—9,999	6,780.76	252.77	254.62	461.09	142.40	1,110.88	1,123.93	13.05	.002
10,000—24,999	15,542.70	541.91	429.85	1,056.90	326.40	2,355.06	2,439.64	84.58	.005
25,000—99,999	44,840.99	1,508.75	1,015.82	3,049.19	941.66	6,515.42	7,020.84	505.42	.011
100,000 & Over	235,607.92	7,804.06	3,203.86	16,021.34	4,947.77	31,977.03	32,630.64	653.61	.003

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EXHIBIT III

Workmen's Compensation—Analysis of Expenses by Size of Risk
Mutual Companies♀

Premiums and Expenses per Policy

Annual Premium Size	*Number Of Policies*	*Direct Standard Earned Premium*	*Expenses Excluding Taxes*	*Average Premium Excluding $5 Expense Constant*	*Average Expense Per Policy*
Under $50	25,662	$ 737,537	$ 530,045	$ 23.74	$ 20.65
50—99	17,055	1,279,753	564,345	70.04	33.09
100—499	44,507	11,284,201	3,181,643	248.54	71.49
500—999	13,994	10,102,908	2,410,978	721.95	172.29
1,000—4,999	16,628	38,875,579	7,551,977	2,337.96	454.18
5,000—9,999	2,946	22,729,601	3,617,432	7,715.41	1,227.91
10,000—24,999	1,927	32,034,567	4,701,010	16,624.06	2,439.55
25,000—99,999	853	40,173,745	5,303,743	47,097.00	6,217.75
100,000 & Over	79	16,415,675	1,999,599	207,793.35	25,311.38

Distribution of Earned Standard Premium by Size Group

Annual Premium Size	*Distribution of Premium by Size Group*		
	First $1,000	*Next $4,000*	*Over $5,000*
0—$ 999	$22,967,880*	—	—
1,000—4,999	16,628,000	$22,248,000	
Over 5,000	5,805,000	23,220,000	$82,329,000
Total	45,400,880	45,468,000	82,329,000

*Excluding effect of $5 Expense Constant

Formula Distribution of Expenses Excluding Taxes by Size Group

Annual Premium Size	*Total Expenses*	*Expenses From $17 Expense Constant*	*Distribution of Expenses Excl. Taxes By Size Group*		
			First $1,000	*Next $4,000*	*Over $5,000*
0—$ 999	$6,687,011	$1,720,706	$4,966,305	—	—
1,000—4,999	7,551,977	—	3,591,648	$3,960,329	—
5,000 & Over	15,621,784	—	1,253,880	4,133,160	$10,234,744
Total	29,860,772	1,720,706	9,811,833	8,093,489	10,234,744
Formula		$17†	21.6%†	17.8%	12.4%

† Determined by fitting straight line to under $1,000 data.
♀4 Direct Writing Mutual Companies.

The second part of this analysis relates to the reported data for the non-stock carriers shown in the November 21, 1950 summary.

The figures of the one agency mutual that participated in the study were excluded from the following review of the data reported by non-stock carriers in order that total expenses could be combined on a consistent basis.

The data compiled by the direct writing companies strongly suggest that expense constants, which average only approximately $5 for non-stock carriers nationwide, are inadequate. The order of magnitude of the inadequacy is such that it is considered inadvisable, from the viewpoint of both the policy holders and the companies, to increase such constants to the point where they would cover the present servicing costs of small risks. A more satisfactory approach to the problem is to increase the expense constants in those states now having constants of less than $10, or none at all, and making significant simplifications in the procedures for servicing small policies. With the cooperation of state supervisory officials the carriers and rating bureaus, it is believed that important operating economies can be achieved on non-experience rated business. As mentioned in a preceding section of this report, this project is now being worked on and encouraging progress is being made.

Achieving realistic economies on small risks would affect the degree of gradation between small and large risks. The greatest influence would be felt on risks under $500 in premium size and relatively little influence would be generated on the gradation shown in the study for risks above the $1000 premium size.

Because the total expense requirements of the non-stock carriers are necessarily less than the pure premium loadings appropriate for these carriers, it is not possible to process the data reported by the four direct writing mutuals in the same manner as the stock company figures have been processed.

If the same premium boundaries as are currently in effect are used in the analysis, the figures of the four direct writing mutuals can be reproduced reasonably well by means of the formula which is outlined in Exhibit III.

This Exhibit indicates a gradation of company expenses of approximately 4% for the premium interval between $1,000 and $5,000, and 9% for the premium in excess of $5,000. These differences, of course, do not reflect tax loadings and the circumstance that the non-stock discounts are used by participating carriers.

It is the conclusion of the Committee that the relative premium levels produced by the prevailing non-stock discounts of about 2% and 5% in $10 expense constant states and 5% and 8% in non-expense constant states are in as close conformity to the 4% and 9% differences as could be expected in view of the nature of the study.

Respectfully submitted,

NATIONAL COUNCIL ON COMPENSATION INSURANCE
Special Committee to Meet With Committee of NAIC

A. Z. SKELDING,
Secretary.