

**EXPENSE FORMULAS FOR MINIMUM
NONFORFEITURE VALUES**

CHARLES F. B. RICHARDSON

ABSTRACT

The report of the Society's Special Committee on Valuation and Nonforfeiture Laws made no recommendation on the level of expense allowances that might be appropriate for determination of minimum nonforfeiture values. The author was requested by the Committee on Valuation and Nonforfeiture Regulation of the National Association of Insurance Commissions (NAIC) to undertake studies of current expense rates and to make recommendations to that committee for whatever revisions of the current expense formulas seemed necessary. This paper, written at the request of the chairman of the Society's special committee, places on record a description of the data, methods, and principles used to determine the proposed new expense formulas. The studies were based on data supplied by the Intercompany Financial Comparison Committee of the Life Office Management Association (LOMA) and are deemed to be representative of current levels of first-year expense rates among established United States companies. The formula proposed is substantially different and much simpler than that contained in the present Standard Nonforfeiture Law.

THE Standard Nonforfeiture Law is the statute that governs minimum policy values in practically all states, and was enacted following the report of the Committee to Study Nonforfeiture Benefits and Related Matters (Guertin committee) to the NAIC in 1941. In October, 1972, the Society of Actuaries appointed a Special Committee on Valuation and Nonforfeiture Laws, chaired by Henry Unruh, to study the actuarial principles and practical problems with regard to nonforfeiture requirements. Their report was submitted in October, 1975. Chapter X of the report discussed the question of expense allowances but made no recommendation in regard to the level of maximum expense allowances that might be appropriate, leaving that question to be determined by the special NAIC Subcommittee on Nonforfeiture Values, which was appointed in December, 1973. The Unruh committee report stated that "various expense allowances should be tested in conjunction

with other changes that might be under consideration." The NAIC subcommittee agreed with the Unruh committee's conclusion that the adjusted premium method for computing minimum values is sound and should be retained.

The NAIC subcommittee held numerous meetings after the Unruh committee made its report, and the question of expense allowances was one of the important items considered. It was decided that special studies should be made, using whatever functional cost data were available, and the author was requested to undertake this task. This paper describes the methods and data used in developing the author's recommendations to the NAIC subcommittee as to the expense allowance formula that might be considered in attempting to correct the defects in the present formula and to bring the Standard Nonforfeiture Law up to date.

I. GUERTIN REPORT

The studies contained in the Guertin committee report included asset share calculations submitted by several stock companies, but the report contained no such calculations for mutual companies. It is not known whether the expense rates used by the companies were derived by "armchair" methods or were based on functional cost studies. Other calculations prepared by the Guertin committee were based on what appears to have been a rather crude expense formula, and there is no explanation of the basis for the assumptions. The formula used by the Guertin committee provided for a typical general agency commission scale permitted by New York law, taxes at 2 percent of gross premiums, and other expenses amounting to the actuarial equivalent of \$2.50 per \$1,000 during the premium payment period on the basis of a ratio of first-year to renewal expenses (other than commissions) of 6 to 1. At that time, in the early 1940's, functional cost analysis in the life insurance business was in its infancy, and the business was much less complicated than it is today. The LOMA had a Home Office Cost Committee from its very earliest days, as revealed in the report by W. J. Adams in the 1946 *Proceedings of the Life Office Management Association*, and many actuaries, including the author, were active in the pioneering work that was done thirty or forty years ago. The early studies promoted by the LOMA committee used methods very similar to those described in the author's paper "Cost Analysis," *RAIA*, XXXV, 49. In the thirty years since that paper was written, many significant improvements have been made, and much more precise and comprehensive definitions of functions, methods of analysis, and classification of expense are now in use in the LOMA Intercompany Functional Cost Studies.

II. DEVELOPMENTS SINCE 1940

Some of the major changes that have taken place in our business since the expense factors for determining minimum cash values were established by the Guertin laws thirty-five years ago are listed below.

1. An increase in the average size of policy of over seven times, as shown by the Buyer Studies of the Life Insurance Marketing and Research Association (LIMRA). For male lives, the average was \$22,270 in 1974 as compared with \$2,897 in 1942.
2. A very large decrease in average premium per \$1,000, from \$27 in 1949 to \$15 in 1974 for male adult lives.
3. A large increase in the proportion of the total business by amount that is written on a nonmedical basis. This has been brought about by the great increase in unit selection expense caused by inflation, which has made it practical to offset the extra mortality on nonmedical business for much larger policies. At ages under 40, where 80 percent of the business is sold, only about 25 percent of the business by amount was nonmedical in 1950, as compared with 77 percent in 1972 and a still higher percentage today. By number of policies, 65 percent of ordinary sales are currently on a non-medical basis.
4. The combined effect of items 1 and 3 has been to reduce greatly the proportion of first-year expense that varies by size of policy or amount of coverage, in spite of the large decrease in average premium per \$1,000 of coverage. Hence, the factor of \$20 per \$1,000 in the current nonforfeiture expense formula is too high.
5. The distribution of sales by plan has changed drastically. Today, endowment forms account for only 4 percent of the volume, while about 50 percent of the business is term insurance.
6. The business has become immensely more complicated, but the various states are no better equipped with technical staff, particularly actuaries, than they were thirty-five years ago. Therefore, any simplification in the techniques used to determine minimum policy values is eminently desirable, even at the expense of otherwise justifiable refinements that could greatly complicate the techniques.
7. The techniques to perform functional cost analysis in the life insurance business were just beginning to be developed in 1940, and therefore the expense factors in the Standard Nonforfeiture Laws could not be tested in a scientific manner. Since then, there have been significant advances in cost analysis, and great progress has been made in developing valid cost studies by LOMA. Also, companies have been forced to develop better methods of analysis because of competition and the greater complexity of the business.
8. The consumer movement has become a powerful force in many sectors of private business, and neither the life insurance industry nor the regulators can safely ignore it. Today it does not seem politically feasible to base minimum values on expense factors that would accommodate the expense

rates incurred by marginal or high-cost companies, as was the objective of the formulas in the Guertin laws. For this reason, only the expense data of large and well-established companies were used in these studies.

III. LOMA INTERCOMPANY FUNCTIONAL COST STUDIES

Starting as far back as 1946, the LOMA Costs Committee (now called the Intercompany Financial Comparison Committee) strove for many years to promote the use of standard methods and procedures for cost analysis, but the objective of broad participation in intercompany cost analysis on a uniform basis was attained very slowly. This is shown by the accompanying table. While participation in these studies has grown

Year	No. of Companies Participating in LOMA Program
1954.....	8
1963.....	30
1969.....	110
1975.....	148

remarkably in recent years, there is not complete uniformity, among the many companies now participating in the program, in the methods used to allocate expenses by function. Some of the companies have been performing the studies for only a short time, and it takes several years to develop the expertise, philosophy, and understanding required to derive unit functional costs that are reasonably reliable and consistent from year to year. Also, there are still substantial differences of opinion regarding the principles and methods which should be used in allocating expenses by line and by function, and in the treatment of general overhead and service functions, and these differences undoubtedly will always exist. For example, some companies will use approximations and armchair methods in areas where others will use data from time studies or, what are becoming more common, work measurement programs. Nevertheless, one must assume that those contributing to these studies are doing so in good faith, and are providing the best data they can assemble with the staff and the expenditure of time and effort that are made available by management. One of the items one must watch is the "cost of making the cost study."

To derive realistic expense formulas for use in determining proper minimum standards of nonforfeiture values, the NAIC subcommittee decided that it should attempt to use this large volume of cost data developed by the industry. There were the usual arguments that the data may not have been compiled on a precisely uniform basis, that they could be misused, and that in any event they must be interpreted and

used with a considerable amount of sophistication and informed judgment. However, they were the only valid data that existed, and the approach was certainly much superior to using arbitrarily determined factors. It therefore was decided to request expense data of twenty-five anonymous companies that satisfied the criteria listed in Appendix A. These criteria were recommended by the author, and were designed to eliminate companies that were inexperienced in cost analysis or had unusual characteristics that could produce distorted results. Examples of companies with such characteristics were (1) companies that pay a fixed management fee to another company for certain management services, since the fee might not reflect actual costs; (2) companies that are part of a conglomerate where there may be distortions of expense allocations in various areas by design or inadvertence; and (3) companies with large amounts of business in foreign countries where costs are very substantially different from those in the United States.

Of the twenty-five companies in the study, sixteen were mutuals and nine were stock companies. Seventeen operate in New York, and eight were non-New York companies. The objective of diversification seemed to be met.

A summary of the LOMA Intercompany Comparison Analyses Program, from which the data for this study were obtained, appears in Appendix B.

Appendix C shows the functions for which data were requested, and the instructions given by the author to the LOMA committee as to the precise form of data required; the "Appendix D" references are to the current instructions given by LOMA to participating companies for assembly of the data. These are recorded here for possible future reference, since the matter is rather complicated.

IV. SELECTION AND ISSUE COSTS

Because of the wide variations in average and median sizes by age and plan (see Table 1) and the large variation by age in the proportions of medical and nonmedical business (see Table 2), it was deemed necessary to compute per policy costs separately for medical and nonmedical business. The percentage of policies issued on a nonmedical basis was available for only eighteen of the twenty-five companies. Special "depth studies" on specific functions, giving data broken down into subfunctions for various types of expense, are performed each year. Data from the latest such study of the selection function were similarly made available to us by LOMA on an anonymous basis, and this study showed rather consistently that the selection cost per policy of medical business was

TABLE 1
DATA FROM LIMRA 1974 BUYER STUDY
 (Figures in 000's)

	<u>Participating</u>	<u>Nonparticipating</u>	<u>All</u>	
1. Average size:				
a) Ordinary agents.....	\$19.1	\$22.2	\$19.9	
b) Combination agents.....	9.8	6.6	8.2	
c) All agents.....	<u>\$16.9</u>	<u>\$14.7</u>	<u>\$16.1</u>	
	<u>Male</u>	<u>Female</u>	<u>Juvenile</u>	
2. Average size by age (ordinary agents):				
a) Ages 20-24.....	\$19.0	\$10.2	...	
b) Ages 35-39.....	33.2	13.5	...	
c) Ages 50 and up.....	26.1	9.8	...	
d) All ages.....	<u>\$25.4</u>	<u>\$11.5</u>	<u>\$ 6.1</u>	
	<u>Male</u>	<u>Female</u>	<u>All Adults</u>	
3. Average size by plan, excluding juveniles (ordinary agents):				
a) Whole life.....	\$19.6	\$ 9.4	\$16.4	
b) Limited pay life.....	17.2	7.5	13.8	
c) Endowment.....	15.2	9.1	13.4	
d) Level term.....	46.4	22.4	42.2	
e) All plans.....	<u>\$25.4</u>	<u>\$11.5</u>	<u>\$21.7</u>	
	<u>Size</u>	<u>Percent of Volume in Study</u>		
4. Median size by age—married males (ordinary agents):				
a) Ages 15-24.....	\$17.8	12%		
b) Ages 25-29.....	20.6	20		
c) Ages 30-39.....	24.6	31		
d) Ages 40-49.....	20.0	14		
e) Ages 50 and up.....	10.0	7		
f) All ages.....	<u>\$20.0</u>	<u>84%</u>		
	<u>AGE</u>			
	0	20	35	50
5. Policy sizes adopted for tests in Table 5:				
a) Whole life.....	\$5	\$12.5	\$20	\$10
b) Life to 65.....		12.5	20	10
c) Endowment at age 65.....		10	15	10
d) Term.....		30	50	...

about 3.5 times that of nonmedical. It was also deduced, from the data in Table 2, that the average-sized policy of medical business could be taken as 2.8 times that of nonmedical. There is some variation in the ratio by age, but it seemed practical to reflect this difference only on an aggregate basis. While these data relate to only nine companies, the companies are a representative group, and included is the ordinary business of a large debit company. The data were obtained from the data of a Society of Actuaries mortality study involving over five million recently issued policies with total insurance of over \$60 billion.

TABLE 2
MEDICAL AND NONMEDICAL BY SIZE

AGE GROUP	AVERAGE SIZE OF POLICY (IN 000'S)			PERCENT NONMEDICAL BY NUMBER	RATIO OF AVERAGE SIZE, MEDICAL TO NONMEDICAL
	NONMEDICAL	MEDICAL	ALL POLICIES		
0.....	\$ 4.8	\$21.5	\$ 5.2	97.6%	4.5
0-14.....	5.4	29.5	5.7	96.4	5.5
15-19.....	8.0	23.7	8.7	95.5	3.0
20-24.....	10.7	23.5	11.9	89.9	2.2
25-29.....	11.5	31.5	16.3	75.7	2.7
30-34.....	9.9	35.1	20.4	58.4	3.5
35-39.....	7.0	35.4	16.8	42.2	5.1
40-44.....	4.5	30.6	24.3	24.0	6.8
45-69.....	4.9	19.8	19.1	4.9	4.0
15-29.....	\$10.6	\$28.6	\$13.3	85.1%	2.7
30-39.....	8.9	35.3	21.6	51.6	4.0
15-69.....	\$10.1	\$27.8	\$15.3	61.1%	2.8

SOURCE.—LIMRA Long Range Lapse Study, File 720.

Selection and issue costs per policy, for medical and nonmedical business separately, were derived as illustrated in Table 3 (the figures are based on the actual data of one of the twenty-five companies in the study). The results showed that the sum of the per policy costs for these two functions averaged 2.5 times as high for medical business as for nonmedical business. The costs as a percentage of premium are nearly the same for the two classes of business, after taking account of the much larger premium per policy on medical business. Because of the wide variations by age and plan in average size of policy, premium per policy, and the proportion of medical business, unit costs on a per policy basis were used in the calculations shown in Table 5, and were converted to a per thousand cost by use of the median sizes shown in item 5 of Table 1. The cost of

TABLE 3

CALCULATION OF UNIT SELECTION AND ISSUE COSTS

(Using Figures of *One Company*)

1. Proportion of business nonmedical, by number	0.505
2. $[1 - (1)] \times 3.5 =$ Factor for cost of medical business	1.733
3. (1) + (2)	2.238
4. Selection cost per policy, medical and nonmedical combined	\$47.03
5. Selection cost per policy, nonmedical $[(4) \div (3)]$	\$21.01
6. Selection cost per policy, medical $[3.5 \times (5)]$	\$73.55
7. Issue cost per policy	\$16.56
8. Selection and issue cost per policy, nonmedical	\$37.57
9. Selection and issue cost per policy, medical	\$90.11
10. General overhead as percent of all other expenses	6.8%
11. Cost of service functions as percent of selection and issue costs	1.5%
12. Factor for general overhead and service costs	108.3%
13. Per policy cost for selection and issue, nonmedical	\$40.69
14. Per policy cost for selection and issue, medical	\$97.59

these functions was adjusted to take account of general overhead and service functions.

V. SELLING FUNCTION COSTS

The selling function in the LOMA study includes the functions and expenses defined in Appendix D, which is taken from the instructions for the LOMA intercompany analysis. It does not include the following items:

1. Agents' compensation of any kind.
2. Cost of security benefit plans for agents, that is, pension and insurance benefits.
3. Cost of agents' financing in excess of agents' commissions.
4. Advertising, which is included in the general overhead functions.

The selling function cost includes 100 percent of managers' and general agents' compensation arising from both first-year and renewal factors. It also includes compensation of second-line management, that is, assistant managers and supervisors, and all agency office and home office costs that are chargeable to the selling function. It is deemed to be a reliable figure, since it is most carefully defined in the instructions.

There never has been general agreement on what portion, if any, of managers' and general agents' compensation (excluding any portion actually spent for expenses of operating agency offices) should be charged to renewal years. Certainly some portion must be so charged, at least that part arising from time spent on functions other than the acquisition

of new business—for example, servicing old business. This will vary greatly for different types of distribution systems. The true cost of compensation for general agents is a very elusive item, because it is so difficult to separate what really constitutes operating expense from actual compensation, even where there is a separate expense allowance formula. The separation problem for branch managers is generally much easier. The cost of managers' compensation varies rather widely but is believed to average in the region of 15 or 20 percent of first-year premiums, which would be about a quarter of the total cost of the selling function.

The costs of agents' financing (defined as costs in excess of commissions earned) also vary widely. About half the companies showed zero or a negligible cost, but for other companies this is quite a substantial item. Brokerage business and business written by personal producing general agents will clearly have different expense characteristics from those of business obtained from a full-time agency force. There is wide disagreement as to whether or not all costs of agents' financing should be included in operating expenses, and also in regard to the manner in which the costs charged should be allocated between first year and renewal years. My view is that only such part of the total financing cost as arises from recruiting the number of new agents required to maintain a stable sales force should be regarded as an operating cost. Financing costs attributable to any increase in the size of the sales force should be charged not as a current operating cost but rather as a capital investment. A good argument can be made for charging as a percentage of total agents' commissions that portion of financing costs that is treated as an operating cost.

Similar questions arise in the case of the cost of agents' security benefit plans. Half the companies showed either no cost or a negligible cost for this item, which was surprising, since many companies are now providing such benefits for brokers.

Because of these considerations, the selling function cost was not adjusted for the items just discussed, and all of it was charged as a first-year cost in excess of renewal costs. The cost of the selling function was increased to take account of general overhead. When expressed as a percentage of first-year premiums, the selling expenses of the mutual companies in the group were significantly less than those of the stock companies. However, when expressed per \$1,000 of new business, the selling costs were exactly the same for the two types of companies. It is interesting to note that the general overhead costs, expressed as a percentage of all other expenses, are also noticeably lower for the mutual companies than for the stock companies. All of this is summarized in Table 4.

Since the effect would have been trivial, the selling costs were not increased to take account of the cost of service functions. The latter includes only home office salaries, while most of the cost of the selling function arises in the field.

VI. AGENTS' COMMISSIONS

We are concerned only with the excess of first-year over renewal costs. Therefore, this item was assumed to be the excess of (1) first-year commissions, based on the scale of a typical New York company, over (2) renewal commissions, based on a vested level scale of 5 percent. The excess of first-year over renewal commission rates was 50 percent for whole life, and graded down for term and higher-priced plans (42 percent for fifteen-payment life, 45 percent for thirty-year endowment, 35 percent for fifteen-year endowment, and 40 percent for term plans).

TABLE 4
SUMMARY OF AVERAGE UNIT COSTS

Function	Average Unit Cost
1. Selling (excluding general overhead)	Percent of first-year premiums
a) All 25 companies	58.5%
b) 9 stock companies	62.8
c) 16 mutual companies	56.1
2. General overhead	Percent of all other expenses
a) All 25 companies	8.4%
b) Stock companies	9.6
c) Mutual companies	7.8
3. Selling—including general overhead	Percent of first-year premiums
a) All 25 companies	63.4%
b) Stock companies	68.5
c) Mutual companies	60.6
4. Selling—including general overhead	Per \$1,000 of new business
a) All 25 companies	\$11.68
b) Stock companies	11.70
c) Mutual companies	11.67
5. Selection	
a) Nonmedical	\$25.92 per policy paid for
b) Medical	\$90.10 per policy paid for
6. Issue	\$18.22 per policy paid for
7. General overhead	8.4% of all other expenses
8. Service functions	2.3% of all other expenses
9. Direct maintenance functions	3.1% of total premiums
10. General maintenance functions	6.9% of total expenses

VII. OTHER FUNCTIONS

Service functions are accounted for on a company-wide basis for all lines of business combined, and consist of personnel functions and miscellaneous services for home office employees, such as cafeteria service, medical service, and various employee activities. Also included in the cost of these functions is the cost of all employee benefit plans for both home office employees and field office clerical employees other than sales personnel. The costs of operating such general service departments as mail service, purchasing, supply, and telephone exchange are included to the extent that such expenses cannot be allocated to specific functions.

General overhead also is on a company-wide basis, with no allocation by line, since philosophies as to the manner in which such allocations should be made differ very widely. The types of expenses included comprise general management, defined as work of a general corporate nature performed by senior executive officers; general legal functions; methods and procedures; public relations; advertising; general accounting, including statements, auditing, budgets, cost analysis, and control; and activities of a general corporate nature. It is important to note that all these expenses are exclusive of any that can be identified with, and which are charged directly to, a specific line of business or a particular function.

Direct maintenance functions are defined to cover all premium collection operations, commission processing, death claims, surrenders, matured endowments, policy changes, dividend processing, lapses, settlement agreements, reinsurance, and a long list of other functions involved in servicing business in force.

General maintenance functions include general actuarial and other research activities, EDP planning, and EDP conversion.

The direct and general maintenance functions were included in the data requested, in order to complete the cost picture. However, they were not used in this analysis, since they apply to all policy years and we are concerned only with the excess of first-year over renewal expenses. There was no evidence that for this group of companies an excessive amount of expense had been allocated to these functions; this sometimes happens, with a resultant understatement of first-year expenses.

VIII. TESTS OF EXPENSE FORMULAS

Table 5 shows the results of assembling all the data discussed above to compute excess first-year expenses per \$1,000 for typical plans and ages.

The average size of policy assumed varies by plan and age. The average sizes were determined, as already explained, from a study of the median

TABLE 5
TESTS OF EXPENSE FORMULA

	AGE			
	0	20	35	50
Participating—whole life:				
1. Average size of policy (000's)	\$ 5	\$12.5	\$20	\$10
2. Percent medical, by number	0%	10%	40%	100%
3. Selection and issue cost, per policy*	\$25	\$52	\$71	\$110
4. Selection and issue cost, per \$1,000	\$ 5.00	\$ 4.16	\$ 3.55	\$11.00
5. Excess first-year cost, per cent of premium	110%	110%	110%	110%
6. Average premium per \$1,000	\$11.30	\$15.00	\$22.52	\$39.55
7. (5) × (6)	\$12.43	\$16.50	\$24.77	\$43.51
8. (4) + (7) = Total cost	\$17.43	\$20.66	\$28.32	\$54.51
9. 125% of net premium, plus \$10. Present law	\$16.15	\$21.06	\$29.60	\$48.79
	\$23.67	\$26.25	\$30.75	\$40.87
Participating—life paid up at age 65:				
10. Average size of policy (000's)		\$12.5	\$20	\$10
11. Percent medical, by number		10%	40%	100%
12. Selection and issue cost, per policy*		\$52	\$71	\$110
13. Selection and issue cost, per \$1,000		\$ 4.16	\$ 3.55	\$11.00
14. Excess first-year cost, per cent of premium		110%	110%	102%
15. Average premium per \$1,000		\$16.24	\$26.65	\$58.75
16. (14) × (15)		\$17.86	\$29.32	\$59.93
17. (13) + (16) = Total cost		\$22.02	\$32.87	\$70.93
18. 125% of net premium, plus \$10. Present law		\$21.80	\$32.45	\$65.15
		\$26.53	\$31.76	\$44.03
Participating—endowment at age 65:				
19. Average size of policy (000's)		\$10	\$15	\$10
20. Percent medical, by number		5%	25%	100%
21. Selection and issue cost, per policy*		\$48	\$61	\$110
22. Selection and issue cost, per \$1,000		\$ 4.80	\$ 4.07	\$11.00
23. Excess first-year cost, per cent of premium		110%	105%	95%
24. Average premium per \$1,000		\$19.46	\$32.74	\$72.39
25. (23) × (24)		\$21.41	\$34.38	\$68.77
26. (22) + (25) = Total cost		\$26.21	\$38.45	\$79.57
27. 125% of net premium, plus \$10. Present law		\$24.71	\$38.69	\$83.29
		\$27.49	\$33.83	\$44.03
Participating—term to age 65:				
28. Average size of policy (000's)		\$30	\$50	
29. Percent medical, by number		50%	75%	
30. Selection and issue cost, per policy*		\$78	\$94	
31. Selection and issue cost, per \$1,000		\$ 2.60	\$ 1.88	
32. Excess first-year cost, per cent of premium		100%	100%	
33. Average premium per \$1,000		\$ 8.77	\$12.89	
34. (32) × (33)		\$ 8.77	\$12.89	
35. (31) + (34) = Total cost		\$11.37	\$14.77	
36. 125% of net premium, plus \$10. Present law		\$16.07	\$20.16	
		\$23.74	\$26.03	

* Medical \$110, nonmedical \$45 (except \$25 at age 0).

TABLE 5—Continued

	AGE			
	0	20	35	50
Nonparticipating—whole life:				
37. Excess first-year cost, per cent of premium.....	120%	120%	120%	120%
38. Average premium per \$1,000..	\$ 8.95	\$11.82	\$18.50	\$34.05
39. (37) × (38).....	\$10.74	\$14.18	\$22.20	\$40.86
40. (4) + (39) = Total cost.....	\$15.74	\$18.34	\$25.75	\$51.86
41. 125% of net premium, plus \$10.	\$16.15	\$21.06	\$29.60	\$48.79
Nonparticipating—life paid up at age 65:				
42. Average premium per \$1,000..		\$12.89	\$22.06	\$51.40
43. Total cost.....		\$19.63	\$30.02	\$68.55
44. 125% of net premium, plus \$10.		\$21.80	\$32.45	\$65.15
Nonparticipating—endowment at age 65:				
45. Average premium per \$1,000..		\$15.12	\$26.68	\$64.99
46. Total cost.....		\$22.94	\$34.75	\$80.71
47. 125% of net premium, plus \$10.		\$24.71	\$38.69	\$83.29
Nonparticipating—term to age 65:				
48. Average premium per \$1,000..		\$ 6.96	\$10.16	
49. Total cost.....		\$10.26	\$13.06	
50. 125% of net premium, plus \$10.		\$16.07	\$20.16	

sizes shown in the 1974 LIMRA buyer study. The median size is substantially lower than the average size.

The percentage of medical business, which affects selection costs, was arrived at by judgment, using the data in Table 2 and taking account of the substantial differences by plan and age in the assumed average size of policy. Selection and issue costs per policy were assumed to be \$25 for juvenile, \$45 for nonmedical, and \$110 for medical business. At ages 20 and 35, where the great bulk of the business is sold, per policy costs for selection and issue for the whole life plan were \$52 and \$71, respectively. For the seven companies with average-sized policies under \$20,000, the actual data of the LOMA study showed a range of \$35–\$69 for the total business, with an average of \$56. This indicates that the assumptions give realistic results. It has been pointed out that, in companies with high average policy size, the ratio of medical to nonmedical selection costs is greater than the assumed ratio of 3.5 to 1, and that unit costs may be larger than the \$110 we have assumed. However, these differences clearly will be offset by the larger average size involved, so that costs per \$1,000 are unlikely to be greater and may even be lower than assumed.

Excess first-year costs expressed as a percentage of premium comprise the cost of the selling function. The cost is 60 percent of first-year pre-

miums for participating business and 70 percent of first-year premiums for nonparticipating business, plus the excess of first-year over renewal commissions.

Average premiums used were the average current rates for the companies in the study, taking proper account of policy fees for the assumed policy size. Term to age 65 was an exception; the rates used were representative of the few companies that offer this plan. Participating rates were those of the sixteen mutual companies, and nonparticipating rates were those of the nine stock companies. Participating rates of stock companies were ignored.

IX. RELATIONSHIP BETWEEN EXPENSE FORMULA AND CASH VALUE AND RESERVE BASES

The new nonforfeiture law under consideration differs from the Standard Nonforfeiture Law in that the expense factors for determining minimum values will be independent of the reserve basis and will be based upon the minimum standard permitted for calculation of cash values. Under present law, the expense allowance is computed on the mortality and interest basis used to compute cash values. Since the cash values are also effectively tied to the valuation basis, there has been, in practice, a relationship between the level of gross premiums, cash values, and reserves. A high scale of cash values is usually associated with high premiums, and low cash values with low premiums. A good question is the level of gross premium rates that should be used in determining the level of first-year expense allowance. In the case of high participating premiums, an argument can be made that any first-year costs not covered by the expense factors that determine minimum cash values can be rapidly amortized in renewal years.

Regardless of these considerations, the tests made in this study used the actual gross premiums and costs revealed by these special studies.

X. RECOMMENDED FORMULA

The tests shown in Table 5 indicate that under current conditions a formula of 125 per cent of the 1958 Commissioners Standard Ordinary $3\frac{1}{2}$ percent net level premium, plus \$10 per \$1,000, gives an expense allowance that fits the facts rather well and that would cover the costs revealed by the study described in this paper. The allowances are a little too high for short-term endowments and for term insurance plans, but these plans are unimportant. Very little business is sold nowadays on high-priced plans, and, rather than include limits in the formula, it seems best to keep it simple and ignore these fringe areas. The allowances are

a little too low at the high ages, but only a small fraction of the business is sold at ages 50 and over. The allowances provided under the present law are clearly most unsatisfactory. At the young ages, the present allowances permit the destruction of values, or excessively low values. For the higher-priced plans, the present allowances are much too low. The present formulas also invite abuses in the design of policies by permitting confiscatory cash-value scales.

The Unruh committee report recommended that, in computing the \$X per \$1,000 factor, changes in amount of coverage after ten years should be ignored. To simplify matters, it is suggested that, in view of the rather empirical nature of this factor, the amount of coverage on which the \$10 per \$1,000 allowance is based should be defined as a simple average of the coverage in the first ten policy years, ignoring both interest and mortality.

In determining the portion of the allowance that depends on the net premium, it is suggested that curtate functions be used at age nearest or last birthday, whichever is appropriate, based on whatever bases of mortality and interest are adopted for the calculation of minimum cash values.

XI. RELATIONSHIP OF CASH VALUES AND RESERVES

The guiding principle here is that minimum cash-value standards must apply to each individual policy, whereas reserve standards apply on an aggregate basis. It seems likely, and in my opinion it is eminently desirable, that interest rates much higher than 4 percent should be adopted for minimum standards in computing both cash values and reserves. The NAIC subcommittee has already concluded that the provisions in the Standard Nonforfeiture Law that link the cash-value and reserve bases should be abandoned, as, in fact, was recommended in the original version of the Guertin report. It is my strong conviction that the law should permit a substantial difference between the maximum interest rate that may be used to determine minimum cash values as compared with reserves, with a maximum interest rate for cash values on annual premium policies as high as 6 percent. The abandonment of any tie between the minimum reserve and cash-value standards could provide very necessary margins for depreciation in asset values and would permit the relaxation of reserve standards at a time of depressed values, thus reducing the size of surplus that would otherwise be necessary. If conservatively low guaranteed values were adopted, it would be possible in practice for a company to grant larger values if they were warranted by financial conditions at the date of surrender.

If the basis of minimum cash values were substantially changed—for example, to a new mortality table with a much higher interest rate, as many authorities would advocate to reflect the greatly changed economic conditions today—expense formulas different from those arrived at in this paper might perhaps be needed. However, in considering this matter, proper account would have to be taken of the rather substantial reductions in gross premiums and expenses per \$1,000 that must inevitably result if such drastic changes in reserve and cash-value structures were to occur. In the short period from 1970 to 1974, the LIMRA Buyer Study shows that on male lives the average premium per policy increased by 19 percent while the premium per \$1,000 dropped 9 percent, and that on female lives the premium per policy increased 24 percent while the premium per \$1,000 decreased 18 percent. It seems very likely that any reduction in premium rates would be substantially offset by a corresponding increase in average size, so that the proposed expense factors might not need any substantial change.

XII. INFLATION

No mention has been made of trends in costs or the effect of inflation on excess first-year costs. The excellent discussion on page 26 of the Unruh committee report covers this subject very adequately. Figures available to the author indicate that there has actually been a reduction in the unit cost of the selling function in recent years, while renewal costs have increased.

XIII. ACKNOWLEDGMENTS

The LOMA cost data are unique. For the purpose of reaching sound conclusions as to the current level of operating costs, there is nothing else in the industry that is as factual and unbiased as the intercompany study.

I wish to thank and commend all those involved in LOMA, the members of the LOMA Intercompany Financial Comparison Committee, and the members of the Unruh committee of the Society of Actuaries for their splendid cooperation and helpful counsel, without which this study would not have been possible.

APPENDIX A

CRITERIA FOR SELECTION OF COMPANIES

It is requested that the LOMA staff and the Intercompany Financial Comparison Committee will select 20 to 25 companies satisfying the following criteria and provide the NAIC with unit cost information in the form outlined in the attached memorandum, which is so defined so as to avoid the possibility of any company being identifiable.

In selecting the companies, please observe the following criteria:

1. No company is eligible which is smaller in size than the following figures indicate, relating to ordinary business only:
 - a) First-year premiums, excluding single—\$5,000,000.
 - b) Renewal premiums—\$40,000,000.
 - c) Total assets—\$300,000,000.
2. The company must have been contributing to the intercompany study at least five years and have shown outstanding competence in compiling the data.
3. Companies having the following characteristics should be excluded:
 - a) Large reinsurance business.
 - b) Large credit insurance operation.
 - c) Mail order operation.
 - d) Substantial foreign business.
 - e) Subsidiary of larger company, unless the operation is completely separate.
 - f) Subsidiary of a property or casualty company, unless the operation is completely separate.
 - g) Primarily a debit company.
 - h) Farm bureau company.
4. LOMA and the committee members who are knowledgeable in these matters should exclude any company which they do not deem suitable for inclusion in the data supplied to the NAIC for the purpose of studying the construction of new formulas for first-year expense factors to determine minimum statutory cash values.

APPENDIX B

LOMA INTERCOMPANY COMPARISON ANALYSES PROGRAM

PURPOSE OF PROGRAM

The broad purpose of the Intercompany Comparison Analyses Program is to provide management with an effective tool for evaluating and controlling operating costs, and to serve as a basis for management decisions. Through a standardized approach for determining functional costs and staffing, the program provides in particular:

1. Overall and unit data per function.
2. Bases for allocating expenses by line of business and distributing them between insurance and other functions.
3. Cost data for use in premium, dividend, and asset share calculations.
4. Data for intercompany comparisons and internal trend analysis.

Through the continuous development and refinement of instructions and definitions of functions over some twenty years, the Intercompany Financial Comparison Committee has provided uniform methods for functionalizing expense and staffing data to produce results that may be compared among

companies participating in the program. In addition, participants also can evaluate their results internally from year to year.

BACKGROUND OF PROGRAM

Dating back to the early 1940's, LOMA has been active in the area of expense analysis and control. It was recognized from the outset that the portrayal of costs in terms of their *purpose* would be a meaningful way to deal with this information. This is the objective of functional cost analysis. For instance, the cost of paying a death claim is a particular kind of functional cost. The processing of the claim may be initiated in an agency or branch office and then be forwarded to the home office, where any number of departments can be involved—claims, treasurers, actuarial, and accounting—just to name a few. In addition, there are departments which might participate indirectly in the processing of the claim—e.g., legal, central files, and auditing. Therefore, the functional cost of a death claim payment will cross departmental lines and represent all expenditures required to process the claim.

Continuous work has been conducted by the Intercompany Financial Comparison Committee in this area, leading to a series of reports, the latest of which were Financial Planning and Control Report No. 23, *Concepts of Functional Costs for Life Insurance Companies* (1972), and Financial Planning and Control Report No. 31, *Management Uses of Functional Costs (Case Studies)* (1974). The following may also be referred to for additional background information:

Special Release: *Financial Planning and Control Technical Sessions—1974 Intercompany Comparison Review Meeting.*

Special Release: *Highlights of Financial Planning and Control Discussion Sessions—1973 Annual Review Meeting.*

Special Release: *Acquisition Expenses for GAAP Reporting* (Annual Conference Proceedings—1969, 1967, 1965, and 1964).

MAJOR FUNCTIONS ANALYZED: CATEGORY A—ORDINARY LINE

Initial (A1.00)	[Selling Selection Issue
Direct maintenance (A2.00)	[Premium collection Commission processing Death claims Surrenders Matured endowments Policy changes All other direct maintenance Dividend processing and accumulations maintenance

MAJOR FUNCTIONS ANALYZED: CATEGORY A--ORDINARY LINE--*Continued*

Company-wide	General maintenance (A.3.00)	Actuarial and other research
		Electronic planning and conversion
		All other general maintenance
	Investment (E)	Bonds and stocks
		Mortgage loans
		Policy loans
		All other investments
Service (F)	Personnel	
	Employee services	
	General services	
General Overhead (G)	General management	
	General legal	
	General methods and procedures (non-EDP)	
	Public relations	
	Accounting, budgets and cost control	
	All other general overhead	

APPENDIX C

DATA REQUESTED FROM LOMA INTERCOMPANY COMPARISON ANALYSIS

NOTE.—References are to January, 1975, LOMA Instructions for Inter-company Functional Comparison Analysis.

1. Summary by major categories

Show per cent figures, not dollars, under Costs Summary, but split *each* category between (1) salaries and (2) all other expenses

	PERCENT OF TOTAL FOR EACH COLUMN		
	Salaries %	Rent and All Other %	Total Costs %
Category A Ordinary			
Category B Individual Health			
Category C Group (incl. wholesale)			
Category D Debit Life			
Category E Investment			
Category F Service			
Category G General Overhead			
Category O Other			
All categories as % of total costs	— %	— %	— %

NOTE.—“Other” comprises EDP costs attributable to EDP rental income, certain expenses of subsidiaries, and expenses on reinsurance assumed if significant in amount.

Appendix D Factor

2. A1.10—Selling	
(1) % first-year premium	e 12
(2) Per M	b 12
3. A1.20—Selection	
(1) Average size policy (rounded to nearest 000)	b 16
(2) % nonmedical by number	Co. records A1.20
(3) Per policy paid for	a 10
(4) % first-year premium	e 12
4. A1.30—Issue	
(1) Per policy paid for	a 8
(2) % first-year premium	e 12
5. Total of A2.10 to A2.80—Direct Maintenance	
(1) % total premiums	f 12
6. Total of A3.10 to A3.30—General Maintenance	
(1) % of ordinary expenses	Total Category A
7. F Functions—Service	
(1) % of total salaries in all categories, except F functions	Total salary costs (a) minus salary for F
8. G Functions—General Overhead	
(1) % of all expenses in all categories, <i>excluding</i> G functions	Total costs (a) minus costs for G category
9. Manager or General Agent Compensation—Ordinary Portion Only (See instruction 7.1 App. C-5 and C-4 and Addendum to Q. and A.)	
(1) As % of first-year premiums	e 12
(2) As % of renewal premiums	f 11
10. Agents' Financing Costs Sch. 24D items (a)(ii) and (iii) (These are costs in excess of earned commissions)	
(1) As % of first-year premiums	e 12
(2) As % of renewal premiums	f 11
11. Agents' Benefit Plans Sch. 24D, Item (a)(i)	
(1) As % of first-year premiums	e 12
(2) As % of renewal premiums	f 11

APPENDIX D

DEFINITION OF SELLING FUNCTION
ORDINARY

(Excluding Debit and Wholesale)

A1.10 SELLING

This function includes all work effort connected with selling, including clerical and secretarial assistance to agents, general agents, and agency managers.

New-business stimulation.

Sales promotion activities, including planning of contests, campaigns, bulletins, design and preparation of promotional literature and training material, and handling of sales-aid materials.

Training activities and periodic reporting.

Recruiting of agents, brokers, and field management.

Market research.

Administration of agents' financing plans (other than record-keeping).

Preparation of sales proposals for agents, including individual special rate quotations.

Selling effort in connection with direct-mail responses; work effort involved in direct-mail program until reply is received should be included in G4.00.

Periodic reporting of data necessary for qualifying for club meetings, contests, etc.

Preparation of agents' contracts and maintaining contract records.

Designing and planning agents' contracts.

Planning and conducting training and club meetings for sales force.

Obtaining agents' licenses.

Legal work on any of the above.

Preparation and distribution of field underwriters' newspaper or magazine.

NOTE.—Exclude administrative effort in connection with pension trust administration, which should be included in A2.70.

Specific Types of Expenses Chargeable Directly

Training and club meetings for agents, managers, etc.

Travel of agents, managers, etc.

Sales aids *not reaching the public* (see G4.00).

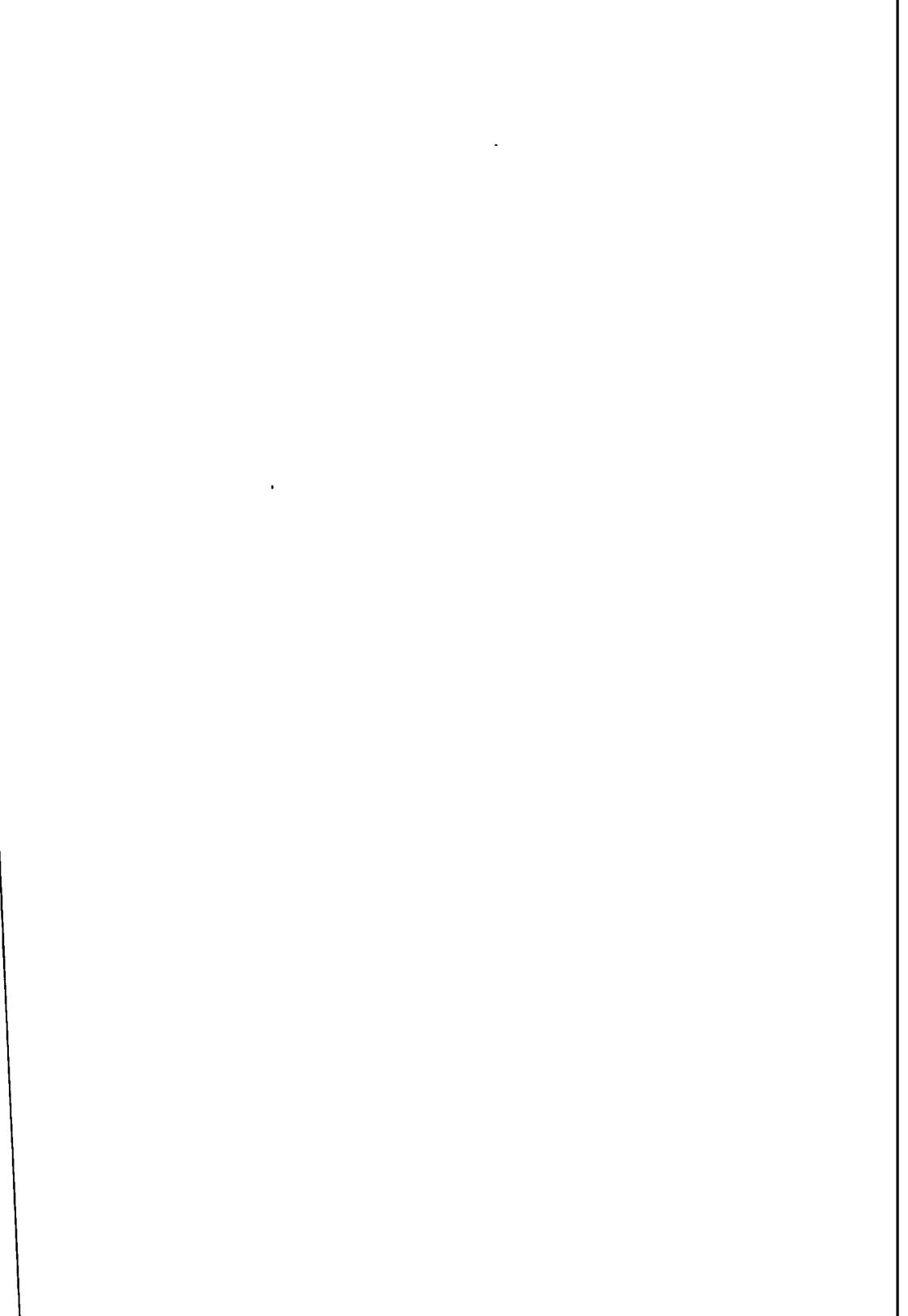
Ratebooks—printing expense.

Agents' manuals.

Agents' and field agency representatives' training material.

Re: agents only—employment agency fees, recruiting expenses, advertising to recruit agents, and credit reports.

Printing and production cost of field underwriters' newspaper or magazine.



DISCUSSION OF PRECEDING PAPER

JOHN O. MONTGOMERY:

Speaking as chairman of the NAIC Technical Task Force on Valuation and Nonforfeiture Value Regulation, I would like to say that Mr. Richardson's effort in preparing this paper is greatly appreciated. This paper, along with significant contributions by the Society of Actuaries Special Committee on Valuation and Nonforfeiture Laws, will furnish a solid basis for the revision of the nonforfeiture value formulas in the Standard Nonforfeiture Law.

There are still a few items that need to be resolved. First, new mortality tables are now under construction by the Society of Actuaries Special Committee to Recommend New Mortality Tables for Valuation. Under revisions to the Standard Nonforfeiture Law adopted by the NAIC in December, 1976, and since enacted by several states, the higher interest rate of $5\frac{1}{2}$ percent is permitted for minimum nonforfeiture value calculations on annual premium life insurance policies. Further study using the methodology set forth in this paper is necessary to see whether the factors recommended still apply under these two new assumptions. Second, further examination of the expense allowances generated for shorter-period endowments and longer-period term plans is needed, especially if it appears that the new minimum valuation and nonforfeiture value assumptions might lead to a revival of interest in these plans. Finally, the new mortality and interest standards will require a more careful analysis of the expense allowances generated for business issued at ages over 50.

ARDIAN C. GILL:

Mr. Richardson has performed a signal service to responsible regulation by applying his considerable experience and judgment to the problem of appropriate expense allowances for a new nonforfeiture law. The Society's Special Committee on Valuation and Nonforfeiture Laws worked closely with Mr. Richardson during his analysis and reviewed his paper prior to publication. [Mr. Gill was a vice-chairman of this special committee.] Although differing with Mr. Richardson on some technical points, the committee agrees with his conclusion that expense allowance factors of 125 percent of the net premium plus 1 percent of the face amount reflect fairly the median expense levels of the companies studied, at least at the younger ages.

It should be pointed out that the companies studied are ordinary com-

panies with average or better than average probable expense experience. Expense allowances at the recommended level do not accommodate higher expense companies or industrial companies. Thus the philosophical question of whether high, low, or median expense levels are appropriate to minimum nonforfeiture expense allowances remains to be addressed. It is hoped that in considering this question regulators will bear in mind the following truism that appears in the committee's report: "In the long run the costs of early terminations will be paid by continuing policyholders" (*TSA*, XXVII, 559). This point is subtle and probably not grasped by the insured public, and early cash values that are too high are mistakenly characterized as "liberal."

The committee report stated the upper limit of allowances as 150 percent of nonforfeiture net premiums, plus \$20 per \$1,000. This compares with the 125 percent plus \$10 proposed by Mr. Richardson. These higher allowances may create inequities for early terminators if minimum values are used, but in my view this is superior to forcing persisting policyholders to be generous to early dropouts.

The committee furnished the NAIC task force with nearly 300 asset share calculations designed to show how continuing policyholders suffer from excessive early values. We trust that the task force will give these calculations the attention they deserve and not decide the philosophical question on political grounds alone.

To determine the cost of withdrawal, "natural premiums" were calculated under certain experience assumptions and a zero lapse rate. These natural premiums represent the nonprofit premiums of a nonparticipating company that experiences the underlying assumptions and either does not experience any voluntary terminations or else has cash values equal at all points to its asset shares. Next, utilizing various interest rates and cash-value expense allowance formulas, additional "nonprofit" premiums were calculated under varying lapse assumptions, with a 100 percent lapse rate assumed at the end of the twentieth year. Specimen results expressed as a cost per \$1,000 at each duration are shown in Table 1 of this discussion.

Unfortunately, these calculations were performed prior to the publication of Mr. Richardson's paper, and only a limited test of his proposed allowances was made. It is not possible to tell from this comparison the relative importance of the increase in the per \$1,000 allowance and of the 6 percent interest assumption. It is clear, however, that the cost to persisting policyholders of early withdrawals is substantial and that only cash values based on factors approximating current experience come close to eliminating this cost.

TABLE 2
PARTICIPATING EXPENSE ALLOWANCES

	AGE			
	0	20	35	50
Whole life:				
A. 3½%:				
Derived.....	\$17.43	\$20.66	\$28.32	\$54.51
125% of net premium, plus \$10.....	16.15	21.06	29.60	48.79
B. 4½%:				
Derived.....	15.13	18.31	25.44	51.17
125% of net premium, plus \$10.....	14.78	18.93	26.93	45.81
C. 6%:				
Derived.....	13.81	16.14	22.40	47.52
125% of net premium, plus \$10.....	13.42	16.69	23.79	42.04
Life paid up at age 65:				
A. 3½%:				
Derived.....		22.02	32.87	70.93
125% of net premium, plus \$10.....		21.80	32.45	65.15
62½% (net premium + whole life net premium), plus \$10.....		21.43	31.03	56.97
B. 4½%:				
Derived.....		19.70	30.29	64.68
125% of net premium, plus \$10.....		19.36	28.85	58.80
62½% (net premium + whole life net premium), plus \$10.....		19.15	27.89	52.31
C. 6%:				
Derived.....		17.04	25.01	57.26
125% of net premium, plus \$10.....		16.88	24.87	51.35
62½% (net premium + whole life net premium), plus \$10.....		16.79	24.33	46.70
Endowment at age 65:				
A. 3½%:				
Derived.....		26.21	38.45	79.57
125% of net premium, plus \$10.....		24.71	38.69	83.29
62½% (net premium + whole life net premium), plus \$10.....		22.89	34.15	66.04
B. 4½%:				
Derived.....		23.72	34.96	77.50
125% of net premium, plus \$10.....		21.97	35.08	78.75
62½% (net premium + whole life net premium), plus \$10.....		20.45	31.01	62.68
C. 6%:				
Derived.....		21.25	30.71	72.18
125% of net premium, plus \$10.....		18.89	30.56	72.51
62½% (net premium + whole life net premium), plus \$10.....		17.79	27.18	57.28

This adjustment in the present law stems from a recognition that higher-premium forms are subject to a lower excess percentage expense in the first year. This overlooks, however, the fact that average sizes are smaller on the higher-premium forms, tending to raise the per \$1,000 expense component. While the effect of this fact is modest in Mr. Richardson's analysis, Table 2 shows that weighting the percentage allowance equally between the policy net premium and the whole life net premium worsens the fit with the derived allowances.

Mr. Richardson's proposal of 125 percent of the net premium, plus \$10, is a poor fit for whole life at age 50. He notes this in Section X: "The allowances are a little too low at the high ages, but only a small fraction of the business is sold at ages 50 and over."

Since cash values represent individual equities, it is not sufficient to dismiss potential inequities on the grounds of relative volume of business sold. In fact, the phenomenon of variations in expense allowances, cash values, and costs as age advances has been explored insufficiently. Since Mr. Richardson's analysis terminates at age 50, some of his conclusions may not apply at higher ages. In particular, it will be necessary to impose a maximum premium to which the percentage expense allowance will apply. In the current law this maximum is \$40. Tests performed by the Society's special committee show that \$50 or \$55 would be appropriate under today's conditions. This level occurs in the 60-65 age range for whole life using the 1958 CSO Table at $5\frac{1}{2}$ percent, which is the rate under consideration by the NAIC for cash values. Companies typically grade whole life first-year commissions down at these high ages, a practice not reflected in the analysis at younger ages. Where this grading is reflected in Mr. Richardson's Table 5, the fit is improved by a limitation of \$50 on the net premium.

It is also notable that the cost of withdrawal tends to rise with age, as shown in the first table. While the effect is diminished substantially by the use of 6 percent values and Mr. Richardson's allowances, it is not eliminated. If the trend continues with rising age, serious inequities can result for individuals to whom insurance is issued or increased at higher ages.

Increases at higher ages can be quite important in the future as inflation-adjusting or other innovative policies are developed. One is torn between keeping the law simple to aid in the experimentation with such products and providing a proper fit with experience factors. Since the diminishing average size with increasing age causes a rise in the per \$1,000 costs in the first year, the expense allowance deficiency noted by Mr. Richardson at age 50 is exacerbated at higher ages. (It is of the order of

\$6 per \$1,000 at age 50 on whole life.) It is clear to this writer that further consideration needs to be given to allowances at the higher ages.

Mr. Richardson proposes several other simplifications, and I support these, making the exception that continuous as well as curtate functions should be permitted. Neither set of functions will always produce the lower minima, according to tests performed at the Metropolitan Life.

Mr. Richardson quite properly has painted with a broad brush: minimum values do not represent all cash values, cash values are but one element of pricing, and expense allowances are only one aspect of cash-value determination. Of more importance are mortality and interest assumptions. It is worth emphasizing that equity is best served when mortality, interest, and expense assumptions are close to present-day reality.

HERBERT L. FEAY:

The title of this paper indicates a discussion of expense formulas for cash and other nonforfeiture values. I find that the paper primarily is a report on the development of one set of specified factors for determining expense allowances to be used in the cash-value formula proposed by the Society's Special Committee on Valuation and Nonforfeiture Laws.

In my opinion, the inclusion of such specific expense factors in the law is objectionable. The law should be more general in nature so as to allow for changes in both formulas and expense factors as conditions change. I favor a simple law that requires equitable cash values but includes an unsophisticated though clearly defined minimum basis for the values. This represents a return to the principles of Elizur Wright, whose simple but arbitrary formula was satisfactory for eighty years. I explain my proposals in more detail in my discussion of Frederick S. Townsend's paper "Term Insurance and Minimum Cash Values" (*TSA*, XV, 482). My proposals provided the basis for New York Senate Bill No. 1689, dated February 13, 1947, introduced by Senator Friedman.

I do not understand why a business that has so many variables in expense factors as the life insurance business favors such detailed and restrictive limitations on the use of the total amount that is reasonably available for expenses. The 1906 Armstrong investigation report of life insurance companies determined that surplus earnings of mutual companies were not being properly distributed to the policyholders. Instead of a complicated dividend formula being put into the law, the latter was amended to require an equitable distribution of surplus on an annual basis, with a limit on the surplus that can be retained and a limit on the amount that can be spent for expenses.

Despite the details of the Standard Nonforfeiture Law, the various expense factors were established on the basis of appearances and impressions rather than on that of facts and demonstrations. These factors were established by "armchair" methods and crude expense formulas, as indicated by Mr. Richardson in his paper. In my discussion of Mr. Townsend's paper, I pointed out that the arbitrary factors, assumptions, and provisions of the Standard Nonforfeiture Law caused trouble practically from the time it became effective.

Mr. Richardson indicates that his proposed expense factors are simpler than those in the present law. His formula provides for excess first-year expenses of 125 percent of the 1958 CSO $3\frac{1}{2}$ percent net level valuation premium, plus \$10 per \$1,000. A simplified formula is justified for determining an unsophisticated and rather arbitrary minimum floor for cash values, but it probably is not appropriate for determining equitable cash values for all plans, ages, and amounts of insurance for all companies. The tests in Table 5 are for an average-sized policy and an average premium for three plans of insurance. The basic information used to secure the proposed factors differs considerably among the companies selected for the study. The final averages probably are not correct for several of the twenty-five companies and most certainly will not produce equitable cash values for a large proportion of the life insurance companies in the United States. Mr. Richardson points out several defects in the basic information that he has for the twenty-five companies. He indicates that the statistical totals have not been compiled on a precisely uniform basis and can be misused. He cautions that the totals and averages must be used with a considerable amount of sophisticated and informed judgment. This is a diplomatic way of stating that the factors must be based in part on appearances and impressions.

Mr. Richardson has provided a very good illustration of the procedures an individual company can follow to determine equitable cash values for its policies. However, his statistical totals and averages do not provide a uniform standard for all companies for this purpose. I suggest that the addition of standard deviations to his totals, averages, and distributions would provide a measure of the differences among the companies.

I accept with qualification the statement that the adjusted premium method for computing minimum values is sound. My qualification is that this method is satisfactory for any company for which the method and associated expense factors (which can vary among companies) will produce equitable cash values. I do not want the adjusted premium method with stated expense factors provided by law to be the measure of equitable

cash values for every company. The method should not be given in the law but can be used by any company that can support the equity of the resulting cash values.

I do not agree with those who support the statement that cash values are completely separated from reserves. In my opinion, if there is not a substantial correlation of cash values and reserves, the cash values are not equitable. The reserves are liabilities. Total assets must exceed total liabilities by the amount of surplus (plus capital for a stock company). Assets (exclusive of paid-in amounts for capital and surplus for a stock company) come from policyholders' premiums and deposits and from investment income allocated to the assets arising from policyholders' premiums and deposits. In an established company, whether mutual or stock, the assets arising from policyholders' premiums and deposits will exceed the total reserves for the policies and contracts. The assets representing policyholders' funds will provide cash values that are directly related to the reserves that must be accumulated as liabilities.

Both cash values and reserves are the result of the level premium cost procedure. The premiums collected each year are higher than the current cost of insurance, and the excess payments represent savings. Of course, there are the adjustments for additional first-year expenses, but within a reasonable period of time assets will exceed reserves. On the basis of this reasoning, I cannot agree with Mr. Richardson's unsupported statement that "the law should permit a substantial difference between the maximum interest rate that may be used to determine minimum cash values as compared with reserves." Under this proposal, cash values would be reduced below reserves for individual policies and the company would be given an unearned gain from surrender charges.

The amount of the premium in excess of current insurance costs (the savings element of life insurance) that can be used to pay expenses should be limited. The argument that life insurance policies provide a satisfactory method of saving funds for financially difficult times or for old age is losing its appeal. This is demonstrated by the increasing proportion of term insurance sales referred to by Mr. Richardson. The lower cash values permitted by the Standard Nonforfeiture Law have contributed to the reduced appeal of level premium life insurance as a satisfactory means of investing funds.

ERNEST J. MOORHEAD:

In this discussion I attempt to advance a proposal for appropriate minimum values that I believe to be harmonious with Mr. Richardson's, although it approaches the solution from a different direction.

At the discussion session on the report of the Society's special committee in Houston in May, 1976 (*Record*, II [no. 2], 345), Mr. Ardian Gill spoke of the committee's inability to decide whether expense allowances for determining statutory minimum values should (1) accommodate companies whose expenses are high or (2) be at the level of the industry average or even (3) reflect "the experience of the best company." Mr. Richardson thereupon asserted the political infeasibility of Mr. Gill's first alternative and now has given us a formula geared expertly to a position somewhere between the second and third of his trio of alternatives.

Mr. Gill responded to Mr. Richardson's remark about political infeasibility as follows: "That is a good point. I would point out, however, that there are two consumers: those who drop their policies and those who keep them. As we outlined in the report, if a company pays too much to the departing policyholders, then the continuing policyholders pick up the loss."

I believe that the prospect of reaching a sound and durable conclusion about appropriate minimum values would be improved if we were to drop the unhelpful slogan that "equity is in the eye of the beholder," and if we were to visualize three, not two, consumers. There is the consumer who drops his policy during the early policy years. There is the one who, probably relying on the customary assertion by the company and the agent that a level premium policy is a worthy savings plan, pays premiums for, say, fifteen or more years, and then avails himself of the promised cash value. Finally, there is the consumer whose policy remains in force until death. It happens that these three types of consumers tend to be roughly equal in number.

Since both the second and the third types have followed faithfully standard life insurance company recommendations, there surely is no valid reason why the interests of either one should be subordinate to those of the other. To the contrary, I doubt that the actuarial profession's spokesmen should recommend or endorse minimum values at the longer policy durations that, in conjunction with premiums at the normal competitive level, fail to measure up satisfactorily when the contract is viewed as a savings plan.

In specific terms, I propose that when minimum cash values using Mr. Richardson's expense formula have been calculated, one of the tests of their suitability should be the Linton yield test. Do such values at and beyond the fifteenth policy year produce yields on the savings element that life insurance people who describe whole life insurance as a savings plan would be satisfied to have the buying public know about?

The old Guertin minima could not pass such a test. Nor, I believe, could the illustrative values that were shown in the report of the Society's special committee.

(AUTHOR'S REVIEW OF DISCUSSION)

CHARLES F. B. RICHARDSON:

The four discussions of this paper are much appreciated.

I congratulate Mr. Montgomery on his leadership as chairman of the NAIC task force and appreciate his kind remarks. He should be supported on the badly needed changes already adopted by the NAIC and in his efforts to modernize the present outmoded state laws on valuation and nonforfeiture values.

Mr. Gill's most able discussion is especially valuable, both for its erudition and because of his capacity as the current chairman of the Society's Special Committee on Nonforfeiture Laws. The committee was very helpful to me in preparing this paper.

I find myself in agreement with almost all of Mr. Gill's discussion. The very large number of asset share calculations of the cost of high early cash values to continuing policyholders, to which he refers, were the result of my recommendation to the NAIC committee that this information be obtained, and I was responsible for many of the underlying assumptions. I believe the results are particularly enlightening and am aware of no other comparable data that have been published. Although there is room for considerable difference of opinion as to the propriety of the assumptions and the costs revealed by these tests, I believe that they are most valuable in substituting "facts for impressions." They should be most helpful in reaching sound conclusions as to what are reasonable levels of minimum guaranteed cash values, taking account of the extremes of views on both sides of a very controversial issue.

In my view, the results of these tests justify amply the use of the expense data in my paper for determining the recommended expense formula for minimum legal cash values. They show that higher expense rates do not have as large an effect as might be expected. It is most interesting and encouraging to observe the small cost of withdrawal on the basis of a 6 percent interest rate, which today seems much more appropriate for this purpose than a 3½ percent rate. The additional tests of my proposed expense allowances for participating policies at higher interest rates, even though based on hypothetical gross premiums, are most interesting and show quite encouraging results based on my simple formula. As Mr. Gill observes, modifications to the formula clearly are

needed at the higher ages and for the high-priced plans, despite my wanting very much to avoid them.

Mr. Feay and I first disagreed thirty-nine years ago on the principles that should govern minimum cash values. (See my paper "Guaranteed Cash Surrender Values under Modern Conditions," *T.A.S.A.*, XXXIX, 237, and discussion of that paper in *T.A.S.A.*, XL, 132.) It seems that my views still are in accordance with the great majority of actuarial opinion on these matters.

