

LAPSE RATES

CHARLES F. B. RICHARDSON AND JOHN M. HARTWELL\*

IT IS surprising how little attention has been given in actuarial literature in recent years to the very important subject of lapse rates. Since Mr. Martin's paper on Withdrawal Rates was presented to the Society in 1937, there has been only one other paper, Mr. Cannon's "Study of Persistency," read before the American Institute in 1949. Lapse rates are of tremendous importance to the company, the agent, and the policyholder. High early terminations frequently result in heavy loss to the company and are one of the major causes of dissatisfaction among policyholders with the life insurance business.

This paper is not concerned with the mathematical techniques involved in the use of lapse rates in actuarial calculations. The various methods of introducing lapse rates into the calculation of asset shares, premiums, agents' compensation plans, and so forth are adequately covered in the literature. We are concerned here with the causes of high lapse rates and the characteristics of business which has either high or low persistency.

We first give a review of the literature on the subject and attempt, by following the historical development of the research in this field, to trace the general trend of thought as it developed through the years. We then present the results of a large number of studies made by The Mutual Life of New York to determine the effect, on the lapse rates in the early policy years, of the various characteristics of the insured, the policy, the agent and the sale, and the effect of certain economic factors. These studies concern themselves with lapse rates in the early policy years, since these appear to be more affected by these different characteristics than lapse rates at later durations. From the standpoint of both the policyholder and the company, a lapse at an early duration is much more serious than a termination at a later duration. There is considerable evidence that policies terminated at later durations have, in the main, fulfilled a real economic need. We then discuss lapse rates at the later durations, showing the effect of economic conditions. The paper concludes with a review of the shortcomings of the various lapse rates for individual companies and for the industry which are contained in various publications.

\* John M. Hartwell, not a member of the Society of Actuaries, was Research Associate of The Mutual Life Insurance Company of New York when this paper was written.

## I. HISTORY OF STUDIES ON LAPSE RATES

The published material on cause and prevention of lapse covers a long period of time and a large number of papers, discussions, and reports appearing for the most part in the actuarial publications. A selected bibliography of the American work appears in the Appendix. So far as Great Britain is concerned, there are a large number of references to "Discontinuances" in the first forty volumes of the *Journal* of the Institute, but it is most remarkable that not a single reference in regard to life insurance lapse rates occurs after the discussions in connection with the O<sup>M</sup> Tables in 1902. The *Transactions* of the Faculty in Scotland do not contain even one reference to lapse rates. Of course, it is well known that lapse rates in Great Britain are much lower than in the United States or Canada and have not generally been a matter of concern to management. However, up-to-date statistics on British lapse rates would be of very considerable interest.

The earliest extensive discussion in America of methods for improving persistency was reported in 1914 (*RAIA* III, 284) and covered a variety of attempts to accomplish reinstatement.

By 1921 lapsation was being laid on the agent's doorstep, a significant change in point of view, since it introduced new emphasis on the events preceding and accompanying the sale. One other important factor clearly demonstrated at this time was the effect of economic conditions on the lapse rate. This relationship was soon to achieve dominating significance in the depression after 1929, and diverted attention from the prevention of avoidable terminations during prosperous times.

About 1925 a new interest assumed increasing importance—an attempt to discover measurable factors which are associated with lapse. This was inevitable, but in the end may not lead to the development of methods of preventing lapses. It was inevitable because so little factual evidence had ever been adduced to support the prevalent hypotheses. There was substantial agreement on the factors causing high lapse rates, but no information which gave useful clues to effective action.

By the late thirties a large number of studies had reported the effect on lapse rates of income, occupation, sex, age, previous insurance, premium frequency, plan, and several other variables. There was also historical evidence that economic disaster affected most violently the terminations at durations subsequent to the second year.

All these analyses failed to measure the recognized interaction of various factors. This deficiency was remedied by the study published in 1949 by the Agency Management Association, without doubt the most comprehensive analysis yet made.

These statistical investigations proceeded along lines which took the emphasis off the agent by looking at measurable characteristics of the policy associated with good or bad persistency. The factors used were those most readily available—age at issue, premium frequency, plan, and other objective characteristics of the policyholder or the policy. They might improve persistency, assuming the agent is the critical factor, only if agents actively and continuously used these criteria in prospecting, and only if a poorly selected agent using poor techniques could write quality business by prospecting among a clientele with high persistency characteristics. To a limited extent both these assumptions may have validity. Without doubt an agent today is in a far better position to know the prospective average persistency of his business and to take such action as his desires and capacities dictate. The companies are also in a position to guide agents toward persistent business with some assurance. However, this approach to the problem raises the question as to the social desirability of educating agents to avoid certain markets, with the result that substantial segments of the population would not be solicited to purchase ordinary insurance.

It is an unpleasant fact that over twenty years of effort along these lines has resulted in no appreciable improvement in the lapse rate. The industry lapse rate for ordinary business on the Agency Management Association formula was about 20% in the late twenties, recovered from the depression to about 19% in the late thirties, and is today about 16%, during the biggest, longest boom in history. On the basis of these facts, we must conclude that the efforts to prevent early lapsation have produced little gain, even though much more is known about the characteristics of good quality business.

In 1948 there were two studies which represent major contributions to an understanding of the lapse problem. The first is the analysis of factors associated with lapse by G. E. Cannon ("A Study of Persistency," *RAIA XXXVII*, 267), one of the most useful studies of this type. Its outstanding merit derives from the fact that it included only the business of full-time agents with 10 years' experience, who had differences in their own persistency record which permitted grouping them in three categories of good, average, and poor persistency. The study included lapse rates on business written in 1936-40 and in 1941-45; the persistency of the second period is considerably higher because of improved economic conditions. The significant factor, however, is that the improvement is greater for the better agents. This finding indicated that "it is definitely apparent that the agent writing the business is a major factor in persistency, possibly even more powerful than the economic period."

In the discussions of this paper and of the Agency Management Association study of 1948, it was stated that efforts to improve persistency "should be invested at the level of selection and development of career agents or at the level of the factors present at the time of the sale." It was further noted that analysis of objective facts about policyholders has reached "diminishing returns so far as the prediction of persistency is concerned" and that "there is unanimity of opinion that selection and training of agents is a basic factor in a program to improve persistency." Twenty-eight years before, at another meeting of the Institute, almost identical opinions had been expressed, although the analysis of predictive factors was at that time still far in the future.

The other significant contribution of 1948 was the study by the Agency Management Association on "Orphan Business," discussed on a later page. This analysis indicated the very strong probability that the high lapse rate on policies sold by agents who left the business was not caused by neglect through the termination of the selling agent but that the heavy lapses occur early, before agent termination could be a factor. This finding has unique value because it seems to demolish one of the recurring myths about causation of lapse—that the policy was an orphan.

The various discussions pointing to the importance of the agent and the method of making the sale have invariably been founded on hypotheses. It has been suggested, for example, that lapsation arises from overselling, failure to fit the needs, making a "poor" sale, failing to follow up, failing to create a prestige relationship, inadequate training or poor selection of the agent, or failure to create confidence in the company or agent. These hypotheses have two deficiencies. In the first place, most of them are expressed in such general terms that they do not provide guides to effective action, and, second, they have not been tested and validated.

## II. STUDIES OF VARIOUS FACTORS AFFECTING LAPSE RATES

In 1949 a major study was made of the lapse rates of The Mutual Life of New York according to a large number of characteristics of the life insured and of the policy. This study involved 20,483 policies issued from January 1 to June 30, 1946, and is in some respects more complete than the industry study published in 1948 by the Agency Management Association entitled *Persistency, 1942-1947*. The extent of the data in the various classifications is shown in Table 1.

The lapse rate shown in Tables 2 to 5 and 7 to 16 is the percentage of policies, by *number*, which failed to pay any part of the *third* year's premium. Thus, a policy under which the policyholder paid the third annual, fifth semiannual, ninth quarterly, or twenty-fifth monthly premium was

a persisting policy. All terminations were treated as lapses. Consequently, deaths are included as terminations, but were so few that they have no effect on the results. All juvenile policies (*i.e.*, policies issued before age 10) and all policies issued under Salary Savings or Employee Benefit plans were *excluded*. We also excluded all business written by agents whose contracts terminated prior to October 1, 1948, *i.e.*, agents who, on the average, *did not remain* in the business at least  $2\frac{1}{2}$  years after the policy

TABLE 1  
EXTENT OF DATA  
(Number of Policies Included in Studies Shown in Tables 2-5 and 7-16)

	INCOME GROUP					
	Total	\$3,000 and Less	\$3,001- \$5,000	\$5,001- \$7,500	\$7,501- \$15,000	\$15,001 and Over
<i>Occupations:</i>						
1. Students . . . . .	1,836	945	333	342	124	78
2. Professions . . . . .	1,360	225	385	329	288	118
3. Farmers . . . . .	1,473	718	465	168	95	15
4. Proprietors and officials . . . . .	2,013	178	491	503	538	289
5. Semiprofessional . . . . .	343	89	141	65	27	18
6. Foremen, small businessmen, clerks, outside salesmen . . . . .	4,604	1,220	1,596	876	630	261
7. Specialized farming and fish- ing . . . . .	286	132	82	30	26	13
8. Retired . . . . .	111	85	19	4	1	1
9. Farm tenants, mechanics, deliverymen . . . . .	666	360	233	54	12	4
10. Factory workers . . . . .	1,272	833	331	62	30	12
11. Construction, building main- tenance, servants . . . . .	827	413	260	73	62	17
12. Farm laborers, salesclerks . . . . .	1,333	1,017	261	40	7	3
<i>Age:</i>						
10-19 . . . . .	1,749	909	309	321	117	78
20-29 . . . . .	5,155	3,323	1,262	376	150	33
30-39 . . . . .	5,665	1,538	2,101	1,036	742	230
40-49 . . . . .	2,750	333	747	628	644	373
50 and over . . . . .	799	122	182	185	191	114
<i>Frequency:</i>						
Annual . . . . .	9,059	2,846	2,327	1,726	1,362	752
Semiannual . . . . .	2,049	955	591	296	178	29
Quarterly . . . . .	3,657	1,838	1,193	383	202	29
Monthly . . . . .	1,339	585	493	146	100	15
<i>Amount of policy:</i>						
Under \$1,500 . . . . .	1,835	1,248	417	117	27	6
\$ 1,500-\$ 4,999 . . . . .	5,650	3,335	1,587	493	184	35
\$ 5,000-\$ 9,999 . . . . .	5,050	1,456	1,951	979	549	101
\$10,000-\$24,999 . . . . .	2,957	182	633	880	896	357
\$25,000 and over . . . . .	625	3	13	76	198	331

was issued. Other studies, covered later in this paper, show that the lapse rate of business written by new agents, particularly those who terminate early, is much higher than that of mature agents. The material, therefore, is as homogeneous as we could get it, within practical limits.

The study covers the period 1946-48 when general economic conditions were better than ever before in peacetime. Therefore, the lapse rates ex-

TABLE 2  
LAPSE RATE BY INCOME OF INSURED AND BY OCCUPATION (MALES)

OCCUPATION	INCOME GROUP					
	Total	\$3,000 and Less	\$3,001- \$5,000	\$5,001- \$7,500	\$7,501- \$15,000	\$15,001 and Over
Total combined.....	18.6%	24.6%	19.0%	12.5%	11.5%	6.4%
1. Students.....	10.0	14.5	7.2	(4.1)*	(4.8)	(2.6)
2. Professions.....	12.1	16.4	15.6	13.7	(5.2)	(5.9)
3. Farmers.....	15.1	18.8	11.2	(10.7)	(12.6)	†
4. Proprietors and officials	15.3	21.9	23.4	13.7	12.5	(4.2)
5. Semiprofessional.....	17.8	(20.2)	22.0	(9.2)	(14.8)	†
6. Foremen, small businessmen, clerks, outside salesmen.....	18.2	24.2	19.4	14.0	13.2	11.1
7. Specialized farming and fishing.....	19.6	28.8	(14.6)	(13.3)	(7.7)	†
8. Retired.....	21.6	(22.4)	†	†	†	†
9. Farm tenants, mechanics, deliverymen.....	24.5	28.3	19.7	(22.2)	†	†
10. Factory workers.....	25.4	28.1	21.5	(17.7)	(20.0)	†
11. Construction, building maintenance, servants	27.4	32.2	25.8	(17.8)	(19.4)	†
12. Farm laborers, sales-clerks.....	31.7	33.1	30.7	(5.0)	†	†

\* Numbers in parentheses = less than 20 lapses.

† Less than 20 cases.

perienced are undoubtedly lower than would be expected under more normal conditions, and there must be certain distortions in the results. For instance, unusual stability of income and employment in the lower-income groups has lessened the inherent differences between the lapse rates of high-income and low-income groups.

#### A. Characteristics of the Insured (Male Lives Only)

*Income.*—Perhaps the most important factor affecting the lapse rate is the income of the premium payer. The first line of Table 2 shows the lapse rate for various income groups for all occupations combined, demonstrating the consistent improvement in persistency as income increases. The

importance of income in determining persistency becomes even more evident when other characteristics of the insured or the transaction are broken down into income groups. A number of the later tables give a cross-classification of income with some other factor and consistently indicate the importance of the income factor. The statistics as to income are based on the agent's statement of the insured's income given in the "Quality Rating Chart" which accompanies each application.

*Occupation.*—Occupation has a substantial effect on persistency, as the first column of Table 2 indicates. Students have by far the lowest lapse rate, and farm laborers and salesclerks have the highest. The high lapse rate for salesclerks is a surprise and is one of the few areas in which this study does not parallel the results in the L.I.A.M.A. study. Also, the farm group in this study has higher persistency than is shown by the L.I.A.M.A. study. For the most part, however, the occupational groups conform to generally accepted impressions.

The occupational groupings given in Table 2 were arrived at after considerable experimentation. The occupation classes given in the *Occupation Code* published by the Joint Committee on Mortality were first combined on the basis of similarity of work into thirty-two occupational groups. Lapse rates were then determined for each of these thirty-two groups, which were then combined, on the basis of similarity in persistency, into the twelve groups shown in Table 2.

It is clear from inspection of the occupations listed in Table 2 that there is an income bias. The occupations near the top of the list are generally the higher paid. The remaining columns of the table show lapse rates by occupation according to income level. For incomes of \$3,000 and less the differences between occupations are very definite. In the second income group (\$3,001–\$5,000) there is still considerable difference between occupational groups, but in the next income group the differences are very erratic and do not follow the over-all trend. In part this result reflects the inadequate data for higher incomes, where the results are inconclusive.

*Age.*—There appears to be a pronounced relationship between increasing age and lower lapse rate, as one would expect, as shown in the first column in Table 3. However, there is a close correlation between age and income, which substantially accounts for the superficial evidence that age and persistency are related; nevertheless, at low-income levels age is an independent determinant.

Lives insured in the age group 10–19 are usually not the premium payers, a very large number of them being students whose premiums are undoubtedly paid by parents, who, in the main, are probably in the higher-income groups. At all higher ages, in the low-income brackets,

there is a definite relationship between age and lapse rate. This relationship is particularly clear in the \$3,000-and-under bracket and is substantially clear in the \$3,001-\$5,000 bracket. At higher incomes, however, the results are very erratic and suggest that age is no longer a factor at incomes over \$5,000. However, the data are scanty in the higher-income groups.

*Previous ownership of life insurance in Mutual Life.*—Previous ownership of life insurance in Mutual Life appears to be important only between policyholders who had no such previous insurance and those who did have some previous insurance; the amount of insurance already owned is of minor significance. The breakdown into income brackets (Table 4)

TABLE 3  
LAPSE RATE BY INCOME OF INSURED AND BY AGE (MALES)

Age	INCOME GROUP					
	All Incomes	\$3,000 and Less	\$3,001-\$5,000	\$5,001-\$7,500	\$7,501-\$15,000	\$15,001 and Over
10-19.....	10.7%	16.4%	6.8%	(3.1%)*	(4.3%)	(2.6%)
20-29.....	26.1	28.7	25.4	14.9	(8.7)	(3.0)
30-39.....	17.5	22.7	18.0	14.2	12.4	9.6
40-49.....	13.2	16.5	17.0	13.5	11.8	5.4
50 and over.	12.6	17.2	13.7	10.8	14.1	(7.0)
All ages..	18.6%	24.6%	19.0%	12.5%	11.5%	6.4%

\* Numbers in parentheses = less than 20 lapses.

indicates that the distinction according to amount of previous insurance does not hold in any income group and that the over-all difference can be accounted for only by factors associated with differences in income level. The difference in lapse rate between the ownership of some previous insurance and no previous ownership in Mutual Life is particularly pronounced in the two lowest-income brackets.

*Age and occupation.*—In every occupational group there is at least some tendency for persistency to improve with increasing age. Also, within any age group the effects of occupational differences are evident but are frequently erratic within the higher age groups. The relationships found were already accounted for by previous evidence relating to income, age, and occupation. In no case is there any evidence that the interrelationship between age and occupation produces a greater discrimination than has already been noted.

*B. Characteristics of the Policy*

*Frequency of premium payment.*—Frequency of premium payment has a very important effect on persistency. It is interesting to note the very small difference between monthly and quarterly business; the L.I.A.M.A. study showed definitely higher lapse rates for monthly than for quarterly policies. Differences between frequencies still persist when the data are

TABLE 4  
LAPSE RATE BY INCOME AND PREVIOUS OWNERSHIP OF  
INSURANCE IN MUTUAL LIFE (MALES)

AMOUNT OF INSURANCE OWNED IN MUTUAL LIFE	INCOME GROUP						
	Total	\$3,000 and Less	\$3,001-\$5,000	\$5,001-\$7,500	\$7,501-\$15,000	\$15,001 and Over	No. of Policies
None.....	21.3%	26.2%	20.6%	13.9%	13.5%	8.9%	11,333
Some (any amt.)	12.2	16.8	14.7	10.2	9.5	5.0	4,790

TABLE 5  
LAPSE RATE BY FREQUENCY OF PREMIUM PAYMENT AND INCOME (MALES)

FREQUENCY	INCOME GROUP					
	All Incomes	\$3,000 and Less	\$3,001-\$5,000	\$5,001-\$7,500	\$7,501-\$15,000	\$15,001 and Over
Annual.....	14.6%	20.1%	15.9%	10.8%	10.7%	5.9%
Semiannual..	21.3	26.4	20.1	14.2	12.4	(3.4)*
Quarterly....	24.6	28.7	22.7	16.7	14.9	(13.8)
Monthly.....	25.1	30.3	22.9	18.5	(15.0)	†
All frequencies.	18.6%	24.6%	19.0%	12.5%	11.5%	6.4%

\* Numbers in parentheses = less than 20 lapses.

† Less than 20 cases.

broken down into income groups (Table 5), the difference being most pronounced in the lower-income groups, becoming smaller as income increases. The superiority of annual premiums is indicated in every income group except the \$15,001-and-over group, where the numbers are too small. The differences between quarterly and monthly are minor in all income groups.

A separate study was made to show the incidence of the lapse rates on fractional premium business during the first policy year. We used the

business written by established agents in 1945, excluding that of new agents in their first two years. Table 6 gives the percentage of cases in which all premiums due at the end of the month shown were paid (*e.g.*, the second quarterly premium was paid on 90.3% of the policies). It is evident from the above that the bulk of the lapses on quarterly and monthly business occur during the first quarter.

*Plan of insurance.*—Analysis of persistency by plan of insurance (Table 7) establishes that there are pronounced differences by plan. Predominantly the endowment policies have good persistency and the limited payment life policies are above average; only Life at age 85 falls below the average rate. Unfortunately, the data did not permit any detailed study of plan of insurance related to other factors, such as income. Consequently, it is impossible to isolate other characteristics which may

TABLE 6  
PERSISTENCY RATES IN FIRST YEAR ON  
FRACTIONAL PREMIUM BUSINESS

Duration	Annual	Semiannual	Quarterly	Monthly
3 months.....			90.3%	86.0%
6 months.....		92.7%	86.0	82.3
9 months.....			83.9	80.2
12 months.....	94.9%	89.6	81.9	78.6
Percentage lapsed end one year.....	5.1	10.4	18.1	21.4

affect certain types of policies. Preferred Risk Whole Life has a minimum of \$5,000 and is sold primarily to higher-income groups, while Life at age 85 (with a much lower average policy) includes a high proportion of volume issued to the lower-income groups, hence the large difference in the lapse rates.

*Amount of policy.*—Table 8 points to the very definite conclusion that the amount of policy is *not* a factor in persistency. There is lower persistency in the sizes between \$1,500 and \$10,000. *However*, when amount of policy is related to *income* groups, it is clear that in no case is the amount of policy a criterion of the lapse rate. There is also clear evidence that the policies under \$1,500 (most of which are for \$1,000) have lower lapse rates. These policies, to a substantial extent, are sold to students whose persistency rate is very good regardless of amount of policy or almost any other factor.

Chart I presents in graphic form the relationship between income and amount of policy. For three successive groups—\$1,500 to \$4,999, \$5,000

TABLE 7  
LAPSE RATE BY PLAN (MALES)

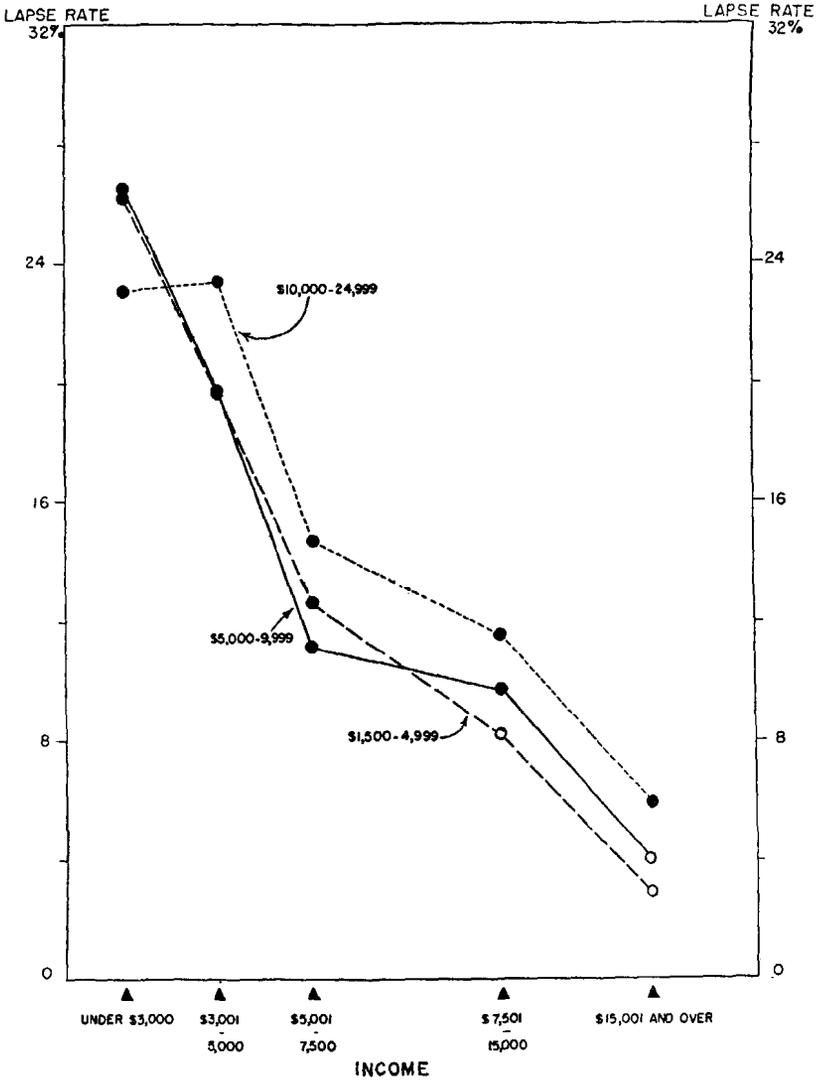
Plan	Lapse Rate	No. of Policies
<b>A. Life:</b>		
1. Preferred risk whole life...	14.3%	3,645
2. 20 payment.....	16.0	2,598
3. 30 payment.....	16.4	775
4. Other limited payment...	17.5	605
5. At age 85.....	24.9	3,331
6. All life plans.....	18.2	10,954
<b>B. Endowment:</b>		
1. 20 year.....	8.1	641
2. At age 60.....	8.9	427
3. Endowment annuity.....	10.5	544
4. At age 65.....	15.3	673
5. 30 year.....	15.9	295
6. Other.....	21.3	1,696
7. All endowments.....	15.4	4,276
<b>C. Term:</b>		
1. Preliminary term.....	34.0	250
2. Regular term.....	22.0	614
3. Term riders.....	19.7	862
<b>D. Juvenile.....</b>		
	14.1	973

TABLE 8  
LAPSE RATE BY AMOUNT OF POLICY AND INCOME (MALES)

AMOUNT OF POLICY	INCOME GROUP					
	Total	\$3,000 and Less	\$3,001-\$5,000	\$5,001-\$7,500	\$7,501-\$15,000	\$15,001 and Over
Under \$1,500.....	15.2%	18.0%	10.1%	(6.8%)*	(3.7%)	†
\$ 1,500-\$ 4,999....	22.1	26.2	18.6	12.6	(8.2)	(2.9%)
\$ 5,000-\$ 9,999....	18.6	26.5	19.7	11.1	9.7	(4.0)
\$10,000-\$24,999....	15.0	23.1	23.4	14.7	11.5	5.9
\$25,000 and up....	13.1	†	†	(11.8)	20.7	7.6
All amounts.....	18.6%	24.6%	19.0%	12.5%	11.5%	6.4%

\* Numbers in parentheses = less than 20 lapses.  
† Less than 20 cases.

CHART I  
LAPSE RATE BY INCOME AND AMOUNT OF POLICY



O INDICATES LESS THAN 20 LAPSES IN THIS GROUP

to \$9,999, and \$10,000 to \$24,999—there is no significant difference in the lapse rate in any income class.

The distribution of policies by size in the various income groups shows that the lower persistency of policies under \$10,000 is accounted for by the predominance of low-income policyholders in these size groups.

Another part of this analysis covered the relationship between amount of policy and age. Above age 30 there is no clear relationship between lapse rate and amount of policy, and for policies over \$10,000 there is no clear relationship between lapse rate and age. The younger ages and smaller policies do have much higher lapse rates. As has been noted above, these policies are predominantly held by policyholders with lower incomes, and

TABLE 9  
LAPSE RATES BY AMOUNT OF POLICY AND AGE (MALES)

AMOUNT OF POLICY	AGE					
	Total	10-19	20-29	30-39	40-49	50 and Over
Under \$1,500 . . . . .	15.2%	8.4%	23.2%	17.6%	10.8%	(14.8%)*
\$ 1,500-\$ 4,999 . . . . .	22.1	13.9	29.2	20.2	14.7	14.6
\$ 5,000-\$ 9,999 . . . . .	18.6	9.8	26.4	16.0	14.3	10.1
\$10,000-\$24,999 . . . . .	15.0	(7.7)	18.8	16.5	11.2	12.9
\$25,000 and up . . . . .	13.1	†	(12.5)	14.4	13.8	(9.2)
All amounts . . . . .	18.6%	10.7%	26.1%	17.5%	13.2%	12.6%

\* Numbers in parentheses = less than 20 lapses.

† Less than 20 cases.

that fact is probably the most important single element. In addition, we have already noted that within the low-income groups the younger ages have higher lapse rates. These two factors together adequately account for the high lapse rates shown in Table 9 for smaller policies and younger ages.

Amount of policy was also examined with reference to occupational groups in Table 10. Within each amount of policy group there is a definite trend for higher lapse rates as the occupations grade down. Within each occupational group, however, there is very seldom a reliable trend in rate with increasing size of policy. This table tends to substantiate the conclusion previously reached that amount of policy is not a factor in persistency.

*Amount of premium.*—The “amount of premium” shown in Table 11 is the total premium per year. There is evidence that persistency increases as the amount of premium increases. However, when amount of premium

TABLE 10

## LAPSE RATE BY AMOUNT OF POLICY AND OCCUPATION (MALES)

OCCUPATION	AMOUNT OF POLICY					
	Total	Under \$1,500	\$1,500- \$4,999	\$5,000- \$9,999	\$10,000- \$24,999	\$25,000 and Over
Total combined.....	18.6%	15.2%	22.1%	18.6%	15.0%	13.1%
1. Students.....	10.0	8.9	10.4	11.3	(9.2)*	(0.0)
2. Professions.....	12.1	(9.5)	14.3	13.1	10.7	(9.5)
3. Farmers.....	15.1	11.7	18.7	13.8	(10.4)	†
4. Proprietors and officials	15.3	(11.8)	20.9	15.7	14.5	9.7
5. Semiprofessional.....	17.8	†	20.0	19.7	(12.2)	†
6. Foremen, small busi- nessmen, clerks, outside salesmen.....	18.2	16.0	20.0	18.7	15.9	19.4
7. Specialized farming and fishing.....	19.6	(27.6)	26.5	(13.0)	(12.5)	†
8. Retired.....	21.6	†	(22.6)	(24.1)	†	†
9. Farm tenants, mechan- ics, deliverymen.....	24.5	(23.5)	23.7	21.8	(25.5)	†
10. Factory workers.....	25.4	16.5	27.6	27.0	(21.8)	†
11. Construction, building maintenance, servants.	27.4	25.4	30.3	25.4	(23.8)	†
12. Farm laborers, sales- clerks.....	31.7	26.3	32.6	32.8	(29.4)	†

\* Numbers in parentheses = less than 20 lapses.

† Less than 20 cases.

TABLE 11

## LAPSE RATE BY AMOUNT OF PREMIUM AND INCOME (MALES)

AMOUNT OF PREMIUM PER YEAR	INCOME GROUP					
	All Incomes	\$3,000 and Less	\$3,001- \$5,000	\$5,001- \$7,500	\$7,501- \$15,000	\$15,001 and Over
\$ 24 and less.....	24.8%	29.3%	(14.0%)*	(15.9%)	†	†
\$ 25-\$ 48.....	21.9	24.3	19.3	10.1	(20.8%)	†
\$ 49-\$ 72.....	24.2	25.3	26.2	14.3	21.7	(13.8%)
\$ 73-\$ 96.....	20.3	24.8	18.6	14.1	(15.1)	(7.4)
\$ 97-\$120.....	19.9	27.3	17.8	14.9	(12.7)	(9.1)
\$121-\$168.....	14.3	17.4	17.5	9.2	10.3	(7.7)
\$169-\$240.....	13.5	21.2	16.5	15.8	6.8	(4.3)
\$241-\$360.....	11.5	(11.1)	12.9	12.1	13.2	(3.4)
\$361 and over.....	8.1	†	(11.8)	(6.4)	9.2	6.7
All amounts.....	18.6%	24.6%	19.0%	12.5%	11.5%	6.4%

\* Numbers in parentheses = less than 20 lapses.

† Less than 20 cases.

is analyzed within income groups, this trend is substantially lessened. There is some tendency for lower lapse rates with larger premiums, but only a minor tendency, and for incomes over \$5,000 there is no appreciable effect at all. This evidence indicates that except at the lower-income groups the amount of the premium is of no consequence, and even in the lower-income groups it is very minor.

We made a separate study of monthly premium business according to the amount of the monthly premium. This involved over 3,000 policies, and we found that the lapse rate at the end of one year by number of

TABLE 12  
LAPSE RATE BY AMOUNT OF PREMIUM AND FREQUENCY (MALES)

Amount of Premium per Year	FREQUENCY				
	Total	Annual	Semiannual	Quarterly	Monthly
\$ 24 and less.....	24.8%	20.6%	24.7%	36.2%	(26.5%)*
\$ 25-\$ 48.....	21.9	18.2	24.3	28.1	26.1
\$ 49-\$ 72.....	24.2	20.7	27.3	26.9	32.5
\$ 73-\$ 96.....	20.3	16.9	22.8	25.1	24.3
\$ 97-\$120.....	19.9	16.0	19.9	26.4	26.6
\$121-\$168.....	14.3	12.7	15.7	16.0	19.7
\$169-\$240.....	13.5	11.4	12.4	18.1	20.7
\$241-\$360.....	11.5	9.9	(14.2)	12.2	(19.3)
\$361 and over.....	8.1	7.1	(9.4)	(9.5)	(12.7)
All amounts.....	18.6%	14.6%	21.3%	24.6%	25.1%

\* Numbers in parentheses = less than 20 lapses.

policies was 26% for policies with monthly premiums of less than \$10, 20% for policies with premiums from \$10 to \$25, and 19% for premiums of \$25 and over. When the lapse rates were computed by the amount of the premium lapsing, the rates became 23% for premiums of less than \$10, 20% for premiums between \$10 and \$25, and 15% for premiums of \$25 and over. It therefore appears that, in the case of monthly premiums, the amount of the premium is a significant factor, particularly if the premium is less than \$10 a month, and that the lapse rate on monthly premiums over \$25 is substantially better than on the smaller amounts. Differences in income levels for the various sizes of monthly premiums may, however, be the real cause of these results.

Table 12 shows the relationship between amount of premium per year and frequency of premium payment. Here persistency increases with

larger amounts of premium for the same frequency. From the relationship previously observed in Table 5, persistency within each mode is accounted for by income. However, for quarterly and monthly premiums there is a break at \$120 annual amount, persistency being markedly poorer below that point. An attempt was made to establish a three-way breakdown between income, frequency, and amount of premium payment, but the results were completely inconclusive, and a large number of the cells were too small to give meaningful results.

Amount of premium was also related to age, as shown in Table 13.

TABLE 13  
LAPSE RATE BY AMOUNT OF PREMIUM AND AGE (MALES)

AMOUNT OF PREMIUM PER ANNUM	AGE					
	All Ages	10-19	20-29	30-39	40-49	50 and Over
\$ 24 and less.....	24.8%	10.4%	37.0%	37.3%	*	.....
\$ 25-\$ 48.....	21.9	10.4	28.0	23.2	23.9%	*
\$ 49-\$ 72.....	24.2	14.3	30.1	23.5	18.1	(15.3%)†
\$ 73-\$ 96.....	20.3	(8.8)	23.6	18.8	17.4	(16.4)
\$ 97-\$120.....	19.9	(12.2)	32.0	15.1	10.9	(20.0)
\$121-\$168.....	14.3	(7.1)	17.6	13.5	13.4	(13.8)
\$169-\$240.....	13.5	(3.1)	22.4	12.3	13.1	(11.6)
\$241-\$360.....	11.5	(2.3)	(8.4)	15.0	10.4	(10.9)
\$361 and over.....	8.1	*	(12.9)	10.2	5.1	(8.6)
All amounts.....	18.6%	10.7%	26.1%	17.5%	13.2%	12.6%

\* Less than 20 cases.

† Numbers in parentheses = less than 20 lapses.

There is increasing persistency with older ages, but not greater than has already been noted with reference to age alone. There are also lower lapse rates with larger amounts of premium. The trend is very erratic, however, and suggests a definite breaking point at only one interval in the distribution, *i.e.*, \$120. Persistency is definitely better above \$120 per year than below, particularly at the younger ages. This may be a separate factor of importance in measuring persistency, although we have already noted the higher lapse rates at younger ages and at lower incomes which predominantly tend to coincide and also for some of the poorer-paid occupations. It is not possible on the basis of the data available to determine whether all these factors do account for the low persistency associated with a combination of younger ages and smaller amounts of premium.

### C. Female Policyholders

Persistency is significantly better for women policyholders than for men. The over-all lapse rate for women, in this study, was 15.8% compared with 18.6% for men. This comparison, however, does not adequately indicate the superiority of women, because the women fall in much lower-income groups than do the men, and within any given income group the difference is much larger. For instance, at incomes of \$3,000 or less, men have a lapse rate of 25% against 18% for women.

*By dependency and marital status.*—Data are available according to the dependency status and marital status of women and are given in Table 14.

TABLE 14  
LAPSE RATES BY DEPENDENCY STATUS AND MARITAL STATUS (FEMALES)

DEPENDENCY STATUS	MARITAL STATUS				
	Single	Married	Widowed and Divorced	Total	No. of Policies
Self-supporting.....	17.4%				
Gainful occupation.....		18.3%		17.3%	2,392
Independent income (no gainful occupation).....		(10.9%)*	16.8%		
Dependent.....	8.1%	16.5%		13.6%	1,718
All combined.....	14.6%	16.9%	16.8%	15.8%	4,110
No. of policies.....	2,028	1,676	406		

\* Numbers in parentheses = less than 20 lapses.

There is very little difference between the various marital status classifications except for dependent single women, who have a very low lapse rate. This group is probably made up of students, and it has already been noted in the analysis of men that students are the occupational group with highest persistency.

*Income.*—All the following analysis is confined to self-supporting or gainfully occupied women and excludes the dependent group. Income does have an effect on lapse rates for women but apparently to a much smaller extent than for men. The rates in three income groups are given in the first line of Table 15.

*Occupation.*—The remainder of Table 15 shows the income groups broken down into four occupational classifications. In general, the data show differences between occupations just as great as the differences between income groups. The small number of cases reduces the statistical significance, so that it is impossible to extract the decisive factor.

*Age.*—There is a definite relationship between age and lapse rates for women, and this relationship persists even when the data are broken down into income groups. Within an age group there appears to be little difference by income class, but there are not enough cases to justify a definite conclusion.

*Frequency of premium payment.*—Frequency of premium payment has a very definite effect on persistency, as can be seen in the first column of Table 16. Furthermore, when the data are broken down into income groups, there is almost no evidence that income has any effect within a

TABLE 15  
SELF-SUPPORTING WOMEN—LAPSE RATE BY INCOME AND OCCUPATION

OCCUPATION	INCOME GROUP				No. of Policies
	Total	\$3,000 and Less	\$3,001-\$5,000	\$5,001 and Over	
All combined—women . . . . .	17.3%	18.2%	14.8%	12.3%	.....
All combined—men . . . . .	18.6	24.6	19.0	11.2	.....
1. Executives, college and high-school teachers, Class A saleswomen . . . . .	13.8	17.1	(9.5)*	(12.6)	298
2. Professions, elementary-school teachers, Class B saleswomen . . . . .	15.6	15.6	17.4	(10.2)	918
3. Clerical workers, factory workers, Class C saleswomen . . . . .	19.0	19.4	(16.4)	(14.3)	1,026
4. Domestic servants, salesclerks, unskilled workers . . . . .	24.8	25.2	†	†	137
No. of policies . . . . .	.....	1,947	245	187	2,379

\* Numbers in parentheses = less than 20 lapses.

† Less than 20 cases.

given frequency of premium payment category. The distinction according to premium frequency, however, appears in each income group.

*Amount of policy.*—There is some evidence that amount of policy has an effect on lapse rates when all policies are taken together. When the data are broken up by income groups, however, the relationship becomes very erratic and tends to show very little consistency either within income groups or within amount of policy groups.

#### D. Characteristics of Agent and Sale

*Lapse rates of individual agents.*—The lapse rates of individual agents happen to be available in the Mutual Life as a by-product of the compensation plan. The rate involved is the *amount* of insurance (not number of policies) which had lapsed by the end of the agent's fourth *contract* year,

out of the business written in the agent's first contract year; similarly, the amount which had lapsed by the end of the agent's fifth contract year out of the business issued in the agent's second contract year, and so on. *On the average*, therefore, it is the percentage of business which has lapsed by the end of  $3\frac{1}{2}$  policy years. A persisting policy must have paid 4 years' premiums if annual,  $3\frac{1}{2}$  or 4 if semiannual, from  $3\frac{1}{4}$  to 4 if quarterly, or from  $3\frac{1}{2}$  to 4 years' premiums if monthly; the exact number of premiums paid depends upon the date on which the policy was issued. While we should have preferred to obtain rates at the same duration for all policies, this would have involved a prohibitive amount of work, and we believe the wide variation in the lapse rates of individual agents (Table 17) is satisfactorily exhibited by the data available. It should be noted that these

TABLE 16  
SELF-SUPPORTING WOMEN—LAPSE RATE BY FREQUENCY  
OF PREMIUM PAYMENT AND INCOME

FREQUENCY OF PREMIUM PAYMENT	INCOME GROUP				No. of Policies
	Total	\$3,000 and Less	\$3,001– \$5,000	\$5,001 and Over	
Annual . . . . .	9.5%	9.7%	(7.3%)*	(10.2%)	1,203
Semiannual . . . . .	21.8	22.3	(17.9)	(19.0)	340
Quarterly and monthly . . . . .	27.2	27.5	26.3	(20.7)	836
All frequencies . . . . .	17.3%	18.2%	14.8%	12.3%	2,379

\* Numbers in parentheses = less than 20 lapses.

are not the lapse rates of new agents, since they have all been in the business at least four years, by which time most, but not all, of the failures have already dropped out. The lapse rate given is the average for the business written in the years 1945, 1946, and 1947.

It is clear from this table that there are extremely wide variations in the lapse rates of business produced by different agents. Perhaps this may prove to be one of the most fruitful areas for future research aimed at reducing lapse rates.

*New versus mature agents.*—To determine the difference between lapse rates on business written by new and mature agents, we first compared the lapse rates of business written by new agents who stayed in the business with that written by those who terminated their contracts early, thus leaving the business "orphaned." We studied a sample of over 3,000 policies issued from January 1 to June 30, 1946, written by agents who had been under contract less than two years at the time the business was issued. The business was split into two parts, viz.: (a) policies written by

agents who were still under contract on December 31, 1947, *i.e.*, for an average of two years ("nonorphaned business"); and (b) policies written by agents who terminated prior to December 31, 1947, *i.e.*, on the average before the end of two years after they were hired ("orphaned business").

TABLE 17  
VARIATION OF LAPSE RATES AMONG AGENTS

Lapse Rate End 3½ Years	Percentage of Agents
5% or less .....	3.0%
5.1%–10% .....	10.2
10.1 –15 .....	16.9
15.1 –20 .....	20.5
20.1 –25 .....	13.5
25.1 –30 .....	13.5
30.1 –35 .....	8.3
35.1 –40 .....	6.4
40.1 –45 .....	3.2
45.1 –50 .....	2.4
Over 50% .....	2.1
	100.0%

Average rate for all agents = 22.1%

The *second-year* lapse rates by number of policies, *i.e.*, percentage of policies on which no part of the third year's premium was paid, were:

Group	Second-Year Lapse Rate	% of Lin- ton's A Rate
Nonorphaned business .....	22.0%	135%
Orphaned business .....	32.7%	202%

We had another experience showing the *first-year* lapse rate (*i.e.*, percentage of policies which paid no part of the second year's premium) on business issued in 1945. To some extent, the high lapse rates for new agents are due to the much larger proportion of fractional premium business which they write, but the rates are higher for all premium frequencies.

The following are the first-year lapse rates by premium frequency:

First-Year Lapse Rate	Mature Agents	New Agents
Annual .....	5.1%	6.2%
Semiannual .....	10.4	21.4
Quarterly .....	8.1	19.3
Monthly .....	21.4	35.5
All frequencies .....	8.9%	17.7%
% of Linton "A" Rate .....	86%	170%

"Mature Agents" had been under contract for more than two years at the time the policy was issued and include all agents except those in their first two years. "New Agents" are those in their first two years in the business.

Since the two studies gave lapse rates related to different durations, we related both to the Linton "A" rate. We concluded that, in the Mutual Life,

- a) The lapse rate of business of new agents, over-all, is about *double* that of mature agents.
- b) The lapse rate on business of new agents who survive the critical first two years in the business is about 50% higher than that of mature agents.
- c) The lapse rate on business of new agents who fail in the business in their first two years is about 250% that of mature agents.

In an effort to discover the reasons for these results, we made an analysis of the types of business written in 1948 by new and mature agents, the results of which are shown in Table 18.

TABLE 18  
PERCENTAGE OF BUSINESS ACCORDING TO EXPERIENCE OF AGENT

	AGENTS HIRED				
	Prior to 1941	1941-42	1943-44	1945-46	1947-48
	Premium Frequency (by Amount)				
Annual.....	63%	47%	40%	40%	33%
Semiannual.....	9	14	10	11	11
Quarterly.....	16	25	29	27	27
Monthly.....	12	14	21	22	29
	Income of Insured (by Amount)				
Over \$5,000.....	70%	64%	59%	49%	41%
\$3,000-\$5,000.....	17	22	27	32	35
\$1,500-\$3,000.....	9	13	12	17	20
Under \$1,500.....	2	2	2	2	3

This shows, as one might expect, that the newer agents write much more monthly and quarterly business and a larger proportion of business at the lower-income levels. There is not much difference in the plan distribution. However, these figures indicate that for new agents a much

larger proportion of their business is of the kinds for which high lapse rates are characteristic.

One might think, and indeed it has been a common theory, that the high lapse rates on the business of new agents are due to the "orphanage" of business sold by agents who drop out of the business with the result that such business is not so well serviced as business written by agents who stay. However, in 1948 the Agency Management Association made a most instructive study entitled *Orphan Business*, which disproves this theory. This study compares the persistency of policies written by agents who terminated within one to five years after the policies were written with the persistency of policies written by agents who survived at least five years. It shows very clearly that the business written by agents who terminated has substantially higher lapse rates than that of surviving agents; but the most important point is that the higher lapse rate on the business of terminating agents begins to show up very soon after issue, and in every group it appears before the agent actually terminated. It is therefore clear that the higher lapse rates on orphan business are not due to the lack of service or contact after the agent has left the business but rather are characteristic of the type of business written or the inferior methods of selling used by agents who fail in the business. The conclusion is that "while conservation efforts on orphaned policies may assist somewhat in improving their persistency, their fate is largely determined at the time of sale."

*Lapse rates by type of sale.*—Nowadays there are two principal types of sales techniques in general use.

There is the so-called "package" sale, in which the policy is usually sold during the first interview. Package sales are of two types. The first is a sale based on a "single need," such as payment of the mortgage on the home, the provision of college education for a child, a "readjustment fund" to tide the widow over the year following the breadwinner's death, etc. This type of sale does not involve the use of any particular plan of insurance or policy to meet the need. The second type is one based merely on the sale of a particular policy or plan of insurance, such as a 20-year endowment, 20-payment life contract, or a pension policy, not based on a specific need of the prospect.

The second type of sales technique is variously referred to as "estate planning," "needs" selling, and so on. In the first interview the agent gets the pertinent facts, outlines the various problems to be met, and finds out how far any existing insurance will go toward meeting those problems. He then goes back to his office and draws up a plan to meet the other insurance needs of the prospect and in the second interview presents a "program" based on a blueprint of the prospect's life insurance estate.

Both types of sale are made by the Mutual Life sales force, and we wanted to find out how the lapse rate of the two types compared within a given income group.

We had available the agents' statements as to the income of the insured and the type of sale made. Although these may not be entirely reliable, they were the best data we had. We studied over 4,700 policies issued from January to June, 1948, excluding (a) all issues under age 20 and (b) all sales made by agents who had not been under contract with the Company for at least three years. The young age policies were ex-

TABLE 19  
LAPSE RATES BY TYPE OF SALE AND INCOME GROUP

TYPE OF SALE	INCOME OF INSURED		
	\$3,000 and Less	\$3,001-\$5,000	\$5,001 and Over
<i>"Package" sales:</i>			
1. Number of policies.....	1,032	726	934
2. Average size issues.....	\$2,318	\$ 3,495	\$ 7,458
3. Average size lapses.....	\$2,592	\$ 3,813	\$ 8,535
4. Lapse rate (by number).....	13.8%	12.5%	8.8%
5. Lapse rate (by amount).....	15.4%	13.7%	10.5%
6. Average annual premium.....	\$70.36	\$ 98.97	\$249.66
7. Average premium per M.....	\$30.35	\$ 28.32	\$ 33.48
<i>"Needs" (two-interview sale):</i>			
1. Number of policies.....	354	733	939
2. Average size issues.....	\$4,383	\$ 5,940	\$ 9,451
3. Average size lapses.....	\$5,337	\$ 6,667	\$ 9,665
4. Lapse rate (by number).....	16.9%	14.2%	9.8%
5. Lapse rate (by amount).....	20.6%	15.9%	10.0%
6. Average annual premium.....	\$84.88	\$127.01	\$256.81
7. Average premium per M.....	\$19.37	\$ 21.38	\$ 27.17

cluded because most of them were Juvenile policies which inherently have a low lapse rate and are all "package" sales. The business sold by new agents was excluded because we know it has a high lapse rate. The lapse rates shown in Table 19 are the percentage of policies which failed to pay any part of the *third* year's premium.

For both the lower-income groups, the lapse rate is somewhat higher for "Needs" than for "Package" sales. Statistical tests show that the number of policies in this study is not large enough to be conclusive, but the consistent trend in the results does suggest that the lapse rate on "Package" sales is, in our Company, better than on "Needs" sales.

For both the lower-income groups, the average size policy on "Needs" sales is about double that of "Package" sales, but there is not so much

difference in the premium per policy, the average premium per \$1,000 being much lower on "Needs" sales. This must be the result of more level and decreasing term insurance in the "Needs" sales.

### E. Economic Factors

*Variation by calendar year of exposure.*—It is well known that lapse rates vary according to economic conditions. The only series of industry figures available extending over a long period are the Agency Management Association figures, given in Table 20. These rates are the percentage of business (by amount) which lapses before completion of two full years' premiums. The precise formula used, described in C. F. B. Richardson's

TABLE 20  
AGENCY MANAGEMENT ASSOCIATION LAPSE RATES  
FOR ORDINARY COMPANIES

Year	Rate	Year	Rate
1927.....	21%	1939.....	18%
1928.....	19	1940.....	18
1929.....	20	1941.....	17
1930.....	22	1942.....	16
1931.....	23	1943.....	14
1932.....	27	1944.....	12
1933.....	28	1945.....	11
1934.....	26	1946.....	13
1935.....	24	1947.....	17
1936.....	20	1948.....	15
1937.....	19	1949.....	16
1938.....	21	1950.....	16

paper on "Agency Management Problems" (*TSA* I, 143), somewhat distorts the results under rapidly changing conditions. The figures are *not* the average lapse rates of individual companies but the weighted average resulting from dividing the total lapses in all member companies by the total business involved. It is important to note that a number of companies, among which are the three giant industrial-ordinary companies, one of the largest mutual companies, and the largest stock company, are not included in these figures. Accurate figures for the Mutual Life on this formula are available only for the last few years and have been running about 20% higher than the above figures.

We computed two series of lapse rates for the Mutual Life in order to see the effect of economic conditions.

The first series, given in Table 21, shows approximate lapse rates for the first two policy years from 1900 to 1949. In the absence of more accurate data we simply divided the lapses shown in the annual statement on life and endowment policies by 75% of the business issued in the preceding

calendar year plus 25% of the business written two years before the lapses occurred. Since our policies contained no cash values, before 1948, until the third year, this represents the terminations in the first two years. The denominator is admittedly a rough and ready approximation of the exposure and undoubtedly inaccurate in years when the volume of new business was changing rapidly, but it is good enough for the purpose of showing the general trend.

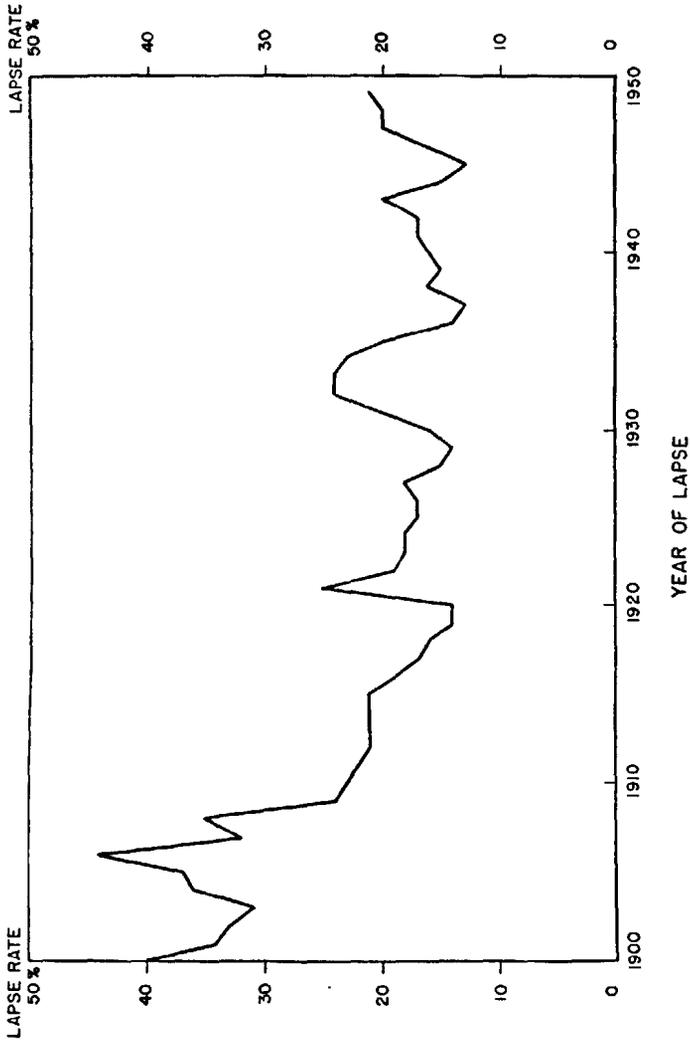
TABLE 21  
APPROXIMATE LAPSE RATES FIRST TWO POLICY YEARS (MUTUAL LIFE)

YEAR OF LAPSE	LAPSE RATE		YEAR OF LAPSE	LAPSE RATE	
	By No.	By Amount		By No.	By Amount
1900.....	39%	40%	1925.....	23%	17%
1901.....	32	34	1926.....	22	17
1902.....	33	33	1927.....	23	18
1903.....	32	31	1928.....	21	15
1904.....	34	36	1929.....	20	14
1905.....	37	37			
1906.....	44	44	1930.....	22	16
1907.....	33	32	1931.....	26	20
1908.....	36	35	1932.....	32	24
1909.....	29	24	1933.....	30	24
			1934.....	30	23
1910.....	27	23	1935.....	27	20
1911.....	26	22	1936.....	22	14
1912.....	25	21	1937.....	20	13
1913.....	24	21	1938.....	23	16
1914.....	24	21	1939.....	21	15
1915.....	25	21			
1916.....	23	19	1940.....	22	16
1917.....	21	17	1941.....	22	17
1918.....	20	16	1942.....	21	17
1919.....	18	14	1943.....	23	20
			1944.....	16	15
1920.....	18	14	1945.....	14	13
1921.....	28	25	1946.....	18	16
1922.....	23	19	1947.....	21	20
1923.....	23	18	1948.....	21	20
1924.....	23	18	1949.....	22	21

Chart II gives a picture of the results. In interpreting the results, it must be realized that in the early 1900's the Mutual Life had a large foreign business. In 1900 foreign business comprised 18% of the total, and in 1910 it was 7%; by 1915 it had dropped to 2% of the total new business. The figures from 1920 on are therefore United States and Canadian experience, predominantly United States. The chart shows extremely high lapse rates in the early 1900's, dropping to a low point in 1919-20, jumping to a high level in 1921, and gradually declining to a low in 1929. The

## CHART II

APPROXIMATE LAPSE RATES FOR FIRST TWO YEARS (MUTUAL LIFE)  
(Lapses as Percent of New Business by Amount of Insurance)



rates increased again to high levels from 1932-34 and thereafter dropped to the levels of the 1920's, reaching a low point in 1945 and then returning to levels slightly above the 1920's (but similar to the 1920's by number). However, the outstanding fact is that the level of the highest rates (excluding the early 1900's) was only about double that of the lowest and about 50% higher than the prosperous years of the twenties and the late forties.

As has been pointed out before (see L. R. Martin, *TASA XXXVIII*, 476), the lapse rate after the first two years is much more greatly affected by economic conditions than the rate for the first two years. We com-

TABLE 22  
APPROXIMATE LAPSE RATES AFTER SECOND POLICY YEAR (MUTUAL LIFE)

Calendar Year	By No. of Policies	By Amounts	Calendar Year	By No. of Policies	By Amounts
1921.....	5.1%	5.7%	1936.....	4.0%	4.0%
1922.....	5.5	6.0	1937.....	3.5	3.5
1923.....	5.4	5.8	1938.....	3.6	3.9
1924.....	5.5	5.7	1939.....	3.8	4.1
1925.....	4.8	5.0	1940.....	3.4	3.6
1926.....	4.3	4.9	1941.....	3.1	3.3
1927.....	4.2	4.7	1942.....	2.5	3.0
1928.....	3.9	4.6	1943.....	1.6	1.9
1929.....	4.0	4.6	1944.....	1.1	1.3
1930.....	4.7	5.3	1945.....	0.9	1.1
1931.....	6.0	6.8	1946.....	1.4	1.3
1932.....	9.0	10.8	1947.....	1.2	1.3
1933.....	10.9	12.6	1948.....	1.3	1.5
1934.....	7.3	8.2	1949.....	1.4	1.7
1935.....	5.0	5.5	1950.....	1.6	1.9

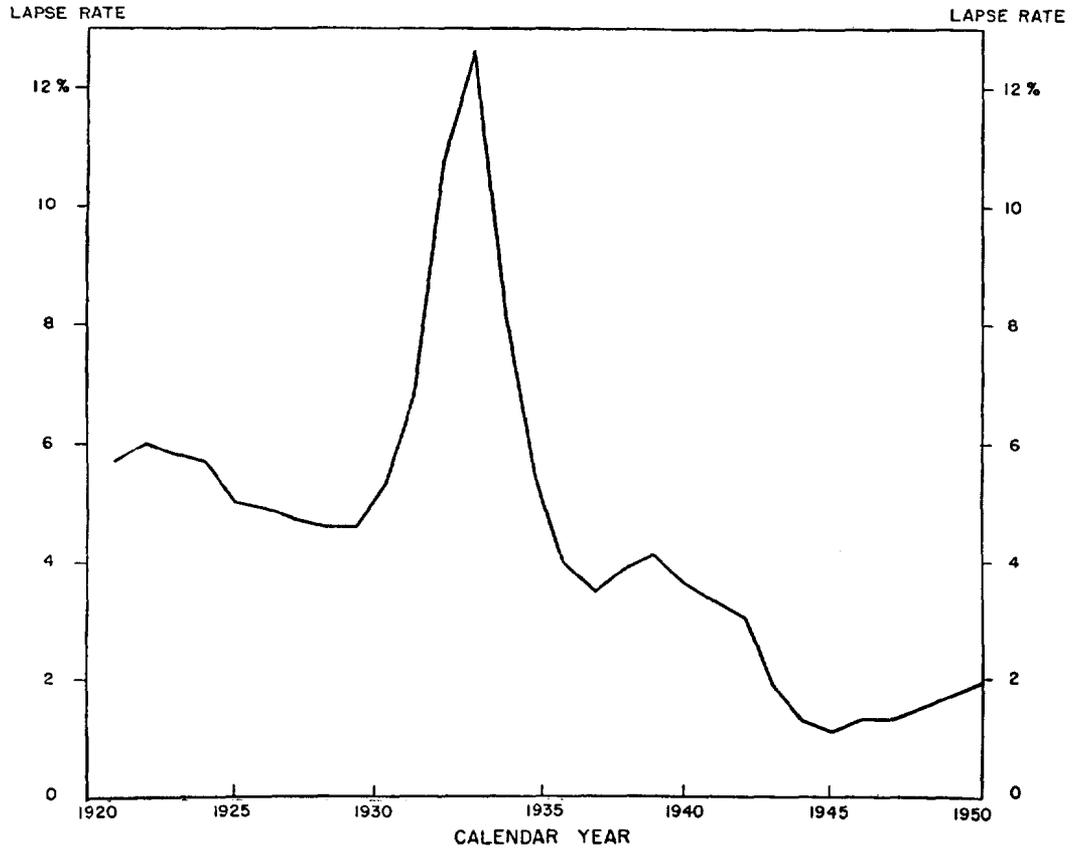
puted a second series of figures for the Mutual Life which give, approximately, the lapse rate for policies three or more years in force, excluding term policies which had no cash values. We computed the number and amount of life and endowment policies in force, excluding current year's issues and issues of the preceding year, and took as the exposure the mean of the business in force at the beginning and end of the year plus one-half of the year's lapses. Lapses were taken as the sum of transfers, surrenders, and decreases (less increases) from the policy exhibit in the annual statement.

Table 22 shows the very severe impact of economic conditions on the lapse rate after the first two years, the lapse rate on all policies in 1933 being ten times as high as in 1945. Chart III gives a picture of these results.

*Policies with and without policy loans.*—We were able to develop the

### CHART III

APPROXIMATE LAPSE RATES AFTER SECOND POLICY YEAR (MUTUAL LIFE)  
(Lapses as Percent of Business in Force over Two Years by Amount of Insurance)



lapse rates after the first two years separately for policies with and without policy loans. For policies with loans we divided the number of policies on which loans were repaid by surrender of the policy during the year by the mean number of policy loans in force, plus one-half of the number of policy loans repaid by surrender. The figures for policies without loans were simply the total surrenders less the surrenders on which a policy loan existed. Table 23 gives the results. The lapse rate on policies with

TABLE 23  
MUTUAL LIFE LAPSE RATES (AFTER SECOND YEAR) ON POLICIES  
WITH AND WITHOUT POLICY LOANS  
(BY NO. OF POLICIES)

Calendar Year	Policies with Loans	Policies without Loans	Ratio with Loans/without Loans	Calendar Year	Policies with Loans	Policies without Loans	Ratio with Loans/without Loans
1921 . . .	8.9%	4.1%	217%	1936 . . .	9.4%	1.5%	627%
1922 . . .	12.3	3.4	362	1937 . . .	8.4	1.4	600
1923 . . .	12.3	3.3	373	1938 . . .	8.8	1.5	587
1924 . . .	12.5	3.3	379	1939 . . .	9.4	1.6	588
1925 . . .	11.5	2.9	397	1940 . . .	8.9	1.5	593
1926 . . .	11.0	2.4	458	1941 . . .	8.2	1.5	547
1927 . . .	11.0	2.2	500	1942 . . .	7.1	1.3	546
1928 . . .	10.3	2.0	515	1943 . . .	4.9	0.9	544
1929 . . .	10.2	2.0	510	1944 . . .	3.2	0.7	457
1930 . . .	11.6	2.1	552	1945 . . .	2.6	0.7	371
1931 . . .	14.0	2.4	583	1946 . . .	2.9	1.1	264
1932 . . .	20.0	3.0	667	1947 . . .	2.7	1.0	270
1933 . . .	24.7	2.5	988	1948 . . .	3.1	1.1	282
1934 . . .	17.2	1.8	956	1949 . . .	3.6	1.1	327
1935 . . .	12.0	1.4	857	1950 . . .	4.3	1.2	358

loans varies from two and a half to nearly ten times that on policies without loans, as might be expected, since in very many cases a policy loan is a first step toward surrender. The variation in the lapse rate of policies without loans is much less, being about three times as high under poor economic conditions as in prosperous times.

*Lapse rates by geographic area.*—It is well known that lapse rates vary considerably by geographic area, the more mature sections of the country having lower lapse rates than those which are expanding fast economically. This is a natural result, since rapid economic expansion brings with it, inevitably, a less stable environment. Economic expansion cannot take place without risk, and a risk-taking, expanding economy is one in which higher lapse rates must be expected. Rapid growth comes frequently from an optimistic attitude, and where there is optimism there must be

some excessive optimism; in that situation people are easier to sell and tend to buy things they cannot really afford.

The figures in Table 24, published by the Agency Management Association, covering over thirty companies with \$400 million or more of business in force, are the only reliable data available by geographic area.

Throughout the period the West South Central, the Mountain, and the Pacific States have lapse rates nearly double those of the New England and Middle Atlantic States. It should be noted that the three largest industrial companies, the largest stock company, and one of the largest mutual companies are not included in these figures.

*Urban versus rural business.*—It is not easy to separate urban from rural business, since so many agencies cover large territories including

TABLE 24  
LAPSE RATES BY GEOGRAPHIC REGION

REGION	LAPSE RATE				
	1946	1947	1948	1949	1950
New England.....	8.6%	11.7%	10.9%	12.3%	12.7%
Middle Atlantic.....	8.7	11.7	11.3	12.3	12.1
East North Central.....	11.3	14.4	13.3	13.9	13.5
West North Central.....	12.4	15.4	14.3	15.3	15.8
South Atlantic.....	14.1	15.6	15.3	16.3	15.8
East South Central.....	12.2	16.8	15.1	15.9	16.3
West South Central.....	18.0	20.8	19.2	21.3	22.8
Mountain.....	18.3	24.1	22.7	22.4	22.6
Pacific.....	17.8	21.6	19.5	19.5	19.5
United States total...	12.3%	15.4%	14.5%	15.4%	15.5%

both types of area. However, we selected two groups of agencies where we knew that the great bulk of the business came from metropolitan and rural areas, respectively, and compared the first-year lapse rates over a five-year period. The urban business showed an average rate of 9.3% as compared with 13.4% for the rural agencies.

#### F. Lapse Rates by Policy Duration

In addition to the series of lapse rates given in Tables 21-23, we had available several studies relating to lapses by policy duration.

Table 25 summarizes the results of two early studies covering the periods 1907-20 and 1920-30 which show surprisingly similar results, especially in the early policy years. The 1907-20 study is influenced by the exclusion of female lives. The lapse rates on females by number of policies from 1907-20 were 13.6% for year 1, 3.0% for year 2, 4.1% for year 5, and 5.3% for year 10. This study covers a total exposure of over 2,500,000

policy years on male lives and 183,000 lapses, of which 112,000 lapsed in the first year. The figures for 1920-29 issues included both men and women and involved a total of 1,220,000 policies, of which over 200,000 lapsed in the first policy year.

The experience of issues of 1925-34 exposed to 1935, given in Table 26, is particularly instructive as showing the terrific impact of the economic

TABLE 25  
LAPSE RATES BY POLICY DURATION

POLICY YEAR	ISSUES OF 1907-19, EXPOSED 1907-20		ISSUES OF 1920-29, EXPOSED 1920-30	
	No.	Amount	No.	Amount
1.....	18.8%	15.9%	17.6%	13.9%
2.....	4.3	3.9	4.5	3.7
3.....	5.2	6.1	6.2	7.1
4.....	4.2	4.9	5.3	6.1
5.....	3.6	4.2	4.8	5.5
6.....	2.9	3.3	4.2	4.6
7.....	2.5	3.0	4.0	4.6
8.....	2.1	2.5	3.9	4.4
9.....	2.1	2.6	4.0	4.8
10.....	3.2	3.9	5.3	6.2

TABLE 26  
LAPSE RATES ON ISSUES OF 1925-34 (BY AMOUNTS)

ISSUES OF	MEAN DURATION									
	1	2	3	4	5	6	7	8	9	10
1925.....	12.9%	3.5%	6.1%	5.4%	6.0%	6.5%	10.0%	9.8%	5.9%	5.6%
1926.....	13.1	3.2	6.8	7.3	8.6	11.2	10.2	6.4	4.2	
1927.....	11.4	3.3	7.8	9.3	13.4	10.0	6.8	4.4		
1928.....	11.3	3.9	11.0	13.5	12.0	6.7	5.1			
1929.....	13.1	5.1	16.2	13.1	8.1	4.9				
1930.....	16.6	5.7	15.1	8.8	6.0					
1931.....	20.5	7.0	10.6	6.3						
1932.....	20.9	5.4	8.9							
1933.....	16.9	5.9								
1934.....	13.5									

depression on lapse rates at all durations. It covered 1,090,000 policies, of which 200,000 lapsed in the first policy year. The enormous surrenders of 1932-33 show up clearly for every year of issue and ran from 10% to 15% a year even at the later durations.

The method used in the studies given in Tables 25 and 26 involved the

use of "mean durations" derived from valuation data. The lapses in policy year  $n$  were taken as the lapses in calendar year  $x + n$ , which occurred on business issued in calendar year  $x$ . In the first year, the lapses which occurred in the year of issue are also included. For instance, on 1930 issues the first-year lapse rate is taken as the lapses in calendar years 1930 and 1931 on 1930 issues, divided by the amount issued in 1930. This involves a slight overstatement of the first-year rate and a corresponding understatement of the second-year rate, since lapses on fractional premium business which occur after the end of the first policy year but during the calendar year following issue were included as first-year lapses. Another factor affecting the third-year rate, which is higher than the second-year rate throughout, is that in the Mutual Life the policy first acquires a cash

TABLE 27  
LAPSE RATES BY POLICY-YEAR TERMINATIONS  
DURING 1947, 1948, AND 1949

Issues of	Policy Year	Life Plans	Endowment Plans	Life and Endowment Plans	Ratio to Linton "A" Rate
1946-47-48.....	1st	14.9%	13.8%	14.6%	146%
1945-46-47.....	2d	4.1	3.2	3.8	63
1944-45-46.....	3d	3.5	3.6	3.5	70
1943-44-45.....	4th	2.8	3.7	3.0	68
1942-43-44.....	5th	2.4	3.2	2.6	65
1941-42-43.....	6th	2.1	2.3	2.1	58
1940-41-42.....	7th	1.8	2.0	1.8	56
1939-40-41.....	8th	1.5	1.5	1.5	52
1938-39-40.....	9th	1.6	1.4	1.6	59
1937-38-39.....	10th	1.8	1.4	1.7	68

value after completion of three years' premiums, thus inflating the lapse rate in the third year.

Table 27 gives the Mutual Life's experience for the first 10 policy years based upon terminations which occurred in 1947-49. It is extremely difficult to obtain theoretically accurate lapse rates by policy duration from the type of records normally available. The rates given in Table 27 were derived from valuation data, the termination cards being coded according to whether the termination occurred before or after the anniversary. It was therefore possible to obtain accurate rates by policy years. The method used involved a census type of formula which is exemplified by the following formula giving the *third*-year lapse rate for the issues of 1947:

$$w_3^{49} = \frac{{}_aT_{47}^{49} + {}_dT_{47}^{50}}{P_{47}^{49} + {}_aD_{47}^{49} + {}_aT_{47}^{49}}$$

where

${}_1T_{47}^{49}$  = lapses in 1949 of 1947 issues which occurred between the policy anniversary and the end of 1949;

${}_2T_{47}^{50}$  = lapses in 1950 of 1947 issues which occurred between the beginning of 1950 and the policy anniversary in 1950;

${}_1D_{47}^{49}$  = deaths in 1949 of 1947 issues which occurred between the policy anniversary and the end of 1949; and

$P_{47}^{49}$  = insurance in force at end of 1949 on policies issued in 1947.

At the end of any calendar year the valuation data cannot, as a practical matter, be up to date as to terminations. We added to the terminations actually written off in the calendar year those policies which had actually terminated during the year but which were not actually written off the books until the next calendar year. This adjustment is particularly important in the first two policy years.

### III. USES OF CASH VALUES

We took a poll of policyholders who surrendered policies at least three years old for their cash value during September and October, 1949. From a total of 1,872 questionnaires sent out, 714 replies were received, a return

TABLE 28  
REASONS GIVEN FOR SURRENDER OF POLICIES

REASON FOR SURRENDER	No. OF CASES	PERCENTAGE OF REPLIES	AVERAGE		
			Age	Years in Force	Net Cash Value
Insurance no longer required..	269	37.7%	58	19	\$1,083
Budget prevents continuance..	181	25.4	39	11	527
Unexpected cash need.....	141	19.7	45	15	647
Replaced by other insurance..	56	7.8	32	9	267
Other reasons.....	67	9.4	47	15	541
All reasons.....	714	.....	48	15	\$ 741

of 38%, which is quite high for a survey of this kind. The purpose of the poll was to determine the extent to which surrendered policies may have fulfilled their original purpose or met some other legitimate economic need.

Table 28 summarizes the reasons given for surrender, and it is notable that in nearly two-fifths of the cases the policyholder felt he no longer needed the insurance. In this group the average age (58) and duration at surrender (19 years) were high enough to support this statement. There were 63 cases where the replies indicated that other insurance influenced

surrender. In 12 of these cases, G.I. insurance affected the decision, 12 more cases were women who had married and preferred insurance on the husband's life, and 8 cases preferred casualty insurance.

After excluding cases where the insurance was no longer needed or was being replaced by other insurance, there were 389 cases, and we were surprised to find that in no less than 161 of these cases (42%) the insured did not consider a policy loan before surrendering the policy. Of the remainder, 153 (39%) said a loan was considered and 75 (19%) did not reply to the question. An analysis by size of cash value showed that this did not influence the results.

From Table 28 one might conclude that in only 38% of the cases did surrender occur because the insurance had served its primary purpose. However, an analysis of the use to which the cash values were put showed that in many more cases the policy filled a need which seemed of immediate urgency, and the cash value privilege served a legitimate need. In 50% of the 597 replies which told us how the money was used the cash value met a real need, and in a further 29% of the cases the cash was used to meet living expenses. While this is not an extensive experience, it does suggest that the majority of surrendered policies perform a real service to the insured.

#### IV. OBSERVATIONS ON PUBLISHED LAPSE RATES

The desire to publish "industry-average" figures and ratios of one sort or another comparing individual companies is understandable but, in a business so complicated as ours, regrettable. There are so many factors which affect the figures of various companies in different ways that it seems almost a hopeless task to get a formula that will not produce misleading results.

*Agency Management Association formula.*—This formula, which gives the lapse rate for the first two years only, is of all the published figures the most reliable. However, in comparing one company with another or with the industry, the following are some of the factors which may seriously distort or invalidate the comparison:

a) The proportion of business from various geographic regions having inherently different lapse rates may distort the result. Lapse rates in some areas (e.g., Mountain States) are double those of other areas (e.g., New England).

b) The percentage of business obtained from new agents, which have lapse rates at least twice normal, varies widely in different companies.

c) Fractional premium business has much higher lapse rates than annual, and there are wide variations in the proportion of fractional premium business.

d) Lapse rates on female and juvenile business are particularly low,

and the proportion of these classes of business varies widely between companies, being generally higher in companies writing industrial business.

e) Pension trust business, under normal conditions, has a zero lapse rate. In a few companies it happens to constitute a substantial proportion, up to 20%, of the new business.

f) In looking at the total figures supplied by the Agency Management Association, it should be remembered that they do not include the ordinary business of the three largest industrial companies or of the largest purely ordinary company or the largest stock company.

g) The formula distorts the results when there are rapid changes in the volume of new business.

Two widely circulated publications give so-called lapse rates. The first of these gives figures for the industry as a whole and consists, simply, of the ratio of the number of policies surrendered or lapsed to the mean number of policies in force. Reinstatements are not deducted, and the figures do not include policies which go under extended term or paid-up insurance. Owing to the fact that lapse rates in the early years are much higher than in later policy years, being something like eight or ten times higher in the first year, it is obvious that this ratio will depend largely on the volume of new business in relation to the business in force and is absolutely useless for comparing one company with another. These figures have already been misused by a union publication in calculating commission margins, resulting in quite erroneous results. We think it most unfortunate that such figures continue to be published.

Another publication gives lapse rates for each company, expressed as the ratio of policies surrendered, lapsed, expired, and decreased (less the revivals and increases) to the insurance in force at the beginning of the year plus the new business for that year. Obviously, this ratio has no real meaning and is subject to the same objections as noted above.

#### V. CONCLUSION

The mass of material presented here tells us the facts about the characteristics of business which has high or low lapse rates. It does not tell us how to tackle the problem of reducing lapses. As stated in the paper, there has been little, if any, basic improvement over the last thirty years in the lapse rates in the early years, and the lapse rates at later policy durations are governed in the main by economic conditions. Perhaps the most promising fields for future investigation may lie in interview surveys, in direct contact with the policyholder, and in research directed at discovering the factors underlying the wide differences between individual agents. The lapse problem is still with us and demands increasing effort on the part of management.

## APPENDIX

1911. NATIONAL CONVENTION OF INSURANCE COMMISSIONERS, *42nd Session*, Vol. I, p. 45, Address: "Policy Loans," by J. A. O. PRUES.
1914. *RAIA* III, 284, Informal Discussion: "Methods for Conserving Business."
1920. *TASA* XXI, 64, "Comparative Rates of Withdrawal," by A. T. MACLEAN.  
 AMERICAN LIFE CONVENTION, *15th Annual Meeting*, "Conservation of Life Insurance Business through Reducing Lapse and Surrender Ratios," by A. A. WELCH.
1921. *RAIA* X, 72, Informal Discussion: "Constructive Program for Conserving Business and Minimizing Lapses and Surrenders."  
*RAIA* X, 15, "The Value of Persistency in Agency Building," by P. C. H. PAPPS.  
*RAIA* X, 315, Informal Discussion: "Constructive Program for Conserving Business and Minimizing Present Lapses and Surrenders: The Relative Value of Automatic Premium Loans and Extended Insurance in Saving Business."
1922. ASSOCIATION OF LIFE INSURANCE PRESIDENTS, *16th Annual Meeting*, p. 115, "Prevention of Life Insurance Lapses by Educating the Insured," by J. D. SAGE.
1923. *RAIA* XII, 176, Informal Discussion: "Experience of Companies with Extension Notes or Similar Schemes Used To Keep Policies in Force."
1924. *RAIA* XIII, 283, "Returns under Agency Contracts," by M. A. LINTON.
1925. AMERICAN LIFE CONVENTION, *20th Annual Meeting*, "Report of Special Committee on Lapses," by H. L. SEAY.
1927. LIFE INSURANCE SALES RESEARCH BUREAU, *Managers' Manual*, p. 538, "Factors in Persistency"; and p. 661, "Why Business Lapses."
1928. *RAIA* XVII, 5, "Withdrawal Rates and Influences Affecting Them," by W. G. BOWERMAN.  
*RAIA* XVII, 76, "Life Insurance in Conjunction with Bank Savings," by E. B. MORRIS.
1931. *RAIA* XX, 17, "A Conservation Analysis from a Production Standpoint," by P. C. IRWIN.  
 AMERICAN LIFE CONVENTION, *26th Annual Meeting*, p. 239, "The Conservation of Business," by W. T. SHEPARD; and p. 320, "Notes on Conservation," by R. C. NEUENDORFFER.  
*Convention Year Book (Life)*, p. 373, "Conserving Protection," by J. H. REES.
1932. *RAIA* XXI, 297, Informal Discussion: "Actuarial Cooperation in Agency Matters."  
*RAIA* XXI, 308, Informal Discussion: "Surrender Values."  
*RAIA* XXI, 318, Informal Discussion: "Conservation of Business."  
*Weekly Underwriter*, October 15, p. 767, "Frequent Causes of Policy

- Lapsation and Methods To Be Employed To Prevent Lapsation," by L. R. AITCHISON.
1933. AMERICAN INSTITUTE OF ACTUARIES:  
*RAIA XXII*, 41, Informal Discussion: "Persistency."  
*RAIA XXII*, 50, Informal Discussion: "Replacements."  
*RAIA XXII*, 307, Informal Discussion: "Replacements."  
*Weekly Underwriter*, September 9, p. 461, "How Companies Writing Life Insurance in Canada Have Met New Business, Lapses and Surrender Problems," by J. G. PARKER.
1934. *RAIA XXIII*, 434, Informal Discussion: "Policy Changes and Office Practice."  
 LIFE INSURANCE SALES RESEARCH BUREAU, *Conservation at the Source*.
1936. *RAIA XXV*, 363, Informal Discussion: "Agency Problems."
1937. *TASA XXXVIII*, 475, "Withdrawal Rates in the Connecticut Mutual," by L. R. MARTIN.
1939. *Life Insurance Lapsation in Utah: A Case Study of 5,048 Households*, by I. HULL. (A dissertation in economics.)  
 LIFE INSURANCE SALES RESEARCH BUREAU, Reports of the Committee on Persistent Business: *Conservation Awards*, by D. G. MIX and K. LJUNG, JR.; *Conservation Records*, by P. C. IRWIN; *Terminations*, by H. BOS-SERT, JR.; and *Persistency and Agents Compensation*, by E. BROCK.  
 TEMPORARY NATIONAL ECONOMIC COMMITTEE, *Hearings*, Part X: *Life Insurance*, pp. 4281 and 4684.
1940. LIFE INSURANCE SALES RESEARCH BUREAU, A Report of the Committee on Persistent Business, *The Age Factor in the Persistency Rating Chart*.  
 LIFE INSURANCE SALES RESEARCH BUREAU, A Report of the Committee on Persistent Business, *Current Usage of the Persistency Rating Chart*.  
 TEMPORARY NATIONAL ECONOMIC COMMITTEE, *Study of Legal Reserve Life Insurance Companies* (Monograph 28), pp. 184 and 278.  
 TEMPORARY NATIONAL ECONOMIC COMMITTEE, *Statement of Life Insurance* (Monograph 28A), p. 10.  
 FAMILY ECONOMICS BUREAU OF NORTHWESTERN NATIONAL LIFE INSURANCE COMPANY, *Financial Misfortunes Largest Cause of Insurance Lapses* (survey of 1,000 lapsed policyholders).
1941. NATIONAL ASSOCIATION OF LIFE UNDERWRITERS, *Improving the Conservation of Your Business*. (Reprint of articles from *Life Association News*.)
1947. AMERICAN LIFE CONVENTION, *42nd Annual Meeting*, p. 455, "Quality Business," by R. J. WOOD.
1948. *RAIA XXXVII*, 267, "A Study of Persistency," by G. E. CANNON.  
 LIFE INSURANCE AGENCY MANAGEMENT ASSOCIATION, Reports: *Factors Affecting Persistency of Orphan Business; Interview Study of Lapsation; and Lapsed without Value*.
1949. LIFE INSURANCE AGENCY MANAGEMENT ASSOCIATION, Reports: *Persistency, 1942-1947*, and *The Persistency Raters, 1949*.
1950. *Journal of Applied Psychology*, "The Prediction of Persistency in Premium Payment," by S. R. WALLACE and A. G. WHITNEY.

## DISCUSSION OF PRECEDING PAPER

EDWARD A. RIEDER:

For some months we have been attempting to develop a simple but reliable Persistency Rater applicable to our own business but we often felt a little like the dog running after the train. If we get it, what would we do with it?

The Richardson-Hartwell paper on Lapses was therefore both refreshing and stimulating to me because it emphasizes three very important points that lead on to a possible use for a Persistency Rater which had not occurred to me before. The three points are:

That in the evolution of our thinking on this subject we have recently arrived at the point where we know the statistical characteristics of the policy and the policyholder which will produce good persistency.

That with this information we can guide agents toward persistent business with some assurance, but that in so doing certain legitimate markets will be avoided.

That these statistical devices fail to recognize what may yet be the most important fact of all—the agent himself.

Persistency Raters harness data of the type presented in the Tables 2 to 16 but do not allow for inherent differences between agents. We do not yet know what these inherent differences are. The modern Persistency Rater may be a stepping-stone to the answer to this last and all-important question.

### *Rate the Agent after Rating His Policies*

It seems to me that one statistical approach to the solution of this question would involve the following steps.

1. Develop a Persistency Rater and apply it to the entire business of the Company in order to determine the average or "tabular" lapse rate for each rating.
2. The business of each individual agent would then be rated and his expected or tabular lapse rate determined. We would then be able to determine his "ratio" of actual to tabular lapses.
3. If the Persistency Rater successfully accounts for the different characteristics of the policy and the policyholder, the ratios of actual to tabular lapses would then reflect the inherent differences between agents. In other words, we could then say, "*other things being equal*, Agent X develops a higher lapse rate than Agent Y," and we will have isolated the very thing we wish to study.

### *Obtain Persistency Aptitudes from Study of Good versus Bad Agents*

Given full factual information about a large group of agents with high actual to tabular lapse ratios, and another with low ratios, it might be pos-

sible to find the answer to our question. We would be looking for the agent's "Persistency Aptitude" just as present day selection methods try to determine a prospective agent's "Selling Aptitude." The technique might be similar to that used in developing the L.I.A.M.A. "Aptitude Index." If we do learn what "Persistency Aptitudes" are, we might then devote a section of the Aptitude Index to bring them to the agency manager's attention before the contract is signed.

It would be interesting to know whether or not the agent that produces the better business in markets which have a high tabular rate will be found to have the same inherent characteristics persistencywise as the agent that produces the better business in markets where the tabular rate is low. These characteristics may be quite different and it may be advisable to study the characteristics of four different classes of agent (Table A). Are

TABLE A

Class of Agent	Tabular Lapse Rate	Ratio
(1).....	Low	Low
(2).....	Low	High
(3).....	High	Low
(4).....	High	High

the characteristics of agents in classes (1) and (3) similar, and are they in direct contrast with those of agents in classes (2) and (4)?

#### *Crude Lapse Rates Unfair to Compare Companies or Agents*

The Richardson-Hartwell paper devotes a section to the question of comparing the lapse rates of different companies and points to several factors which make this procedure unsound. I think there are similar reasons why it is unsound to compare the "crude" lapse rates of different agents. For example, the young agent prospects among young people, with below average incomes, often in the higher lapse occupations, usually buying their first policy, and because of low income having to pay monthly premiums. The direct opposite may be true of the older agent. The Persistency Rater can be used to allow for these differences by calculating an actual to tabular lapse ratio for each agent. In this way we would avoid the discouraging effect on the young agent of simply pointing out to him that his tabular lapse rate is too high and that he should try to change his market. In fact, if due credit is given for a low ratio of actual to tabular lapses, good agents may be encouraged to enter the markets which have higher tabular lapse rates and do the job that must be done if life insurance is to fulfill its universal function.

*Illustrative Ratings for Agents, Using Normal Persistency Rater*

The Persistency Rater with which we have been experimenting takes into account statistics of both the policy and the policyholder and produces 7 classes. From a sample of 1,000 policies issued in 1949 we found that the lowest class had a lapse rate of 27% and the highest class 1%. In order to illustrate the wide range in ratios, and the apparent ability of some agents to produce relatively good business when the tabular rate is high, the 1949 business of 6 agents was tested, the results being as shown in Table B.

TABLE B

Agent	Tabular Lapse Rate	Actual Lapse Rate	Ratio
A.....	6.8%	6.5%	95%
B.....	11.3	18.0	159
C.....	14.1	4.5	32
D.....	14.5	8.5	59
E.....	16.5	18.7	115
F.....	17.1	6.5	38

*Simplified Rater Preferred to Produce Ratios for Agents*

In order to give the agent full credit for his ability to produce relatively persistent business, it might be advisable to develop a Persistency Rater which deals only with the statistics of the policyholder. This would mean eliminating credits for plan or premium frequency as these are to some extent under the control of the agent. If policy data are eliminated from the Rater entirely the predictive qualities of the Rater suffer to some extent, but the Rater would be improved for the purpose of giving the agent full credit for a low ratio.

After revising our Rater to eliminate policy data entirely, we were left with 5 classes, and when applied to the same sample of 1,000 policies, the lowest class had a lapse rate 19% and the highest class 1½%. Using the revised Rater, the tabular lapse rates and the ratios for Agents B, C and F above were as shown in Table C.

TABLE C

Agent	Tabular Lapse Rate	Actual Lapse Rate	Ratio
B.....	10.3%	18.0%	175%
C.....	15.0	4.5	30
F.....	15.1	6.5	43

DENNIS N. WARTERS:

We owe thanks to the authors for giving us some very interesting figures on lapse rates. These figures add greatly to our factual knowledge about our perennial lapse problems and allow some interesting speculations. There seems to be much support in them for the conclusion that lapses are primarily caused by the vagaries of human nature as it reacts to changing conditions.

Some people are conservative; others are gamblers. Some completely inform themselves before acting; others act on the spur of the moment. Some are stable in their judgment; others are changeable. Some plan for future bills; others hope that future bills will care for themselves, etc.; and thus we endlessly vary. Any long-term contract containing the option to discontinue gives full scope to the characteristics and varying reactions of the person holding the option. Undoubtedly, lapse rates could be materially improved by requiring a psychiatric examination before issue and by rejecting those people who have characteristics which lead to lapse.

The figures presented illustrate the difficulty of obtaining homogeneity. The authors manfully struggle with the problem, but it is doubtful whether some of the results shown are due to the tabulated causes. In many cases reasons other than those on the surface account for the experience. While the statistics suggest that certain plans are subject to a high lapse rate, they seldom prove that the over-all lapse rate could be reduced by withdrawing the particular plans involved.

Looking at the tables critically with all of these questions in mind, we first notice the period of exposure and realize that it cannot be taken as a broadly representative period. It is too short and is entirely within a prosperous and inflationary period of full employment. These conditions undoubtedly affect the relationship between the lapse rates in different occupations, different income groups, and different age groups, the proportions of business written on various plans and the type of agent selling insurance. For example, one wonders whether the experience on students is relatively as favorable in a period when it is not easy to obtain employment.

The authors point out the wide difference in lapse rates between city and rural business and in various geographical areas. In weighing their over-all results, it would be interesting to know the proportion of the business coming from each geographical area and an estimate of the split between city and rural business.

In their Table 2, does a difference in weighting by geographical area or by income group account for the better persistency on farmers as com-

pared to the L.I.A.M.A. study? The stability and size of a farmer's income varies widely by geographical area. In comparing with other occupations, have the authors added to the farmer's income some allowance for living expenses?

In Tables 5 and 6 those paying quarterly premiums undoubtedly include most of the buyers short of money and most of the buyers who purchase a small policy rather than turn down the agent entirely. The presence of this latter group could account for the high lapse rate on small quarterly premiums in Table 12. None of these tables prove that the frequency of the premium payment in itself affects the lapse rate. We can explain the result by saying that the purchasers of these quarterly premium policies include undue numbers of buyers who are prone to lapse under any premium payment method. In properly weighing the figures, it would be helpful to know to whom and under what restrictions the Mutual Life offers a monthly premium payment plan.

The differences shown in Table 7 may represent the different lapse rates between the saver who purchases endowment insurance and the family man who stretches himself to get enough protection for his family. Again our problem would not be solved by discontinuing the high lapse rate plans.

Even though Tables 8 and 9 indicate otherwise, it is difficult to agree with any conclusion that the amount of policy or amount of premium has no effect on persistency. Perhaps our statistics combine several non-homogeneous groups—for example, those who overbuy and those who are more cautious in buying as amount increases. In a low income group, we can also question the accuracy of the income reported when a large amount of insurance is purchased.

In comparing lapse rates between various groupings of agents, it would be interesting to know the average age of each group of agents at the time the sales were made. Younger agents undoubtedly sell more insurance in the groups having the high lapse rates. Perhaps lapse rates vary as much with the age of the agent as with his length of service.

In Table 19 we might expect the package sale to result in a higher lapse rate as, generally speaking, it is a faster sale and a greater percentage of these sales are made by the less stable and less experienced agents. It appears this is offset by the greater percentage of "needs" purchasers who overload themselves. This is borne out by the decrease in the difference in lapse rates as the income of the insured increases.

Tables 21, 22, and 25 give some interesting comparisons of the differences in lapse rates taken by number and by amount. In Table 21 the

lapse rate by amount is less than that by number and that difference becomes large in 1909, reaches a peak in the 1930's and shrinks to almost nothing after 1944. What causes this variation? Is it the result of the growing popularity of the "needs" sale and can we expect further increases in the lapse rate as more of these sales are made? In Table 22 we have an opposite result. The lapse rate after the second policy year is higher by amount than by number. One explanation of the variation between Tables 21 and 22 might be that the purchaser of the larger policies is more careful in making his initial purchase, but suffers more as the years go by from economic and other changes he was unable to foresee. It is logical that the lapse rate should fluctuate more with economic conditions the further the policyholder is away from conditions foreseen at the time the policy was purchased. All of this seems to be borne out by the figures given in Table 25.

Table 23 might be a measure of the effort made to get the policyholder to take a policy loan rather than surrender.

Comparing Tables 26 and 27, the prosperous 1940's show a much lower lapse rate than in the 20's and 30's after the first year, but not as much relative difference in first year lapse rates. Does this mean that first year lapse rates are not primarily due to finances or changing economic conditions?

In Table 28, although the 38% who answered the questionnaire represent an excellent return, one wonders whether they represent a proper sample of the whole. The motive responsible for answer could affect the statistics.

The authors note that there has not been much improvement in the lapse rate over the past thirty years. In view of the efforts that have been made to better these ratios, it would seem that lapses are in large measure due to causes beyond our control. Many of the authors' tables bear out this conclusion and are some answer to those who are critical of the industry's record. It is evident that lapse rates could be reduced by refusing to sell insurance to those among our fellow citizens who have an inclination to lapse, and we could develop selection processes to sort these people out. These lapsing policyholders pay more for their insurance in the same way as they pay more for their installment purchases and all of the various other contracts which they fail to carry through to the end. However, it does not seem socially desirable to refuse the benefit of insurance to those who perhaps need it the most. The less stable and the weaker need every encouragement to make provision for their beneficiaries and for the future and our task is to help them as much as possible.

THOMAS IRVINE AND S. R. WALLACE, JR. :\*

We all welcome this scholarly addition by Messrs. Richardson and Hartwell to our knowledge of a very important, but too seldom discussed, subject.

One conclusion which the authors reached disturbed us very greatly. Referring to the industry lapse rates on the Agency Management Association formula for the last twenty years the authors say, "On the basis of these facts, we must conclude that the efforts to prevent early lapsation have produced little gain, even though much more is known about the characteristics of good quality business." We wonder if this conclusion is not somewhat more pessimistic than the figures themselves indicate. In any event, it could be argued that the mere maintenance of former levels of lapsation in the face of the great expansion that has taken place represents a real accomplishment.

The inference may be drawn that we have just about exhausted all possibilities of improvement on the basis of our present knowledge. That may be true for certain individual companies which have been doing a relatively good job all down the years. It is not, however, true of the business as a whole. The truth is that companies differ greatly in their lapse experience and that many appear to be farming less well than they know how. Nor do all of the large companies display good results and all of the small poor. Indeed, a number of very small companies rival the best in the industry. Furthermore, the relative position of many companies has changed over the years. One relatively small company, for example, became acutely conscious of lapsation in the middle thirties and went to work on the problem. As a result of its endeavors, it has brought its lapse experience down from well over the United States average to less than 75 percent of that average at the present time.

The Association's Research Division has recently completed a study of the two-year persistency of business sold by twelve companies in August 1947. The basic results, showing the proportion of policies with the equivalent of two full annual premiums paid, by type of agent ("new agents" are those with less than two years under contract) and the mode of premium payment, are presented in Table A.

This table has a number of interesting implications. It demonstrates that differences in the over-all lapse rates of these companies cannot be

\* S. R. Wallace, Jr., not a member of the Society of Actuaries, is Director of Research of the Life Insurance Agency Management Association. It was under Dr. Wallace's direction that the study "Persistency 1942-47" was prepared. The authors of the paper refer to this study as the first to measure the interaction of the various objective factors affecting persistency.

explained away by differences in the distributions of premium payment modes or in the percentage of business contributed by the inexperienced agents. It suggests that some companies have succeeded better than others in obtaining persistent business from their recruits, that some companies have relatively poor persistency for certain premium payment frequencies coupled with high persistency at others, etc. These findings indicate that we are dealing with a highly complex set of relationships, but they appear to challenge us to learn more about what companies do or fail to do that produces differences of this kind.

TABLE A  
TWO-YEAR PERSISTENCY BY NUMBER OF POLICIES, MODE OF  
PREMIUM PAYMENT, AND AGENT EXPERIENCE  
POLICIES ISSUED DURING AUGUST 1947

Co.	ANNUAL				SEMIANNUAL				QUARTERLY				MONTHLY			
	Ex- perienced Agents		New Agents		Ex- perienced Agents		New Agents		Ex- perienced Agents		New Agents		Ex- perienced Agents		New Agents	
	Pols.	%	Pols.	%												
1.....	1,304	97	412	97	330	93	135	87	525	87	349	78	92	79	72	72
2.....	372	92	203	85	160	80	104	80	171	65	147	56	56	75	56	68
3.....	816	96	344	92	235	90	173	86	581	83	551	73	92	79	126	63
4.....	477	91	255	87	173	80	115	75	193	78	289	60	127	73	114	68
5.....	788	94	162	89	136	82	64	86	105	65	59	66	60	90	30	80
6.....	149	89	87	89	20	75	20	85	16	56	27	56	19	68	26	62
7.....	656	94	389	92	217	79	128	70	420	74	386	62	55	75	51	57
8.....	347	95	197	96	71	89	39	67	92	74	123	63	98	69	100	71
9.....	2,110	92	905	90	327	76	292	77	688	69	727	63	267	69	257	57
10.....	954	93	317	89	183	86	84	92	606	75	274	78	46	78	47	68
11.....	478	97	193	92	89	89	74	74	172	85	144	68				
12.....	478	88	565	89	205	79	282	79	457	66	638	62	55	71	95	43

Certainly, one approach to this problem lies in a more searching examination of the markets in which these companies operate. That the buyer characteristics of companies may differ to a surprisingly high degree has been shown in a recent Association publication, *The 1949 Buyer*. However, the significance of such differences in the median age, income, previous insurance ownership, etc., to this problem may be less than might at first be assumed.

In the past year, we have made further analyses of the Persistency Rating Chart, which have revealed a very significant fact concerning the effect of market on lapsation. The fact is that any single one of the factors

can be removed from the Rater without materially affecting its predictive accuracy. For example, while income is an important determiner of persistency, its relationship with the other six factors is such that we can ignore it without serious damage to the precision of our forecast. Here we have an excellent indication that good persistency does not result alone from high income, or from infrequent exposure to lapse, or from any single factor. From a persistency viewpoint, there is no such thing as a bad income group, a bad occupation or a bad premium frequency. There are only good or bad combinations of these factors, and their importance, while great, is present only in combination.

It appears probable, therefore, that the differences between companies in lapsation experience are premised upon factors other than type of business, buyer, or agent. The first other source which presents itself is that of company policy in training, supervising, compensating, or motivating its agent toward selling habits and conservation practices which keep business on the books. Our knowledge of these policies and their effectiveness is meager. What exists lies more in the realm of generally accepted belief than in fact. We can agree with the authors, however, when they state: "These statistical investigations proceeded along lines which took the emphasis off the agent by looking at measurable characteristics of the policy associated with good or bad persistency. . . . However, this approach to the problem raises the question as to the social desirability of educating agents to avoid certain markets, with the result that substantial segments of the population would not be solicited to purchase Ordinary insurance."

As may be inferred from our previous remarks about the Persistency Rater, our emphasis has been away from specific markets as such. The recognition of the social issues involved is made clear in the following statements taken from the research report which presented the Persistency Rater.

Unlike the older chart, which was overweighted for the factor of applicants' income, the Persistency Raters are specifically designed to detect those individuals at the lower income level who are persistent. This is believed to have important sociological implications for the life insurance business. It is also believed that the proper rating for those in the lower income group will help in the maintenance of the morale of the younger recruit who is forced into the younger, low income market.

The success of the effort to detect persistent individuals in the lower "quality" groups is best shown by the fact that the Raters' predictions *within the lowest income group* are as accurate as for all income groups combined. This means that the influence of income upon the rating has been minimized without any loss in predictive accuracy.

It is true that the original Persistency Rating Chart developed in 1934 emphasized "quality business" rather than "persistent business." Everybody knows what "quality business" is and almost everybody is for it. The concept is based mainly on considerations of cost and profit to company, manager, and agent. It implies policies of larger amounts sold to persons of higher income with low frequency premium payments. Such business is said to be above average in persistency and low in both acquisition and renewal cost, and therefore to provide the highest profit.

The trouble with this concept is that it confuses two primary goals—namely, cost and persistency. These are distinct and separate goals and should be treated separately.

There are some in our profession who believe that "quality business" can be overemphasized. These people observe that there are two groups which tend to be overlooked when quality is made the major goal of our distributive force. One group, obviously, is the more than half of our population who earn less than the average income. The other, not so obviously, is our young recruits. These agents are almost necessarily limited to a market composed of those whose low income forces them to think in terms of small premium payments.

While many would defend the viewpoint that neither the public nor the agent can expect our companies to provide insurance at a loss to those people who are unwilling or unable to maintain it in force for at least a few years, it must be admitted that a sizable proportion of the small policies sold, even in the low income groups, do persist. We must assume that these policies are supplying a very real need. We must also admit that it is better for our young agents to sell these policies than none at all.

In short, we want quality business because it is profitable. But an emphasis upon quality business which makes us forget our primary responsibility to provide the security desired by our lower-income population cannot be sound. Nor can it be sound to adopt a course which turns the new agent away from his natural market and, inevitably, from the life insurance business.

The key to this dilemma appears to lie in a re-evaluation of the term "quality business" in relation to "persistent business." If we remember that some persistent buyers may not be "quality buyers" while some "nonpersistent buyers" are found in the high income, large policy amount, annual payment group, it becomes apparent that our primary responsibility is not to direct our agents toward quality but toward persistency. The low income buyer who will persist has a right to our services. The agent who finds and serves these buyers has a right to adequate compensation. If we cannot profitably sell policies for low amounts at high

frequency payments by increasing their persistency, we must learn to do so. (If we don't, you know who will.)

So our major goal should be the production of persistent business—for any amount, in any income group, at any mode of premium payment. All of these findings appear to lead us to a new concept which we shall call "appropriate business" and define as business the agent is able to sell and the company can afford to take. "Appropriate business" need not be of high quality but it must have good persistency. Good persistency should result when an agent sells to the appropriate buyer an appropriate policy, paid for in the appropriate way.

In short, the Persistency Rater and the statistical studies upon which it is based are regarded by us as tools which the companies may use in motivating and training their agents to obtain "appropriate" business. We agree with the authors that the future improvement of persistency must come from a further understanding of what our companies can do with these and other tools to make persistent business grow where it has failed to grow before.

WILLIAM J. NOVEMBER:

I should like to compliment the authors on the comprehensive job they have done. I know this paper is going to be a valuable source of reference for years to come in an important field. My purpose in entering the discussion is twofold: to comment on some differences that we found in an experience my own company has compiled along similar lines, and to raise a question on one aspect of the paper.

Last year my company made a study of the lapse rates on our issues of 1947, and did it in the same way as the Mutual, that is, we observed the proportions of issues that lapsed through the beginning of the third policy year. Our study was not as comprehensive in that we confined it to the characteristics of premium frequency, policy size, issue age and sex of the policyholder. However, we included all of our policies, which meant that, as compared with the issues that entered the Mutual study, we also covered salary savings policies, juvenile issues down to age zero and pension trust business. I might say parenthetically at this point that contrary to a statement made by the authors, we have not found that the pension trust business has a zero lapse rate. Quite to the contrary, we have found that although the rate of lapse may be low in the first policy year or so, it becomes rather high after that. Reasons for this poorer lapse experience will be found in the fact that termination of employment will frequently bring with it the termination of a policy, and in addition the termination

of a pension trust unit will in some instances bring about a wholesale termination of policies which belong to that unit.

Our results on the 1947 issues were rather similar on the whole to what the Mutual found on its issues of the last half of 1946, as may be judged from our over-all lapse rate of 18% compared with the Mutual's 18.6%. The inclusion of our salary savings business had the effect of raising the over-all lapse rate but on the other hand our juvenile policies had a much lower than average lapse rate.

With regard to premium frequency, one notable difference in our experience as compared with the Mutual's was that quarterly premium policies, not monthly premium policies, gave us the poorest results, and by a good margin. They did so consistently in the various subdivisions that we studied, whether by size of policy or by age or sex of the policyholder. Over-all our rate was 32% compared with 24.6% for the Mutual. This difference on quarterly premium policies suggests that exposure to premium frequency does not in itself account for the level of lapse of the different premium frequencies. The kind of sale that was made when the premium frequency was determined seems to be of some importance. The quarterly premium method facilitates the lowest amount of premium payment and it may be that an applicant will accept a policy on that basis as an accommodation to the agent without any real expectation of keeping the policy. Pertinent, too, may be our practice of making a charge when a policy is not taken. I suspect that in a good number of cases our agents succeed in getting a quarterly premium paid just to avoid that not-taken charge. I do not believe the Mutual has a similar practice.

Our experience according to the age of the policyholder was similar to the Mutual's for ages 20 and over. In the 10 to 19 issue age group, our lapse rate was a good deal higher, 18% versus 10.7%. I believe the answer might very well be in the inclusion of salary savings policies in our experience. A good proportion of our salary savings insurance is written in telephone units on the lives of young people, many of them young women. The sales made are apparently not too permanent, for the lapses show up rather quickly. Our experience at ages 0 to 9 was like the Mutual's at ages 10 to 19—an 11% lapse rate against 10.7%—which suggests a similarity of classes of lives.

The size of policy results for us were consistent with the Mutual's. We used only the two broad categories of less than \$10,000 and \$10,000 and over, but it was apparent that the tendencies were similar in the experience of the two companies. The situation was the same with respect to the sex of the policyholder. However, our over-all lapse rate for women was a little higher than the rate for men, 18% versus 17%, but that was a

clear instance of the spurious nature of an over-all figure. When the data were analyzed in age, premium frequency and size of policy subdivisions, women evidenced significantly lower lapse rates than men, the only exception being in the salary savings class, where they showed up more poorly.

So much for our comparative experiences. The aspect of the paper on which I should like to raise a question is the point of view taken by the authors toward the end of Section I with regard to the importance of the agent and the method of making the sale in this matter of lapse rates. It seemed to me that, perhaps without meaning to, the authors played down too much the role of the agent and the method of sale. They suggest that the importance of these factors has been based on hypotheses that do not provide guides to effective action and have not been tested and validated. When I read that statement I expected that the authors would point the way to effective action in some other direction, but that expectation was not fulfilled.

That the conclusion of the authors was not more definite should not be too surprising because this problem is such an elusive one. I agree with a number of the other speakers who have indicated that we cannot adopt the course of confining our operations to the areas of more persistent business, such as older applicants in preferred occupations with larger incomes. We would not be rendering a proper insurance service if we did.

Certain basic factors are obvious as affecting the lapse rate. One is the economic cycle, the effects of which are largely beyond our control. Frequency of exposure to lapse is another factor, and we can do something there by encouraging premium payments on a less frequent basis. However, there must be something more and in my view it is the quality of the sale and the degree to which the policyholder believes in the protection. The quality of sale gets back to the agent in large part because it involves the proper correlation of the amount and form of insurance with the need, and the correlation of the cost of insurance with the capacity to pay. The policyholder's belief in his insurance protection stems from the sale, too, but the institutional job we do in fostering a high valuation of the role of insurance is of importance also. I thought the statistics all the way through the paper gave evidence of better persistency among persons who might have this understanding of and belief in insurance. The age variations, the occupational variations, the difference between repeaters and newcomers all pointed in that direction.

It seems to me, therefore, that there is some hope for attaining better persistency rates through the process of educating our agents in ways of making firmer sales. Beyond that, though, I feel that the attitude of the

public toward insurance is of some moment. In recent years the institution has done a great deal along the lines of gaining the confidence and understanding of the public and I am sure more can and will be done in the future and that will be reflected eventually in better persistency.

GARNETT E. CANNON:

This study further substantiates the statistical background for an attack on the lapse problem. While it is true that any statistical analysis of this type is confronted with the difficulty of isolating a single factor as the cause of lapse, nevertheless there are some very definite conclusions which can be reached. In an attempt to do something about the problem of reducing lapses it seems logical to start with those situations which the statistical study points out clearly as being most significant.

Two outstanding factors contributing to a high lapse rate are found in the producing agent and in fractional premiums.

TABLE A

YEAR OF ISSUE	PERCENTAGE OF TOTAL NEW APPLICATIONS		FIRST YEAR LAPSE RATE	
	Annual	Monthly	Annual	Monthly
1935 . . . . .	32%	25%	20%	28%
1938 . . . . .	26	23	13	32
1945 . . . . .	56	8	6	14
1949 . . . . .	43	21	5	24

The new agent in this study shows a lapse rate double that of mature agents. In the Standard the lapse rate is closer to 50% higher for new agents.

In an attempt to recognize the agent's part in controlling the lapse rate we have tried paying a higher first year commission to an agent who has demonstrated his ability to write persistent business. There are indications that this has been an effective plan in some cases. However, it does have its limitations, especially when applied to new agents.

Economic conditions have a greater effect on lapse rates in the first two policy years when premiums are paid more often than once a year. There are indications that the stress of the times is catching up with us a bit now, judging by the experience in our company (Table A). While the ratio of annual business is slipping slightly the persistency is still holding firm. However, in the last four years there has been a substantial increase

in the amount of monthly business and this has been accompanied by a lapse rate which is approaching the high rates of the thirties.

The problem of what to do about such a situation is a real one. To discontinue writing monthly premium business seems to be an evasion of the problem. It is doubtful if lower commissions will aid materially because this is already in effect to some extent.

Some time ago a poor persistency showed up on applications on which a note was taken for settlement of the first premium. Steps were taken to limit note settlements to annual or semiannual premiums from applicants showing a quality rating of 85 and written by experienced agents. This reduced the amount of note business substantially and improved the persistency so that it compares favorably with that on cash settlements.

It would seem that a similar rule qualifying applicants and possibly limiting the writing agent to one who is experienced might improve the persistency on monthly business. Other solutions might result from investigations along the lines suggested in the paper.

Now, while conditions are still favorable, is the time to make changes to improve conditions leading to high lapse rates. This paper does an admirable job of setting the groundwork from which intelligent investigations may be started. The authors certainly deserve our commendation.

HORACE R. BASSFORD:

The discussion seems to be changing to a question of how to keep good persistency. It is admitted that proper underwriting of a risk and the training of the agent are necessary for keeping the business persistent. However, one other factor seems almost as important, namely to make it worth while for the agent to have a good persistency record. Many companies, including our own, are basing part of their compensation on the persistency of the business and this seems to be very helpful.

GEORGE H. DAVIS:

I wish to add a bit of information concerning statements made near the end of the paper with reference to the lapse rates quoted by two publications. The first of these, which quotes figures for the industry as a whole, is the *Fact Book* of the Institute of Life Insurance. The Institute appreciates the defects in the basis of the rates and is at present engaged in a study along with the Life Insurance Agency Management Association, aimed at remedying at least some of these defects. The possibilities of including lapses which are transfers to nonforfeiture options and of deducting reinstatements in calculating lapse rates are being considered, as well as the possibility of deriving separate rates for policies in their early years. The study has not yet been concluded, and it is uncertain as to

just what rates will be published in the 1952 *Fact Book*, since there are difficulties involved in obtaining from a large number of companies data differing from those reported in annual statements.

ERNEST J. MOORHEAD:

In the discussion of this topic many have referred to the balancing of underlying factors that do not appear on the surface, that makes it extremely difficult to decide what the lapse ratios really mean. It occurs to me that some further insight into the meaning of some of these factors might be obtained if we were to do some research into the relationship between the lapse experience on our contracts and on those issued by the so-called mutual funds. The mutual funds have sales methods that are remarkably similar to our own today. They have a notice system that appears to be modeled after life insurance. They employ methods of training their salesmen which are similar to ours. They even have a system of surrender charges in event of early termination which is similar to ours.

The main difference between mutual fund subscriptions and life insurance contracts seems to be the emphasis by the former on direct benefit to the individual making the purchase, as opposed to the interest which a purchaser of life insurance must have in the welfare of somebody other than himself. It may be a commentary on human nature that the lapse rate in the mutual funds is said to be extremely low, but I cannot give you that on reliable information. Mr. Warters referred to the desirability of a psychiatric test. Perhaps the perfect psychiatric test is whether a man saves for his future via life insurance or via the stock market.

JAMES E. HOSKINS:

This comment is inspired by some of the previous discussions. Mr. Rieder wondered what we could do with lapse rates after we caught them, and Mr. Warters speculated on the possibility of charging the cost of lapse against the lapsers. I should like to throw out the thought that an important part of the control of the situation is through the scale of non-forfeiture values, that if they are fixed in such a way as to represent the maximum amount that can be paid without increasing the premium or net cost above what it would be if there were no termination except by death or maturity, then the size of the lapse rate is a matter of financial indifference to the company. It is then freed from the thought of lowering the lapse rate by avoiding insuring those classes who are prone to low persistency and can devote itself as a matter of public relations to trying to improve the termination rate of those whom it has insured.

That procedure also follows out Mr. Warters' thought, in that the cost

of insurance per year per thousand is higher to the unpersistent policyholder since the cost of acquisition is spread over a shorter period than the average. And the matter of self-interest is shifted from the company to the agent, particularly if Mr. Bassford's suggestion is adopted, but in any event the agent gets less money ultimately from the policyholder of short duration than from the policyholder of long duration, and I submit the agent is in a better position than the company to pick out the individual who is likely to keep his policy in force for only a short time.

MALVIN E. DAVIS:

It may be of interest to have the authors' detailed analysis of various factors affecting the lapse rate on Ordinary business supplemented with some data for other branches of the business. The figures in Table A, repre-

TABLE A

AGES	Industrial Weekly Prem.	Industrial Monthly Prem.	Ordinary Monthly Debit	Ordinary Other than Monthly Debit
10-19.....	12.9%	11.0%	11.4%	4.5%
20-29.....	19.2	14.9	14.7	12.0
30-39.....	14.6	11.1	12.9	8.6
40-49.....	10.6	9.1	10.2	6.4
50 and over.....	10.2	10.1	10.2	5.6
All.....	13.8%	12.0%	13.4%	9.0%

TABLE B

CLASS OF BUSINESS	AGE AT ISSUE		
	26	36	46
Annual Premium.....	11%	5%	6%
Semiannual.....	15	14	6
Quarterly.....	22	20	14
Monthly Premium Notice....	24	16	16
Monthly Debit Ordinary....	16	14	14

senting the proportion of policies issued in 1946 which terminated before they had paid any part of the premium for the third policy year, are indicative of the Metropolitan's experience in the various branches and age groups.

Table B presents the results of a study of the persistency of Metropoli-

tan Ordinary business by frequency and method of premium payment. The minimum monthly premium handled on the notice basis is \$10.01, smaller monthly premiums being handled on the debit basis. The figures show for several representative ages the percentage of policies issued on male lives during 1945 which had terminated before June 30, 1949.

The data from which the figures were derived did not include policies issued on Renewable Term or Family Income plans. The number of policies issued was 3,828 at age 26, 5,053 at age 36, and 2,631 at age 46.

GEORGE RYRIE:

The statistical data appearing in this paper should stimulate further consideration of the lapse problem. With a problem of this nature where progress towards improvement is apparently slow, perhaps we should try to start by focusing our attention on particular sections of the problem. There have been many statistical surveys of lapsed policies both on an intercompany and on an individual company basis. We are gradually acquiring more knowledge of the characteristics of business which are associated with high lapse rates—perhaps we should take advantage of these many studies and do more about them.

About two years ago the North American, Canada, decided that since monthly premium business was forming an increasing proportion of new business and since it certainly showed up with a high lapse rate, it was time to make a careful study of that section of the business.

Here are the facts we had for 1948 (Table A)—previous years showed similar results.

TABLE A\*

	Number	Amount
1948 monthly business to total.....	18%	22%
Net first and second year lapse rate on monthly business.....	29%	28%
Lapse rate by size of monthly premium:		
Under \$10.....	34%	39%
\$10 and over.....	19%	20%

\* Salary deduction business excluded.

In our further study of monthly premium business we were required to depart from the usual lapse rate basis and concern ourselves with a review of monthly premium business settled in 1948 and its status on September 30, 1949. Accordingly, we developed rates of lapse on business

which had been exposed for periods varying from nine to twenty-one months.

Our specific inquiry into this business had to do with the precise method of settlement or collection of premiums. In Canada, where the bulk of our business was done in 1948, our banking system lends itself to widespread use of postdated cheques. The life companies have made great use of this facility and supply sheets or books of twelve cheques which monthly premium policyholders are encouraged to complete on a postdated basis. Under this system collection offices deposit monthly the appropriate cheques as the monthly premiums become due.

Following this line of inquiry, the results by number of policies are shown in Table B.

TABLE B  
LAPSES BY SEPTEMBER 30, 1949 ON POLICIES SETTLED  
IN 1948 ON A MONTHLY PREMIUM BASIS

SIZE OF PREMIUM	SETTLEMENT BY POSTDATED CHEQUES		REGULAR MONTHLY CHEQUE OR CASH PAYMENTS	
	No. Policies Settled	Lapsed	No. Policies Settled	Lapsed
Under \$10. . . . .	722	10%	701	33%
\$10 and over . . . .	327	6%	273	37%

Previous to this study, our minimum monthly premium for new business had been \$5. We changed regulations in 1950 to provide for a regular minimum monthly premium of \$10 which would be dropped to a \$5 minimum only if twelve postdated cheques were tendered in settlement. It may be suggested that something drastic must also be done with the \$10 and over monthly premiums being collected in cash or by regular cheque. We are now making a further study to determine the effect of our changed regulations. Further attention is also being given the characteristics and the methods of collection of these monthly premiums of \$10 and over, since other factors may be involved.

Others discussing this paper have suggested that sales technique and thoroughness of the sale have a great influence on persistency. May I suggest that if an applicant is persuaded to sign twelve postdated cheques, he is fairly well sold on the contract involved. At any rate, his persistency is likely to approach that of an applicant for an annual premium policy.

## (AUTHORS' REVIEW OF DISCUSSION)

CHARLES F. B. RICHARDSON AND JOHN M. HARTWELL:

We are extremely grateful for the extensive discussion of this paper.

Mr. Rieder describes a most interesting and practical method for studying the characteristics of high and low lapse rate agents which might lead to valuable results.

Mr. Warters questioned the adequacy of the period of exposure. From some points of view it may be too short, but from other points of view it may be too long. The longer the period the less homogeneous are the influences acting. As we showed, economic conditions become more important at longer durations, and this makes it desirable to keep the duration as short as possible in order to investigate the effect of factors other than economic conditions. Many of the factors associated primarily with the policyholder or the policy or the agent seem to have their greatest impact at early durations. We pointed out in the paper that the unusually favorable economic conditions undoubtedly affected the absolute rates of lapse and to some extent distorted the effect of some of the factors, *e.g.*, occupation. However, in view of the fact that our results were very similar to those of the Agency Management Association study which covered five policy years, we believe that two policy years is a long enough period to uncover the effect of the factors we studied.

There is a great need for avoiding preconception. Mr. Warters suggests that policy size is important, but all recent studies fail to disclose that fact. On the other hand, several studies have indicated that quick sales do not produce greater lapsation, nor are lapses necessarily predisposed to installment borrowing and disorganized financial affairs, as he implies. A recent interview survey which we made reveals surprisingly small differences between lapsers and persisters in the financial area. In fact, it reveals surprisingly small differences in many areas where our preconceived ideas would have led us to suspect substantial differences.

The basis of the income figures we used was the statement of the agent.

Mutual's rules on monthly business now require a minimum of \$10 per month because smaller premiums showed an excessively high lapse rate.

Mr. Davis's discussion is of particular interest as showing the astonishingly low lapse rates on weekly premium industrial business attained by the Metropolitan. Even more surprising is the fact that monthly industrial shows a lower lapse rate than monthly debit ordinary and one wonders to what extent that result is influenced by differences in the plan of compensation to agents to which Mr. Bassford referred. In these days of

nationalization one is tempted to question whether such remarkable results could possibly be expected under a government operation.

Mr. Ryrie's figures on monthly postdated checks as compared with regular monthly business are so remarkable that we may expect further development of this technique where the banking system permits.

We are glad that Mr. November corrected our wrong impressions on Pension Trust business, on which we had no data. However, it seems to us that on a properly designed pension plan, with a waiting period for eligibility long enough to eliminate the period of highest turnover, the lapse rates should not be high. He inquires about Mutual's practice on not-taken policies, *i.e.*, policies not paid for. In the first place, there is a factor in our compensation plan which reduces the "Efficiency Income" payment of an agent with a high not-taken rate. Also, it is our practice to charge \$5 for a medical and \$1 for a nonmedical policy not taken if the agent has a not-taken rate above a certain average figure. This has been an effective control. The lower lapse rate in the Equitable on annual business is probably accounted for by the inclusion of Juvenile in their study and its exclusion in the Mutual study. A high proportion of Juvenile business is annual and it has a very low lapse rate.

Mr. November is correct in pointing out that our studies did not directly lead to new horizons. Our first purpose was to jolt the complacency of anyone who felt that the existing body of data provided answers to the question of why policies lapse. It does not, and we are exploring new areas and hope the industry will do the same thing. However, he misunderstood us if he felt that we intended to belittle the importance of the agent. On the contrary, we believe that the agent may well prove to be the controlling influence.

Mr. Hoskins suggested that if nonforfeiture values are properly fixed, the lapse rate is a matter of indifference to the company. We question whether the loss to the company on lapses in the first policy year can be so cured, and believe that on some plans of insurance there would be losses to the company in case of lapses after the first policy year under any feasible scale of cash values. It is perfectly true that there need be no loss after the first two or three policy years if the cash values and dividends are computed so that the policyholder who quits does not receive more than the asset share on a realistic basis.

We also heartily agree with several speakers who pointed out the social desirability of catering to all classes of the insuring public, irrespective of whether they are likely to show high or low lapse rates. The problem is that, within a particular group which in total shows a high lapse, there are

undoubtedly characteristics of the insured or agents or methods of selling that will produce high and low lapse rates, and it is these matters which we feel the industry should explore.

We particularly welcome the discussion by Messrs. Wallace and Irvine and find ourselves in substantial agreement with their remarks. The statistics on lapse rates of twelve companies giving the results for new and experienced agents separately are particularly significant and suggest that, as they say, many companies could do a better job in this field.

After this rather exhaustive study we came to the conclusion that the purely statistical approach is inadequate in this field. Lapses are caused by human factors, the reasons for which are not susceptible of statistical treatment. We know where lapses occur, but we don't know why. We shall have to explore new areas to find the reasons for lapsation and to discover effective methods for reducing lapses.

These new areas will involve research in several new directions. One of the most promising areas is direct interviews with policyholders and agents, using modern interview techniques. Another untapped field involves research to discover the reasons for the enormous differences between the lapse rates of individual agents; part of this study may involve interviews with the agents and their managers. It is also possible that we might uncover useful information by studying the prospecting and selling methods used by agents having very high or very low lapse rates. All these suggestions reach into areas involving information of a different type from what we have sought in the past.

We need to find out why people allow policies to lapse or keep them in force, and the one thing we seem to have definitely established is that the existing information does not get at the basic facts. To point up the problem, we might draw a comparison with the use of the numerical factors which measure the probable mortality, and which are predominantly not subject to alteration by the individual. Similar methods may not work in the case of lapse rates, because some of the important factors are subject to the control of the insured or the agent, and the results will therefore be affected by factors which cannot be predicted by the use of known facts.

This paper in no way solves the lapse problem, but rather points up the crying need for further research. We hope that renewed interest may be aroused in this very important field—one that is vital for the policyholders, agents and companies alike.