TRANSACTIONS OF SOCIETY OF ACTUARIES
1953 VOL. 5 NO. 11

DIGEST OF INFORMAL DISCUSSION

ORDINARY INSURANCE

A. Size of Ordinary Policies and Mode of Premium Payment:

1. To what degree is it practical to differentiate in premium rates for new policies according to their size?
2. What minimums, if any, are applied to premiums collected more frequently than annually?
   Are the additional charges made for monthly, quarterly, or semiannual payment of premiums sufficient to cover the extra cost? Have any special methods been devised for collecting the smaller fractional premiums?
3. Has there been any substantial increase in recent years in the proportion of ordinary policies written with monthly premiums? Has the persistency experience on such policies been satisfactory?

B. Juvenile:

1. What special underwriting and actuarial problems arise in connection with level premium juvenile policies which provide for a substantial increase in amount of insurance upon the insured's attaining age 21?

MR. J. B. STEARNS questioned whether the antidiscrimination laws really prevent differentiation in premium by size of policy, provided individuals in the same class are treated alike and the discrimination is not unfair. Certain plans, or groups of plans, characterized by high or low average size are now treated separately in premium calculations and thus give effect to the *average* size, but his opinion is that if all Ordinary policies were issued for amounts of $5,000 or more, variations in premium rate by size would be an unnecessary refinement. For the smaller policies, size of policy has more effect and the Prudential partly offsets the higher cost per $1,000 by adjusting the commission scale below $5,000 and again below $2,000.

The company's loadings for semiannual, quarterly and monthly premiums are 3%, 5%, and 6%. Other things being equal one would expect the monthly loading to be much more than 6%, if the proper quarterly loading is 5%. However, monthly business has a higher average size, partly because the company has a minimum monthly premium of $10, and there is some saving in expense in that no premium notices are sent on monthly business.

MR. W. C. BROWN stated that the Colonial offers two series of Ordinary policies with similar plans in each series, the one being available for amounts of $3,000 or more and the other for amounts from $1,000 to $2,999. The series of smaller policies may be issued on the monthly debit basis which involves somewhat higher commission cost and, of course, the average size is low. The second series of policies can be considerably more competitive. A policy change reducing the amount below $3,000 requires a change to the nearest plan in the lower series. The company also offers one special plan with a minimum of $10,000 on which premiums can be still more favorable because of the large average size and also because this plan is restricted to selected risks and may not be issued on a monthly basis.

The company has experienced some variation in the proportion of Ordinary business written with monthly premiums, but these changes have been caused to a great extent by positive Home Office action in one direction or another. A drop in the proportion of monthly premium business, other than monthly debit, took place when a minimum premium of $10 was established.

The enforcement of a $10 minimum premium had the effect of greatly improving the lapse rate on monthly business which was on a premium notice basis. While this caused some increase in the lapse rate on quarterly business, the net effect was beneficial. He quoted two-year lapse rates for 1952 by mode of premium payment using the L.I.A.M.A. formula as follows: annual, 6.11%; semiannual, 11.55%; quarterly, 22.10%; monthly notice, 25.74%; monthly debit (Ordinary) 17.26%.

MR. J. A. CAMPBELL stated that the commonest form of differential in premium rates is the system of quoting lower premium rates for policies of $5,000 or more on certain selected plans, but that a further recent development in Canada has been the offer by a number of companies of a reduction of 50¢ per $1,000 in the premium rates for policies of $10,000 or more. This method is very similar to that used in Great Britain where many companies quote similar differentials, granting from 50¢ per $1,000 to as much as $1.50 per $1,000. The modification in premiums by British companies seems to be applicable to policies on all plans and so far this type of differential has been offered by only a few companies in North America. He mentioned that it has been considered undesirable here to quote different rates of premiums for exactly the same type of policy but that he does not see any legal difficulty in that respect, at least in Canada, and feels there are good reasons for giving lower premium rates on large policies regardless of plan. One reason for confining preferred policies to plans like whole life is that a very large proportion of the large policies are actually issued on this plan.

The loading on a $1,000 policy would be so high in theory that it is unlikely that we would be able to charge the full amount. He suggested using a premium rate for a \$5,000 policy as a pivot, charging an extra premium of \$1.00 to \$1.50 per \$1,000 for policies between \$2,000 and \$5,000 and an extra premium of \$2.50 to \$3.00 per thousand on smaller policies, with a reduction of 50¢ per \$1,000 for amounts of \$10,000 and over. Four scales of premium rates would satisfactorily cover the whole field but whether it is practical to adopt such a plan or not depends somewhat on the need for it, depending largely on the type of agency organization. The assumption is that the differentials have been properly determined in the beginning so that the same guaranteed values and dividends would apply to policies on any of the scales of premiums.

The London Life has a minimum monthly Ordinary premium of \$7.50 and a minimum half-yearly or quarterly premium of \$10. It is likely that the additional charges for premiums other than annual are sufficient in the aggregate but the average premium for which the expense charges are adequate is somewhat larger than might be realized at first thought. The L.O.M.A. in one study found that each premium collection might cost about 50¢. If the loading for monthly premiums is 6% and 2% out of this is required for interest and mortality, leaving 4% for expenses, it will require an average monthly premium of \$12.15 to provide 50¢ for each of the extra eleven premium collections. On quarterly business with a loading of 4% and a cost for interest and mortality of $1\frac{1}{2}$%, the average quarterly premium is \$15.60. On semiannual business with loading of 3% and a cost for interest and mortality of 1%, the average premium required is \$12.88. The only special method which the company has used for collecting fractional premiums has been the postdated check plan under which about 50% of the collections are now being made.

The proportion of monthly premium business written by Ordinary branch agents increased from 6% in 1930 to 26% in 1940 and to 33.7% in 1950.

MR. T. A. MOILIEN stated that the chief objection to using the overall company average is that when compared to a company that varies costs by average size, the company finds itself competitive in that area where an increase in business would be painful, and noncompetitive in an area where an increase in business would be desirable. The other extreme of making extensive plan and age variations involves distortions due to sampling errors and would produce noncompetitive results on certain types of business which the company for other reasons finds it desirable to promote. The Equitable of Iowa reflects variations in average size in the dividend formula. The bulk of the business falls in three classes, (a) whole life policies with a minimum size of \$10,000, (b) juvenile 18-

payment life and endowment at age 18 policies with a minimum size of \$1,000 and (c) all other life and endowment plans with a minimum of \$2,500. Average sizes in each of the three groups are graded by age, but only from age 0 to age 10. These average sizes are used in conjunction with average overhead expense factors to obtain unit expenses per \$1,000, subject to a weighting of $\frac{2}{3}$ by policy and $\frac{1}{3}$ by amount. This weighting is to a large degree the measure of their compromise between the company average approach and the plan and age approach. The net effect is to dampen quite materially the variations among the three classes and, in particular, to require the high average size whole life policy to bear a larger share of the expense load than would otherwise be the case.

MR. EDWARD RUSE described the method adopted in 1952 by the Confederation in the West Indies. A basic premium is adopted for policies from \$1,500 to \$9,999. For small policies an extra premium of \$3 per policy is charged, while for larger policies on first class risks, the basic premium rate is reduced \$3 per \$1,000 of sum assured. The initial reaction of the sales force was extremely unfavorable, but new business, instead of declining, has increased and the initial unfavorable reaction has virtually disappeared.

MR. C. C. KIRKPATRICK stated that the American Mutual has a minimum premium of \$5. While investigation shows that the average premium collection should not be less than \$8, he has found that the company's average monthly premium on old business is \$9.67 and on 1952 business is \$10.56. Recent tests have shown that his company's semiannual loading of 3% and monthly loadings of 5% are sufficient to cover loss of interest, additional collection expenses and waiver of installments of premiums in the year of death.

Monthly premium business written since January 1, 1948 shows 30% by volume and 22% by number compared with business written from 1932 to 1947 where monthly premium business was 11% by volume and 6% by number of policies. The newer monthly premium business shows an average size policy of \$3,591 compared with \$2,863 for the older block.

MR. ARTHUR PEDOE stated that the Prudential of England commenced about fourteen years ago to collect premiums by means of post-dated checks and the volume of business has increased until now about one-half is done under that system. He had thought that the best way for a man to pay his insurance premiums was monthly and they had high hopes when they started the business that they would avoid the usual objection to monthly business—a high lapse ratio—but they now have to acknowledge that the two are inseparable. Their 1952 lapse ratios showed their monthly business lapsing at a similar rate to their quarterly, namely, four times the lapse ratio on annual business. Their lapse ratio as a whole had been increasing, mainly, he thought, due to the increasing proportion of monthly business written.

He believes the only proper way to vary premiums by size is the English system referred to by another speaker. He felt that there should be definite legal limits as to how companies could vary their rates by size.

MR. A. M. CAMPBELL, speaking on section B, indicated there was little speculation at the time of issue because the premiums are higher in relation to the initial insurance benefit than on other plans. The applicant may, however, have in mind the current unsettled condition of world affairs and the advantage of having a substantial increase in the sum assured take place at a time when extra hazards may again be present.

The Institute of Actuaries has for many years carried on a continuous investigation into the mortality experience on child's deferred assurances as from the end of the deferred period at age 21. The experience during the war years was particularly heavy on this class of business, showing a mortality ratio of over 370% by the A 1924–29 ultimate table during the calendar years 1939 to 1945 inclusive.

It is recognized, of course, that during a period of warfare all insured lives of military age will be affected regardless of the plan of insurance but the unfavorable results are likely to be magnified when a substantial increase takes place in the sum insured at age 21.

Although antiselection can be expected at age 21, a report of the experience on children's deferred assurances in Great Britain during 1947–48 suggests "that there may be no significant difference between the mortality experience of children's deferred assurances after vesting and that of the main body of assured lives." The Sun Life experience indicates that for attained ages 20 to 29 the mortality is heavier among policies issued at the youngest ages than among policies issued at older ages.

From an actuarial point of view certain difficulties arise in determining a suitable premium loading for this plan. For the youngest ages at issue the benefits are roughly similar to an endowment at age 21 for the amount of the cash value, while for the higher ages at issue the policy is more comparable to ordinary life policy for the ultimate sum assured. It is therefore necessary to maintain consistency with the endowment and life premiums and a certain amount of compromise is necessary in this connection.

MR. M. T. LAKE reported that the Occidental Life of California has been writing this type of policy for 10 years and has issued approximately 22,000 policies. The company has adopted a nonmedical limit of three units, or an ultimate amount of $15,000. It has had quite a few applications from well-to-do families for large amounts and, when this has happened, it has had no difficulty in obtaining the necessary reinsurance. It is necessary to guess whether the premium payments are appropriate to the insured's probable financial circumstances when it is time for him to take over the premium payments.

In the dividend scale the increase in face amount at age 21 produces a sudden increase in mortality savings. While this could be smoothed out, the increase in dividends was felt to be desirable since the reduction in net payments just at the time when the insured takes over premium payments should improve persistency at that crucial time when a decision must be made by the insured. Furthermore, if an adverse mortality experience does arise after age 21, a substantial amount can be absorbed by holding the dividend scale consistent with the dividends before age 21.

In one state the net level premium reserve method could not be used because the resultant differences between reserves and reasonable cash values would have exceeded the twenty-five dollar limit retained in that state. This problem was solved by calculating special reserves which started off as Commissioners reserves and built up to net level premium reserves by the end of the twentieth year.

MR. J. F. HECKMAN, JR. described the Aetna juvenile policy as a level premium life paid-up at 65 contract providing for $1,000 of insurance to age 21 and $5,000 thereafter. When issued at age 0, the insurance in the first policy year only is limited to $250 per unit. The special form for New York State provides refund of premiums with interest at $2\frac{1}{2}\%$ if death occurs before age 5. He believes that the antiselection at age 21 is minimized by the fact that there is no change in the premium rate at that time. He does not feel that it is any worse to have policies of this nature in force than to have policies for substantial level amounts which are freely written by most companies on other plans at juvenile ages.

Nonparticipating gross premiums and nonforfeiture values should be consistent with those used for other plans of insurance with level amounts. In order to have one set of nonforfeiture values which qualifies in all states, the difference between the reserve and the cash value cannot exceed $25 per $1,000 original amount at the end of the third policy year and later. In order to avoid having nonforfeiture benefits for a larger amount of insurance than would be payable if the policy was continued in full force, the extended insurance and nonforfeiture paid-up insurance is limited to $1,000 prior to age 21. He indicated complications in drafting of policy language for nonforfeiture benefits.

Underwriting requirements are based on the original smaller amount of insurance, but the underwriting takes into account whether the ultimate amount is appropriate for the family circumstances and environment. Because of the possibility of antiselection, the maximum policy issued has been set at $5,000 increasing to $25,000 at age 21.

MR. E. A. RIEDER stated that the Mutual Life of Canada designed a similar policy some years ago and that to avoid the antiselection at age 21, the company gradually increased the amount of insurance by attained age. The insurance increased $100 a year, reaching $1,000 at age 9, then increased $250 a year to $2,500 at age 15, then $500 a year to $5,000 at age 20. He said that this additional insurance protection does not cost very much at these ages and that the policy actually grows up with the child.

MR. J. R. GRAY referred to a previous discussion of this type of policy in *RAIA* XXXVI, 328–335. He felt that there was not much selection against the company at age 21 if no specific decision had to be made at that time. The Canada Life has had a very high termination rate at age 21; on their British Isles contract it increased from 20–25% before 1947 to 55% in 1951. In the British Isles the child acquires ownership at age 21 and has a variety of options. He has a cash option, he can continue the same premium and have an ordinary life policy, he has a choice of four endowment policies of reduced amounts, or he can take a paid-up policy on either the life or endowment plan. This type of policy is issued by practically all companies doing business in the British Isles. Policies now reaching age 21 contain a generous, rather than a conservative cash option which contributes to the higher termination rate. Because of the high termination rate at age 21, the poorer mortality which may result from war hazard at that age should be regarded as a special unfavorable feature of this plan compared to other juvenile plans.

MR. R. L. BERGSTRESSER referred to a problem of drafting policy language for nonforfeiture benefits where a loan exists. If the policy lapses before age 21, the amount of extended insurance both before and after age 21 can be reduced by the amount of the loan, or the amount before age 21 can be so reduced and the subsequent amount defined as five times this reduced amount. The United States Life adopted the former practice as being more consistent with its other policies. The waiver of premium benefit for the death or disability of the parent is offered with this plan and, because the policy contains an option to change at age 21 to an endowment at 65 at a higher premium, the parent's waiver benefit expires at age 21. He noted that some companies increase the amount of insurance gradually before age 21 in order to minimize anti-selection, but this increases the amount of insurance at ages 18 to 20 just when the insured might become subject to military service. The company, therefore, chose to defer the increase to age 21 and run the risk of anti-selection. He pointed out that there are some published tables of reserves and nonforfeiture values available for this plan so that the company may not have to calculate them all independently.