SOCIETY OF ACTUARIES

Article from:

The Actuary

November 1968 – volume 2 - Issue 2

The Actuary

The Newsletter of the Society of Actuaries

VOLUME 2, No. 9 NOVEMBER, 1968

WASHINGTON STATE REGULATION GOVERNING REPLACEMENTS

by Stuart A. Robertson

Methods of solicitation employed by a few agents active in his state gave rise to the Washington State Insurance Commissioner's development of a regulation relating to replacement of existing life insurance policies. The regulation, which took effect Oct. 1, 1968, requires that in any case where such a replacement is proposed, the prospect be furnished a written comparison of the cost of insurance under the old policies and under those proposed as replacements. The method of making such a comparison and details of the presentation to the prospect are specified in the regulation.

Not Perfect

The form and the formula fall short of perfection. The writer and many others interested in the subject submitted criticisms when invited by the Commissioner to do so in the course of public hearings. Whatever its shortcomings, however, a comparison prepared in accordance with the regulation will represent a substantial improvement over the grossly misleading comparisons that were being used by some agents.

The formula underlying the regulation expresses the cost of insurance per unit of net amount at risk as:

$$\frac{P' + i\,({}_tCV) - ({}_tCV - {}_{t-1}CV)}{(1 - {}_tCV)}$$

This is simply an approximate adaptation of the familiar formula:

$$P + i\,(P + {}_{t-1}V) - ({}_tV - {}_{t-1}V) = q_{x+t-1}\,(1 - {}_tV)$$

The fact that the regulation is based

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ACTUARIAL EDUCATION AT UNIVERSITY OF MICHIGAN

by the Michigan Actuarial Faculty

Ever since a first course was offered in 1902 by Professor James W. Glover, there has been an actuarial program at the University of Michigan. In the 66 years, some 900 alumni have completed actuarial studies. A high proportion have served in the actuarial profession, and many have had outstanding careers. Michigan alumni comprise approximately 13% of the Fellows of the Society of Actuaries resident in the United States.

An actuarial student at Michigan may be at any stage from freshman to final doctoral year. He may enter as a freshman, as a transfer undergraduate student, or as a graduate student. At some stage, he will go through a core program of probability and statistics, finite differences, compound interest, life contingencies, actuarial theory of pensions, and mortality studies. The first three of these subjects are at an intermediate level (junior, senior, and beginning graduate), the latter three at a graduate level.

As to undergraduate programs, we advise students in the freshman and sophomore years to get a basic background in mathematics, English, and economics, and to fulfill college requirements in foreign languages, humanities and science. At the junior level, students may elect to continue in a Bachelor of Arts program with concentration in actuarial mathematics or to proceed toward a Bachelor of Business Administration degree. In either case, the student will take the intermediate level core courses, and will sit for the first three actuarial examinations.

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FEDERAL INCOME TAX EFFECT OF RESERVE INTEREST RATE UNDER PHASE 1

by John C. Fraser

Under Phase 1 of the Federal Income Tax Act of 1959, life insurance companies are taxed on the excess of their interest earnings over their reserve interest requirements. Reserve interest requirements are not based upon the reserve valuation interest rate but upon the actual interest rate earned by the company averaged over 5 years, called the "adjusted reserves rate." The company's valuation reserves are revalued at this rate and such revalued reserves are then multiplied by this adjusted rate to obtain the reserve interest requirements for tax purposes.

"10 for 1" Rule

In making this revaluation of reserves for tax purposes, companies are required to use the "10 for 1" rule. This rule says that for every 1% increase in the reserve interest rate there will be a 10% decrease in reserves. For example, if reserves are held at 3% and the adjusted reserves rate is 5%, the adjusted reserves for tax purposes are obtained by reducing the reserves held by 20%—that is, by 10 times the excess of 5% over 3%.

It is remarkable how well the "10 for 1" rule works (if you leave out of the picture reserves based on dual interest rates). This means that the level of reserves for tax purposes, and hence a company's reserve interest requirement, is virtually independent of the actual valuation interest rate used for reserves. This means that a company gets about the same reserve interest deduction on, say, 2½% policies as on 3% policies.

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Washington State Regulation

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on an approximation rather than on the exact formula is pointed out in the current issue of *The Actuary* by Douglas O. Sanders, Jr. (*see Letter, page* 6). It is obvious that if the exact formula were used, with P representing the net premium and i the valuation rate of interest, the resulting cost of insurance per dollar of net amount at risk would simply be the death rate according to the valuation table. This is not appropriate. The prospect should be concerned with the actual net outlay he makes to continue the benefit of the insurance protection, and not with the theoretical cost that would be experienced if the valuation assumptions prevailed.

What are the differences between the state's formula and the traditional one? First, the state's formula uses the gross premium reduced, in the case of a participating policy, by the dividend. Next, there is specified the use of cash values in place of terminal reserves. Finally, the regulation calls for calculating interest on the cash value fund at the end of the year rather than at the beginning.

Some Questions

For its intended purpose, the first departure from the traditional formula is proper, because the loading on the net premium clearly adds to the owner's cost of carrying the insurance, and the dividend reduces that cost. A desirable refinement would be the discounting of the dividend for one year, as it is usually payable at the end of the year.

The second change, substitution of cash values for reserves, aside from being a practical necessity, is entirely proper when it is remembered that we are to measure the owner's cost. An increase in terminal reserve does not necessarily reduce his cost; an increase in cash value does.

Referring to the third formula difference, calculation of interest on the fund at the end of the year rather than at the beginning, there is no apparent defense; but it may be noted that the resulting distortion will not usually be large.

One serious fault in the regulation is not in the formula, but in the value of i that is specified. When computing the cost of insurance protection from the standpoint of the policyowner, the interest portion ought to be a measurement of the interest that he would reasonably expect to earn on the accumulated fund if it were invested, independently of the policy, in interest-bearing securities with security of principal consistent with the cash values of his policy. Under current conditions, that rate of interest is probably somewhere in the neighborhood of 5%.

The regulation calls for use of the interest rate employed in developing cash values for a non-participating policy or 4% for a participating policy, the differential between par and non-par being explained as an estimate of "excess interest included in the annual dividend." The rate of interest that the owner could expect to earn if his accumulated fund were otherwise invested is totally unrelated to the choice of interest rate for calculating non-forfeiture values and is the same whether the policy he owns is par or non-par.

Quite independently from the question of what the policyowner could earn, a case could be made for a 5% annual rate on the grounds that it is the rate specified in most policies for policy loan interest. The use of a 5% rate in the regulation's formula produces, except for the approximations mentioned, precisely the policyowner's cost for the insurance as it would be if he were to maintain a full policy loan. This is a cost figure that has meaning to the owner, and it is arrived at without subjective considerations such as the rate of interest that an investor might reasonably earn.

Better Than Some

The regulation's formula would, however, produce a reasonably fair measure of the policyowner's cost if a suitable interest rate were employed. Even in its present form, it is far better than the formula that had been used by a few agents when attempting to replace existing business. That formula computed the cost of insurance per unit of net amount at risk as

$$\frac{P' + i\,({}_tCV)}{(1 - {}_tCV)}$$

where P' is the non-participating premium or the premium less dividend, and i is a rate apparently selected by the agent. The fact that a substantial part of the premium went to increase cash value was apparently deemed to be unimportant. Costs of several hundred dollars per $1,000 of insurance were not too unusual, and in the case of retirement income policies with cash values in excess of the face amount, at least one agent advised his clients that the cost was infinite!

Apparently the regulation, in its present form, was promulgated in the absence of other means to control this practice. It is to be hoped that it serves its purpose without creating new problems. □

University of Michigan

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The mathematics major will also take courses in linear algebra, advanced calculus, numerical analysis, computers and accounting. The business administration student will, in addition to the intermediate level core subjects, take a selection of courses in accounting, economics, insurance, investment, and law.

We encourage undergraduates to leave the more specialized actuarial courses and examinations for a graduate year. Beginning graduate students, depending on their backgrounds, may also take some of the intermediate level core subjects. The overall result is that there are usually 20 to 35 actuarial students enrolled in the intermediate courses.

Many of our students come to us with a bachelor's degree from another university. For these, and our own graduates, two master's degree programs are available. One is in the Department of Mathematics and leads to the degree of Master of Arts in actuarial mathematics. The other is offered by the Graduate School of Business Administration and provides the degree of Master of Actuarial Science. The two programs have in common the core courses, and vary in length from two to four semesters, depending upon the student's undergraduate preparation. In programs extending over more than one year, students normally have summer actuarial employment. Many of the students have passed the first four examinations by the

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