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FUNDING OF GROUP LIFE INSURANCE

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HERBERT L. FEAY:

The trustees of union welfare plans are interested in using funding methods, not only for group life and for old age retirement pensions as discussed in Mr. Trowbridge's two papers, but also for sickness insurance benefits. The sickness benefits include hospital insurance, surgical insurance, medical insurance, temporary weekly indemnity payments, and total and permanent disability retirement pensions. This need for funding is being recognized most by trustees who are responsible for both pension and welfare plans. The need is particularly evident for Funds that desire to extend welfare plan benefits to retired lives. Funds have also developed problems of increasing claim costs for active working employees that can be solved, in part at least, by proper funding.

The most desirable funding method is one that will give a constant cost for a long period of years, such as 20 to 50 years, if the experience assumptions are realized. Any method that is likely to give reducing costs is objectionable because current benefits to members are reduced. Any method producing increasing costs is also objectionable because negotiations must be made with employers for increasing contributions without any increase in benefits to members.

As indicated by the terms used in Mr. Trowbridge's papers, funding methods for group insurance and pensions can be compared to individual plans of life insurance. The method or plan does not change the value of benefits but simply determines the distribution of premiums or contributions by years in the future. The present value of the premiums must equal the present value of the benefits less the accumulated assets or reserves, regardless of whether the premiums are increasing, decreasing or level during future years. It is not necessary that this be true for every individual in a group so long as the equation holds for the entire group to be covered during the future years for the plan.

For union welfare and pension plans, the contributions, or premiums, are determined in advance by collective bargaining agreements. The contributions are stated as a specified amount for each unit of work, such as hour or week, or as a specified percentage of gross payroll. The problem of

the actuary is to select the level of benefits that can be provided, without change, by such contributions for a long period of years in the future; and the funding method to be used is determined by this requirement. This is the opposite of the problem of the actuary for the usual employer-sponsored pension plan for which the benefits are outlined in advance and the selection of a funding method is determined by how the employer wants to pay for the plan.

The funding method that best meets the conditions for union negotiated plans is a modification of the aggregate funding method as described in Mr. Trowbridge's first paper on funding methods. As indicated by Mr. Trowbridge, the aggregate method must take future new entrants into account in calculating present value of future benefits and of future contributions. The modification usually made is to limit the period of net gain for the new entrants to some period between 20 years and 50 years from the effective date of the plan. The net gain for new lives is the excess of the present value of contributions over the present value of future benefits for the new lives. After the equalization period either the benefits can be increased or the contribution rate can be reduced within a few years to the contribution rate for a new force.

This funding method is essentially equivalent to entry age normal method as used by many actuaries. The entry age normal contribution rate for the group is determined by means of average ages and durations of employment for the current force, and usually this is equivalent to basing this rate on the new entrants for recent years for the group. The excess liability at the effective date of the plan, represented by the difference between the present value of future benefits and the present value of future contributions at the entry age normal contribution rate, is funded by assuming a constant future contribution for a period of years to cover the excess. The total for the excess liability is divided by an annuity certain for the period of years selected, and the additional contribution rate per unit of work or per unit of salary is calculated on the assumption of a future labor force of constant size. If the entry age normal contribution rate for new entrants is the same as this rate for the existing force on the date the plan becomes effective, the entry age normal method will give substantially the same results as the aggregate method using similar gains for new entrants for the same period of time.

The modified aggregate method is more flexible than the entry age normal method as used in actual practice. The aggregate method is easier to adjust for changes in the labor force, such as a group which is either increasing or decreasing in size. With the aggregate method, allowances can be made without difficulty for new entrants who are former

workers re-employed with credit for prior service. If new entrants have a different entry age normal contribution rate than the existing force, the modified aggregate method gives a more accurate measure of future costs. If allowances for future changes in mortality are desired, the necessary revisions in calculations are usually easier to make with the modified aggregate method.

The valuation procedure for the Railroad Retirement System, as described in the paper of Mr. A. M. Niessen, is an example of the aggregate funding method for union pension funds. The main difference is that Mr. Niessen used the gains for all new entrants of the future whereas the gains for new lives are limited to a period of between 20 and 50 years from the effective date of the plan for most union negotiated plans.

A welfare fund that is considering the extension of self-insured hospital insurance benefits to retired lives has asked for estimates for funding such benefits. The accompanying table gives the ratios used in determin-

HOSPITAL INSURANCE—MALE EMPLOYEES
COMPARATIVE FACTORS FOR HOSPITAL COSTS

Age Group	Cost Factor
Under 45	1.0
45 to 59, inclusive	2.0
60 to 64, inclusive	2.5
65 to 69, inclusive	3.0
70 to 74, inclusive	4.0
75 to 79, inclusive	6.0
80 and over	8.0

ing the costs for attained age groups for male employees. These ratios are based primarily on figures included in the May 1955 issue of the *Statistical Bulletin* of the Metropolitan Life Insurance Company.

The ratios in the table were used to secure one year term costs for hospital insurance on the assumption that the premium rate for Blue Cross coverage for a similar group was the average of the one year term premium costs for ages 64 and below. The hospital benefits provided by the Fund requesting the calculations are equivalent to Blue Cross coverage.

The primary concern was the additional cost for providing benefits to retired lives. For this particular case, the cost of the hospital benefits for the lives after retirement was approximately 5 percent of the cost of the pension benefits.

Mr. Stanley W. Gingery's paper on Group Hospital Expense insurance contains some figures for claims by attained age groups; but, unfortunate-

ly, he does not include exposures for the attained age groups, so that his figures cannot be used to determine comparative costs by attained age. His figures show that the average duration of claims increases with age and he indicates that this is also true for claim frequencies for other experiences.

It is unfortunate that, despite the large amount of information available to it, the Society's Committee on Group Mortality and Morbidity has not been able to publish figures on claim frequencies, durations and average costs by attained age. Such information is needed for proper funding of all of the types of sickness insurance investigated by the Committee.

The situation has some similarities to that for accidental death insurance prior to 1938 when some papers on accidental death insurance valuations appeared in print. Prior to that year, age was not recognized as a factor in the determination of reserves for this type of insurance.

Trustees of union welfare plans desire more information on costs of benefits, and preparations are being made for investigations of the experience that has been accumulated for these funds. Possibly, cooperation between the Society's Committee and the plans will be to their mutual advantage.

Under current conditions, a welfare fund is usually advised to buy benefits on a one year term plan that will use all of the contributions on a one year term cost basis during the first year of the insurance contract. No allowance is made for possible increase in future costs. In fact, the persons drafting the plans are not prepared to make an allowance for such increases in cost. The increases in cost, after the first few years, have created problems for some funds; and the development of reliable statistics for use in funding sickness insurance will be of help in avoiding the difficulties.

In addition to proper cost figures for use in funding sickness insurance on some level premium basis, information is also needed on the proper amounts of contingency funds that should be accumulated. The contingency funds are needed to cover probable accidental variations in the experience from year to year. This is not primarily a funding problem, although reserves accumulated under a funding method can be available to cover accidental variations, just as the pension fund reserves are available for such fluctuations in the deaths of active lives and retired lives from year to year.

B. RUSSELL THOMAS:

Mr. Trowbridge has done an excellent job of developing and presenting the actuarial aspects of various methods of funding group life insurance

benefits, but unfortunately he has not given us a solution to the tax problems involved in the advance funding of postretirement group insurance benefits.

As he points out, the traditional method of funding group life insurance benefits is the yearly renewable term basis. This method is appropriate where coverage terminates at retirement, but unfortunately the employer who is paying the cost of insurance, or at least a substantial portion of it, is not always in a position to say that coverage shall terminate at retirement.

Over a period of the past 20 or 30 years many group life insurance plans were placed in force without adequate consideration being given to the implications of continuing insurance after retirement. Many such plans provided for continuation of the full amount of life insurance after retirement. Years after installation of plan the employer may discover that such a practice will ultimately add 100% to 200% or more to the cost of group insurance for active employees only. The employer, upon making this discovery, must face the problem of whether it is feasible to discontinue or modify the practice of continuing group insurance on retired employees. If not, the employer may be interested in advance funding in order to level out the future costs.

In recent years many of the insurance companies have made a greater issue of the ultimate costs of continuing insurance on retired employees. The result has been that many plans now provide for substantial reductions in amounts of group life insurance at or after retirement. Typically, the amount is reduced at retirement date or over a period of 5 years thereafter to 25% to 50% of the amount of insurance prior to retirement. With such a decrease in amount the problem of financing postretirement benefits is reduced but not eliminated.

In the situations described above it is assumed the employer is free to decide what benefits will be provided after retirement. With increased union activity in the area of welfare benefits the employer is frequently committed to a program of continuing insurance as a result of collective bargaining. Under such circumstances it is important that the cost of the program including the cost of postretirement benefits be known to the employer, and it would be highly desirable to fund such benefits in advance.

There is an increasing desire on the part of employers to find satisfactory methods of advance funding, not only because of postretirement benefits required by collective bargaining but also because of voluntary continuation programs. A satisfactory method would be one under which the employer obtains a deduction in full for reasonable contributions for

advance funding, without the employee being subject to income tax. The requirement that the employee not be subject to tax is important in two respects; first, if an amount such as the single premium for the amount of insurance continued in force is subject to tax in one year, the amount of additional tax will make the plan unattractive to the employees; second, if relatively small amounts for each employee are subject to tax year after year, the additional administrative detail involved in determining and reporting these amounts will tend to make the plan unattractive to the employer.

It seems quite clear that the tax problems of both the employer and the employee are solved under certain negotiated welfare plans. Where a trust fund is established and the employer agrees to contribute a specified number of cents per hour to the trust fund, with the level of benefits to be established by the trustees, such benefits may be established at a level such that there is a margin to provide the cost of postretirement benefits. The employer is entitled to deduct the full amount of his contributions to the trust fund even though a portion of such contributions may be held in the trust fund for ultimate application to the cost of benefits after retirement.

Since an employer may obtain a deduction for advance funding under a negotiated welfare plan of this type, it seems logical that a similar deduction should be permitted under a plan voluntarily established by the employer, provided adequate limits on the amount of his deduction are imposed. The rules applicable to qualification of the plan and the amount of the employer's deduction could be similar to those for qualified pension plans.

W. RULON WILLIAMSON:

Mr. Trowbridge's former paper on Pension Funding is now supplemented by another on Group Life Funding.

About ten years ago Mr. Shudde and I started a somewhat similar analysis. We used one year term, term to age 65, ordinary life, life with premiums payable to 65 and life annuity at 65. We used a stationary life table—the U.S. Life 1939–1941—some plausible gross rates, and against the age distribution of the stationary table indicating some maturity, we matched the 1950 population, the coverage of OASI, the "fully insured" group in OASI. But instead of either a uniform amount of life protection, or units of additional paid-up, we had the sequence in operation which is now graphed out in *Actuarial Study No. 37*, page 3, where life insurance rises to $19,000 at age 30, falls off to $2,200 at age 48, and then goes up to $6,500 at age 70—we had that sort of situation

to be "skeleton at the feast." Life insurance on a one year term basis is mighty cheap at age 30, quite reasonable at 48, and rather expensive at 70. Mr. Trowbridge's rise in cost to more than triple values in his one year term, and the falling quality in ordinary life was duly noted by us. Bequeathing costs that rise for decades to an innocent posterity didn't much appeal to us. I have more on this matter in my written discussion of Mr. Myers' paper.

Mr. Trowbridge's practical discussion of the effect of the Progressive Income Tax ought to make him a sympathetic reader right now of Frank Chodorov's slender volume on the Income Tax as the root of all evil. He may also have read the *Wall Street Journal*'s Budget Case: the millionaire whose property was worth $85,000,000, whose gross income was $1,500,000, and whose net income was $300,000—gross return of less than 2%, net return less than ½%. Ludwig von Mises constantly recurs to the inability of the planned economy to make economic calculation. There *are* favorable factors about grafting investment items upon life insurance contracts in connection with that income tax. Things are not as favorable as they were. But I think the Lasser guides with their 500 ways to save on the income tax suggest the wisdom of sound actuarial training for conservation of what income a man seems to have.

(AUTHOR'S REVIEW OF DISCUSSION)

CHARLES L. TROWBRIDGE:

In many ways this paper is little more than an extension of my 1952 paper to the funding of group life insurance after retirement. I wish to thank Mr. Thomas, Mr. Feay, and Mr. Williamson for their interest in it.

Mr. Thomas seems to be disappointed that the paper presents no overall solution to the tax problem. Chances are he expected to be let down on this score, for it seems clear that any general solution can arise only from governmental sources. His standards for a satisfactory solution are that the employer obtain deduction in full for reasonable advance funding, without subjecting the employee to income tax.

Mr. Thomas feels that there is such a solution for the special situation of the negotiated welfare plan. The idea behind this solution is not greatly different from that expressed in the next to the last paragraph of the paper, although the funding might well be less formal than the paper implies. The question of nondeductibility of employer contributions probably is avoided if the employer is bound by the union agreement to

make specified contributions. The hope expressed in Mr. Thomas' last paragraph, that similar treatment can be afforded nonnegotiated plans, seems to the author to be wishful thinking. There may be a day when favorable tax treatment is given to "qualified" advance funded plans—but it certainly isn't clear that such day has yet arrived.

There is another special situation where the tax position may be somewhat more favorable than the paper indicates. If insurance after retirement can be made an integral part of a qualified pension program, tax difficulties may disappear. The 10 year certain feature is an example of the type of death benefit after retirement which has been regularly approved as a benefit incidental to a qualified pension plan, and hence eligible for pension treatment.

The author would have been disappointed if the paper had not been the starting place for at least a few remarks from Mr. Williamson. He is not surprised, however, to find that Mr. Williamson's remarks do not seem to lend themselves to appropriate reply.

Mr. Feay quite rightly points out that the methods of funding a group life benefit can be extended to the similar problem of group accident and sickness benefits. The problems are similar because the one year term cost for both benefits increases rather rapidly with increasing age, especially after age 65. The group life benefit is perhaps more tractable because better statistics are available; but otherwise the available techniques are similar.

Part of Mr. Feay's discussion seems to be more closely related to my 1952 paper than to the 1955. He seems to prefer a modified aggregate funding, with new entrants for some period such as 20–50 years taken into account. In the 1952 paper it was pointed out that aggregate funding is in general a special case of entry age normal. Demonstration I of that paper makes it clear that, for a mature situation and for a constant age at entry, aggregate funding, with unlimited future new entrants, is identical to entry age normal with interest only being contributed toward the accrued liability. This is the situation that really satisfies Mr. Feay's condition that the funding method produce a constant cost over a long period of years if the actuarial assumptions are realized.

By limiting the period over which new entrants are considered, Mr. Feay's method seems to come pretty close to entry age normal, with a long, but finite, period for the amortization of the accrued liability. His method may have advantages over entry age normal, but the latter has definite advantages too. In particular, it requires no assumption as to age and numbers of future new entrants.