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INTEREST RATES AND SALARY SCALES IN PENSION VALUATIONS

by Barnet N. Berin

In these days of uncertain economic conditions, it seems unusual to find the actuary—at least some actuaries—brave enough to attempt to forecast a rate of future inflation and then to introduce this rate as a specific actuarial assumption. It seems even more startling in light of the experience of the past in which some actuaries, on the eve of the great depression of 1929, were optimistically forecasting favorable investment performance for many years to come. Some of these forecasts can still be read in the published actuarial literature of 1929 et. seq. (The Society's library —see details in the Year Book—is a good source for such readings).

In a profession as independent as ours, it may be necessary to sometimes ignore the lessons of the past, and occasionally to suffer the consequences of not learning those particular lessons. But is it wise to ignore current developments which suggest that certain predictions may not be reliable, even when made by experts in the field?

The New York Times of February 16, 1975, reported on a meeting of economists in New York City at which it was indicated emphatically that there was little or no agreement about future economic conditions in this country. One quote: "I don't know why anybody listens to economists anymore." Further, the same issue referred to an article from *The Morgan Guaranty Survey* of January, 1975 in which the author, after reviewing the record, suggested that economic forecasts as a guide to the behavior of prices were about as reliable as tossing a coin on the *"heads* up, *tails* down" principle. The article indicated that there have been substantial failures,

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CANADIAN INSTITUTE OF ACTUARIES

I would like to extend an open invitation to Members of the Society of Actuaries to attend the Canadian Institute of Actuaries 1975 Annual Meeting in Winnipeg June 12 and 13 at the Winnipeg Inn.

The program will present topics of interest to both life company and consulting actuaries, with a special emphasis on consumerism. The special feature of the extra-curricular activities planned will be a reception, dinner, and cruise aboard a paddle-wheel steamer.

For further information write to Mrs. Elizabeth Nichols, Executive Secretary, Canadian Institute of Actuaries, 116 Albert Street, Suite 506, Ottawa, Ontario KIP 5G3.

R. B. Leckie,
President-Elect
Canadian Institute of Actuaries

Actuarial Meetings

May 1, Actuarial Club of Indianapolis

May 8, Baltimore Actuaries Club

May 29, Joint Meeting Boston and Hartford Actuaries Clubs—Pleasant Valley Country Club, Sutton, Mass.

June 12, Baltimore Actuaries Club

June 12/13, Southeastern Actuaries Club

June 19-20, Middle Atlantic Actuarial Club

ERISA

Copies of the Special Edition of *The Actuary* reviewing the Employees Retirement Income Security Act may be obtained free from the Chicago office while the supply lasts.

THE ACTUARIAL ECONOMISTS

Robert S. Kaplan and Roman L. Weil, *An Actuarial Audit of the Social Security System*; U.S. Department of the Treasury, September 1974, p. 144.

by Robert J. Myers

The report, "An Actuarial Audit of the Social Security System", was commissioned by the Treasury Department in September 1973, and was completed a year later. Professor Kaplan is a professor of Industrial Administration at Carnegie-Mellon University and has a background in accounting and operations research. Professor Weil is a professor of Industrial Management at Georgia Institute of Technology and has a background in economics and mathematics.

Usually, such reports commissioned by government agencies are not publicly released, but a draft copy was obtained by the press after it had been submitted for information purposes to the Advisory Council on Social Security. At the time this report became available to the public, the subject of Social Security financing was at a peak of discussion because of the release of the 1974 Trustees Report, which showed the long-range financing problem that exists currently. Although this problem is a very serious and significant one, it has been greatly overemphasized in the public press, and material from the Kaplan-Weil Report only added to the general misunderstanding that prevailed.

The Kaplan-Weil Report is an excellent example of the problems that government actuaries have in their relations with economists, who seem to feel perfectly qualified to do actuarial work even though they have had no education or experience in this field. It is amazing — and, dismaying — that the Treasury Department should commission an actuarial report from persons who are by no means qualified actuaries.

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Committee on Ways and Means

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over $1,000 for nearly half and over $10,000 for nearly 20%."

This review, lengthy as it is, covers only the highlights of the 447-page staff report on DI (disability insurance under the OASDI system). The report, available from the Superintendent of Documents, Washington, D.C., 20402, at a cost of $4.25, should be studied by everyone truly interested in disability and rehabilitation. The universal coverage now provided by the combined program, DI and SSI, and the administration of these programs, will exert an increasing influence and impact on private disability insurance, even on policies containing Social Security offset provisions. The insurance business cannot be unaffected by the laws and rulings under which entitlement to DI and SSI benefits are determined and by the administrative and judicial policies governing the applications thereof. Not only for the information relating to disability and rehabilitation in the United States but for the insight into the operation of a huge government program and the respective parts played by the executive, legislative, and judicial branches, the report is an important and useful document.

The writer is greatly indebted to Francisco Bayo, Deputy Chief Actuary of the Social Security Administration, for reviewing the manuscript, correcting some errors, and offering a number of helpful suggestions and to Robert J. Myers for additional information about some of the Acts referred to. □

Interest Rates and Salary Scales

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in the past two years, in predicting changes in the rate of inflation.

Can actuaries do better than economists in forecasting a future rate of inflation?

For those who are about to investigate this question, it is well to review the relationships between interest rates and salary scales in pension valuations, since it appears that the rate of inflation is to be added to each of these rates. It is necessary to examine these relationships because much of the descriptions of the recent past have not been accurate.

It is tiresome to be told that only the *difference* between the assumed valuation interest rate and the salary scale rate is of importance. This bit of actuarial flimflam, based on a stability that does not exist, is of course untrue. Let's investigate this.

For ease of communication, consider $x\%/y\%$ to mean an assumed valuation interest rate of $x\%$ and a compound interest salary scale of $y\%$. (I believe "s" shaped salary scales are better, but this is not important.

The relationships can be summarized as follows:

(1) If the assumed valuation interest rate is equal to the assumed rate of salary increase, costs decrease as the choice of the basic rate increases. (Example: Costs decrease steadily as you move upward from 5%/5% to 8%/8%.) There is no stability in a zero difference.

(2) A simultaneous addition to the interest rate and to the salary scale, of the same percentage, lowers costs. (Example: Costs decrease steadily as you move upward from 5%/2% to 8%/5%, in equal unit jumps, to a total increase of 3% in both rates). There is no stability in a non-zero difference.

Both (1) and (2) illustrate the fact that a change in the interest rate is far more important than the same change in the salary scale rate and that there is no stability in $(x-y)\%$. With interest rates uncertain, common stock prices depressed, salary increases little to none in certain major industries, it is possible to add inflation as an actuarial assumption and lower costs appreciably—assuming that the addition for inflation is not done with great care.

Anyone about to consider this problem further should read Paul Jackson's paper presented at the Conference of Actuaries in Public Practice, in October 1974: "Inflation, Interest Rates and Salary Increases."

Personally, I question the wisdom of introducing a rate of inflation just as I would question the similar introduction of a rate of recession by lowering *both* the assumed interest rate and the salary scale rate.

I feel that the individual actuary should decide for himself how he wishes to proceed, have an appropriate informative discussion with his client and then test the emerging experience, each year, by means of the gain-and-loss analysis. I do feel that some recognition of economic conditions is justified in some of the actuarial assumptions but that a constant percentage added to the interest rate and to the salary scale is an inappropriate solution to a difficult problem. □

MINORITY RECRUITMENT

by James C. Harrison

The purpose of this article is twofold: first, to report briefly on the progress of the Minority Recruitment program for 1974, and secondly, to ask individual members and actuarial clubs to continue their financial support of the program.

In 1974 scholarships were awarded to two students — Miss Araba Quansah and Mr. Kwasi Osei—who are presently pursuing degrees in actuarial science at the University of Michigan. Both recipients are considered to be well-qualified, having completed several of the early examinations, and they were highly recommended by Professor Cecil J. Nesbitt. Scholarships will be available again in 1975 to a limited number of students who are pursuing or wish to pursue an actuarial program at any of the schools offering courses in actuarial science.

The results of the 1974 Summer Institute students were the most successful to date. Of the 14 students who sat for the exams in November, 5 passed Part 1 (one student passed Parts 1 and 2) and 7 received grades of 4 or 5. This success can be attributed in part to changes adopted last year, which led to more aggressive recruiting, and to pre-screening and pre-enrollment requirements. A Summer Institute at Lincoln University will be held again this year to assist minority students in preparing for Part 1 of the actuarial examinations.

The Minority Recruitment program is supported primarily by contributions received from employers of Society members. Personal contributions from individual members and actuarial clubs are desired as well. For those who wish to contribute, please make your check payable to Society of Actuaries—Minority Recruitment Program, and forward to James C. Harrison, North Carolina Mutual Life Insurance Co., Mutual Plaza, Durham, N. C. 27701.