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AN EXERCISE IN OAS FUNDING THEORY

by David S. Williams

Actuarial tradition has it that the preferred way to finance private pension plans is by full funding. This principle can be extended to national pensions (OAS), in that full funding ought ultimately to lower the contribution rate. Wouldn't this apply even if the population remains stationary? Well, not necessarily!

Consider the classic pay-as-you-go national pension plan, under which total contributions equal total benefit payments in year n, i.e., $c_n.e_n.W_n = p_n.R_n$, where

- c_n = contribution rate (for worker and employer combined),
- e_n = average applicable earnings of the W_n participating workers,
- p_n = average yearly pension paid to the R_n eligible pensioners.

The population is deemed stationary if $c_n.W_n = k.R_n$, i.e. if $p_n = k.e_n$.

Now the stage is set for comparing unfunded OAS with fully funded OAS.

Under the fully funded plan, the contribution for the average worker in year 1 would be $k.e_1$. This in a year's time would have accumulated to $k.e_1\,(1+i_2)$, where i_2 is the rate of return on invested capital during year 2.

But under pay-as-you-go, these funds would have been paid out in benefits in the same year, and would be replaced by $k.e_2$, the contribution in year 2 for a worker in the succeeding cohort. Pay-as-you-go financing would thus produce a larger attributed entitlement per worker in year 2 provided $e_2 > e_1(1+i_2)$, i.e., if the growth rate of average contributory earnings has exceeded the rate of return on capital.

(Continued on page 3)

MESSAGE FROM OUR PRESIDENT EDITOR'S CHAIR VACANT— ARE YOU INTERESTED?

E. J. Moorhead has decided to step aside from the editorship of this newsletter, vacating a post he has occupied since 1979. He assures me that he has thoroughly enjoyed the duties; he gives his year of birth as his sole reason.

I will be pleased to hear from any member who would like to be considered for this key position.

Serving our members since 1967, *The Actuary* is a publication through whose columns actuaries can express their views, announcements can be made, and short articles on relevant topics can be printed. Its editor enjoys a high degree of independence in both establishment of its style and determination of its content.

Our newsletter is well staffed with an editorial board and a production system which Mr. Moorhead believes will in large measure be available to his successor.

Dwight K. Bartlett, III

SETTING THE EA-1 PASS MARK, NOVEMBER 1983

by James J. Murphy and Curtis E. Huntington E&E Committee

This is the story behind an event new to the history of exam co-sponsorship—the setting of different pass marks by two sponsors of a joint examination.

The exam for which this happened was the portion of our current Part 7-P (U.S.) that is also Part EA-1 of ERISA; the exam paper was that of November

(Continued on page 3)

USING BLENDED 1980 CSO

by Robert J. Johansen

In authorizing blended 1980 CSO tables to compute minimum nonforfeiture values under Norris-affected policies at its September and December 1983 meetings, the National Association of Insurance Commissioners noted that no change was being made with respect to using separate male and female tables for minimum valuation reserves. The import of this isn't obvious, although some commentary on this point was in the Exposure Draft Committee Report. The purpose of this note is to call attention to how blended cash values relate to reserves.

If the same mortality table is used to compute cash values and reserves, the reserves will cover the cash values. The Exposure Draft, referring to the reserves and cash values illustrated in Appendix F, noted that cash values on a blended table could exceed CRVM reserves on the female table. It is likely though that if the particular blended table closely approximated the percentages of male and female lives, the total reserves would in the aggregate cover the total cash values.

New York's proposed Regulation 112 (11 NYC RR 47) permits using blended tables for both nonforfeiture values and reserves. On the other hand, the Texas State Board of Insurance seems to be proposing that the sex-distinct tables must be used for valuation and that, if a blended cash value exceeds the sex-distinct reserve, then the cash value must be used as the reserve. This requirement would affect policies issued on female lives. Several other states may also adopt this rule.

If the percentages of male and female lives assumed in the blended tables fairly

(Continued on page 3)

Setting the EA-1 Pass Mark

(Continued from page 1)

1983. This is jointly sponsored and jointly administered by the Society of Actuaries (SoA), the American Society of Pension Actuaries (ASPA), and the Joint Board for the Enrollment of Actuaries (JBEA) under a *Memorandum of Understanding*. This Memorandum contemplates that each sponsor will independently establish a tentative pass mark, that the sponsors will maintain close communication, and that arriving at a common pass mark is the desirable but not the necessary outcome.

How The System Operates

The Joint Board consists of 5 members —3 from the Department of the Treasury, 2 from the Department of Labor —and an Executive Director; recently those 5 have been 3 actuaries and 2 lawyers. And the Joint Board impanels an Advisory Committee of 9 pension actuaries; 2 of these are from ASPA, 2 are from SoA, and 5, chosen by the Joint Board, represent the general public.

To enable this hierarchy to work with the E & E representatives, the *Memorandum* must and does establish specific steps, thus:

> First, there's a meeting of the Joint Board and its Advisory Committee at which ASPA and SoA representatives present their evaluations of the exam results but do not recommend a pass mark.
>
> Next, the Advisory Committee meets and recommends a pass mark to JBEA, ASPA, and SoA.
>
> If either ASPA or SoA doesn't accept that recommendation, it makes its own recommendation to JBEA (with reasons).
>
> JBEA then independently considers all these recommendations, decides upon its pass mark, and notifies ASPA and SoA.
>
> ASPA and SoA then set their own pass marks and communicate them to JBEA.

(If by now even a tranquil reader wonders why SoA is a co-sponsor, it's because we wish our students to be tested on both the philosophy of pensions and their laws and regulations.)

The November 1983 Exam

Previously, the above procedure had always resulted in agreement on a single pass mark. Efforts were made to accomplish this again; discussions continued in Washington for several days during which various compromises were offered. But, perhaps because one examining body is concerned with a licensing function and the others with consistency throughout a whole series of exams leading to a professional designation, a common pass mark proved unachievable this time. The outcome was that the Joint Board (and ASPA which accepted its decision) gave passing grades to 162 candidates (26.8% of them) while we passed 210 candidates (34.8%), 48 of whom were failed by the Joint Board.

Our representatives believe that achieving a single pass mark in this instance would not have been fair to our candidates. Furthermore, it would have caused too few of our students to enter the imminent transition period with partial credits which they had earned. In the transition, credit for old EA-1 gives credit for only the new Parts 4A and 4B so there is still Part 4C on advanced contingencies, using the new *Actuarial Mathematics* textbook, by which to test our candidates adequately.

The late publication of exam results last January was an unfortunate but necessary price to pay for accomplishing the best result possible for our students.

The Next Advisory Committee

Nominations for the next Advisory Committee will very soon be solicited. Perhaps this account will stimulate some readers to volunteer for service thereon. Any member interested in being nominated as a SoA representative, please tell E & E General Chairman James J. Murphy at his Yearbook location. Any who would like to become a public member can find the procedure in the Federal Register or in some pension publications. ☐

CLUB'S STUDENT ENCOURAGEMENT PROJECT

Adirondack Actuaries Club is helping the cause of actuarial recruiting with a $500 award to the college student in their area who shows the most promise for an actuarial career. The Club has just announced this year's winner—Michael L. Barsky, a senior at State University of New York at Binghamton, selected for an outstanding academic record and for having passed our Parts 1 and 2. ☐

CALVERT SUMMARY OF WALFORD'S "MAXIMUM LIFE SPAN"

Describing its message (accurately, we agree) as having earth-shaking impact on the outlook for social security systems, pensions, annuities, careers, education, and the way actuaries estimate long-range costs, Geoffrey N. Calvert has issued a 25-page digest of "Maximum Life Span" written by Roy L. Walford, M.D. and published by W. W. Norton & Co. Our Society office is making single copies of the Calvert summary available free upon phone request to the receptionist at (312) 773-3010. ☐

OAS Funding Theory

(Continued from page 1)

If this relationship continues through the years, pay-as-you-go financing would enable benefits to be higher than under full funding, or the contribution rate to be lower, or a bit of both.

If the population were nearly stationary, could the growth of real earnings exceed the real rate of return on capital? And if so, would an unfunded OAS plan generate higher benefits than a fully unfunded plan? What then would be the long-term effect on the nation's economy?

Readers, whether experts or just dabblers in economics, are invited to enlighten the rest of us on these questions. ☐

Using Blended 1980 CSO

(Continued from page 1)

closely approximate actual percentages, the use of blended tables for nonforfeiture values would result in increased reserves under the Texas method but not under the New York method.

Comments are most welcome. Please send copies to Ted Becker (Texas) and John O. Montgomery (California), and to Mark Doherty at the Society Office. A copy of the Exposure Draft may be obtained from the Society. ☐