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ESTIMATING SOCIAL SECURITY BENEFITS IN AN ACTUARIAL VALUATION

by Lawrence N. Bader

Valuing pension or long-term disability plans with Social Security offsets generally requires some assumptions about the future course of the wage base and benefit formula. The usual approach is to select annual percentage increases for these two variables which relate reasonably well to the valuation salary scale, and then to project Social Security on that basis. Since costs can be very sensitive to the Social Security projection and recent history offers little guidance, how can the actuary and plan sponsor be comfortable with a particular choice of parameters?

A useful test is based on the concept of replacement ratios. Consider employees earning, say $7,000, $11,000 and $15,300 and retiring in 1976 at age 65. Their primary Social Security benefits will replace about 51%, 40% and 30% of their pay at retirement. Now suppose instead that the employees are 30 years old and earning the same amounts. Under the proposed assumptions, what percentages of their pay at retirement will be replaced by Social Security?

If the second set of percentages is much lower than the first, the actuary is assuming that Social Security benefits will play a decreasing role in meeting retirees' needs in the future. If the second set is much higher, he is assuming that Social Security's role will continue to increase. If the second set is about the same, the actuary is effectively assuming stable replacement ratios for Social Security.

Analyzing the Social Security assump-

(Continued on page 8)

DISABILITY INCOME

Disability Income Insurance—Cost Differentials Between Men and Women, New York Insurance Department, June, 1976, pp. 59.

by Gary N. See

Due to charges by various groups of discrimination in the underwriting and establishing of premium rates for individual disability income insurance, the results of this study have been eagerly awaited by many segments of the insurance industry. Fears of substantiating uni-sex rates were unfounded as the results of the study generally conformed to those of the Society of Actuaries which the industry has relied on to a great extent in the past.

The study was initiated as a result of a suit filed by the New York Civil Liberties Union. The Department committed itself to an extensive review of available data to determine whether sex is a statistically valid characteristic of the disability income insurance risk. Twenty-one companies submitted experience, including 57,541 female claims, over the years 1968-1973, inclusive.

Concluding that sex is a major factor affecting the cost of disability income insurance, the New York Department provided overall statistics showing significantly different morbidity patterns. While the pattern was different for accident-only coverage, no variation was found in the age-specific ratios with changes in elimination periods, renewal guarantees, benefit years, and no evidence was found of a shift during the years studied. Although there was some variation by occupational class, the basic pattern was very similar.

Comparisons are made in the booklet to other studies as published by the Society of Actuaries producing similar results. However, the most interesting and

(Continued on page 8)

OPTING OUT

Editor's Note: Currently there is considerable comment on the desirability of public employee groups withdrawing from the Social Security system. We are indebted to William M. Mercer, Inc. for permission to use their December 1976 Bulletin as a basis for this article. We are also indebted to Mr. A. Haeworth Robertson, Chief Actuary for the Social Security Administration, for his comments.

State and local government employees participating in Social Security number about eight million and represent slightly under 10% of the total group covered by Social Security. More of these groups are coming into the system than are leaving, but some are leaving and the numbers are growing.

It is estimated that about 70% of state and local employees are covered by Social Security. Public employee groups have the option to withdraw from the Social Security system after seven years of coverage, provided notice has been given to the Social Security Administration two years in advance. The notice can be cancelled in the two-year period.

Opting Out

The two most prominent public groups that have given notice of withdrawal from the Social Security system are the State of Alaska, with 13,000 employees, and the City of New York, with 300,000 employees. But, contrary to reports, Alaska is not out yet, and New York City has cancelled the notice. The majority of those who have actually opted out, or served notice, represent small political units in California, Louisiana and Texas. Here are some of the reasons set forth by public employee groups to justify withdrawal:

(Continued on page 7)

Social Security Benefits

(*Continued from page* 1)

tions in this framework offers grounds for adjusting or defending the assumptions:

(1) Declining replacement ratios. This assumption may seem difficult to defend, other than for the margin of conservatism which might be appropriate in relation to other assumptions. However, the recommendations of the Hsiao panel, discussed by Trowbridge in the November *Actuary,* could easily lead to declining ratios. Further, declining ratios have been legislated in the 1974 Railroad Retirement Act so the actuarial considerations for plans coordinated with RRA are quite different.

(2) Rising replacement ratios. This assumption can, of course, be defended by a review of the past decade and a plausible economic projection under the current law, given the flawed operation of the indexing formula.

(3) Stable replacement ratios. Stability is unlikely to be experienced under the current law, but amendment of the Social Security Act to enforce stability is seen by many actuaries and others as an indispensable reform of the system (e.g., the Ford administration decoupling proposal, HR 14430).

(4) Eventual stabilization, following a short term rise. The reasoning is the same as for immediate stabilization, with the added recognition that Congressional response to the will of the actuarial profession is sometimes less urgent than one might imagine.

Whichever of these trends the actuary favors can be achieved by appropriate selection and testing of the wage base and benefit increase parameters. If the actuary decides on stable ratios, the economic parameters required to produce them may not appear plausible;[1] he may feel that stability will result from legislation rather than the realization of particular economic assumptions. In this case, he may prefer to bypass the use of parameters and simply declare the Social Security assumption to be that replacement ratios remain constant. This has the added virtue of being a relatively simply calculation: just assume the employee is already age 65, calculate his Social Security benefit as a percentage of current pay, and then apply that percentage to projected final pay. The following example may be helpful.

Suppose you are calculating the Social Security benefit of a 30-year-old employee earning $11,000. Calculate his Social Security as if he is 65 instead of 30 and is retiring in 1976, earning $11,000. Under these conditions the Social Security would be $4,417 (estimating prior salaries with a 4% scale) or 40% of his $11,000 pay at retirement. The assumption is that Social Security will pay the same 40% of his pay at 65 when he does retire 35 years in the future. Using the 4% scale, his pay at 65 would be $43,400 and therefore his projected Social Security benefit is 40% of $43,400, or $17,360.

In valuing retirement for disability or at ages other than 65, the actuary should substitute the assumed age at retirement and, if applicable, a disability benefit calculation, in the above procedure.

The same type of calculation can be readily adapted to an assumption of replacement ratios which change through the years in a well-defined pattern. □

[1] e.g., Robert J. Myers' *The Case for Indexing of Social Security Benefits for Changes in Wage Levels* states that ultimate stabilization of the replacement ratios requires the Consumer Price Index to move up at only half the rate at which earnings increase. In light of the salary scales generally used in pension valuations, most people would regard this as a very optimistic view of future inflation.

Social Security Notes

Orlo R. Nichols and Steven F. McKay, *Social Security Benefits after the June 1976 Automatic Benefit Increase,* Actuarial Note No. 89, Social Security Administration, Baltimore, Md., July 1976, pp. 19.

This note shows the social security benefit amounts payable to most individuals and family groups after the 6.4% automatic increase that became effective for June 1976. Approximate formulas are given for the primary benefits and for the family maximum benefits. The maximum benefits payable for workers retiring at 65 in all years from 1940 to the present are also shown. A brief description of the operation of the automatic adjustment provisions is included.

Free copies of this note may be obtained from the Office of the Actuary, Social Security Administration, Suite 700, Altmeyer Bldg., 6401 Security Blvd., Baltimore, Md. 21235.

Disability Income

(*Continued from page* 1)

extensive discussion concerns Social Security disability income experience because this is often used to show that women should not be charged higher premiums than for men. Analysis of unpublished data furnished by the Office of the Actuary of the Social Security Administration indicated a similar pattern to that obtained by the Department in its own study but the differences were not as pronounced. This was due to the universal nature of social security coverage and that social security disability experience is not distinguished by occupation. The Department performed a special study of 1972 applicants for disability benefits which showed the effect of a far larger proportion of men engaged in hazardous occupations which served to bring male claim costs up relative to female claim costs. In other words, an analysis of the exposure indicated more men than women work at hazardous jobs and that most women working in hazardous industries hold non-hazardous jobs the Department concluded that the Social Security data would be consistent with insurance industry experience if homogeneous occupational groupings were used.

This well written report merits the attention of every actuary because the question of alleged sex discrimination is not restricted to disability income insurance and the insurance industry practices are being challenged on all sides.

The New York Insurance Department and the contributing companies are to be complimented on producing a study substituting facts for allegations. The conclusions are of paramount importance to the disability income business and the work of the health insurance actuary.

Copies of the study may be obtained on request from

The New York State Insurance Dept.
Bureau of Research & Statistics
2 World Trade Center
New York, N. Y. 10047 □