



SOCIETY OF ACTUARIES

Article from:

The Actuary

September 1972 – Volume 6, No. 7

Natural Reserve

(Continued from page 6)

Now the customary valuation bases either are too strong, or they are not. If we assume for the moment that they are not, then no matter what other presentation is adopted for the revenue account, additional reserves, no doubt capital reserves, must by hypothesis be set up and added to the reserves shown in the revenue account under a weaker basis so as to produce a reserve which in total is equivalent to the reserve presently set up. If additional reserves of a capital nature are set up in this way, then neither new business expansion nor dividends to shareholders or policyholders can move ahead any more rapidly than they can under a conventional presentation system, properly managed. If on the other hand, the statutory reserve basis is too strong then of course it should be weakened and some other reserve basis put in its place. This is the situation which would emerge if the sequence of events outlined in the preceding paragraph were to materialize.

The question which has to be answered therefore is simply this: are conventional valuation presentations too strong or are they not? As soon as the question is posed we must admit that we do not know the answer. We do not even know if the conventional reserve basis is strong enough, though there would I submit be almost universal agreement that it is for most contracts. If therefore we weaken our valuation bases we are moving from a framework which we are fairly confident gives us a satisfactory probability of being able to redeem our promises to pay, to a framework under which that probability is weakened to an extent which cannot be quantified. A move to the natural reserve basis in essence implies that we substitute in our valuation basis a rate of interest which is our best estimate of future experience for one which, we are fairly sure, is an underestimate of future experience, but not, for all that, inappropriately strong.

If such a change is made, there would undoubtedly be a short term gain to shareholders. For this purpose however, the weakening of the life fund seems too high a price to pay. The author realizes of course, that a change on the part of stock companies to the presentation of valuation results on a natural reserve

(Continued on page 8)

Society Examinations-Seminars

GEORGIA STATE UNIVERSITY

Seminars for Parts 5 and 7 will be held during the week of October 16-20.

Complete information can be obtained from

GEORGIA STATE UNIVERSITY

Insurance Department

33 Gilmer Street, S.E.

Atlanta, Georgia 30303

Telephone (404) 658-2725

NORTHEASTERN UNIVERSITY

A four-week seminar for Part 7 begins October 16 and ends November 9.

Five-week seminars for Parts 9E and 9I begin October 2 and end November 3.

Complete information can be obtained from

DEAN GEOFFREY CROFTS

Graduate School of Actuarial Science

Northeastern University

360 Huntington Avenue

Boston, Massachusetts 02115

Telephone (617) 437-2696

Actuarial Clubs

The Actuary is unable to publish announcements of the newly elected officers in the various clubs. Such information should be sent to the Chicago office for publication in the *Year Book*.

The Actuary is glad to publish announcements of the meetings of the clubs. Secretaries should note that notices of meetings should be in the hands of the Editor at least two months prior to the date of the meeting. *The Actuary* would like to have reports of topical discussions at club meetings. Several of these have been worthwhile contributions to the Newsletter.

Actuarial Meetings

Sept. 13, Baltimore Actuaries Club

Sept. 21, Hartford Actuaries Club

Oct. 12, Baltimore Actuaries Club

Oct. 23, American Academy of Actuaries, Annual Meeting, Bal Harbour, Florida

POPULATION DYNAMICS SYMPOSIUM

by John A. Beckman

There is a growing trend to partially describe population dynamics through new mathematical models using probability, statistics, differential equations, and other branches of mathematics. In June this year, the Mathematics Research Center of the University of Wisconsin sponsored a symposium on Population Dynamics devoted to such models. The symposium provided an opportunity for exchange of ideas among demographers, mathematicians, actuaries and sociologists. It was organized by a committee consisting of T.N.E. Greville (Chairman), Nathan Keyfitz, Louis B. Rall, Karl E. Taeuber, and Halliman Winsborough. All of the committee members are professors at the University of Wisconsin, except Mr. Keyfitz who is a professor at Harvard University.

Some of the lectures could be of real interest to actuaries and so this note will give a thumbnail sketch of several of the talks. Professor Keyfitz presented a paper on "Oscillations in a Demographic-Economic Model." One of his applications showed how better mathematical models could provide school administrators with superior facilities for future planning.

Jan Hoem, Director of the Central Bureau of Statistics of Norway, discussed stochastic process models for marriage dissolution, number of children, and human reproduction. Professor Paul Handler, University of Illinois, presented a synopsis of a way that the computer can be used to dramatically change teaching methods in demography. A student can select any country and in seconds obtain the age distribution of that country, and its population projections under existing conditions or with changed fertility rates, and mortality rates. The projected age distributions can be used to study: (1) cost of education; (2) demand for food; (3) labor force; (4) cost of social services.

The 14 papers will be published as a book by Academic Press and will appear towards the end of the year. □