



SOCIETY OF ACTUARIES

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## Research papers for Fellowship credit

by Roy Goldman

**T**he Education and Examination Research Papers Committee has awarded 30 Fellowship credits to Virginia R. Hosler for her paper, "The Application of Fuzzy Sets to Group Health Underwriting." This is the sixth paper approved for Fellowship credit under the Flexible Education Methods (FEM) program.

The abstract for this paper is as follows:

Fuzzy sets are used to model the process of selection in group health insurance. In general, fuzzy set theory is implemented to describe collections of objects whose boundaries are not precisely defined, as in the judgment of what constitutes a good risk group. First, single-plan underwriting is considered; then the work is extended to multiple-option plans.

Copies of Hosler's paper are on file in the Society library. Members interested in reading this paper can contact Donna Richardson, the staff librarian.

The committee thanks Krzysztof Ostaszewski, Brian Schott, and Jean Lemaire, who refereed this paper, and acknowledge Joseph W. Michel, who served as Hosler's supervisor and provided the committee with a review.

Students interested in the research papers program should consult Appendix 2 of the Fellowship catalog. Applications for research papers can be obtained from the Society of Actuaries' office.

Roy Goldman is Examination Chairperson of the Research Paper Committee and vice president and actuary, The Prudential Insurance Company.

## Society awards Ph.D. grants

The Society of Actuaries recently awarded \$10,000 grants to four Ph.D. candidates conducting research on actuarial science topics for the 1992-93 academic year. The new grant recipients are James Carson, University of Georgia; Shuxun Wang, University of Waterloo; and Hal W. Pedersen, Washington University, St. Louis, Missouri. Margie Rosenberg, University of Michigan, a new grant recipient in 1991-92, was awarded the grant for a second year. Grants are renewable up to three additional years.

Carson's thesis topic is on the early identification of life insurer financial distress. Wang is using linear recurrence equation theory as a basis for his thesis topic to clear up some concerns in modern risk theory, such as instability and inefficiency in numerical evaluation of insurance claim distributions. Pedersen's research involves using option pricing theory and term structure of interest rates, two areas at the core of modern financial theory.

The deadline for Ph.D. grant applications for the 1993-94 academic year is March 15, 1993. For more information, call Warren Luckner, research actuary, at the Society office, 708-706-3572.

## Meeting needs cont'd

of the historical savings share from life insurance. Considering life insurance and nonqualified deferred annuities as "personal" insurance, the industry has not significantly increased penetration of the market beyond the "3% barrier" in nearly a half century. Barring significant increases in the share of income allocated to life insurance, prospects for growth in the life insurance market appear to be tied to growth in the economy, specifically, growth in disposable income.

Some observers have written that life insurance is a mature industry, and rates of growth will be limited in the future as a result. An alternative conclusion supported by the data is that growth in the life insurance industry historically is tied to growth in disposable personal income. Regardless of what people believe about the "go-go" 1980s, the rate of growth in disposable personal income was higher in the 1970s than it was in the 1980s. The challenge of the life insurance industry is to increase the share of income directed toward our products and services. In the past, growth in personal income sustained growth in the industry. In the future, growth will result from improving the ways in which we define and meet consumer needs.

Christian DesRochers is a consulting actuary with Lautzenheiser & Associates and currently Chairperson of the Individual Life and Annuity Product Development Section Council.

## Position paper available

The Society of Actuaries' Board of Governors has charged the Annuity Valuation Table Committee with developing a recommendation for a new Group Annuity Mortality Valuation Standard.

The committee has met on an ongoing basis, studied the available data, and discussed how to complete its charge. As a result, it believes a new approach is warranted: that is, generational mortality should be explicitly incorporated in any new standard eventually adopted.

Because the decision to incorporate generational mortality is ground-breaking, especially when

compared to previous efforts, the committee produced a position paper. It is designed to explain the reasons for selecting the generational mortality approach and to encourage comments and suggestions from industry professionals about the suggested use of this approach.

The paper also briefly discusses some developmental steps being considered by the committee. They include:

- Determining the sensitivity testing approach and coverage considerations appropriate for the development of margins for the new standard

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needed beyond that, we certainly will address those needs.

Identifying the skill base that should be targeted for the finance track should not be a major problem. The skill base for a narrower investment track would be a concern, because of the small number and diverse responsibilities of actuaries now working in investments. (This difficulty was one of the main reasons the ITTF did not recommend a purely investment track.) However, many more actuaries are employed as financial officers with consistent job responsibilities. They have a more easily identified required skill base. Much of the material now on the syllabus (including some new investment electives material) addresses that skill base. Our understanding of that skill base will improve over time, but it is clear enough now to begin developing this track.

I agree with Hepokoski's opening statement — the March article and any discussion of future evolution has the potential to be incomplete or misleading. I certainly do not have a clear, precise idea of what the finance track will be in the year 2000 or even in 1995. Nevertheless, I am convinced that we can make a positive, effective start on that evolutionary process in 1992. It is the E&E Committee's intention to do so.

#### Election suggestion

I was pleasantly surprised this year when I got the first ballot for the 1992 SOA elections. Last year, we had to go through a list of hundreds of names to select nominees for Board members. This year, the list had 60 names which was a wonderful improvement, but I think you should go further still. The list was smaller this year because the criteria was more stringent (speakers were only from the past three years, not five years).

As you pointed out in the mailing, you still include members who are not willing to serve. I have a simple suggestion. When you send the short two- or three-line biography to the potential nominee for verification, include a simple check-off box asking whether the person is willing to serve as a Board member for the next three years. Excluding them will make the voting process less frustrating for the voters and more valuable for your

Election Committee. It will save you time and printing costs.

Ron Gebhardtsbauer

**Reply by Allan D. Affleck, Chairperson, Committee on Elections:** Thank you for noticing the change we made and taking the time to offer another suggestion.

In the past, the theory of the Elections Committee has been that some people who would say they were not willing to serve when asked before the first ballot might agree to let their name stand if they are among the top candidates after the first ballot. The committee thought we could recruit a better slate for the second ballot by waiting until after the first ballot results to ask whether people were willing to serve.

You are not the only person to suggest this change, so we will take it up as an issue again and discuss it at our next committee meeting. We will let you know the outcome.

#### Author changes wording

John Moyses pointed out an error in my reference to the "insolvencies" of Executive Life, Mutual Benefit, and First Capital in the June *Actuary* article, "A new era for life insurance consulting actuaries." He points out that both First Capital Life and Mutual Benefit Life have been under state supervision but have not been declared insolvent.

I apologize to the readers of *The Actuary* for confusing "state supervision" with "insolvency" in the article.

Robert D. Shapiro

#### Miss U.S.A. article criticized

I can't believe in these slightly more enlightened times, we choose to feature an event exploitive of women — beauty pageants. ("On the lighter side," May 1992 *Actuary*). As highly educated professionals working hard to attract qualified females, we should know better. Please leave the "fluff" filler-stuff to other magazines.

Stephen Archer

#### International designations should transfer

On the issue of international practice, I strongly favor negotiation of a reciprocity agreement with the other actuarial educational organizations to permit transfer of Fellowship. I would

favor a minimum experience requirement and possibly continuing education in the North American market, similar to the qualification requirements. As the world gets more tightly knit, this would be a benefit to the entire profession.

Matthew S. Easley

#### Position paper cont'd

- Producing a reasonable grading of available active life experience into retired life experience
- Making use of the available old-age experience of the Social Security Administration

Comments on these plans, which will enhance the resulting recommendation for a new standard, also are welcome.

A new group annuity mortality table will likely be used for many purposes beyond the valuation of group annuity contracts. The paper presents a few of these purposes. In its ongoing analysis, the committee will consider any comments regarding the application of the new table for any purpose.

This paper is available to anyone interested in this topic or in commenting on the committee's position. It includes a brief questionnaire that the committee encourages readers to complete and return.

Requests for a copy of this paper or any general comments for the committee to consider should be sent to Jack Luff at the Society of Actuaries. Copies already have been sent to several industry professionals.

SOA members are welcome to discuss their thoughts on this work with a member of the Annuity Valuation Table Committee. The members include Chairperson Lindsay J. Malkiewich, David B. Berg, Neil J. Broderick, John B. Gould, Edwin C. Husted, and Charles N. Vest. Their addresses and telephone numbers are listed in the 1992 *Actuarial Directory*.

#### In memoriam

W. Leslie Nicholls ASA 1938.  
FCIA 1965. FIA