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ACTUARIAL ECONOMISTS: A REPLY

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The April issue of *The Actuary* contained a lengthy "Review" by Robert J. Myers of a study we performed for the Treasury Department. Many of Mr. Myers' comments are either trivial or transparently refutable and his penchant for *ad hominem* argument does injustice to his deserved reputation as an actuary. We will concentrate on only a few points to clear up some of the larger misimpressions he appears to create.

First, we are disappointed that Mr. Myers did not exercise the professional courtesy of sending us his comments on our study in advance of its publication. He had a preliminary draft of our report in the summer of 1974 and privately circulated extensive written comments at that time. If he felt strongly that our analysis was wrong or inappropriate, he could have provided us with the benefits of his wisdom before we prepared the final report. We received a copy of his comments only indirectly and many months after they were prepared, even after our final report was submitted. We wish that Mr. Myers had had enough confidence in the cogency of his opinions to have sent them to us before publishing them.

In several places in his review, he decries the "considerable sums of money" spent in our study. To set the record straight, together we received a total of $5,000. Out of this we paid travel expenses, phone calls, computer coding and punching expenses, and similar incidentals. (Both of us have access to consulting opportunities that would have paid us more than we netted from this project.) As far as the trivial cost to the Treasury is concerned, we documented in our report that the Social Security trust funds lose $5,000 of interest income every hour and a half, because they continue to hold low-yielding flower bonds instead of current coupon bonds.

We did not undertake the project for monetary reward. Rather, we were dismayed over the Alice-in-Wonderland projections made by the Social Security Actuary's office. Those projections formed the basis of public policy decisions and had no semblance to reality, as the office has now, in effect, admitted.

Mr. Myers appears to gloat that our report was out of date by the time it was issued. If he had received the short executive summary accompanying (but an integral part of) our final report, he would have seen that we referred to the revised projections of the Actuary's Office, which were then consistent with our analysis. What is important is that at the time our study was started, and up through the time an initial draft was issued in April 1974, the Actuary's Office was continuing to use an obsolete and misleading set of figures to describe the future cost of the system. While we were gratified that the SSA actuaries updated their obsolete estimates during the course of our study, we could have no guarantee when we started that this would occur.

We note that, despite repeated jibes by Mr. Myers at our lack of credentials for performing the Social Security study, our estimates about the future costs of the system were right in line with the estimates prepared by the SSA actuaries, once they decided to use realistic assumptions. So much for the necessity to use actuaries to prepare reasonable estimates.

Mr. Myers comments on our use of a computerized model for developing cost estimates. He claims that such a model is not desirable for all the computations involved and that "too often, people . . . enamored by EDP . . . toss in all sorts of inputs without any recognition . . . as to whether the resultant output will be correct, or even reasonable."

First of all, the fact that Social Security actuaries continued to "toss in" obsolete birth rate projections for many years into their tedious manual computations shows that hand computations do not guarantee sensible input to a series of calculations. Secondly, we used our computerized model only to multiply together the large matrices developed by the Social Security actuaries in their actuarial projections. (Apart from birth rate estimates, we used the same data inputs as the Social Security actuaries). Matrix multiplication is an operation in which computers have a demonstrated advantage over hand calculations.

We were surprised to find that this simple programming task had not been implemented in the Actuary's Office as of mid-1973. As one might expect, we found that the hand calculations by the actuaries led to serious roundoff errors and occasional mistakes, such as transposing digits or computing an incorrect number. We conclude that, contrary to Mr. Myers' assertion about the dangers of EDP, the failure of the Actuary's Office to use computers for routine calculations required that much time be devoted to what should have been a mechanical or routine procedure, so that insufficient time was spent examining the data that were being used as the inputs to these calculations.

Mr. Myers claims that the Actuary's Office does revise population projections as census data become available. He does not explain why it took until mid-1974 to incorporate census data that were available in 1971. Nor does he indicate that data on birth rates, the most critical variable for forecasting the future demographic composition of the U.S. population, are available *monthly* from the "Monthly Vital Statistics Report" of the National Center for Health Statistics, a part of the same Department of HEW as Social Security Administration.

Also, these more current birth rates are promptly translated into future demographic profile by the U.S. Census Bureau and are readily available from this agency. Since the future cost estimates are so sensitive to population projections, which are a function of current and future birth rates, we thought it strange that the Actuary's Office did not make use of readily available current data in projecting the future costs of the system at the times the 1972 Amendments to the Social Security Act and a subsequent liberalization in 1973 were being considered.

If one believes Mr. Myers' claim that Congressional committees do give "careful consideration to the long-range cost estimates for the program," then we can conclude only that much of the present

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Actuarial Meetings

Oct. 8, Actuaries Club of New York

Oct. 15, Seattle Actuarial Club

Oct. 24, Middle Atlantic Actuarial Club

Nov. 20-21, Actuaries' Club of Southwest

COMPETITION No. 4

Tom Bowls

Trow Bridges (Ed Lewses)

Elizur Writes

Readers are invited to submit up to three similar suggestions for avocations of members of the profession or recognizable personalities, here or overseas. The prize is *The Game of Business* — John McDonald. (A suggestion that the prize be a year's subscription to *Playboy* was rejected).

Rules

1. All entries must be original (and printable).
2. The Editor and Competition Editor are *Ex Officio* not eligible.
3. Only one copy please, to be sent to

   Competition Editor
   The Actuary
   Mail Drop 13-2
   1740 Broadway
   New York, New York 10019

4. Entries must be mailed by September 26.
5. Competition Editor's decision is not subject to appeal.

Rule four was changed for Competition No. 3 to allow overseas readers to compete. The result was a single entry for Competition No. 2. We return to the calendar method which will put results closer to announcement.

Results of Competition No. 3

Competition No. 3 asked for birds, animals, insects or flowers to symbolize the Society or other professional groups. The entries were excellent and we are pleased to award a copy of T. H. White's *Bestiary* to the winner in each category. As we might expect, the Society was a favorite target: Steve White gave us *Adder, Five Year Tern* (*prize*) and *Annuit*ANT while Stuart Marks submitted *Gnuity* and *Poisson Ivy* (prize). Q. J. Maltby suggested the *Deathwatch Beetle* for the Mortality Committee.

Switching professions, Dr. Thomas Kimes' *Chiropodists* — *Centipede* took the bug prize, just inchworming out(ch) Steve White's ambiguous "*Bug* for official *Plant* of the CIA."

Neither did lawyers escape notice, Dr. Kimes proposing *Bar Association* — *Zebra* while Jeff Bash gave us *Malpractice Attorneys* — *Green-backed Vulture.*

Politicians were popularly unpopular being subjected to such suggestions as *Chameleon, Yak, Lame Duck, Drone, Blooming Idiot, Loon* and *Loco Weed.*

The animal prize goes to Vern Lindholm for *National Association of Investment Clubs* — *Hedgehog.* To our surprise, no entrant suggested the *Badger* for loan collectors or *Gull* for a consumers group. The AMA received two proposals: the double-entendred *Leech* and F. G. Swanson's more kindly *Dock* as the official flower, whose candidacy he supports with the following :

The American Medical Assoc
Is in need to assymbol its flock.
With its energies spent
From the winds of dissent,
It can take heart and raise high
the dock.

Totally non-qualifying but extremely clever were the entires of David Holland who foresook field and forest (almost) to give us: *Lumbermen* — $\ln$ (Lumbermen often work with natural logs); *Science Fiction Writers* — $\sqrt{-1}$ (This group deals with the imaginary in a radical and sometimes negative way); *Watchmakers* — $E(e^{tx})$ (A moment generating function might be quite handy for watchmakers). *Tailors* — χ^2 (Tailors are most concerned with goodness of fit).

Keep those cards and letters coming.

C.E.

Reading Lists

The Committee on Research has recently prepared reading lists on the following seven subjects:

- Reading List on Numerical Analysis
- Bibliography—Operations Research
- Bibliography on Theories of Mortality
- Selected Bibliography—Decision Theory
- Bibliography of Credibility Theory
- Readings in Systems Analysis
- Reading List in Risk Theory

Each reading list runs approximately four pages and contains a brief discussion of the important books and papers that the Committee on Research has picked in each subject area. Any or all of these reading lists are available to Society members free of charge by contacting Peter W. Plumley, Executive Director of the Society. □

Actuarial Economists

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deficit, resulting from the actuarially unwarranted benefit increases in 1972 and 1973, was caused by the failure of the Actuary's Office to inform Congress about the long-range cost effects of recent birth rate experience.

In concluding, we do not agree that only actuaries can properly understand and reproduce the work of other actuaries. While, in retrospect, our study might more accurately have been described as an audit of actuaries, rather than an actuarial audit, this semantic difference should not hide a fundamental point of our study. Well executed professional quality work should be able to withstand external scrutiny. A profession that is unresponsive to its customers, however, is likely to be unsuccessful in advocating an exclusive policy of self-policing and internal audits. Doctors are discovering this fact of life when they pay for their malpractice insurance these days. To avoid similar "malpractice" claims of actuaries in public policy positions, let us close by posing a question to all actuaries. We accountants and economists do not have an answer to this question although it has an important bearing on Social Security cost estimates.

How many of you are familiar with, or have approved, the procedure that the Actuary's Office is now using for projecting the dynamic cost estimates of the system?

The estimation process is complex. What guarantee do we have that it is reasonable? In matters of this importance, we think that if the actuarial community wishes to preclude criticism from non-actuaries, then it must set up its own committees to validate, or at least to expose to public scrutiny, the procedures and data inputs used by actuaries in sensitive national policy positions. Without independent checks by disinterested actuaries, it is self-serving for actuaries, such as Mr. Myers, to preclude non-actuaries from criticizing actuarial procedures and the demographic and economic assumptions used in these procedures. We note with approval that President C. L. Trowbridge has apparently come to the same conclusion and has called for such independent checks. □