

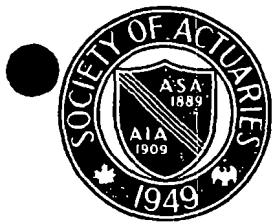


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ENERGY CRISIS

Lawrence Rocks and Richard P. Runyon, *The Energy Crisis*, Crown Publishers Inc., New York, 1972, paper \$2.95.

by Gene Held

Actuaries routinely make long-range assumptions in their daily work with regard to future interest rates and general economic conditions. The material presented in this book should make the actuary engaged in this type of work somewhat apprehensive about these assumptions.

In reading the book one develops an easy feeling of *déjà vu*, since many of the predictions discussed in it have either occurred or can be seen developing in today's headlines. Many of the authors' conclusions and predictions are unsettling, to say the least, and it would be easy to dismiss the book as one of the current genre of "doomsday" books. In reading the book, however, it becomes apparent that the authors have consistently tried to maintain a "middle of the road" approach in assessing and presenting others' estimates of world resource levels.

They begin by presenting a table of the Probable Life Span of U.S. Energy Resources, viz.,

Gas: 40 years at 1970 consumption rate, and less than 30 years at present growth rate.

Oil: 20 years at 1970 consumption rate, and less than 15 years at present growth rate.

Coal: 200-300 years if coal is used to synthesize oil and gas at present growth rate.

Uranium: 100-1,000 years after the breeder reactor is on-stream by the year 2,000 or 2,020.

Deuterium: over a billion years if we could develop controlled thermonuclear fusion reactors.

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BROWN ACTUARIAL RESEARCH CONFERENCE

by David Halmstad

The 10th annual Actuarial Research Conference, was held on August 28-30 at Brown University in Providence, R.I. The Department of Applied Mathematics at Brown co-sponsored the meeting, which discussed computational actuarial research, under the general title of Computational Probability and Numerical Analysis.

The late summer timing of the Conference brought over 80 actuaries, (including 5 European actuaries), academics, and guests, as well as 40 accompanying persons. The unusually large number of spouses and children were accommodated by fine weather, a tour of Newport arranged by Mrs. David Halmstad, and the memorable Conference clambake.

Scientific portions of the meeting, under the co-chairmanship of Walter Freiburger and David Halmstad, centered on ten invited papers on Computational Probability, Analysis of Algorithms, Notation and Computation, Numerical Methods, Computational Risk Theory and Computational Statistics. In addition, a complement of ten contributions was received in pension cost analysis, equity contract evaluation, accounting principles notation, reversionary annuity computation, inflation effects on non-life insurance, generalized inverses applied to demography, stop-loss premium calculation, generalized collective insurance modeling, lapsation studies and symbolic information processing in the insurance context.

The Proceedings of the Conference are to be published by Academic Press, following the procedure of last year's Conference on Credibility Theory, and announcement of the new book is expected in the spring. □

HITTING THE BULL'S-EYE?

by Robert J. Myers

This year, 1975, sees the 40th anniversary of the enactment of the Social Security System in the United States, and this has already been recorded in the press. Related to the System a historic event occurred in April of this year which so far has escaped comment.

At the beginning of April, the combined balance in the Old-Age and Survivors Insurance Trust Fund and the Disability Insurance Trust Fund, which pay the monthly cash benefits under the Social Security program, was \$46,211 million, an all-time high. At the end of that month, this balance had risen to \$47,062 million, so that at some time during the month it first exceeded \$46,943 million.

At first glance, one might say "What is so remarkable about the trust funds reaching this magnitude, even though it is an all-time high?" Further, one might point out that the attainment of such a peak of apparently great magnitude is just a hiatus. Following this, the trust funds will decline almost steadily, becoming exhausted in 1981, according to the latest actuarial cost estimates of the Social Security Administration.

The seasonal trend of these trust funds is such that, in April of each year, they tend to reach a maximum because of the trend of tax receipts. Specifically, the tax receipts are highest for the first quarter of each year, thus spilling over into April, as income tax time occurs and the self-employed pay the balance of the Social Security tax due, and as employers pay up in full for the first quarter of the year (when taxes are higher, because the effect of the maximum taxable earnings base is minimal).

But let us turn back to the point made initially about the remarkable fact that

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LAPSE RATES ON OVER-THE-COUNTER LIFE INSURANCE

by Gordon Leavitt

The first year lapse rate on insurance sold over-the-counter by savings banks in New York State is about 37% of the rate from the most recent inter-company LIMRA study; 7.6% compared to 20.4% for the agency business. The second year lapse rate was similarly low: 3.7% in Savings Bank Life Insurance compared to 9.3% in the LIMRA study.

Frequency of premium payment is by far the most important parameter in determining lapse rates, according to the SBLI study. The first year (13 month) lapse rates by premium mode are: 3.1% Annual, 3.7% Semi-annual, 9.0% Quarterly, and 18.4% Monthly. (None of the business is on a pre-authorized check basis, but a small percentage is on a savings account deduction basis).

Lapse rates are notably higher in savings banks that sell SBLI aggressively, (all employ ex-life insurance agents), than in 'passive' banks: 10.1% in six aggressive banks vs. 4.6% in six non-aggressive banks.

Term insurance shows only a slightly higher rate the first year, but significantly higher rates thereafter:

	1st year	2nd year	3rd year	4th year	5th year
Life policies	7.8%	2.5%	2.2%	2.3%	2.3%
5 Year Renewable Term	7.9	5.0	3.4	3.9	6.3
Decreasing Term	6.2	4.6	3.8	4.6	3.2
All policies	7.6	3.7	2.8	3.4	3.6

estimate of tax receipts for fiscal year 1975 was \$2.2 billion, whereas the actual calendar year 1974 figure was \$58.9 billion, or about 27 times greater. Similarly, the initial estimate for benefit payments in FY 1975 was \$2.9 billion, whereas the actual CY 1974 figure was \$58.9 billion, or 20 times greater. The initial estimate of interest receipts for FY 1975 was \$1.3 billion, which was only half as large as the actual CY 1974 receipts of \$2.7 billion. This arises from the change in the level of interest rates, since the fund balances were about the same.

The change in the method of financing was clearly evident from the fact that in 1974 the actual interest receipts represented only about 5% of the benefit payments, whereas in the initial estimates this ratio was about 45%.

In summary then, it is indeed interesting that, because of so many counterbalancing elements, the actuarial cost estimates made for the Social Security system in 1935 produced an estimated ultimate fund balance that has been attained five years earlier than maturity was expected to be reached. Quite obviously, this was a great coincidence.

It is significant to note that the system has still not reached maturity. Such a condition cannot possibly come about for another 75 years or more — because of the demographic situation at least, and also because of the mercurial way that Congress behaves in continually changing the program.

It is also noteworthy that this apparent success in the actuarial cost-estimating procedure comes at a time when the program faces great financial problems, over the short range, and, equally important, over the long range as well. □

Gull's Eye

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the trust funds have exceeded \$46,943 million. What is so magical about this figure?

The actuarial cost estimates made for the original Social Security Act of 1935 predicted that the balance in the fund for the monthly benefits would reach \$46,943 million on June 30, 1980 and presumably would stabilize thereafter at that level.^a So, we have come to this estimated level five years earlier, which at first glance might seem to be a very good vindication of the actuarial cost estimates made four decades ago.

Actually, this is the result of quite a number of counterbalancing factors, such as the considerable inflation (and thus the decrease in the value of the dollar), the extension of coverage, the expansion of the benefit protection, and the change in the financing method from partial-reserve funding to current-cost financing. Nonetheless, it is interesting that all these counterbalancing elements resulted in the actual current size of the

trust funds being so close, in terms of dollars, to the original estimate. Incidentally, the estimate of the size of the fund for June 30, 1975 was \$45,368 million.

The initially estimated ultimate reserve of \$47 billion was a matter of great public debate in the late 1930's. At that time, this was a truly colossal figure and was, in fact, somewhat larger than the national debt then. Serious question was raised about where this huge amount was to be invested. Would wasteful governmental spending have to be done just to create sufficient bonds for trust-fund investment?

But the debts from World War II have taken care of that problem! Under today's conditions, \$47 billion is not very large, relatively speaking — only about 10 percent of the national debt. And the problem facing the current \$47 billion balance in the OASDI trust funds is that it is too small and will be all too soon exhausted unless additional financing is provided!

Although the estimate of the ultimate size of the fund made initially in 1935 was close to what has actually occurred, the same can hardly be said for the estimates of the other components of the financial operations of the system. The

^aSource: Senate Report No. 628, 4th Congress, May 13, 1935.

Actuarial Meetings

- Nov. 19, Seattle Actuarial Club
- Nov. 20-21, Actuaries' Club of the Southwest
- Dec. 4, Baltimore Actuaries Club
- Dec. 4, Boston Actuaries' Club
- Dec. 10, Philadelphia Actuaries Club
- Dec. 11, Actuaries Club of Des Moines
- Dec. 17, Seattle Actuarial Club