PENSION SECTION NEWS

From the Pension Section Council Chairperson

by Colin England

This is my last piece as the Pension Section chairperson. I've enjoyed working on your behalf to improve our educational efforts and to fund research that will help all of us pension actuaries. Amy Viener, who convinced me to run, deserves the credit for my involvement.

The electronic training course for new actuarial students will be available shortly on our Web page. We're working out the last kinks to make it operational. We'll send you an e-mail when it is on the Web site for your use. However, we need your input to determine how we best develop this training aid. To start, we have an electronic questionnaire that will pop-up when you are finished using the training material. Please fill it in, and let us know how we can make this more useful for your actuarial students. I'd strongly encourage you to get some of your new actuarial students to use it and send us their comments as well.

OASDI Trust Fund: *Principal Economic and Demographic Assumptions*

Editor's Note: The following excerpt is taken from Section II.D, "Actuarial Analysis," in the 2000 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds. Copies of the OASDI 2000 Annual Report are available from Cece Enders (410-965-3015).

The future income and outgo of the OASDI program will depend on many economic and demographic factors, including gross domestic product, labor force, unemployment, average earnings, productivity, inflation, fertility, mortality, net immigration, marriage, divorce, retirement patterns, and disability incidence and termination. The income will depend on how these factors affect the size and composition of the working population and the level and distribution of earnings. Similarly, the outgo will depend on how these factors affect the size and composition of the beneficiary population and the general level of benefits.

Because projections of these variables are inherently uncertain, estimates are shown in this report on the basis of three plausible sets of assumptions designated as intermediate (alternative II), low cost (alternative I), and high cost (alternative III). The intermediate set, alternative II, represents the Boards' best estimate of the future course of the population and the economy. In terms of the new effect on the status of the OASDI program, the low cost alternative I is the most optimistic, and the high cost alternative III is the most pessimistic.

The economic and demographic assumptions used in this report are reexamined each year in light of recent experience and new information about future trends, and are revised if warranted. This year, there was a particular need for such a review because the BEA introduced significant changes to the NIPA in late October 1999.

In This Issue

Articles Needed for the *News*

Your help and participation are needed and welcomed. All articles will include a byline to give you full credit for your effort. *News* is pleased to publish articles in a second language if a translation is provided by the author. For those of you interested in working on the *News*, several associate editors are needed to handle various specialty areas such as meetings, seminars, symposia, continuing education meetings, teleconferences, and cassettes (audio and video) for Enrolled Actuaries, new pension study notes, new research and studies by Society committees, and so on. If you would like to submit an article or be an associate editor, please call Dan Arnold, editor, at (860) 521-8400.

As in the past, full papers will be published in *The Pension Forum* format, but now only on an ad hoc basis.

News is published quarterly as follows:

Publication Date	Submission Deadline
February	January 10
June	May 10
September	August 10
December	November 10

Preferred Format

In order to efficiently handle articles, please use the following format when submitting articles.

Mail both a diskette and a hard copy of your article. We are able to convert most PC-compatible software packages. Headlines are typed upper and lower case. Carriage returns are put in only at the end of paragraphs. The right-hand margin is not justified.

If this is not clear or you must submit in another manner, please call Joe Adduci, 847-706-3548, at the Society of Actuaries for help.

Please send original hard copy of article and diskette to:

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Thank you for your help.

Chairperson's Column
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Our January newsletter will be our first electronic newsletter. We will e-mail you to let you know when it is on our Web page, and the printed version will follow. We hope the electronic version will replace the printed version for most readers over the next year. So make sure we have your e-mail address when you register for the Pension Section this year.

We're going to try a new format for the 2001 spring pension meeting. We're going to put on more pension sessions than we have in the past and organize

them around three seminars that will be part of the meeting. I hope you'll join us on May 30 to June 1 in Dallas.

Bruce Cadenhead is succeeding me as chairman. He'll do a great job advancing our research and education efforts. Please send him your thoughts and ideas as to how we can best assist you.

My last job with the Section Council is to develop a list of candidates for next summer's election. I will be calling on some of you to convince you, as Amy did me, to help your fellow pension actuaries

by joining the Section Council.

Colin England, FSA, is a principal at Slabaugh, Morgan White & Associates in Reston, VA. He can be reached at colin.england@palmercay.com.

Colin England

Retirement Needs Framework Announcing a New Web Page

The rapid aging of our society may create one of the more dramatic shifts in important issues for actuaries. The period beginning with retirement will be getting more attention. The Society of Actuaries has now added a Retirement Needs Framework web page to its internet site. The address is *www.soa.org/sections/retirement/framework.html*. This page provides information useful to actuaries and other professionals with an interest in modeling and conducting research regarding financial risks and needs after retirement. It includes links to papers, statistics, survey data, journals and other organizations which focus on the post-retirement period. The page is sponsored by the Retirement Systems Research Committee and the Retirement Systems Professional Education and Development Committees. It is administered by the Retirement Needs Framework Project Oversight Group.

Earlier this year, the SOA published *Retirement Needs Framework*, which contains thirteen papers focusing on the needs and risks that arise during the post-retirement period. The papers study issues including:

- The retirement decision and new approaches such as bridge jobs and phased retirement
- The effects of public policy and plan design on retirement,
- The frail elderly and their special needs
- The contrast between benefit provisions and the needs of widows
- Investment strategies, annuitization and asset utilization during the post-retirement period
- Modeling approaches and data needs for studying this somewhat overlooked period

With the increasing focus today on change in both government and corporate retirement programs, both the Retirement Needs Framework Web page and the monograph should be useful items for addressing new challenges facing the actuarial profession.

To order a copy of the *Retirement Needs Framework*, SOA Monograph M-RS00-1, please contact:

Beverly Haynes
Society of Actuaries
Book and Publications Department
phone: 847-706-3526   **fax:** 847-706-3599
e-mail: *bhaynes@soa.org*

OASDI Trust Fund
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Although the three sets of economic and demographic assumptions have been developed using the best available information, the resulting estimates should be interpreted with care. The

over the next 5 to 30 years. The ultimate values assumed after the first 5 to 30 years for both the economic and the demographic variables are intended to represent average experience or growth

financial status that should encompass most of the possibilities that might be encountered. The intermediate assumptions (alternative II) reflect the Trustees' consensus expectation of moderate economic growth throughout the projection period. The low cost assumptions (alternative I) represent a more optimistic outlook, with relatively stronger economic growth. The high cost assumptions (alternative III) represent a relatively pessimistic forecast, with weaker economic growth and two recessions in the short-range period. Economic cycles are not included in assumptions beyond the first five to ten years of the projection period because they have little effect on the long-range estimates of financial status.

> **"The estimates are not intended to be predictions of the future status of the OASDI program, but rather, they are intended to be indicators of the expected trend and likely range of future income and outgo...."**

estimates are not intended to be predictions of the future status of the OASDI program, but rather, they are intended to be indicators of the expected trend and likely range of future income and outgo, under a variety of plausible economic and demographic conditions.

The values for each of the economic and demographic factors are assumed to move from recently experienced levels or trends, toward long-range ultimate values

rates. Actual future values will exhibit fluctuations or cyclical patterns, as in the past.

Economic Assumptions
The principal economic assumptions for the three alternatives are summarized in Table II.D1 (See page 5).

Alternatives I, II, and III represent a range of economic assumptions designed to produce variation in Social Security's

Demographic Assumptions
The principal demographic assumptions for the three alternatives are shown in Table II.D2 (see page 6).

Congratulations

The following are newly elected members of the Pension Section Council. They will each serve a 3-year term:

1) *John F. Kalnberg,* **PricewaterhouseCoopers LLP, Fort Lee, NJ**

2) *Marilyn Miller Oliver,* **Oliver Consulting, Sausalito, CA**

3) *Zenaida M. Samaniego,* **AXA Financial, New York, NY**

TABLE II.D1
Selected Economic Assumptions by Alternative
Calendar Years 1960-2075

Calendar Year	Average Annual Percentage (Change In-)		Real Wage Differential t (Percent)	Calendar Year	Average Annual Percentage (Change In-)		Real Wage Differential t (Percent)
	Average Annual Wage in Covered Employment	Consumer Price Index *			Average Annual Wage in Covered Employment	Consumer Price Index *	
Historical Data:				**Low Cost:**			
1960-64	3.4	1.3	2.1	2000	t 4.8	2.9	1.8
1965-69	5.3	3.4	2.0				
1970-74	6.3	6.1	0.2	2001	4.1	2.5	1.6
1975	6.7	9.1	-2.4				
1976	8.5	5.7	2.8	2002	3.7	2.3	1.4
1977	6.8	6.5	0.3	2003	3.6	2.3	1.3
1978	11.6	7.7	3.9				
1979	9.8	11.4	-1.6	2004	3.7	2.3	1.4
1980	6.7	13.4	-6.7				
1981	10.8	10.3	0.6	2005	3.7	2.3	1.4
1982	6.3	6.0	0.3	2006	3.7	2.3	1.4
1983	4.2	3.0	1.2				
1984	6.0	3.5	2.5	2007	3.8	2.3	1.5
1985	6.0	3.5	2.6	2008	3.7	2.3	1.4
1986	4.6	1.6	3.0	2009	3.8	2.3	1.5
1987	4.6	3.6	1.0	2010	3.9	2.3	1.5
1988	5.3	3.9	1.4				
1989	3.9	4.9	-0.9	2020	3.8	2.3	1.5
1990	5.1	5.2	-0.1	2030	3.8	2.3	1.5
1991	3.0	4.1	-1.1				
				2040	3.8	2.3	1.5
1992	4.9	2.9	2.0	2050	3.8	2.3	1.5
1993	1.9	2.8	-0.9				
1994	3.4	2.5	1.0	2060	3.8	2.3	1.5
1995	4.0 +	2.9	1.1				
1996	4.5 +	2.9	1.6	2070	3.8	2.3	1.5
1997	5.7 +	2.3	3.4				
1998	5.6 +	1.3	4.3	2075	3.8	2.3	1.5
1999	5.2 +	2.2	3.0				
Intermediate:				**High Cost:**			
2000	4.6	3.1	1.5	2000	3.4	3.4	0.1
2001	4.4	3.0	1.4	2001	2.5	3.8	-1.3
2002	4.2	3.0	1.2	2002	6.8	5.3	1.5
2003	4.1	3.1	1.0	2003	6.5	5.9	0.6
2004	4.1	3.2	0.9	2004	1.9	4.0	- 2.1
2005	4.2	3.3	1.0	2005	5.9	4.1	1.8
2006	4.2	3.3	0.9	2006	5.9	4.3	1.6
2007	4.3	3.3	1.0	2007	5.1	4.3	0.8
2008	4.2	3.3	0.9	2008	4.8	4.3	0.5
2009	4.3	3.3	1.0	2009	4.8	4.3	0.5
2010	4.3	3.3	1.0	2010	4.8	4.3	0.5
2020	4.3	3.3	1.0	2020	4.8	4.3	0.5
2030	4.3	3.3	1.0	2030	4.8	4.3	0.5
2040	4.3	3.3	1.0	2040	4.8	4.3	0.5
2050	4.3	3.3	1.0	2050	4.8	4.3	0.5
2060	4.3	3.3	1.0	2060	4.8	4.3	0.5
2070	4.3	3.3	1.0	2070	4.8	4.3	0.5
2075	4.3	3.3	1.0	2075	4.8	4.3	0.5

* The Consumer Price Index is the annual average value for the calendar year of the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

t The real-wage differential is the difference between the percentage increases, before rounding, in the average annual wage in covered employment, and the average annual Consumer Price Index.

+ Preliminary. Wages in covered employment are considered preliminary for several years primarily due to uncertainty associated with estimates of amounts above the benefit and contribution base.

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TABLE II.D2
Selected Demographic Assumptions by Alternative
Calendar Years 1940-2075

Calendar Year	Life Expectancy * (At Age 65)		Calendar Year	Life Expectancy * (At Age 65)	
	Male	Female		Male	Female
Historical Data:			Low Cost:		
1940	11.9	13.4	2000	15.8	19.1
1945	12.6	14.4			
1950	12.8	15.1	2005	15.8	18.9
1955	13.1	15.6			
1960	12.9	15.9	2010	15.9	18.8
1965	12.9	16.3	2015	15.9	18.7
1970	13.1	17.1			
1975	13.7	18.0	2020	16.0	18.8
1976	13.8	18.1			
1977	13.9	18.3	2025	16.1	18.9
1978	14.0	18.3	2030	16.3	19.1
1979	14.2	18.6			
1980	14.0	18.4	2035	16.4	19.2
1981	14.2	18.6			
1982	14.5	18.8	2040	16.5	19.3
1983	14.3	18.6	2045	16.6	19.4
1984	14.4	18.7			
1985	14.4	18.6	2050	16.7	19.5
1986	14.5	18.7			
1987	14.6	18.7	2055	16.8	19.6
1988	14.6	18.7	2060	16.9	19.7
1989	14.8	18.9			
1990	15.0	19.0	2065	17.0	19.8
1991	15.1	19.1			
1992	15.2	19.2	2070	17.1	19.9
1993	15.1	19.0	2075	17.2	20.0
1994	15.3	19.0			
1995	15.3	19.0			
1996	15.4	19.0	High Cost:		
1997	15.5	19.1	2000	15.9	19.2
1998 t	16.0	19.1			
1999 t	15.8	19.1	2005	16.4	19.7
			2010	16.9	20.0
Intermediate:			2015	17.3	20.4
2000	15.9	19.2	2020	17.9	20.9
2005	16.1	19.3	2025	18.4	21.5
1010	16.4	19.4	2030	19.0	22.0
2015	16.6	19.6			
2020	16.9	19.8	2035	19.5	22.5
2025	17.2	20.1	2040	20.0	23.0
2030	17.5	20.4	2045	20.5	23.5
2035	17.8	20.7	2050	21.0	23.9
2040	18.1	21.0			
2045	18.3	21.2	2055	21.5	24.4
2050	18.0	21.5	2060	22.0	24.8
2055	18.9	21.8	2065	22.4	25.3
2060	19.1	22.0			
2065	19.4	22.3	2070	22.9	25.7
2070	19.6	22.5	2075	23.3	26.1
2075	19.9	22.7			

* The life expectancy for any year is the average number of years of life remaining for a group of persons if that group were to experience the death rates by age observed in, or assumed for, the selected year.

t Preliminary or estimated.

HI Trust Fund:

Actuarial Methodology and Principal Assumptions

Editor's Note: The following excerpt is taken from Section II.F, "Actuarial Methodology and Principal Assumptions," in the 2000 Annual Report of the Board of Trustees of the Federal Hospital Insurance Trust Fund. Copies of the HI 2000 Annual Report are available from Sol Mussey (410-786-6386).

This section describes the basic methodology and assumptions used in the estimates for the HI program under the intermediate assumptions. In addition, projections of program costs under two alternative sets of assumptions are presented.

1. *Assumptions*

Both the economic and demographic assumptions underlying the projections shown in this report are consistent with those in the 2000 Annual Report of the Board of Trustees of the Federal Old Age and Survivors Insurance and Disability Insurance (OASDI) Trust Funds. These assumptions are described in more detail in that report.

2. *Program Cost Projection Methodology*

The principal steps involved in projecting the future costs of the HI program are (a) establishing the present cost of services provided to beneficiaries, by type of service, to serve as a projection base; (b) projecting increases in payments for inpatient hospital services under the program; (c) projecting increases in payments for skilled nursing, home health, and hospice services covered under the program; (d) projecting increases in payments to managed-care plans; and (e) projecting increases in administrative costs. The major emphasis is directed toward expenditures for fee-for-service inpatient hospital services, which account for approximately 67% of total benefits.

a) *Projection Base*

In order to establish a suitable base from which to project the future costs of the program, the incurred payments for services provided must be reconstructed for the most recent period for which a reliable determination can be made. To do this, payments to providers must be attributed to dates of service, rather than to payment dates. In addition, the nonrecurring effects of any changes in regulations, legislation, or administration of the program and of any items affecting only the timing and flow of payments to providers must be eliminated. As a result, the rates of increase in the incurred cost of the program differ from the increases in cash disbursement shown in Tables II.D1 and II.D2 (not shown).

For those expenses still reimbursed on a reasonable cost basis, the costs for covered services are determined on the basis of provider cost reports. Payments to a provider initially are made on an interim basis; to adjust interim payments to the level of retroactively determined costs, a series of payments or recoveries is effected through the course of cost settlement with the provider. The net amounts paid to date to providers in the form of cost settlements are known; however, the incomplete data available do not permit a precise determination of the exact amounts incurred during a specific period of time. Due to the time required to obtain cost reports from providers, to verify these reports, and to perform audits (where appropriate), final settlements have lagged behind the original costs by as much as several years for some providers. Hence, the final cost of services reimbursed on a reasonable cost basis has not been completely determined for the most recent years of the program, and some degree of uncertainty remains even for earlier years.

Even for inpatient hospital operating payments paid for on the basis of diagnosis-related groups (DRGs), most payments are initially made on an interim basis, and final payments are determined on the basis of bills containing detailed diagnostic information that are later submitted by the hospital.

Additional problems are posed by changes in legislation or regulation, or in administrative or reimbursement policy, which can have a substantial effect on either the amount or incidence of payment. The extent and timing of the incorporation of such changes into interim payment rates and cost settlement amounts cannot be determined precisely.

The process of allocating the various types of payments made under the program to the proper incurred period—using incomplete data and estimates of the impact of administrative actions—presents difficult problems, the solutions to which can be only approximate. Under the circumstances, the best that can be expected is that the actual incurred cost of the program for a recent period can be estimated within a few percent. This increases the projection error directly by incorporating any error in estimating the base year into all future years.

b) *Fee-for-Service Payments for Inpatient Hospital Costs*

Beginning with hospital accounting years starting on or after October 1, 1983, the HI program began paying almost all participating hospitals a prospectively determined amount for providing covered services to beneficiaries. With the exception of certain expenses reimbursed on a reasonable cost basis, as defined by law, the payment rate for each admission depends upon the DRG to which the admission belongs.

The law contemplates that the annual increase in the payment rate for each admission will be related to a hospital

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TABLE II.F1
Components of Historical and Projected Increase in HI Inpatient Hospital Payments *

Calendar Year	Labor			Nonlabor			Input Price Index	Unit Input Intensity Allowance †	Units of Service		
	Average Hourly Earnings	Hospital Hourly Earning Differential	Hospital Hourly Earnings	CPI	Hospital Price Input Intensity	Nonlabor Hospital Prices			HI Enrollment	Managed Care Shift Effect	Admission Incidence
Historical Data:											
1990	5.3%	0.3%	5.6%	5.2%	-1.9%	3.2%	4.6%	0.0%	2.1%	-0.2%	3.3%
1991	3.9	0.8	4.7	4.1	-1.2	2.8	4.0	-0.6	2.1	-0.3	1.1
1992	6.3	-2.3	3.9	2.9	-0.9	2.0	3.2	-0.3	2.1	-0.4	0.0
1993	1.4	2.1	3.5	2.8	-0.6	2.2	3.0	-0.3	2.1	-0.6	2.8
1994	1.7	1.4	3.1	2.5	-0.5	2.0	2.7	-0.7	1.8	-1.0	2.4
1995	3.3	-0.7	2.6	2.9	1.0	3.9	3.1	-1.0	1.7	-2.0	2.7
1996	4.9	-2.0	2.8	2.9	-1.5	1.4	2.3	-0.7	1.4	-2.7	2.6
1997	4.2	-1.4	2.7	2.3	-1.2	1.1	2.1	-0.8	1.1	-3.2	3.4
1998	4.9	-1.5	3.3	1.3	1.2	2.5	3.0	-2.6	1.2	-3.1	0.9
1999	5.5	-2.3	3.1	2.2	-0.8	1.4	2.5	-2.0	0.9	-1.8	0.7
Projections: ++											
2000	4.4%	-1.1%	3.3%	3.1%	0.0%	2.7%	3.1%	-1.7%	1.4%	-0.6%	0.8
2005	4.0	0.0	4.0	3.3	0.0	3.3	3.7	0.0	1.4	-0.7	0.8
2010	4.5	0.0	4.5	3.3	0.0	3.3	4.1	0.0	2.0	-0.3	0.0
2015	4.4	0.0	4.4	3.3	0.0	3.3	4.0	0.0	2.8	0.0	-0.6
2020	4.4	0.0	4.4	3.3	0.0	3.3	4.0	0.0	2.9	0.0	-0.3

*   Percent increase in year indicated over previous year, on an incurred basis.

†   Reflects the allowances provided for in the prospective payment update factors.

++ Under the intermediate assumptions

Note: Historical and projected data reflect the hospital input price index which was recalibrated to a 1992 base year in 1997.

input price index, which measures the increase in prices for goods and services purchased by hospitals for use in providing care to hospital inpatients. In other literature, the hospital input price index is also called the hospital market basket. For the fiscal year 2000, the prospective payment rates have already been determined. The projections contained in this report are based on the assumption that for fiscal years 2001-2002, the prospective payment rates will be increased by the increase in the hospital input price index less the percentages specified by Public Law 105-33, the Balanced Budget Act of 1997. For fiscal years 2003 and later, current statute mandates that the annual increase in the payment rate per admission equals the annual increase in the hospital input price index.

Increases in aggregate payments for inpatient hospital care covered under the HI program can be analyzed in five broad categories:

1) **Labor factors**—the increase in the hospital input price index that is attributable to increases in hospital workers' hourly earnings (including fringe benefits).

2) **Nonlabor factors**—the increase in the hospital input price index that is attributable to factors other than hospital workers' hourly earnings, such as the cost of energy, food, and supplies.

3) **Unit input intensity allowance**— the amount added to or subtracted

from the input price index (generally as a result of legislation) to yield the prospective payment update factor.

4) **Volume of services**—the increase in total output of units of service (as measured by hospital admissions covered by the HI program).

5) **Other sources**—a residual category, reflecting all other factors affecting hospital cost increases (such as intensity increases).

Table II.F1 above shows the estimated values of the principal components of the increases for historical periods for which data are available and the projected trends used in the estimates.

TABLE II.F1 * (continued from page 8)
Components of Historical and Projected Increase in HI Inpatient Hospital Payments

Calendar Year	Other Sources	HI Inpatient Hospital Payment
Historical Data:		
1990	-1.1%	9.0%
1991	-0.2	6.2
1992	7.0	11.9
1993	-1.3	5.8
1994	1.7	7.1
1995	2.1	6.6
1996	2.3	5.3
1997	-0.4	2.1
1998	-1.7	-2.3
1999	0.0	0.2
Projections: ++		
2000	0.4	3.3
2005	0.1	5.4
2010	0.2	6.0
2015	0.2	6.5
2020	0.3	7.0

*   Percent increase in year indicated over previous year, on an incurred basis.

++ Under the intermediate assumptions

Note: Historical and projected data reflect the hospital input price index which was recalibrated to a 1992 base year in 1997.

SMI Trust Fund:

Estimates under Alternative II Assumption for Aged and Disabled (Excluding End-Stage Renal Disease) Enrollees

Editor's Note: The following except is taken from Section II.F, "Actuarial Methodology and Principal Assumptions for Cost Estimates for the Supplementary Medical Insurance Program," in the 2000 Annual Report of the Board of Trustees of the Federal Supplementary Medical Insurance Trust Fund. Copies of the SMI 2000 Annual Report are available from Sol Mussey (410-786-6386).

*   *   *

This section describes the basic methodology and assumptions used in the estimates for the SMI program under the intermediate assumptions. In addition, projections of program costs under two alternative sets of assumptions are presented. The methodology and data sources underlying the SMI projections were substantially modified and enhanced, beginning with the projections in the 1999 annual report. Consequently, the discussion in this section and the data and estimates shown differ from the corresponding material in the 1998 and prior reports.

1. **Assumptions**
   The economic and demographic assumptions underlying the projections shown in this report are consistent with those in the 2000 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds. These assumptions are described in more detail in that report.

2. **Program Cost Projection Methodology**
   Estimates under the intermediate assumptions are prepared by establishing the allowed charges or costs incurred per enrollee, for each category of enrollee and for each type of

service, for a recent year to serve as a projection base and then projecting these charges through the estimation period. The per enrollee charges are then converted to reimbursement amounts by subtracting the per enrollee values of the deductible and co-insurance. Aggregate reimbursement amounts are calculated by multiplying the per enrollee reimbursement amounts by the projected enrollment. In order to estimate cash disbursements, an allowance is made for the delay between receipt of service and payment therefore.

a)   Projection Base
To establish a suitable base from which to project the future costs of the program, the incurred payments for services provided must be reconstructed for the most recent period for which a reliable determination can be made. To do this, payments to providers must be attributed to dates of service, rather than payment dates. In addition, the nonrecurring effects of any changes in regulations, legislation, or administration of the program and of any items affecting only the timing and flow of payments to providers must be eliminated. As a result, the rates of increase in the incurred cost of the program differ from the increases in cash disbursements.

1)   Carrier Services
Reimbursement amounts for physician services, durable medical equipment (DME), laboratory tests performed in physician offices and independent laboratories, and other services such as free-standing ambulatory surgical center facility services, ambulance, and supplies are paid though organizations acting

for HCFA, referred to as "carriers." The carriers determine whether billed services are covered under the program and determine the allowed charges for the covered services. A record of the allowed charges, the applicable deductible and co-insurance, and the amount reimbursed after the reduction for coinsurance and the deductible is transmitted to HCFA.

The data is tabulated on an incurred basis. This is necessary to meet the statutory requirement that the program be financed on this basis. As a check on the validity of the projection base, incurred reimbursement amounts are compared with cash expenditures reported by the carriers through an independent reporting system. In a health care program with continuously increasing incurred reimbursement amounts, cash payments are expected to be slightly lower than incurred expenses (except in the first year of coverage of a service or group of beneficiaries, when the difference should be substantial). These differences between cash and incurred reimbursement amounts occur because of the lag between receipt of services and payment therefore.

2)   Intermediary Services
Reimbursement amounts for institutional services under the SMI program are paid by the same fiscal intermediaries that pay for HI services. Institutional services covered under the SMI program are outpatient hospital services, home health agency services, laboratory services performed in hospital outpatient departments, and other services such as renal dialysis performed in free-standing dialysis facilities, services in outpatient rehabilitation facilities, and services in rural health clinics. Reimbursement for institutional

services occur in two stages. First, bills are submitted to the intermediaries and interim payments are made on the basis of these bills. The second stage occurs at the close of a provider's accounting period, when a cost report is submitted and lump-sum payments or recoveries are made to correct for the difference between interim payments and final settlement amounts for providing covered services (net of coinsurance and deductible amounts). Tabulations of the bills are prepared by date of service and the lump-sum settlements, which are reported only on a cash basis, are adjusted (using approximations) to allocate them to the time of service.

3) *Managed Care Services*
Managed care plans with contracts to provide health services to Medicare beneficiaries are not reimbursed through carriers or intermediaries but instead are reimbursed directly by HCFA on either a reasonable cost or capitation basis. Comprehensive data on such direct reimbursements are available only on a cash basis. Certain approximations must be made to allocate expenses to the period when services were rendered.

b) ***Fee-for-Service Payments for Aged Enrollees and Disabled Enrollees without End-Stage Renal Disease (ESRD)***
Disabled persons with ESRD have per enrollee costs which are substantially higher and quite different in nature from those of most other disabled persons. Hence, program costs for them have been excluded from the analysis in this section and are included in a later section. Similarly, costs associated with beneficiaries enrolled in managed care plans are discussed separately.

   1)   Carrier Services
      a) Physician Services

  Charges for physician services per fee-for-service enrollee are affected by a variety of factors. One factor, the increase in average charge per service, can

be identified explicitly. Others can be recognized only by the fact that the increase in the average charge per service does not explain all of the increase in per enrollee charges year-to-year. Each of these categories will be discussed in turn.

  Prior to 1992, bills submitted to the carriers during a specified "fee-screen year" were subject by statute to certain limitations on the level of fees to be allowed by the program for reimbursement purposes. The fee level allowed for a particular service by a physician was subject to reduction if it exceeded the median charge that the physician assessed for the same service in a prior base period. This median charge was called the "customary charge." Fees were subject to further reduction if they exceeded the prevailing charges for the locality (defined as the 75th percentile of customary charges for a particular service in a particular locality). Starting July 1, 1975, the rate of increase in prevailing charges was limited further by the application of the Medicare Economic Index (MEI). The customary and prevailing charge limits maintained by the carriers were called "fee screens." Allowed charges were charges after application of the fee screens and were the charges on which reimbursement was based.

  Public Law 101-239 provided for the replacement of customary and prevailing charges with fee schedules for physician services starting in 1992. The fee schedules are based on a resource-based relative value scale. The fee schedule amount is equal to the product of the procedure's relative value, a conversion factor, and a geographic adjustment factor. Payments are based on the lower of the actual charge and the fee schedule amount. For the four-year period from 1992 to 1995, the fee schedule amounts were adjusted to reflect the prevailing charges in each fee screen area to phase in the new payment system. Increases in physician fees are based on growth in the MEI, plus a performance adjustment reflecting whether past growth in the volume and intensity of services met specified targets.

  As a result of the Balanced Budget Act of 1997, beginning in 1999, the MEI is adjusted to match spending under a sustainable growth rate (SGR) mechanism. It should be noted that the SGR process

enacted as part of the Balanced Budget Act of 1997 contained technical deficiencies that caused unstable performance adjustments for physician fee updates in 1999 and 2000. This problem was corrected as part of the Medicare, Medicaid, and SCHIP Balanced Budget Refinement Act of 1999. These corrections permit a more reliable estimation of SMI expenditures for physician service than was previously possible.

  Table II.F1 (see page 12) shows the projected MEI increases and average performance adjustments for 2001 through 2009. The physician fee updates shown through 2000 are actual values. The net increase in allowed fees shown in column 3 reflects the growth in the MEI, the performance adjustment, as well as any legislative impacts.

  Per capita physician charges also have increased each year as a result of a number of other factors besides fee increases, including more physician visits per enrollee, the aging of the Medicare enrollment, greater use of specialists and more expensive techniques, and certain administrative actions. The fourth column of table II.F1 shows the increases in charges per enrollee resulting from these residual causes. Because the measurement of increased allowed charges per service is subject to error, this error is included implicitly under residual causes. Based on the increases in table II.F1, table II.F2 (not included here) shows the estimates of the incurred reimbursement for physician services per fee-for-service enrollee.

  Table II.F1 shows the increases in the allowed charges per fee-for-service enrollee for DME, laboratory services, and other carrier services. Based on the increases in table II.F1, table II.F2 shows the corresponding estimates of the incurred reimbursement for these services per fee-for-service enrollee.

(2) Intermediary Services

  Originally, all intermediary services were reimbursed on a "reasonable cost" basis. The "reasonable costs" for a particular provider were the provider's aggregate costs associated with SMI beneficiaries. While the provider does not have costs per service, the provider does have a

SMI Trust Fund
continued from page 11

TABLE II.F1
Components of Increases in Total Allowed Charges Per Fee-for-Service Enrollee for Carrier Services (in percent)

	Physician Fee Schedule								
	Increase Due to Price Changes								
Calendar year	MEI	MPA[1]	Net increase in allowed fees[2]	Residual factors	Total increase[3]	CPI	DME	Lab	Other carrier
Aged:									
1997	2.0	-1.4	0.6	3.0	3.6	2.7	12.0	-5.4	15.0
1998	2.2	1.2	3.5	1.0	4.6	2.3	-2.7	-10.7	10.1
1999	2.3	0.0	3.0	0.3	3.3	2.3	3.9	0.5	6.3
2000	2.4	3.0	6.9	1.2	8.3	2.5	6.7	1.7	8.0
2001	1.7	0.5	1.9	1.7	3.7	3.0	6.2	1.9	7.5
2002	2.0	0.1	1.9	2.3	4.3	3.0	4.9	3.3	6.9
2003	1.8	1.1	0.5	3.0	3.5	3.1	7.3	5.8	7.4
2004	1.9	-2.1	-0.4	3.3	2.8	3.2	7.4	5.9	7.5
2005	1.9	-2.6	0.0	3.2	3.2	3.3	7.5	6.1	7.7
2006	2.0	-2.6	-0.7	3.4	2.7	3.3	7.5	6.0	7.6
2007	2.0	-3.4	-1.5	3.6	2.1	3.3	7.5	6.0	7.6
2008	2.0	-2.8	-0.9	3.4	2.5	3.3	7.5	6.0	7.6
2009	2.1	-2.3	-0.2	3.3	3.0	3.3	7.5	6.0	7.6
Disabled (excluding ERSD)									
1997	2.0	-1.4	0.6	2.0	2.6	2.7	14.5	-3.2	11.4
1998	2.2	1.2	3.5	0.3	3.8	2.3	1.3	-9.3	7.6
1999	2.3	0.0	3.0	-2.0	0.9	2.3	1.2	-0.9	4.3
2000	2.4	-0.5	6.9	-2.0	8.3	2.5	6.6	1.6	7.8
2001	1.7	-3.4	1.9	1.3	3.7	3.0	6.1	1.8	7.3
2002	2.0	-3.5	1.9	1.8	4.3	3.0	4.8	3.1	6.7
2003	1.8	-3.2	0.5	2.3	3.4	3.1	7.2	5.7	7.2
2004	1.9	-3.1	-0.4	2.9	2.8	3.2	7.3	5.8	7.3
2005	1.9	-3.2	0.0	3.2	3.1	3.3	7.4	5.9	7.4
2006	2.0	-3.1	-0.7	3.1	2.6	3.3	7.4	5.9	7.4
2007	2.0	-2.9	-1.5	3.3	2.0	3.3	7.4	5.9	7.4
2008	2.0	-3.0	-0.9	3.4	2.5	3.3	7.4	5.9	7.4
2009	2.1	-2.3	-0.2	3.2	3.0	3.3	7.4	5.9	7.4

[1] Medicare performance adjustment
[2] Reflects the growth in the MEI, the performance adjustment, as well as any legislative impacts.
[3] Equals combined increases in allowed fees and residual factors.

charge for each service. These charges were used to determine any beneficiary deductible or coinsurance liability. The SMI reimbursement would be the difference between the lower of the provider's reasonable costs or aggregate SMI charges and the aggregate amounts collected by the provider for any associated deductible and coinsurance payments.

Over the years, legislation modified this reimbursement mechanism for various types of services. Beginning July 1, 1984, the same laboratory fee schedule established for tests performed in physician offices and independent laboratories also applied to laboratories in hospital outpatient departments, but with slightly higher rates. Subsequent legislation made the two fee schedules identical. The Balanced Budget Act of 1997 implemented a prospective payment system for services performed in the outpatient department of a hospital, which is expected to begin sometime in 2000. It also implemented a prospective payment system for home health agency services, which is expected to begin October 1, 2000.

The historical and projected increases in charges and costs per fee-for-service enrollee for intermediary services are shown in table II.F3 (see page 13). The projected increases shown in table II.F3 reflect the impact of the provisions of the Balanced Budget Act of 1997. These include the transfer of roughly two-thirds of home health agency services from the HI trust fund to the SMI trust fund starting in 1998. All benefit payments for those home health agency services being transferred are to be paid out of the SMI trust fund beginning January 1998. However, for the 6-year period 1998

TABLE II.F3
Components of Increases in Recognized Charges and Costs Per Fee-for-Service
Enrollee for Intermediary Services (in percent)

Calendar year	Outpatient hospital	Home health agency[1]	Outpatient lab	Other intermediary
Aged:				
1997	7.9	2.3	8.2	13.2
1998	-0.3	4,301.4[2]	2.1	-5.8
1999	1.8	-16.9	11.4	-13.5
2000	7.3	10.6	6.3	18.3
2001	8.3	17.6	5.2	13.3
2002	6.7	20.9	4.0	0.6
2003	7.7	16.8	5.8	7.6
2004	6.1	12.4	6.0	7.8
2005	9.4	8.1	6.1	7.9
2006	8.5	8.0	6.0	7.1
2007	8.6	7.4	6.0	6.8
2008	8.6	6.5	6.0	6.6
2009	8.7	5.5	6.0	6.6
Disabled (excluding ERSD)				
1997	6.8	0.0	4.1	24.9
1998	-1.9	[2]	-3.1	-4.4
1999	4.6	-19.5	6.6	-8.8
2000	7.2	7.9	6.2	15.0
2001	8.1	16.2	5.0	5.7
2002	6.7	19.5	3.8	-9.9
2003	7.7	15.7	5.7	8.0
2004	6.2	11.6	5.8	8.0
2005	9.3	7.4	5.9	8.0
2006	8.4	7.5	5.9	8.0
2007	8.5	7.5	5.9	8.0
2008	8.5	7.2	5.9	8.0
2009	8.6	6.3	5.9	8.0

[1]　From July 1, 1981 to December 31, 1997, home health agency services were almost exclusively provided by the Medicare HI program. However, for those SMI enrollees not entitled to HI, the coverage of these services was provided by the SMI program. During that time, since all SMI disabled enrollees were entitled to HI, their coverage of these services was provided by the HI program. The extreme variation in SMI home health cost increases is largely attributable to random fluctuations in a service used by relatively few beneficiaries. (See Table II.F4 not shown).

[2]　Effective January 1, 1998, the coverage of a majority of home health agency services for those individuals entitled to HI and enrolled in SMI was transferred from the HI program to the SMI program. As a result, as of January 1, 1998, there was a large increase in SMI expenditures for these services for the aged enrollees, and SMI coverage for these services resumed for disabled enrollees.

through 2003, sums of money will also be transferred from the HI trust fund to the SMI trust fund to phase in the financial impact of the transfer of these services. It should be noted that in table II.F3, and elsewhere in this section with the exception of table II.F8 (not shown), the estimates for home health agency costs for 1998 through 2003 are the gross amounts associated with the payment of benefits and are not adjusted for the funds transferred from the HI trust fund.

Based on the increases in table II.F3, table II.F4 (not included here) shows the estimates of the incurred reimbursement for the various intermediary services per fee-for-service enrollee. Each of these expenditure-categories is projected based on recent past trends in growth per enrollee, together with applicable legis-lated limits on payment updates.

c)　***Managed Care Costs***

Program experience with managed care payments has shown a strong upward trend in recent years, reflecting rapid increases in the number of Medicare beneficiaries choosing to enroll in managed care plans. Enrollment has increased most rapidly in the capitated plans which currently account for approximately 95% of all SMI managed care payments. For capitated plans, per capita amounts have grown following the same trend as fee-for-service per capita growth, based on the formula in the law to calculate managed care capitation amounts. The projection of future per capita amounts follows the requirements of the

Balanced Budget Act of 1997 as related to the Medicare+Choice capitation amounts, which increase at rates based on the per capita growth for all of Medicare, less specified adjustments in 1998 to 2002.

The increases in managed care were quite large in the early 1980s, but slowed in the late 1980s. Then, very rapid growth occurred through the mid 1990s. Recently the growth in managed care has slowed to a more moderate level. The projection of these increases assumes continued moderate enrollment growth in the next few years as additional Medicare+ Choice plans become available and the enrollment process becomes more straightforward and then more modest increases based on growth in Medicare total enrollment after that.

Letters to the Editor

The Simple Logic of Health Care Inflation, June 2000
Pension Section News

DEAR DAN:

Has the Health Section printed any response to Gerry Smedinghoff's article in the June 2000 Pension Section News? This strikes me as way off — but I am a pension actuary. I think I know where the Cato Institute stands on tax issues. I have read that increasing utilization of services is the primary source of the greater inflation in health care than in the CPI as a whole. There are new procedures, and people want them; perhaps too many hospitals get the equipment to provide them.

There are new medications, and they are advertised, so people ask their doctors for prescriptions. Of course some specific procedures may decrease in cost when they become more frequent. I don't see Mr. Smedinghoff's "divine mystery of healthcare inflation."

His tax numbers are off in a few ways. If the employer has an extra $5000 per employee, this covers $4645 in pay plus the employer's 7.65% share of Social Security and Medicare taxes. The after tax amount would be 53% not 50%.

He uses the 50% rate across wide pay ranges. No $12,000 worker ($17,000 with the $5,000

raise) has marginal tax rates of 28% Federal and 7% State; there might be no income tax for this person. He makes it seem that an employer with an extra $5000 per employee would actually distribute it on that basis, rather than in relation to pay or performance.

Mr. Smedinghoff's real estate analogy also seems flawed. It seems to me that this is a matter of supply and demand. In the long run, the population of the United States, the planet, and most states and regions will rise; the amount of habitable land will not rise much. Where demand is highest, prices go up the fastest.

In the San Francisco Bay area, housing costs have risen well in excess of the regional CPI over many long time intervals. The dramatic increases in the past decade are a matter of supply and demand. In one county, 250,000 jobs but only 60,000 housing units were added in eight years; this has affected the whole region. During the past few years of absurdly high increases in costs of homes, the number of people paying all cash has gone up.

Some buyers are paying premium prices above what was asked and ignoring the tax advantage of the mortgage interest deduction. I would guess that if the tax deductibility of mortgage interest were eliminated, there would be a one-time decrease in
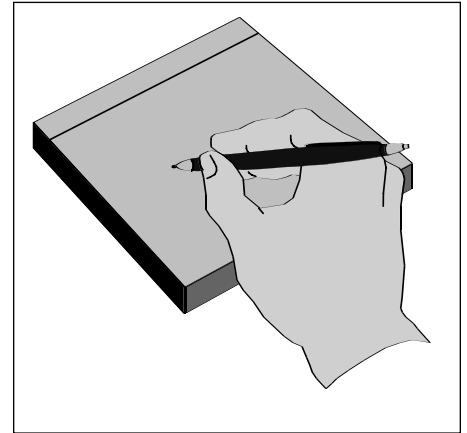
prices. Thereafter they would rise faster than the CPI as a whole due to population growth/supply and demand. Suppose that medical insurance premiums were taxed like wages. Would there be a decrease in costs? I believe the healthcare costs would continue to rise faster than the full CPI. But more importantly, what do our health actuaries think?

I do a lot of retiree medical valuations for small public agencies and unions. I assume medical premiums rise faster than the full CPI, and I have never included tax policy as an explanation. Please publish any rebuttal or comment from the Health Section.

Sincerely,

Steve Itelson

Steve Itelson, FSA, MAAA, IAAA, is a consulting actuary in San Francisco, CA. He can be reached at Itelson@aol.com.

Author Response

DEAR STEVE:

Thanks for reading my article and taking the time to write your letter. Here's my reply:

With respect to the precise numbers, Steve's comments are correct. The nominal health care tax subsidy is not exactly 50% and the subsidy does vary with salary below the top tax rate. My purpose was to keep the illustration simple and concise to explain the fundamental principle.

With respect to housing costs in Silicon Valley, the prices for any specific item in a local market have no relevance to the principle of the destructive consequences of the tax code. The scope of my article was nationwide long-term effects and trends. To quote Ludwig von Mises from his classic economic treatise, Human Action, "If a man exchanges two pounds of butter for a shirt, all that we can assert with regard to this transaction is that he — at the instant of the transaction and under the conditions which this instant offers to him — prefers one shirt to two pounds of butter."

With respect to the data sources, according to the Bureau of Labor Statistics, since 1957, housing CPI has exceeded overall CPI by 32%, health care CPI has exceeded overall CPI by 124%, while basic commodities have actually trailed the overall CPI by 25%.

As for higher education, in the July 6, 1998, issue of Forbes magazine, an article by Peter Brimelow explaining why higher education CPI has consistently exceeded overall CPI in the 20th Century states, "Curiousest of all: From 1987 to 1996, total student aid from all sources, including loans, increased by 128%. College charges simply rose to match (it)." By definition, technology reduces the cost of anything. If you invent a more expensive Rube Goldberg technology for a process (with the exception of a few obscure hobbyists), people won't use it. That's why the PC, copier and VCR you buy today are cheaper than the ones you bought ten years ago. The more expensive PCs, copiers and VCRs never made it past the prototype stage in product development. Why should health care be the only exception to this basic economic principle?

The utilization paradox is just as perplexing. In the 1970s, the average length of stay for a woman giving birth in a hospital was five days. Today it's two days. One would expect a 60% reduction in cost to match the reduction in resources allocated. Yet hospital maternal charges have most certainly exceeded the CPI over that period. It's not "dot-com fever" that's driving up the costs of delivering a baby nationwide over the past quarter century.

Regards,

Gerry Smedinghoff

Gerry G. Smedinghoff, ASA, MAAA, is an actuary and IT consultant with Symtec, Inc. in Wheaton, IL, and an adjunct board member of the Health Care Policy Reform Group of the Cato Institute located in Washington, DC. He can be reached at ggs@symtecinc.com.

DEAR DAN:

Just a quick note to let you know that I find the update in the *Pension Section News* regarding *Record* sessions on the Web very useful.

Regards,

Joe Nunes

Joseph F. Nunes, FSA, FCIA, is president of Actuarial Solutions, Inc. in Oakville, Ontario. He can be reached at asi@idirect.com.

✉   ✉   ✉

TECHNICAL UPDATE 00-4

PBGC's Full Funding Limit Exemption From The Variable Rate Premium

Editor's Note: This is an August 25, 2000, news release from The Pension Benefit Guaranty Corporation's Web site (www.pbgc.gov). *It is being reprinted with permission.*

See Examples 2 and 3 for situations where the RPA 94 full funding limit "90% override" is controlling.

- -

The Pension Benefit Guaranty Corporation (PBGC) today issued Technical Update 00-4, explaining how the full funding limit exemptions from PBGC's variable rate premium works in light of a change in the full funding limitation of Internal Revenue Code section 412 (c)(7).

The Retirement Protection Act of 1994 changed Internal Revenue Code section 412 (c)(7) by adding a "90% override" to the full funding limitation. The 90% override provides that the full funding limitation is not less than the excess, if any, of 90% of a pension plan's current liability over the actuarial value of the plan's assets.

The PBGC has received inquiries about the proper treatment of credit balances in applying the 90% override for purposes of PBGC's full funding limit exemption. Technical Update 00-4 clarifies what the correct result is under the statutory and regulatory framework of Title IV of the Employee Retirement Income Security Act of 1974.

Technical Update 00-4 is available on the PBGC's Web site at (www.pbgc.gov). *For more information, plan administrators and pension practitioners may contact Jane Pacelli of PBGC at (202) 326-4080, ext. 6775* (e-mail: pacelli.jane @pbgc.gov).

This technical update explains how the PBGC full funding limit exemption (PBGC FFL Exemption) from the variable rate premium (VRP) works in light of the changes the Retirement Protection Act of 1994 (RPA) made to the full funding limitation under section 412(c)(7) of the Internal Revenue Code of 1986 (Code). The RPA added a "90% override" to the full funding limitation. The 90% override provides that the full funding limitation is not less than the excess, if any, of 90% of the plan's current liability over the actuarial value of the plan's assets.

The PBGC has received inquiries about the proper treatment of credit balances in applying the 90% override for purposes of the PBGC FFL Exemption. This update clarifies what the correct result is under the statutory and regulatory framework of Title IV of ERISA.

Guidance

The 90% override does not require greater contributions for the PBGC FFL Exemption than are required for the plan to be at the full funding limitation under Code section 412(c)(7) for funding purposes. Accordingly, a plan qualifies for the PBGC FFL Exemption for a plan year if the sum of contributions to the plan for the prior year (including any interest credited under the funding standard account) and any credit balance in the funding standard account (including interest to the end of the plan year) is not less than the full funding limitation under Code section 412(c)(7).

For purposes of the preceding sentence

* the "Full Funding Limitation under Code section 412(c)(7)" means the full funding limitation as calculated for minimum funding purposes, i.e., the sentence in the PBGC regulations providing that "[p]lan assets shall not be reduced by the amount of any credit balance in the plan's funding standard account" is inapplicable;

* the PBGC rules (see 29 CFR § 4006.5(a)(5)) on rounding down contributions and on counting only contributions made by the earlier of the VRP due date or VRP payment date continue to apply.

See the Appendix to this update for examples of how the PBGC FFL Exemption works.

Effective Date

This guidance is generally effective for PBGC premium purposes for plan years beginning after December 31, 1995.

Effect of Guidance

This guidance will have no effect on the vast majority of plans for which a VRP was paid (see Example 1 in the Appendix). Based on the PBGC's analysis, there were only 100-200 plans since 1996 for which a VRP may have been paid solely as a result of applying the PBGC FFL Exemption in a manner inconsistent with this technical update (see Examples 2 and 3 in the Appendix). The plan administrator of such a plan

may apply for a refund through the PBGC's normal refund process (i.e., by filing an amended Form 1, including Schedule A, for the applicable year or years). Refunds are subject to the six-year limitations period in ERISA section 4003(f)(5).

For questions about this update, contact Jane Pacelli at 202-326-4080, ext. 6775.

Appendix to Technical Update 00-4
The following examples show how the PBGC FFL Exemption works. All amounts in the examples include interest to the end of the plan year and assume that actuarial value of assets equals market value of assets.

Example 1
Plan A has a full funding limitation under Code section 412(c)(7) (prior to applying the override) of $3,000, calculated as the excess of the plan's accrued liability of $30,000 over adjusted plan assets of $27,000 ($29,000 assets less $2,000 credit balance). The plan's 90% override full funding limitation is $900,

would have calculated its full funding limitation (using full assets) as $1,000 — the greater of $1,000 ($30,000 − $29,000) or $900 ($29,900 - $29,000) — and concluded that the plan would qualify for the PBGC FFL Exemption if employer contributions equaled or exceeded $1,000 (the same result as under the guidance in this technical update).

Example 2
Plan B has a full funding limitation under Code section 412(c)(7) (prior to applying the override) of $3,000, calculated as the excess of the plan's accrued liability of $30,000 over adjusted plan assets of $27,000 ($29,000 assets less $2,000 credit balance).

The plan's 90% override full funding limitation is $4,000, calculated as the excess of 90% of the plan's current liability ($33,000) over the plan's full assets of $29,000. Thus, the plan's full funding limitation is $4,000 (the greater of $3,000 or $4,000). Plan B will qualify for the PBGC FFL Exemption if employer contributions

exceeded the $4,000 full funding limitation.

Example 3
Plan C has a full funding limitation under Code section 412(c)(7) (prior to applying the override) of $4,000, calculated as the excess of the plan's accrued liability of $31,000 over adjusted plan assets of $27,000 ($29,000 assets less $2,000 credit balance). The plan's 90% override full funding limitation is $3,000, calculated as the excess of 90% of the plan's current liability ($32,000) over the plan's full assets of $29,000. Thus, the plan's full funding limitation is $4,000 (the greater of $4,000 or $3,000). Plan C will qualify for the PBGC FFL Exemption if employer contributions equal or exceed $2,000, because the sum of the contributions and the credit balance will equal or exceed the $4,000 full funding limitation.

Without the guidance in this technical update, the actuary for Plan C might have determined the full funding limitation to be $3,000

"The PBGC has received inquiries about the proper treatment of credit balances in applying the 90% override for purposes of the PBGC FFL Exemption. This update clarifies what the correct result is under the statutory and regulatory framework of Title V of ERISA."

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calculated as the excess of 90% of the plan's current liability ($29,900) over the plan's full assets of $29,000. Thus, the plan's full funding limitation is $3,000 (the greater of $3,000 or $900). Plan A will qualify for the PBGC FFL Exemption if employer contributions equal or exceed $1,000, because the sum of the contributions and the credit balance will equal or exceed the $3,000 full funding limitation.

The guidance in this technical update does not affect Plan A. Without this guidance, the actuary for Plan A

equal or exceed $2,000, because the sum of the contributions and the credit balance will equal or exceed the $4,000 full funding limitation.

Without the guidance in this technical update, the actuary for Plan B might have calculated its full funding limitation (using full assets) as the greater of $1,000 ($30,000 − $29,000) or $4,000 ($33,000 − $29,000), and concluded that the plan would not qualify for the PBGC FFL Exemption unless employer contributions equaled or

— the greater of the pre-override full funding limitation of $2,000 ($31,000 less full assets of $29,000) and the 90% override full funding limitation of $3,000 — and concluded that the plan would not qualify for the PBGC FFL Exemption unless employer contributions equaled or exceeded the $3,000 full funding limitation.

Joint Meeting of the Committee on Retirement Systems Research and Committee on Professional Education and Development

March 30, 2000
Marriott Wardman Park Hotel
Washington, DC

Attendees:
CRSR:
 Zenaida Samaniego, Chair; Bob Campbell, Gerry Campbell, Larry Pinzur and Marilyn Oliver.

CRSPED:
 Joseph Applebaum, Chair; Mary Adams (by telephone), Douglas Borton, Ho Kuen Ng and Neil Parmenter.

Guests:
 Edward Hustead, Chair, and Michael Virga, Vice Chair of the RPEC (Retirement Plans Experience Committee.)

SOA Staff:
 Judy Anderson and Tom Edwalds.

1. Administration
Doug Borton agreed to take the minutes. The minutes of the January 14, 2000, meeting in Orlando were approved with the following editorial changes:

 Change the first sentence of item 10 to "Marilyn reported that a number of Retirement Needs Framework abstracts were available on the SOA Web site."

 In item 11 correct the spelling of "focusing."

 Change the beginning of item 13 to "The research part of the cash

balance study is complete and the paper is in the final editing stage. Given the extent to which cash balance plans have become controversial over the past year,..."

 The next meeting of the joint committees will be on July 10, 2000, in San Diego, CA with break-out meetings on July 11. Tom Edwalds will make dinner arrangements for the night of July 10.
 The following joint committee meeting will be on October 19, 2000, in Chicago, IL in connection with the SOA Annual Meeting.

2. Chair's Report
Zenaida Samaniego reported that $5,000 has been committed to the Cash Balance project described in item 12.
 Tom Edwalds provided an update on the research funding status. There are no financial commitments to other projects at this time.

3. RP2000 Mortality Table Project
There was an extended discussion with Ed Hustead and Michael Virga regarding the RP2000 Exposure Draft and Zenaida's letter with the CRSR's comments. In view of the scope of the work to be done, Ed Hustead feels it will be impossible to meet a target date of June 30, 2000. The RPEC will meet in April to consider the suggestions of the CRSR as clarified at this meeting. The final document needs the approval of the CRSR and the Practice Advancement Committee before being submitted to the SOA Board of Governors for approval to forward it to the American Academy of Actuaries. The Academy will decide
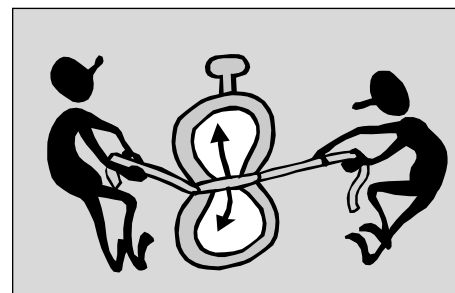
whether to recommend the adoption of the new mortality table or tables by the United States Treasury Department.
 It was emphasized that there is a need for consistency in wording between the executive summary and the main body of the report, particularly as to whether a particular course of action is "recommended," "suggested" or "encouraged." Ed Hustead believes that if something is recommended the actuary does not have to justify not using it.
 A major area discussed at the meeting was the extent to which differences in mortality by collar or amount should be recognized. It was noted that data concerning collar generally will be more useful, since amount usually would have to be adjusted to reflect factors such as time of retirement, optional benefit elections and inflation. There was a consensus that future mortality improvements should be anticipated. With software becoming more sophisticated, it appears that the use of generation mortality tables will be facilitated in the future. However, the CRSR feels that actuaries should be permitted to use projected static tables in the meantime.
 The committee agreed that it would not be necessary to expand the report to cover small plan issues.

The committee expressed its appreciation to the RPEC for its extended efforts on this project.

4. Macrodemographic Models

It was reported that the researcher, Joe Anderson, has submitted a draft of the study. Three models are described in some detail and others are summarized. The POG will discuss the status of this project with Mr. Anderson and encourage him to complete it in a timely manner. The POG will be asked to bring a report and recommendation to the July meeting.

5. Cash Balance Study

The POG is completing its review of the Cash Balance Study. It is hoped that CRSPED will be able to approve it at the July meeting or by means of an earlier conference call.

6. Retirement 2000 Conference

Judy Anderson reported that the Retirement 2000 conference was very successful with about 150 actuaries and other professionals attending. She has distributed a CD-ROM and disc of the presentations to the Retirement Needs Working Group.

7. Professional Development (PD) Implementation

Judy Anderson reported that the Pension Section plans to offer PD seminars in almost every month this year. Some leaders have been selected and others are being recruited. The topics will include cash balance plans, experience analysis and selection of assumptions, public plans, accounting, and mergers and acquisitions. ASPA expects to run a seminar on small plans

8. SOA Annual Meeting Topics

Neil Parmenter reported that CRSPED will be responsible for nine sessions at the October Annual Meeting in Chicago. The session descriptions have been written and the committee members responsible for the sessions have been selected. As presenters are recruited, the SOA

office should be notified even if the entire panel is not yet in place.

9. Retirement Needs Framework

Marilyn Oliver reported that the Retirement Needs Working Group is trying to set up a Web site on retirement data and articles. Judy Anderson noted that the SOA Web site is being enhanced to make it easier to access material on other sites.

10. Mortality Projection

Marilyn Oliver reported that the Mortality Projection Working Group met on March 29 with the research team selected by the POG. The team is led by David Kays of Acuff & Associates, Inc. and also includes representatives of Lynchval. The project will study the impact of different ways of projecting future mortality improvements on valuation results.

A question has been raised as to whether mortality projection factors should be applied retrospectively in calculating entry age normal rates. A brief discussion resulted in no consensus being reached by the committee members on this issue. The POG will consider it further.

11. Turnover/Retirement Study

Neil Parmenter reported that he has been invited to participate in a conference call of the chief actuaries of major consulting firms on April 3 at which he will identify data needs for the turnover/retirement study. The Task Force has approved a preliminary letter that specifies the data requirements. This will be sent to the participating firms with a May 1 deadline to reply with any comments. Neil hopes to get all of the data by September 30.

12. Asset Valuation "Call for Papers"

Larry Pinzur said that abstracts for seven papers have been received. The papers will be published in the Pension Forum.

13. Cash Balance "Call for Papers"

Zenaida Samaniego reported that the Project Oversight Group established by

the CRSR and SOA Pension Section has issued a "Call for Papers" on Cash Balance Pension Plans. The deadline for abstracts or outlines is May 15 with the papers to be submitted by March 2001.

14. Demographic Assumptions and Rates of Return

Joe Applebaum reported that there has been minimal progress since the last meeting. Joe, Judy Anderson, and Ho Kuen Ng will follow up.

15. Urban Institute

Judy Anderson reported that the SOA staff has reviewed the questionnaire that will be sent to employers for the joint Urban Institute-SOA project on early retirement. This project is being funded by the UI.

16. Salary Scales Project

This project is on hold.

17. Research Topics

The following research ideas were suggested for future consideration:

- Methods of projecting mortality improvements
- Employee mortality by salary level
- Tracking trends in male and female mortality
- Variations in disability experience by plan definition
- Insured vs. uninsured mortality
- Expansion of actuarial models
- Valuation of retiree medical benefits
- Better measurement of mortality under J&S options
- HRS survey of lump sum utilization
- Study of retirement planning software

Tom Edwalds said he gets a lot of requests regarding differences in mortality by occupation.

Submitted by Julie Rogers, research assistant at the Society office.

Record *Sessions for Pension Track on the Web*
Posted since June 2000 Newsletter

*The following sessions are available for downloading at the Society's Web site: (***http://www.soa.org/pubs/record.html***).*

Seattle Meeting, June 1999

Session 21PD   Retirement Plans for Today's Work Force
Panelists discuss considerations in U.S. and Canadian retirement program design, including work force needs, common types of DB and DC plan designs and their effect on employees, and factors that lead to modifying plan designs.

San Francisco Meeting, October 1999

Session 9PD   Two Score and Ten Years of Pensions
In recognition of the SOA's 50th Anniversary, panelists discuss the evolution of U.S. pension benefits, funding, and payment conditions from 1940 to the present. Topics include collective bargaining, Social Security, ERISA, Post-ERISA Tax Code and Department of Law changes, IRA introduction, replacement of DB plans with DC plans, and changes in employee/employer relations.

Session 39PD   Pension Plan Mortality
Members of the SOA Retirement Plans Experience Committee report on its response to the possibility of a new table for plan years beginning in 2000 and the need for a current mortality study based only on insured pension plan experience.

Session 63PD   Actuarial Expert Testimony
The panel reviews the practical and ethical problems in both the U.S. and Canada as actuaries become increasingly involved in litigation as expert witnesses.

Study Note Corner

With the year 2000 redesign of the Society of Actuaries Education and Examination syllabus and preparations for the first administration of Course 8 - Retirement Benefits, a variety of new study notes have been produced. New titles include:

- Innovations in Canadian Pension Plan Design
- Design and Funding of other Post-Employment Benefits
- Pension Plan Financial Statements: CICA 4100 and FAS 35
- FAS 106 and FAS 112
- Pension Accounting: International, U.S. and Canadian Standards
- Multiemployer Plans
- Introduction and Overview of Retirement Plan Investments
- Pension Issues for Insurance Companies - GICs and Asset/Liability Matching
- Statement of Investment Policy for Defined Benefit and Defined Contribution Pension Plans

In this Study Note Corner, we will feature two of these study notes. Future corners will give a more in-depth treatment of the remaining notes and other new study notes as they are published.

Study notes can be purchased individually from the Society of Actuaries Study Note Coordinator Aleshia Zionce at (847) 706-3525, or e-mail at *azionce@ soa.org*. All study notes will be listed in the *Fall 2000 Basic Education Catalog*.

Pension Plan Financial Statements - CICA 4100 and FAS 35

by Daniel Morrison

Section 4100 of the Canadian Institute of Chartered Accountants' Handbook (CICA 4100) and Statement of Financial Accounting Standards No. 35 (FAS 35) establish standards for measurement and disclosure for pension plan financial statements for Canada and the United

States respectively. Similar standards may apply in other countries.

In both cases, the purpose of the accounting standards is to establish generally accepted accounting principles (GAAP) for pension plan financial statements. Such statements provide general purpose financial information for the pension plan participants and other interested parties, and are separate and distinct from the financial statements of the plan sponsor. Different accounting standards apply to the measurement and disclosure of pension plan information for reporting in an employer's financial statements (in Canada, CICA 3461; in the U.S., FAS 87 and FAS 88). None of the accounting standards address the contents of benefit statements for individual plan participants.

The purpose of this study note is to provide a summary of the two accounting standards, noting the differences, to illustrate two aproaches to the presentation of pension plan financial statements.

Introduction and Overview of Retirement Plan Investments

by Robert G. Sanford Jr. and Richard C. Fulljames

A key component to the overall operation of most retirement plans is the accumulation and holding of plan assets in order to meet the financial commitments of the plan. There are some plans, particularly executive benefit plans, under which no assets accumulate. Such plans are the exception rather than the rule, however, and a thorough understanding of various funding instruments, as well as the nature of the underlying financial assets is essential. With such knowledge, it then becomes possible to choose assets and asset allocations appropriate to plan liabilities, select and apply appropriate asset valuation methods and match plan assets and liabilities, etc. In short, a working knowledge of assets and funding instruments is required in order to utilize

the actuarial techniques needed to manage any retirement program.

This study note discusses:
- Responsibility for oversight of retirement plan investments
- Types of vehicles available
- Objectives of pension plan investing
- Classes of investments
    - Fixed income securities
        - Treasury securities
        - Municipal bonds
        - Corporate bond
        - Mortgage pass-through security
        - Collateralized mortgage obligations
        - Asset backed securities
        - Convertible bonds
    - Fixed income risks
        - Duration
        - Convexity
    - Equity investments
        - Stocks
        - Warrants
        - Derivatives
        - Swaps
        - Real estate
        - Market neutral fund

RP-2000 Mortality Tables Report Executive Summary

The Retirement Protection Act of 1994 (RPA) established mortality assumptions to be used when calculating current liabilities for pension plans. This was the first time that standard tables had been mandated for this purpose. The Secretary of the Treasury has the authority to promulgate a new table in the year 2000. The Society of Actuaries (SOA) conducted this study of uninsured pension plan mortality in response to RPA and to ensure that the Treasury Department would have current and thorough information available when it considers updating the mandatory mortality table. The SOA charged the Retirement Plans Experience Committee (RPEC) with the responsibility for conducting this study.

The purpose of this report is to provide actuaries with all of the significant findings of the RPEC along with full explanation of when and how these should be used in reviewing or setting mortality rates for specific plans. The report does not recommend specific tables to the Secretary of Treasury to adopt in conformance to RPA. The SOA believes it is appropriately the role of the American Academy of Actuaries to recommend tables to the Secretary based on this mortality study and other pertinent information.

This report presents the RP-2000 Tables, new graduated basic amount-adjusted mortality tables projected to the year 2000, and explains how the tables were developed. Scale AA is recommended for projecting the proposed mortality rates beyond the year 2000. The report compares experience by type of employment, amount of annuity, and industry. Actuaries should keep in mind that these tables were developed from experience on mortality for uninsured pension plans and are only recommended for use for those types of plans.

The final database used for this study reflects nearly 11 million life-years of exposure and more than 190,000 deaths, all from uninsured pension plans subject to RPA Current Liability rules. More than 100 pension plans submitted data in response to the request from the RPEC for experience from plan years 1990 through 1994. The RPEC determined that this volume of data was sufficient to produce valid mortality tables.

The contributors were asked to provide data defined by several characteristics including Standard Industrial Classification (SIC) and amount. The contributors indicated whether the plan covered hourly or salaried workers, and whether the plan was collectively bargained or not. Based on this information, plans were categorized as blue collar, white collar, or mixed collar. The data contributors summarized their mortality experience

into cells by age, gender, and status (employees, retirees, disableds, and beneficiaries).

For each cell, the RPEC asked the submitter to provide the number of participants on the valuation date, the amounts of annual pay or annuities, the number of deaths during the year following the valuation date, and the amounts associated with those deaths. While all data contributors included the number of participants and the number of deaths, many did not provide information on amounts. About 60% of the exposed employee lives and 40% of the exposed annuitant lives included information about amounts. The RPEC used data from plans providing amounts to adjust the lives-based mortality for the entire database to an amount-adjusted basis.

The RPEC generated separate tables by gender for employees, healthy annuitants, and disabled retirees. The RPEC agreed that there was sufficient data for credible tables for these groups and that the mortality among the groups differed sufficiently to justify use of separate tables. Where unisex tables are desirable, the RPEC recommends that the actuary should construct blended tables based on the proportion of each gender in the plan population.

The healthy annuitant table combines experience of healthy retirees and beneficiaries. A combined employee and healthy annuitant table was also produced

as a more direct comparison to earlier tables and for actuaries to use if a combined table is needed. The RPEC encourages use of the separate employee and healthy annuitant tables.

Using the RP-2000 mortality table for healthy annuitants may overstate plan liabilities if used to value benefits for both healthy and disabled annuitants. However, the RP-2000 mortality table for disabled retirees may not be appropriate for valuing benefits of disabled annuitants in all cases. This table is based on the experience of all disabled annuitants whether or not they were eligible to receive Social Security disability benefits. Actuaries should use professional judgment when applying this table if the plan's definition of disability is particularly strict or liberal.

The central year of the data for these tables was estimated as 1992, and the tables were projected to the base year 2000. Three sources of data were reviewed to study recent trends in mortality. These were Social Security, Federal Civil Service, and the data collected for this study. The RPEC developed mortality improvement factors to project from 1992 to 2000 based on analysis of these sources. To study long-term trends in mortality, the RPEC examined data from four sources: Social Security, Federal Civil Service, the Railroad Retirement Board, and the SOA group annuity mortality studies. The RPEC decided to recommend the use of Scale AA for projecting mortality rates beyond the year 2000. Scale AA was developed for

use with the Group Annuity Reserving 1994 table. The RPEC recommends projection of mortality rates and encourages the use of generational mortality projection. In cases where it is not material or cost effective to incorporate generational mortality projection, the actuary should project mortality improvement on a comparable static basis.

Statistical analysis of the data showed that collar type and amount are both significant predictors of mortality for this data set. For example, for male annuitants age 65 to 69, the small amount mortality was 77% greater than the large amount mortality, and blue collar mortality was 43% greater than white collar mortality. By comparison, male annuitant mortality was 31% greater than female mortality at age 67. Collar type is defined as blue or white depending on the characteristics of the group. Amount is defined as low, medium, or high based on the individual's annuity. SIC was not found to be a consistently significant predictor of mortality.

The RPEC found that both collar and amount can bear a relationship to the underlying mortality characteristics of a retirement plan. The RPEC recommends that the individual characteristics and experience of a retirement plan be considered in selecting the mortality table. In certain cases either collar or amount may be appropriate factors to consider, subject to the theoretical concerns outlined in Chapter 5. While either factor was found to be a statistically significant indicator of differences in mortality, the

RPEC recognizes that for the majority of plans subject to RPA legislation, adjustment of the standard mortality tables in a manner consistent with the data collection method and results of this study will be considerably more practical if the collar factor is used.

An analysis of the variability of mortality experience among plans in the same industry showed that differences were statistically significant in most cases tested. Actual deaths by plan ranged from about 20% below industry average to 30% above industry average. Significant differences were found even after adjusting for collar type and annuity size group.

Annuity values based on the RP-2000 Tables were calculated and compared to annuity values based on the GAM-83 and UP-94 tables. In general, the RP-2000 values are between two and nine percent higher for males and between three and five percent lower for females than the GAM-83 values. The RP-2000 values for males under age 80 are within two percent of the values based on the UP-94 table projected to 2000. For males at ages 80 and 90, the RP-2000 values are substantially lower than the projected UP-94 values. For females, the RP-2000 values are lower than the projected UP-94 values by about two to four percent.

Continuing Education Update

by Barb Choyke

Here's a quick overview of the sessions related to pension topics offered at the 2000 Annual Meeting in Chicago, Illinois. If you haven't made plans to join us, there is still time to register and spend one of the most beautiful times of the year in Chicago. The Sheraton Chicago Hotel is located along the Chicago River, just a stone's throw from Lake Michigan. Great restaurants, great shopping, and great meeting sessions await you in mid-October. Here is a list of topics that may capture your interest:

Monday, October 16

The Latest on Mortality Projection,	90 minutes Core EA credit
Interest Scenarios	90 minutes Core EA credit
Lump Sum Topics	90 minutes Core EA credit

Tuesday, October 17

GIC in a Box	90 minutes NonCore EA credit
Recent Trends in Retirement Benefits Design	90 minutes NonCore EA credit
Managing Risk in Extreme Market Environments	90 minutes NonCore EA credit
Communicating Retirement Plan Concepts	90 minutes NonCore EA credit
New Developments in Cash Balance Plans	90 minutes Core EA credit
How is Behavioral Finance Behaving?	90 minutes NonCore EA credit

Wednesday, October 18

Testimony-Is That Your Final Answer?	90 minutes NonCore EA credit
Current Issues in Social Security	90 minutes NonCore EA credit
Retirement Systems Research and Education Activities	90 minutes NonCore EA credit
Interest Rate Models in Actuarial Practice Research Project	90 minutes NonCore EA credit

Next year is the last year in the EA enrollment cycle. Do you have enough continuing education? Don't wait until the last minute to check your credit status. The Society of Actuaries has audio tapes and accompanying questionnaires to help you meet those goals. Check the SOA Web site *(www.soa.org)* for the listing of tapes and questionnaires. Material covered is from Atlanta, Seattle, San Francisco, Las Vegas, and San Diego meetings.

New Research Reports Available

To: **Pension Actuaries**

The Research Department of the Society of Actuaries is pleased to announce the completion of "The RP-2000 Mortality Tables Report." The report is on the SOA Web site http://www.soa.org/research/rp2000.html and advance photocopies are available through Books Department for $35. The report will be submitted for publication in a future issue of TSA *Reports.*

We are also pleased to announce the completion of "Actuarial Aspects of Cash Balance Plans." The report is on the SOA Web site: http://www.soa.org/research/actuarial_aspects.html *and advance photocopies are available thru the Books Department for $20. The report will appear in the next issue of* Pension Forum.