

PENNSYLVANIA COMPENSATION RATING BUREAU

Tail Factors for Loss Development

The PCRB collects financial loss development data for separate policy years beginning with policy year 1978 and continuing forward to the most recent policy period. For policy years prior to 1978, a single aggregate line of experience is reported for all older policy years combined.

Beginning with collection of financial data valued as of 12/31/99, the PCRB has advanced by one year the earliest policy year reported from 1978 to 1979 as of 12/31/99, 1980 as of 12/31/00 and 1981 as of 12/31/01. Thus, the 1998 vs. 1999 valuations in the tail factor calculation will use policy year 1979 as the earliest separate policy year and an aggregate line of experience for policy years 1978 and prior. The 1999 vs. 2000 valuations in the tail factor calculation will use policy year 1980 as the earliest separate policy year and an aggregate line of experience for policy years 1979 and prior. The 2000 vs. 2001 valuations in the tail factor calculation will use policy year 1981 as the earliest separate policy year and an aggregate line of experience for policy years 1980 and prior. The following discussion focuses on data with an earliest available policy year of 1978. The discussion for data starting with policy years 1979, 1980 and 1981 would, however, be analogous.

Prior to 1995, the PCRB has computed incurred loss development for maturities older than policy year 1978 (i.e., the pre-1978 “tail”) by comparing the total amount of dollar development in incurred losses occurring in a given calendar year to the incurred loss reported for policy year 1978 at the beginning of that same calendar period.

As part of the Insurance Department’s examination of the Bureau, the actuarial firm retained to perform portions of that review commented that the PCRB’s approach effectively assumed that each policy year prior to 1978 had the same amount of ultimate losses as did policy year 1978. Since policy year losses have tended to increase from year to year in response to benefit and price changes, changes in employment volume and other features affecting loss trends, this assumption was noted as understating the true tail in the PCRB’s loss development analysis. The contractor recommended that for future filings the PCRB add a growth adjustment to its tail factor calculation.

In response to this recommendation the PCRB changed its derivation of tail factors for its 12/1/95 filing. That approach, used again for this filing, is applied separately for indemnity and medical loss experience and for each calendar year of experience, and outlined as follows:

1. A starting policy year loss amount based on the average reported incurred loss for policy years 1978-1980 was computed.
2. An annual loss inflation factor was selected based on observed changes in incurred losses by policy year for the older policy years having separate experience data reported.
3. A historical series of estimated incurred losses by policy year beginning with policy year 1977 was computed using the starting point from #1 and the selected inflation factor from #2.
4. A calendar year loss development factor was selected for policy year 1977 based on observed developments for the oldest years with actual separate experience available.
5. A rate of decline in calendar year loss development factors by policy year was then computed such that when the resulting series of loss development factors was applied to the historical series of estimated incurred losses in #3, the total implied dollar amount of loss development for the calendar year balanced to the observed amount of development on policy years prior to 1978.
6. The “tail factor” applicable to maturities prior to policy year 1978 based on that calendar year of experience was then computed as the cumulative product of the series of loss development factors constructed in #5.

In general, this approach produced policy year incurred losses and loss development factors such that measurable development terminated for policy years in the mid- to early 1930's. Because the amount of calendar year development observed for policy years prior to 1978 varied considerably from year to year, some variations in the application of the initial selected loss development factor were necessary (i.e., whether the initial selection was applied to 1, 2 or 3 prior policy years before beginning the application of the selected rate of decline in loss development). In addition, the selected rates of decline in loss development factors vary from calendar year to calendar year in order to achieve the desired balance with observed calendar year development.

Recognizing the volatility of observed calendar year development for policy years prior to 1978 in the aggregate, the PCRB elected to use an experience period comprising four calendar years of loss development in computing indicated tail factors for this filing.

A summary exhibit on page 1 presents results of both the previous and revised approaches to the derivation of tail development factors. Finally, averages computed using both two-year and four-year calculations are presented for comparison purposes. Following the summary page, eight exhibits presenting the derivation of indicated tail factors using the procedure outlined above are attached (four for indemnity and four for medical). These exhibits are numbered as pages 2 through 9 respectively.

SUMMARY OF LOSS DEVELOPMENT TAIL FACTOR CALCULATIONS

VALUATION	MATURITY	INDEMNITY		MEDICAL	
		OLD	NEW	OLD	NEW
00V01	20TH TO ULT.	0.9901	0.9881	1.0878	1.1109
99V00	20TH TO ULT.	1.0166	1.0205	1.0844	1.1029
98V99	20TH TO ULT.	1.0047	1.0059	1.0473	1.0606
97V98	20TH TO ULT.	0.9930	0.9922	1.0718	1.0724
AVERAGE OF LATEST 2 VALUATIONS		1.0034	1.0043	1.0861	1.1069
AVERAGE OF LATEST 4 VALUATIONS		1.0011	1.0017	1.0728	1.0867

Indemnity: 00v01

Latest 12/31 Prior to 1981 Incurred	2,551,383,639
Next Latest 12/31 Prior to 1981 Incurred	2,555,151,990
CY Development of Prior Yrs	-3,768,351
Next Latest PY 1981 Incurred	379,765,024
# of 1981 Yrs in Prior Data	6.72
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.95

- 1 Policy Yr 1980 Incurred = Average of 1981, 1982, 1983, reduced by PY Deflation ^ 2
- 2 PY 1979 & Prior = Subsequent Yr x PY Deflation
- 3 1980 Development Selected Based on Observed 1981, 1982, 1983
- 4 PY 1979 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = .9881 vs .9901 -3,768,351
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2003 Loss Cost Filing

INDEMNITY

Policy Year	(*=Estimate)	12/31/01 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/01 Incurred	Prior Year Development	Dollar Development	DF
1936	*	37,737,439	1.000000	0	1.0000 #	1969	*	205,065,900	.999873	-25,982	.9995
1937	*	39,723,620	1.000000	-1	1.0000 #	1970	*	215,858,843	.999831	-36,468	.9993
1938	*	41,814,337	1.000000	-1	1.0000 #	1971	*	227,219,834	.999775	-51,185	.9991
1939	*	44,015,091	1.000000	-1	1.0000 #	1972	*	239,178,773	.999700	-71,844	.9988
1940	*	46,331,675	1.000000	-1	1.0000 #	1973	*	251,767,129	.999600	-100,844	.9984
1941	*	48,770,184	1.000000	-2	1.0000 #	1974	*	265,018,031	.999466	-141,555	.9979
1942	*	51,337,036	1.000000	-3	1.0000 #	1975	*	278,966,348	.999288	-198,709	.9972
1943	*	54,038,985	1.000000	-4	1.0000 #	1976	*	293,648,788	.999051	-278,956	.9962
1944	*	56,883,143	1.000000	-5	1.0000 #	1977	*	309,103,987	.998735	-391,641	.9949
1945	*	59,876,992	1.000000	-8	1.0000 #	1978	*	325,372,618	.998313	-549,904	.9933
1946	*	63,028,413	1.000000	-11	1.0000 #	1979	*	342,497,493	.997750	-772,230	.9910
1947	*	66,345,698	1.000000	-15	1.0000 #	1980	*	360,523,676	.99700491	-1,084,647	.9881
1948	*	69,837,577	1.000000	-21	1.0000 #	1981		380,132,019	1.0010		
1949	*	73,513,238	1.000000	-30	1.0000 #	1982		372,599,518	0.9993		
1950	*	77,382,356	.999999	-41	1.0000 #	1983		445,685,116	0.9977	Total	
1951	*	81,455,112	.999999	-58	1.0000 #	1984		568,270,212	1.0006	Development:	
1952	*	85,742,223	.999999	-82	1.0000 #	1985		652,365,898	0.9982	-3,768,351	
1953	*	90,254,972	.999999	-115	1.0000 #	1986		761,635,555	0.9991		
1954	*	95,005,233	.999998	-161	1.0000 #	1987		929,911,717	1.0029		
1955	*	100,005,509	.999998	-226	1.0000 #	1988		1,060,440,672	0.9988		
1956	*	105,268,957	.999997	-317	1.0000 #	1989		1,236,625,873	0.9994		
1957	*	110,809,428	.999996	-445	1.0000 #	1990		1,261,981,069	0.9986		
1958	*	116,641,503	.999995	-624	1.0000 #	1991		1,111,133,001	0.9967		
1959	*	122,780,530	.999993	-876	1.0000 #	1992		925,293,664	1.0017		
1960	*	129,242,663	.999990	-1,229	1.0000 #	1993		800,119,191	1.0020		
1961	*	136,044,908	.999987	-1,725	.9999 #	1994		733,110,850	0.9982		
1962	*	143,205,166	.999983	-2,422	.9999 #	1995		629,782,995	1.0152		
1963	*	150,742,280	.999977	-3,399	.9999 #	1996		535,052,082	1.0237		
1964	*	158,676,085	.999970	-4,770	.9999 #	1997		552,334,318	1.0489		
1965	*	167,027,458	.999960	-6,695	.9998 #	1998		539,181,501	1.1649		
1966	*	175,818,376	.999947	-9,397	.9998 #	1999		530,757,299	1.4252		
1967	*	185,071,975	.999929	-13,189	.9997 #	2000		397,426,448	3.2719		
1968	*	194,812,605	.999905	-18,512	.9996 #	2001		128,687,449			

Medical 00v01

Latest 12/31 Prior to 1981 Incurred	504,873,352
Next Latest 12/31 Prior to 1981 Incurred	494,521,210
CY Development of Prior Yrs	10,352,142
Next Latest PY 1981 Incurred	117,967,878
# of 1981 Yrs in Prior Data	4.28
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.93

- 1 Policy Yr 1980 Incurred = Average of 1981, 1982, 1983, reduced by PY Deflation ^ 2
- 2 PY 1979 & Prior = Subsequent Yr x PY Deflation
- 3 1980 Development Selected Based on Observed 1981, 1982, 1983
- 4 PY 1979 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.1109 vs 1.0878 10,352,143
-1

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2003 Loss Cost Filing

MEDICAL

Policy Year	(*=Estimate)	12/31/01 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/01 Incurred	Prior Year Development	Dollar Development	DF
1933	*	3,967,432	1.000000	0	1.0000 #	1969	*	54,090,796	1.001119	60,460	1.0045
1934	*	4,266,056	1.000000	0	1.0000 #	1970	*	58,162,146	1.001492	86,648	1.0060
1935	*	4,587,157	1.000000	0	1.0000 #	1971	*	62,539,942	1.001989	124,165	1.0080
1936	*	4,932,427	1.000000	0	1.0000 #	1972	*	67,247,249	1.002652	177,897	1.0107
1937	*	5,303,685	1.000000	1	1.0000 #	1973	*	72,308,870	1.003537	254,825	1.0142
1938	*	5,702,887	1.000000	1	1.0000 #	1974	*	77,751,473	1.004715	364,912	1.0190
1939	*	6,132,137	1.000000	1	1.0000 #	1975	*	83,603,735	1.006287	522,354	1.0254
1940	*	6,593,695	1.000000	2	1.0000 #	1976	*	89,896,489	1.008383	747,338	1.0340
1941	*	7,089,995	1.000000	3	1.0000 #	1977	*	96,662,891	1.011177	1,068,492	1.0456
1942	*	7,623,651	1.000000	4	1.0000 #	1978	*	103,938,593	1.014903	1,526,264	1.0612
1943	*	8,197,474	1.000001	5	1.0000 #	1979	*	111,761,928	1.019871	2,177,534	1.0822
1944	*	8,814,488	1.000001	7	1.0000 #	1980	*	120,174,116	1.026494450	3,101,767	1.1109 20TH TO ULT.
1945	*	9,477,944	1.000001	11	1.0000 #	1981	*	120,050,047	1.0177		
1946	*	10,191,338	1.000001	15	1.0000 #	1982	*	132,931,275	1.0070	Total	
1947	*	10,958,427	1.000002	22	1.0000 #	1983	*	163,855,708	1.0155	Development:	
1948	*	11,783,255	1.000003	31	1.0000 #	1984	*	215,410,866	1.0195	10,352,143	
1949	*	12,670,167	1.000004	45	1.0000 #	1985	*	275,653,100	1.0120		
1950	*	13,623,836	1.000005	64	1.0000 #	1986	*	309,576,712	0.9992		
1951	*	14,649,286	1.000006	92	1.0000 #	1987	*	418,749,915	1.0105		
1952	*	15,751,920	1.000008	132	1.0000 #	1988	*	513,674,899	1.0265		
1953	*	16,937,548	1.000011	190	1.0000 #	1989	*	628,257,704	1.0140		
1954	*	18,212,418	1.000015	272	1.0001 #	1990	*	663,654,552	1.0121		
1955	*	19,583,245	1.000020	390	1.0001 #	1991	*	621,044,562	1.0154		
1956	*	21,057,252	1.000027	560	1.0001 #	1992	*	545,057,191	1.0315		
1957	*	22,642,207	1.000035	803	1.0001 #	1993	*	460,793,625	1.0198		
1958	*	24,346,459	1.000047	1,151	1.0002 #	1994	*	421,420,143	1.0190		
1959	*	26,178,988	1.000063	1,650	1.0003 #	1995	*	394,868,241	1.0215		
1960	*	28,149,450	1.000084	2,365	1.0003 #	1996	*	401,226,971	1.0296		
1961	*	30,268,225	1.000112	3,390	1.0004 #	1997	*	434,192,216	1.0292		
1962	*	32,546,479	1.000149	4,861	1.0006 #	1998	*	466,981,950	1.0694		
1963	*	34,996,214	1.000199	6,968	1.0008 #	1999	*	473,188,251	1.1480		
1964	*	37,630,337	1.000266	9,990	1.0011 #	2000	*	446,973,275	2.3343		
1965	*	40,462,728	1.000354	14,321	1.0014 #	2001	*	191,289,450			
1966	*	43,508,310	1.000472	20,530	1.0019 #						
1967	*	46,783,129	1.000629	29,428	1.0025 #						
1968	*	50,304,440	1.000839	42,182	1.0034 #						

Inputs for Tail Factor Estimation - 2003 Loss Cost Filing

Indemnity: 99v00

Latest 12/31 Prior to 1980 Incurred 2,209,331,499
 Next Latest 12/31 Prior to 1980 Incurred 2,203,268,103
 CY Development of Prior Yrs 6,063,396
 Next Latest PY 1980 Incurred 364,324,361
 # of 1980 Yrs in Prior Data 6.06
 Selected Decrement, Development Factor 0.75
 Selected Average PY Inflation 0.95

- 1 Policy Yr 1979 Incurred = Average of 1980, 1981, 1982, reduced by PY Deflation ^ 2
- 2 PY 1978 & Prior = Subsequent Yr x PY Deflation
- 3 1979 Development Selected Based on Observed 1980, 1981, 1982
- 4 PY 1978 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0205 vs 1.0166 6,063,396
 0

Pennsylvania Compensation Rating Bureau
 Tail Factor Model - 2003 Loss Cost Filing

INDEMNITY

Policy Year	(*=Estimate)	12/31/00 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/00 Incurred	Prior Year Development	Dollar Development	DF
1934	*	34,069,170	1.000000	0	1.0000 #	1968	*	194,876,279	1.000215	41,878	1.0009
1935	*	35,862,285	1.000000	1	1.0000 #	1969	*	205,132,926	1.000287	58,776	1.0011
1936	*	37,749,773	1.000000	1	1.0000 #	1970	*	215,929,395	1.000382	82,493	1.0015
1937	*	39,736,604	1.000000	1	1.0000 #	1971	*	227,294,100	1.000509	115,780	1.0020
1938	*	41,828,004	1.000000	2	1.0000 #	1972	*	239,256,948	1.000679	162,498	1.0027
1939	*	44,029,478	1.000000	2	1.0000 #	1973	*	251,849,419	1.000906	228,067	1.0036
1940	*	46,346,819	1.000000	3	1.0000 #	1974	*	265,104,651	1.001207	320,094	1.0048
1941	*	48,786,125	1.000000	4	1.0000 #	1975	*	279,057,528	1.001610	449,255	1.0065
1942	*	51,353,816	1.000000	6	1.0000 #	1976	*	293,744,766	1.002147	630,534	1.0086
1943	*	54,056,648	1.000000	9	1.0000 #	1977	*	309,205,017	1.002862	884,960	1.0115
1944	*	56,901,735	1.000000	12	1.0000 #	1978	*	325,478,965	1.003816	1,242,049	1.0154
1945	*	59,896,563	1.000000	17	1.0000 #	1979	*	342,609,437	1.00508809	1,743,227	1.0205 20TH TO ULT.
1946	*	63,049,013	1.000000	24	1.0000 #	1980		365,157,687	1.0023		
1947	*	66,367,383	1.000001	34	1.0000 #	1981		388,998,684	0.9983		
1948	*	69,860,403	1.000001	48	1.0000 #	1982		384,711,563	0.9978	Total	
1949	*	73,537,266	1.000001	67	1.0000 #	1983		457,399,404	1.0012	Development:	
1950	*	77,407,648	1.000001	94	1.0000 #	1984		582,031,470	1.0009	6,063,396	
1951	*	81,481,735	1.000002	132	1.0000 #	1985		665,198,751	0.9956		
1952	*	85,770,248	1.000002	185	1.0000 #	1986		775,488,645	0.9969		
1953	*	90,284,471	1.000003	259	1.0000 #	1987		936,889,822	0.9981		
1954	*	95,036,285	1.000004	364	1.0000 #	1988		1,077,406,049	1.0021		
1955	*	100,038,195	1.000005	511	1.0000 #	1989		1,253,415,795	1.0004		
1956	*	105,303,363	1.000007	717	1.0000 #	1990		1,278,270,932	0.9979		
1957	*	110,845,646	1.000009	1,006	1.0000 #	1991		1,129,280,109	1.0001		
1958	*	116,679,627	1.000012	1,412	1.0000 #	1992		938,173,956	0.9969		
1959	*	122,820,660	1.000016	1,982	1.0001 #	1993		806,402,326	0.9944		
1960	*	129,284,905	1.000022	2,781	1.0001 #	1994		742,045,959	1.0056		
1961	*	136,089,374	1.000029	3,904	1.0001 #	1995		625,906,261	1.0270		
1962	*	143,251,973	1.000038	5,479	1.0002 #	1996		525,553,467	1.0662		
1963	*	150,791,550	1.000051	7,690	1.0002 #	1997		528,951,510	1.1276		
1964	*	158,727,947	1.000068	10,793	1.0003 #	1998		465,838,055	1.3439		
1965	*	167,082,050	1.000091	15,148	1.0004 #	1999		375,187,115	3.0157		
1966	*	175,875,842	1.000121	21,260	1.0005 #	2000		121,883,336			
1967	*	185,132,465	1.000161	29,838	1.0006 #						

Inputs for Tail Factor Estimation - 2003 Loss Cost Filing

Medical **99v00**

Latest 12/31 Prior to 1980 Incurred	394,486,699
Next Latest 12/31 Prior to 1980 Incurred	385,948,164
CY Development of Prior Yrs	8,538,535
Next Latest PY 1980 Incurred	101,125,011
# of 1980 Yrs in Prior Data	3.90
Selected Decrement, Development Factor	0.75
Selected Average PY Inflation	0.93

- 1 Policy Yr 1979 Incurred = Average of 1980, 1981, 1982, reduced by PY Deflation ^ 2
- 2 PY 1978 & Prior = Subsequent Yr x PY Deflation
- 3 1979 Development Selected Based on Observed 1980, 1981, 1982
- 4 PY 1978 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.1029 vs 1.0844 8,538,535
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2003 Loss Cost Filing

MEDICAL

Policy Year	(*=Estimate)	12/31/00 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/00 Incurred	Prior Year Development	Dollar Development	DF
1932	*	3,459,339	1.000000	0	1.0000 #	1969	*	50,713,550	1.001388	70,396	1.0056
1933	*	3,719,719	1.000000	0	1.0000 #	1970	*	54,530,699	1.001851	100,927	1.0074
1934	*	3,999,698	1.000000	0	1.0000 #	1971	*	58,635,160	1.002468	144,698	1.0099
1935	*	4,300,751	1.000000	0	1.0000 #	1972	*	63,048,559	1.003290	207,452	1.0132
1936	*	4,624,463	1.000000	0	1.0000 #	1973	*	67,794,149	1.004387	297,423	1.0177
1937	*	4,972,541	1.000000	1	1.0000 #	1974	*	72,896,935	1.005850	426,412	1.0236
1938	*	5,346,818	1.000000	1	1.0000 #	1975	*	78,383,801	1.007799	611,344	1.0316
1939	*	5,749,267	1.000000	1	1.0000 #	1976	*	84,283,657	1.010399	876,479	1.0423
1940	*	6,182,007	1.000000	2	1.0000 #	1977	*	90,627,588	1.013866	1,256,600	1.0568
1941	*	6,647,320	1.000000	3	1.0000 #	1978	*	97,449,020	1.018487	1,801,577	1.0763
1942	*	7,147,656	1.000001	4	1.0000 #	1979	*	104,783,892	1.024649846	2,582,907	1.1029
1943	*	7,685,651	1.000001	6	1.0000 #	1980	*	104,404,072	1.0324		
1944	*	8,264,141	1.000001	9	1.0000 #	1981	*	122,063,456	0.9999		
1945	*	8,886,173	1.000001	12	1.0000 #	1982	*	136,986,832	1.0149	Total	
1946	*	9,555,025	1.000002	18	1.0000 #	1983	*	165,145,606	1.0153	Development:	
1947	*	10,274,220	1.000002	25	1.0000 #	1984	*	216,706,360	1.0176	8,538,535	
1948	*	11,047,549	1.000003	36	1.0000 #	1985	*	278,043,106	1.0057		
1949	*	11,879,085	1.000004	52	1.0000 #	1986	*	315,841,837	0.9998		
1950	*	12,773,209	1.000006	75	1.0000 #	1987	*	419,065,742	1.0089		
1951	*	13,734,634	1.000008	107	1.0000 #	1988	*	507,886,670	1.0076		
1952	*	14,768,423	1.000010	154	1.0000 #	1989	*	626,945,303	1.0139		
1953	*	15,880,025	1.000014	221	1.0001 #	1990	*	663,714,247	1.0059		
1954	*	17,075,296	1.000019	317	1.0001 #	1991	*	620,240,957	1.0127		
1955	*	18,360,533	1.000025	454	1.0001 #	1992	*	537,377,464	1.0142		
1956	*	19,742,509	1.000033	651	1.0001 #	1993	*	456,436,401	0.9994		
1957	*	21,228,504	1.000044	933	1.0002 #	1994	*	416,943,091	1.0114		
1958	*	22,826,349	1.000059	1,338	1.0002 #	1995	*	390,061,409	1.0133		
1959	*	24,544,461	1.000078	1,919	1.0003 #	1996	*	392,140,832	1.0200		
1960	*	26,391,893	1.000104	2,751	1.0004 #	1997	*	424,423,796	1.0473		
1961	*	28,378,380	1.000139	3,944	1.0006 #	1998	*	440,249,892	1.0989		
1962	*	30,514,387	1.000185	5,654	1.0007 #	1999	*	416,289,970	2.4012		
1963	*	32,811,169	1.000247	8,106	1.0010 #	2000	*	192,411,577			
1964	*	35,280,827	1.000329	11,622	1.0013 #						
1965	*	37,936,373	1.000439	16,662	1.0018 #						
1966	*	40,791,799	1.000586	23,888	1.0023 #						
1967	*	43,862,149	1.000781	34,248	1.0031 #						
1968	*	47,163,601	1.001041	49,102	1.0042 #						

Inputs for Tail Factor Estimation - 2003 Loss Cost Filing

Indemnity: 98v99

Latest 12/31 Prior to 1979 Incurred	2,206,233,130
Next Latest 12/31 Prior to 1979 Incurred	2,204,497,181
CY Development of Prior Yrs	1,735,949
Next Latest PY 1979 Incurred	366,028,692
# of 1979 Yrs in Prior Data	6.03
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.95

- 1 Policy Yr 1978 Incurred = Average of 1979, 1980, 1981, reduced by PY Deflation ^ 2
- 2 PY 1977 & Prior = Subsequent Yr x PY Deflation
- 3 1978 Development Selected Based on Observed 1979, 1980, 1981
- 4 PY 1977 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0059 vs 1.0047 1,735,949
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2003 Loss Cost Filing

INDEMNITY

Policy Year	(*=Estimate)	12/31/99 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/99 Incurred	Prior Year Development	Dollar Development	DF
1933	*	33,730,256	1.000000	0	1.0000 #	1967	*	192,937,685	1.000062	11,990	1.0002
1934	*	35,505,533	1.000000	0	1.0000 #	1968	*	203,092,300	1.000083	16,828	1.0003
1935	*	37,374,245	1.000000	0	1.0000 #	1969	*	213,781,368	1.000110	23,618	1.0004
1936	*	39,341,311	1.000000	0	1.0000 #	1970	*	225,033,019	1.000147	33,148	1.0006
1937	*	41,411,906	1.000000	0	1.0000 #	1971	*	236,876,862	1.000196	46,523	1.0008
1938	*	43,591,480	1.000000	1	1.0000 #	1972	*	249,344,065	1.000262	65,296	1.0010
1939	*	45,885,769	1.000000	1	1.0000 #	1973	*	262,467,437	1.000349	91,643	1.0014
1940	*	48,300,809	1.000000	1	1.0000 #	1974	*	276,281,513	1.000466	128,622	1.0019
1941	*	50,842,957	1.000000	2	1.0000 #	1975	*	290,822,645	1.000621	180,522	1.0025
1942	*	53,518,902	1.000000	3	1.0000 #	1976	*	306,129,100	1.000828	253,364	1.0033
1943	*	56,335,686	1.000000	4	1.0000 #	1977	*	322,241,158	1.001104	355,598	1.0044
1944	*	59,300,722	1.000000	5	1.0000 #	1978	*	339,201,219	1.00147136	499,085	1.0059
1945	*	62,421,813	1.000000	7	1.0000 #	1979		367,025,325	1.0027		
1946	*	65,707,172	1.000000	10	1.0000 #	1980		367,362,446	1.0022		
1947	*	69,165,444	1.000000	14	1.0000 #	1981		393,150,907	1.0043	Total	
1948	*	72,805,730	1.000000	19	1.0000 #	1982		390,025,792	0.9997	Development:	
1949	*	76,637,611	1.000000	27	1.0000 #	1983		461,198,968	1.0014	1,735,949	
1950	*	80,671,169	1.000000	38	1.0000 #	1984		585,356,746	0.9990		
1951	*	84,917,020	1.000001	53	1.0000 #	1985		670,156,439	0.9967		
1952	*	89,386,337	1.000001	74	1.0000 #	1986		779,574,014	0.9997		
1953	*	94,090,881	1.000001	104	1.0000 #	1987		941,061,692	1.0001		
1954	*	99,043,033	1.000001	146	1.0000 #	1988		1,093,128,727	0.9984		
1955	*	104,255,824	1.000002	205	1.0000 #	1989		1,267,671,479	0.9997		
1956	*	109,742,973	1.000003	288	1.0000 #	1990		1,299,131,017	0.9986		
1957	*	115,518,919	1.000003	404	1.0000 #	1991		1,154,239,130	0.9974		
1958	*	121,598,862	1.000005	567	1.0000 #	1992		952,883,987	0.9911		
1959	*	127,998,802	1.000006	796	1.0000 #	1993		821,850,746	1.0012		
1960	*	134,735,581	1.000008	1,118	1.0000 #	1994		746,807,693	1.0394		
1961	*	141,826,927	1.000011	1,569	1.0000 #	1995		615,202,647	1.0719		
1962	*	149,291,503	1.000015	2,202	1.0001 #	1996		493,117,505	1.1575		
1963	*	157,148,950	1.000020	3,090	1.0001 #	1997		479,041,914	1.3865		
1964	*	165,419,947	1.000026	4,337	1.0001 #	1998		357,036,512	3.0941		
1965	*	174,126,260	1.000035	6,087	1.0001 #	1999		126,958,404			
1966	*	183,290,800	1.000047	8,543	1.0002 #						

Inputs for Tail Factor Estimation - 2003 Loss Cost Filing

Medical **98v99**

Latest 12/31 Prior to 1979 Incurred 349,377,529
 Next Latest 12/31 Prior to 1979 Incurred 344,836,855
 CY Development of Prior Yrs 4,540,674
 Next Latest PY 1979 Incurred 95,992,351
 # of 1979 Yrs in Prior Data 3.64
 Selected Decrement, Development Factor 0.75
 Selected Average PY Deflation Factor 0.93

- 1 Policy Yr 1978 Incurred = Average of 1979, 1980, 1981, reduced by PY Deflation ^ 2
- 2 PY 1977 & Prior = Subsequent Yr x PY Deflation
- 3 1978 Development Selected Based on Observed 1979, 1980, 1981
- 4 PY 1977 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0606 vs 1.0473 4,540,674
 0

Pennsylvania Compensation Rating Bureau
 Tail Factor Model - 2003 Loss Cost Filing

MEDICAL

Policy Year	(*=Estimate)	12/31/99 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/99 Incurred	Prior Year Development	Dollar Development	DF
1931	*	3,069,627	1.000000	0	1.0000 #	1968	*	45,000,409	1.000832	37,436	1.0033
1932	*	3,300,674	1.000000	0	1.0000 #	1969	*	48,387,537	1.001109	53,671	1.0044
1933	*	3,549,112	1.000000	0	1.0000 #	1970	*	52,029,609	1.001479	76,948	1.0059
1934	*	3,816,249	1.000000	0	1.0000 #	1971	*	55,945,816	1.001972	110,320	1.0079
1935	*	4,103,494	1.000000	0	1.0000 #	1972	*	60,156,792	1.002629	158,165	1.0106
1936	*	4,412,359	1.000000	0	1.0000 #	1973	*	64,684,723	1.003506	226,760	1.0141
1937	*	4,744,472	1.000000	1	1.0000 #	1974	*	69,553,465	1.004674	325,104	1.0188
1938	*	5,101,583	1.000000	1	1.0000 #	1975	*	74,788,672	1.006232	466,099	1.0252
1939	*	5,485,573	1.000000	1	1.0000 #	1976	*	80,417,927	1.008310	668,243	1.0337
1940	*	5,898,465	1.000000	2	1.0000 #	1977	*	86,470,889	1.011079	958,054	1.0452
1941	*	6,342,436	1.000000	2	1.0000 #	1978	*	92,979,451	1.014772660	1,373,554	1.0606 20TH TO ULT.
1942	*	6,819,823	1.000000	3	1.0000 #	1979		97,503,152	1.0157		
1943	*	7,333,143	1.000001	5	1.0000 #	1980		101,831,694	1.0123		
1944	*	7,885,100	1.000001	7	1.0000 #	1981		123,174,522	1.0045	Total	
1945	*	8,478,603	1.000001	9	1.0000 #	1982		136,751,551	1.0356	Development:	
1946	*	9,116,777	1.000001	14	1.0000 #	1983		164,096,421	1.0078	4,540,674	
1947	*	9,802,986	1.000002	19	1.0000 #	1984		214,095,446	1.0002		
1948	*	10,540,845	1.000003	28	1.0000 #	1985		277,197,009	1.0114		
1949	*	11,334,242	1.000004	40	1.0000 #	1986		316,422,352	1.0221		
1950	*	12,187,357	1.000005	57	1.0000 #	1987		416,590,191	1.0017		
1951	*	13,104,685	1.000006	82	1.0000 #	1988		511,811,219	1.0054		
1952	*	14,091,059	1.000008	117	1.0000 #	1989		625,902,274	1.0109		
1953	*	15,151,677	1.000011	168	1.0000 #	1990		670,653,854	1.0041		
1954	*	16,292,125	1.000015	241	1.0001 #	1991		626,912,720	1.0103		
1955	*	17,518,414	1.000020	346	1.0001 #	1992		538,650,449	0.9998		
1956	*	18,837,005	1.000026	496	1.0001 #	1993		465,139,281	1.0041		
1957	*	20,254,844	1.000035	712	1.0001 #	1994		418,332,161	1.0079		
1958	*	21,779,402	1.000047	1,020	1.0002 #	1995		389,646,227	1.0106		
1959	*	23,418,712	1.000062	1,463	1.0002 #	1996		384,562,225	1.0289		
1960	*	25,181,410	1.000083	2,097	1.0003 #	1997		413,374,615	1.1133		
1961	*	27,076,785	1.000111	3,007	1.0004 #	1998		411,427,156	2.2567		
1962	*	29,114,823	1.000148	4,311	1.0006 #	1999		177,111,729			
1963	*	31,306,261	1.000197	6,180	1.0008 #						
1964	*	33,662,646	1.000263	8,861	1.0011 #						
1965	*	36,196,394	1.000351	12,703	1.0014 #						
1966	*	38,920,854	1.000468	18,213	1.0019 #						
1967	*	41,850,380	1.000624	26,112	1.0025 #						

Inputs for Tail Factor Estimation - 2003 Loss Cost Filing

Indemnity: 97v98

Latest 12/31 Prior to 1978 Incurred	1,867,296,514
Next Latest 12/31 Prior to 1978 Incurred	1,869,389,536
CY Development of Prior Yrs	-2,093,022
Next Latest PY 1978 Incurred	297,072,695
# of 1978 Yrs in Prior Data	6.29
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.95

- 1 Policy Yr 1977 Incurred = Average of 1978, 1979, 1980, reduced by PY Deflation ^ 2
- 2 PY 1976 & Prior = Subsequent Yr x PY Deflation
- 3 1977 Development Selected Based on Observed 1978, 1979, 1980
- 4 PY 1976 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = .9922 vs .9930 -2,093,022
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2003 Loss Cost Filing

INDEMNITY

Policy Year	(*=Estimate)	12/31/98 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/98 Incurred	Prior Year Development	Dollar Development	DF	
1933	*	32,377,553	1.000000	0	1.0000	#	1967	*	185,200,197	.999890	-20,289	.9996
1934	*	34,081,635	1.000000	0	1.0000	#	1968	*	194,947,575	.999854	-28,476	.9994
1935	*	35,875,405	1.000000	0	1.0000	#	1969	*	205,207,974	.999805	-39,966	.9992
1936	*	37,763,584	1.000000	-1	1.0000	#	1970	*	216,008,394	.999740	-56,093	.9990
1937	*	39,751,141	1.000000	-1	1.0000	#	1971	*	227,377,257	.999654	-78,727	.9986
1938	*	41,843,307	1.000000	-1	1.0000	#	1972	*	239,344,481	.999538	-110,493	.9982
1939	*	44,045,586	1.000000	-2	1.0000	#	1973	*	251,941,559	.999384	-155,078	.9975
1940	*	46,363,775	1.000000	-2	1.0000	#	1974	*	265,201,641	.999179	-217,654	.9967
1941	*	48,803,973	1.000000	-3	1.0000	#	1975	*	279,159,622	.998906	-305,479	.9956
1942	*	51,372,603	1.000000	-4	1.0000	#	1976	*	293,852,233	.998541	-428,743	.9942
1943	*	54,076,425	1.000000	-6	1.0000	#	1977	*	309,318,140	0.9980546	-601,744	.9922
1944	*	56,922,552	1.000000	-8	1.0000	#	1978		296,029,968	0.9965		
1945	*	59,918,476	1.000000	-12	1.0000	#	1979		366,036,449	1.0026		
1946	*	63,072,080	1.000000	-16	1.0000	#	1980		366,137,928	1.0009		
1947	*	66,391,663	1.000000	-23	1.0000	#	1981		391,379,504	0.9975	Total	
1948	*	69,885,961	1.000000	-32	1.0000	#	1982		390,197,713	1.0018	Development:	
1949	*	73,564,170	.999999	-45	1.0000	#	1983		460,554,323	1.0050	-2,093,022	
1950	*	77,435,968	.999999	-64	1.0000	#	1984		585,906,505	1.0021		
1951	*	81,511,546	.999999	-89	1.0000	#	1985		672,710,560	1.0037		
1952	*	85,801,627	.999999	-126	1.0000	#	1986		779,542,137	1.0053		
1953	*	90,317,502	.999998	-176	1.0000	#	1987		940,063,451	0.9994		
1954	*	95,071,055	.999997	-247	1.0000	#	1988		1,093,971,055	1.0010		
1955	*	100,074,795	.999997	-347	1.0000	#	1989		1,267,951,103	0.9991		
1956	*	105,341,889	.999995	-487	1.0000	#	1990		1,301,647,996	1.0033		
1957	*	110,886,199	.999994	-684	1.0000	#	1991		1,157,508,979	1.0055		
1958	*	116,722,315	.999992	-960	1.0000	#	1992		961,808,630	1.0087		
1959	*	122,865,594	.999989	-1,348	1.0000	#	1993		821,322,629	1.0556		
1960	*	129,332,205	.999985	-1,891	.9999	#	1994		719,641,766	1.1389		
1961	*	136,139,163	.999981	-2,654	.9999	#	1995		573,442,718	1.2210		
1962	*	143,304,382	.999974	-3,726	.9999	#	1996		425,140,430	1.4435		
1963	*	150,846,718	.999965	-5,229	.9999	#	1997		337,790,879	3.0352		
1964	*	158,786,019	.999954	-7,339	.9998	#	1998		114,654,893			
1965	*	167,143,177	.999938	-10,300	.9998	#						
1966	*	175,940,187	.999918	-14,456	.9997	#						

Inputs for Tail Factor Estimation - 2003 Loss Cost Filing

Medical **97v98**

Latest 12/31 Prior to 1978 Incurred	277,380,613
Next Latest 12/31 Prior to 1978 Incurred	273,064,439
CY Development of Prior Yrs	4,316,174
Next Latest PY 1978 Incurred	60,109,492
# of 1978 Yrs in Prior Data	4.61
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.93

- 1 Policy Yr 1977 Incurred = Average of 1978, 1979, 1980, reduced by PY Deflation ^ 2
- 2 PY 1976 & Prior = Subsequent Yr x PY Deflation
- 3 1977 Development Selected Based on Observed 1978, 1979, 1980
- 4 PY 1976 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0724 vs 1.0718 4,316,174
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2003 Loss Cost Filing

MEDICAL

Policy Year	(*=Estimate)	12/31/98 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/98 Incurred	Prior Year Development	Dollar Development	DF	
1931	*	2,638,356	1.000000	0	1.0000	#	1965	*	31,110,939	1.000556	17,312	1.0022
1932	*	2,836,942	1.000000	0	1.0000	#	1966	*	33,452,622	1.000742	24,821	1.0030
1933	*	3,050,475	1.000000	0	1.0000	#	1967	*	35,970,562	1.000989	35,585	1.0040
1934	*	3,280,081	1.000000	0	1.0000	#	1968	*	38,678,023	1.001319	51,018	1.0053
1935	*	3,526,968	1.000000	0	1.0000	#	1969	*	41,589,272	1.001759	73,144	1.0071
1936	*	3,792,439	1.000000	1	1.0000	#	1970	*	44,719,648	1.002345	104,866	1.0094
1937	*	4,077,892	1.000000	1	1.0000	#	1971	*	48,085,643	1.003127	150,345	1.0126
1938	*	4,384,830	1.000000	1	1.0000	#	1972	*	51,704,992	1.004169	215,549	1.0168
1939	*	4,714,871	1.000000	1	1.0000	#	1973	*	55,596,766	1.005558	309,030	1.0224
1940	*	5,069,753	1.000000	2	1.0000	#	1974	*	59,781,469	1.007411	443,054	1.0300
1941	*	5,451,348	1.000001	3	1.0000	#	1975	*	64,281,149	1.009882	635,203	1.0402
1942	*	5,861,664	1.000001	4	1.0000	#	1976	*	69,119,515	1.013176	910,686	1.0539
1943	*	6,302,865	1.000001	6	1.0000	#	1977	*	74,322,059	1.017567365	1,305,643	1.0724
1944	*	6,777,274	1.000001	9	1.0000	#	1978		61,272,538	1.0193		
1945	*	7,287,391	1.000002	13	1.0000	#	1979		95,995,535	1.0152		
1946	*	7,835,905	1.000002	18	1.0000	#	1980		100,526,097	1.0155		
1947	*	8,425,704	1.000003	26	1.0000	#	1981		122,545,787	1.0001	Total	
1948	*	9,059,897	1.000004	38	1.0000	#	1982		131,935,099	1.0113	Development:	
1949	*	9,741,824	1.000006	54	1.0000	#	1983		162,711,494	1.0077	4,316,174	
1950	*	10,475,080	1.000007	78	1.0000	#	1984		213,975,769	1.0002		
1951	*	11,263,527	1.000010	112	1.0000	#	1985		273,852,315	1.0044		
1952	*	12,111,319	1.000013	160	1.0001	#	1986		309,368,715	1.0050		
1953	*	13,022,924	1.000018	230	1.0001	#	1987		415,422,247	1.0179		
1954	*	14,003,144	1.000024	329	1.0001	#	1988		508,546,156	1.0067		
1955	*	15,057,144	1.000031	472	1.0001	#	1989		618,695,715	1.0131		
1956	*	16,190,477	1.000042	676	1.0002	#	1990		667,561,133	1.0121		
1957	*	17,409,115	1.000056	970	1.0002	#	1991		620,037,043	1.0171		
1958	*	18,719,479	1.000074	1,390	1.0003	#	1992		538,475,467	1.0173		
1959	*	20,128,472	1.000099	1,994	1.0004	#	1993		462,536,318	0.9990		
1960	*	21,643,518	1.000132	2,858	1.0005	#	1994		415,161,531	1.0154		
1961	*	23,272,600	1.000176	4,098	1.0007	#	1995		385,018,228	1.0476		
1962	*	25,024,301	1.000235	5,875	1.0009	#	1996		372,341,744	1.1145		
1963	*	26,907,851	1.000313	8,423	1.0013	#	1997		364,388,184	2.3209		
1964	*	28,933,173	1.000417	12,075	1.0017	#	1998		181,186,380			