

PENNSYLVANIA COMPENSATION RATING BUREAU

Tail Factors for Loss Development

For a given calendar year, the PCRB collects financial loss development data for the current policy year and the twenty previous individual policy years. A single aggregate line of experience is reported for all older policy years combined.

Thus, the 2001 vs. 2002 valuations in the tail factor calculation will use policy year 1982 as the earliest separate policy year and an aggregate line of experience for policy years 1981 and prior. The 2002 vs. 2003 valuations in the tail factor calculation will use policy year 1983 as the earliest separate policy year and an aggregate line of experience for policy years 1982 and prior. The 2003 vs. 2004 valuations in the tail factor calculation will use policy year 1984 as the earliest separate policy year and an aggregate line of experience for policy years 1983 and prior. The 2004 vs. 2005 valuations in the tail factor calculation will use policy year 1985 as the earliest separate policy year and an aggregate line of experience for policy years 1984 and prior.

The following discussion focuses on data with an earliest available policy year of 1978 for illustrative purposes. The discussion for data starting with later policy years 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. 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	
		Traditional Approach *	Indicated Factor	Traditional Approach *	Indicated Factor
04V05	20TH TO ULT.	1.0082	1.0089	1.0560	1.0702
03V04	20TH TO ULT.	1.0012	1.0014	0.9969	0.9966
02V03	20TH TO ULT.	1.0005	1.0006	1.0804	1.0874
01V02	20TH TO ULT.	1.0130	1.0137	1.1246	1.1426
AVERAGE OF LATEST 4 VALUATIONS		1.0057	1.0062	1.0645	1.0742

* I.e. for 04V05 = $\frac{\text{Incurred Loss @ 12/31/05} - \text{Incurred Loss @ 12/31/04 for policy years prior to 1985}}{\text{Incurred Loss @ 12/31/04 for policy year 1985}}$

Inputs for Tail Factor Estimation - 2007 Loss Cost Filing

Indemnity: 04v05

Latest 12/31 Prior to 1985 Incurred	3,550,295,558
Next Latest 12/31 Prior to 1985 Incurred	3,546,129,901
CY Development of Prior Yrs	4,165,657
Next Latest PY 1985 Incurred	505,011,336
# of 1985 Yrs in Prior Data	7.03
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.95

- 1 Policy Yr 1984 Incurred = Average of 1985, 1986, 1987, reduced by PY Deflation ^ 2
- 2 PY 1983 & Prior = Subsequent Yr x PY Deflation
- 3 1984 Development Selected Based on Observed 1985, 1986, 1987
- 4 PY 1983 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0089 vs 1.0082 4,165,657
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2007 Loss Cost Filing

INDEMNITY

Policy Year	(*=Estimate)	12/31/05 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/05 Incurred	Prior Year Development	Dollar Development	DF
1937	*	48,448,299	1.000000	0	1.0000 #	1972	*	291,710,692	1.000070	20,526	1.0003
1938	*	50,998,209	1.000000	0	1.0000 #	1973	*	307,063,886	1.000094	28,808	1.0004
1939	*	53,682,326	1.000000	0	1.0000 #	1974	*	323,225,143	1.000125	40,431	1.0005
1940	*	56,507,711	1.000000	0	1.0000 #	1975	*	340,236,993	1.000167	56,742	1.0007
1941	*	59,481,801	1.000000	1	1.0000 #	1976	*	358,144,203	1.000222	79,634	1.0009
1942	*	62,612,422	1.000000	1	1.0000 #	1977	*	376,993,898	1.000297	111,759	1.0012
1943	*	65,907,813	1.000000	1	1.0000 #	1978	*	396,835,682	1.000395	156,839	1.0016
1944	*	69,376,645	1.000000	2	1.0000 #	1979	*	417,721,771	1.000527	220,096	1.0021
1945	*	73,028,048	1.000000	2	1.0000 #	1980	*	439,707,127	1.000703	308,852	1.0028
1946	*	76,871,629	1.000000	3	1.0000 #	1981	*	462,849,607	1.000937	433,376	1.0038
1947	*	80,917,504	1.000000	4	1.0000 #	1982	*	487,210,113	1.001250	608,057	1.0050
1948	*	85,176,320	1.000000	6	1.0000 #	1983	*	512,852,751	1.001666	853,058	1.0067
1949	*	89,659,285	1.000000	8	1.0000 #	1984	*	539,845,001	1.002221507	1,196,611	1.0089 20TH TO ULT.
1950	*	94,378,194	1.000000	12	1.0000 #	1985	*	506,059,562	1.0021		
1951	*	99,345,468	1.000000	17	1.0000 #	1986	*	586,953,712	1.0027	Total	
1952	*	104,574,176	1.000000	23	1.0000 #	1987	*	701,485,343	1.0018	Development:	
1953	*	110,078,080	1.000000	33	1.0000 #	1988	*	786,090,311	1.0035	4,165,657	
1954	*	115,871,664	1.000000	46	1.0000 #	1989	*	917,118,702	1.0021		
1955	*	121,970,172	1.000001	65	1.0000 #	1990	*	968,249,811	1.0022		
1956	*	128,389,655	1.000001	91	1.0000 #	1991	*	872,396,143	1.0037		
1957	*	135,147,005	1.000001	127	1.0000 #	1992	*	784,189,300	1.0043		
1958	*	142,260,006	1.000001	178	1.0000 #	1993	*	684,679,940	1.0022		
1959	*	149,747,374	1.000002	250	1.0000 #	1994	*	627,109,282	1.0041		
1960	*	157,628,815	1.000002	351	1.0000 #	1995	*	532,422,231	1.0045		
1961	*	165,925,068	1.000003	493	1.0000 #	1996	*	464,583,627	1.0081		
1962	*	174,657,967	1.000004	692	1.0000 #	1997	*	467,266,528	1.0073		
1963	*	183,850,491	1.000005	971	1.0000 #	1998	*	493,537,610	1.0109		
1964	*	193,526,833	1.000007	1,363	1.0000 #	1999	*	598,592,655	1.0130		
1965	*	203,712,456	1.000009	1,913	1.0000 #	2000	*	643,087,374	1.0282		
1966	*	214,434,164	1.000013	2,686	1.0001 #	2001	*	591,893,357	1.0501		
1967	*	225,720,173	1.000017	3,769	1.0001 #	2002	*	551,962,910	1.1481		
1968	*	237,600,182	1.000022	5,290	1.0001 #	2003	*	454,258,086	1.3977		
1969	*	250,105,454	1.000030	7,425	1.0001 #	2004	*	355,899,396	2.9759		
1970	*	263,268,899	1.000040	10,420	1.0002 #	2005	*	118,537,624			
1971	*	277,125,157	1.000053	14,625	1.0002 #						

Inputs for Tail Factor Estimation - 2007 Loss Cost Filing

Medical 04v05

Latest 12/31 Prior to 1985 Incurred	970,295,431
Next Latest 12/31 Prior to 1985 Incurred	957,301,178
CY Development of Prior Yrs	12,994,253
Next Latest PY 1985 Incurred	232,080,698
# of 1985 Yrs in Prior Data	4.18
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.93

- 1 Policy Yr 1984 Incurred = Average of 1985, 1986, 1987, reduced by PY Deflation ^ 2
- 2 PY 1983 & Prior = Subsequent Yr x PY Deflation
- 3 1984 Development Selected Based on Observed 1985, 1986, 1987
- 4 PY 1983 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0702 vs 1.0560 12,994,253
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2007 Loss Cost Filing

MEDICAL

Policy Year	(*=Estimate)	12/31/05 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/05 Incurred	Prior Year Development	Dollar Development	DF
1936	*	7,035,458	1.000000	0	1.0000 #	1972	*	95,919,348	1.000540	51,736	1.0022
1937	*	7,565,008	1.000000	0	1.0000 #	1973	*	103,139,084	1.000720	74,159	1.0029
1938	*	8,134,418	1.000000	0	1.0000 #	1974	*	110,902,241	1.000959	106,296	1.0038
1939	*	8,746,686	1.000000	0	1.0000 #	1975	*	119,249,722	1.001279	152,348	1.0051
1940	*	9,405,038	1.000000	1	1.0000 #	1976	*	128,225,507	1.001706	218,326	1.0068
1941	*	10,112,945	1.000000	1	1.0000 #	1977	*	137,876,889	1.002274	312,835	1.0091
1942	*	10,874,134	1.000000	1	1.0000 #	1978	*	148,254,720	1.003032	448,170	1.0122
1943	*	11,692,617	1.000000	2	1.0000 #	1979	*	159,413,677	1.004043	641,891	1.0163
1944	*	12,572,707	1.000000	2	1.0000 #	1980	*	171,412,556	1.005390	919,041	1.0218
1945	*	13,519,039	1.000000	3	1.0000 #	1981	*	184,314,576	1.007187	1,315,270	1.0291
1946	*	14,536,601	1.000000	4	1.0000 #	1982	*	198,187,717	1.009583	1,881,217	1.0390
1947	*	15,630,754	1.000000	6	1.0000 #	1983	*	213,105,072	1.012777	2,688,579	1.0523
1948	*	16,807,263	1.000001	9	1.0000 #	1984	*	242,673,203	1.017036555	4,065,061	1.0702 20TH TO ULT.
1949	*	18,072,325	1.000001	13	1.0000 #	1985	*	236,501,774	1.0190		
1950	*	19,432,608	1.000001	19	1.0000 #	1986	*	260,003,211	1.0185		
1951	*	20,895,277	1.000001	27	1.0000 #	1987	*	345,233,493	1.0193	Total	
1952	*	22,468,040	1.000002	38	1.0000 #	1988	*	404,432,347	1.0089	Development:	
1953	*	24,159,183	1.000002	55	1.0000 #	1989	*	493,717,221	1.0155	12,994,253	
1954	*	25,977,616	1.000003	79	1.0000 #	1990	*	534,388,619	1.0115		
1955	*	27,932,920	1.000004	113	1.0000 #	1991	*	509,156,846	1.0177		
1956	*	30,035,398	1.000005	162	1.0000 #	1992	*	486,583,276	1.0157		
1957	*	32,296,127	1.000007	233	1.0000 #	1993	*	411,313,223	1.0150		
1958	*	34,727,019	1.000010	334	1.0000 #	1994	*	383,383,337	1.0126		
1959	*	37,340,880	1.000013	479	1.0001 #	1995	*	354,956,594	1.0157		
1960	*	40,151,484	1.000017	686	1.0001 #	1996	*	353,782,354	1.0183		
1961	*	43,173,639	1.000023	984	1.0001 #	1997	*	362,738,685	1.0217		
1962	*	46,423,268	1.000030	1,411	1.0001 #	1998	*	405,335,368	1.0194		
1963	*	49,917,492	1.000041	2,023	1.0002 #	1999	*	471,392,174	1.0253		
1964	*	53,674,723	1.000054	2,900	1.0002 #	2000	*	499,133,752	1.0311		
1965	*	57,714,755	1.000072	4,157	1.0003 #	2001	*	449,287,630	1.0189		
1966	*	62,058,877	1.000096	5,960	1.0004 #	2002	*	443,628,145	1.0436		
1967	*	66,729,975	1.000128	8,545	1.0005 #	2003	*	439,197,258	1.1080		
1968	*	71,752,661	1.000171	12,250	1.0007 #	2004	*	453,126,489	2.3993		
1969	*	77,153,399	1.000228	17,561	1.0009 #	2005	*	210,854,171			
1970	*	82,960,644	1.000304	25,176	1.0012 #						
1971	*	89,204,994	1.000405	36,090	1.0016 #						

Indemnity: 03v04

Latest 12/31 Prior to 1984 Incurred	3,094,857,443
Next Latest 12/31 Prior to 1984 Incurred	3,094,315,297
CY Development of Prior Yrs	542,146
Next Latest PY 1984 Incurred	446,601,595
# of 1984 Yrs in Prior Data	6.93
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.95

- 1 Policy Yr 1983 Incurred = Average of 1984, 1985, 1986, reduced by PY Deflation ^ 2
- 2 PY 1982 & Prior = Subsequent Yr x PY Deflation
- 3 1983 Development Selected Based on Observed 1984, 1985, 1986
- 4 PY 1982 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0014 vs 1.0012 542,146
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2007 Loss Cost Filing

INDEMNITY

Policy Year	(*=Estimate)	12/31/04 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/04 Incurred	Prior Year Development	Dollar Development	DF
1937	*	43,642,821	1.000000	0	1.0000 #	1971	*	249,637,734	1.000011	2,668	1.0000
1938	*	45,939,811	1.000000	0	1.0000 #	1972	*	262,776,562	1.000014	3,744	1.0001
1939	*	48,357,696	1.000000	0	1.0000 #	1973	*	276,606,908	1.000019	5,255	1.0001
1940	*	50,902,838	1.000000	0	1.0000 #	1974	*	291,165,166	1.000025	7,376	1.0001
1941	*	53,581,935	1.000000	0	1.0000 #	1975	*	306,489,649	1.000034	10,352	1.0001
1942	*	56,402,037	1.000000	0	1.0000 #	1976	*	322,620,683	1.000045	14,529	1.0002
1943	*	59,370,565	1.000000	0	1.0000 #	1977	*	339,600,719	1.000060	20,392	1.0002
1944	*	62,495,331	1.000000	0	1.0000 #	1978	*	357,474,441	1.000080	28,621	1.0003
1945	*	65,784,559	1.000000	0	1.0000 #	1979	*	376,288,885	1.000107	40,169	1.0004
1946	*	69,246,905	1.000000	1	1.0000 #	1980	*	396,093,563	1.000142	56,378	1.0006
1947	*	72,891,478	1.000000	1	1.0000 #	1981	*	416,940,593	1.000190	79,127	1.0008
1948	*	76,727,872	1.000000	1	1.0000 #	1982	*	438,884,834	1.000253	111,055	1.0010
1949	*	80,766,181	1.000000	2	1.0000 #	1983	*	461,984,036	1.00033739	155,867	1.0014 20TH TO ULT.
1950	*	85,017,033	1.000000	2	1.0000 #	1984	*	446,836,582	1.0005		
1951	*	89,491,613	1.000000	3	1.0000 #	1985	*	504,409,788	0.9997	Total	
1952	*	94,201,698	1.000000	4	1.0000 #	1986	*	584,434,637	1.0003	Development:	
1953	*	99,159,683	1.000000	6	1.0000 #	1987	*	699,300,730	0.9985	542,146	
1954	*	104,378,613	1.000000	8	1.0000 #	1988	*	782,317,750	0.9995		
1955	*	109,872,224	1.000000	12	1.0000 #	1989	*	914,033,482	0.9981		
1956	*	115,654,973	1.000000	17	1.0000 #	1990	*	964,374,041	0.9987		
1957	*	121,742,077	1.000000	23	1.0000 #	1991	*	867,535,077	0.9993		
1958	*	128,149,555	1.000000	33	1.0000 #	1992	*	779,177,029	0.9986		
1959	*	134,894,268	1.000000	46	1.0000 #	1993	*	681,529,933	1.0003		
1960	*	141,993,966	1.000000	64	1.0000 #	1994	*	622,881,958	0.9927		
1961	*	149,467,333	1.000001	90	1.0000 #	1995	*	529,062,599	0.9991		
1962	*	157,334,035	1.000001	126	1.0000 #	1996	*	460,432,979	1.0026		
1963	*	165,614,773	1.000001	177	1.0000 #	1997	*	463,645,175	1.0121		
1964	*	174,331,340	1.000001	249	1.0000 #	1998	*	488,035,730	1.0270		
1965	*	183,506,674	1.000002	349	1.0000 #	1999	*	590,662,276	1.0297		
1966	*	193,164,920	1.000003	490	1.0000 #	2000	*	625,243,934	1.0635		
1967	*	203,331,495	1.000003	688	1.0000 #	2001	*	563,688,058	1.1363		
1968	*	214,033,152	1.000005	965	1.0000 #	2002	*	480,815,291	1.4256		
1969	*	225,298,055	1.000006	1,354	1.0000 #	2003	*	324,978,784	3.0782		
1970	*	237,155,848	1.000008	1,901	1.0000 #	2004	*	119,592,005			

Inputs for Tail Factor Estimation - 2007 Loss Cost Filing

Medical 03v04

Latest 12/31 Prior to 1984 Incurred 776,604,799
 Next Latest 12/31 Prior to 1984 Incurred 777,152,161
 CY Development of Prior Yrs -547,362
 Next Latest PY 1984 Incurred 177,039,954
 # of 1984 Yrs in Prior Data 4.39
 Selected Decrement, Development Factor 0.75
 Selected Average PY Deflation Factor 0.93

- 1 Policy Yr 1983 Incurred = Average of 1984, 1985, 1986, reduced by PY Deflation ^ 2
- 2 PY 1982 & Prior = Subsequent Yr x PY Deflation
- 3 1983 Development Selected Based on Observed 1984, 1985, 1986
- 4 PY 1982 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = .9966 vs .9969 -547,362
 0

Pennsylvania Compensation Rating Bureau
 Tail Factor Model - 2007 Loss Cost Filing

MEDICAL

Policy Year	(*=Estimate)	12/31/04 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/04 Incurred	Prior Year Development	Dollar Development	DF
1938	*	7,342,328	1.000000	0	1.0000 #	1972	*	86,579,190	.999964	-3,148	.9999
1939	*	7,894,976	1.000000	0	1.0000 #	1973	*	93,095,903	.999952	-4,513	.9998
1940	*	8,489,222	1.000000	0	1.0000 #	1974	*	100,103,122	.999935	-6,470	.9997
1941	*	9,128,195	1.000000	0	1.0000 #	1975	*	107,637,766	.999914	-9,276	.9997
1942	*	9,815,264	1.000000	0	1.0000 #	1976	*	115,739,533	.999885	-13,299	.9995
1943	*	10,554,047	1.000000	0	1.0000 #	1977	*	124,451,111	.999847	-19,066	.9994
1944	*	11,348,438	1.000000	0	1.0000 #	1978	*	133,818,399	.999796	-27,335	.9992
1945	*	12,202,621	1.000000	0	1.0000 #	1979	*	143,890,751	.999728	-39,190	.9989
1946	*	13,121,098	1.000000	0	1.0000 #	1980	*	154,721,238	.999637	-56,187	.9985
1947	*	14,108,708	1.000000	0	1.0000 #	1981	*	166,366,922	.999516	-80,554	.9981
1948	*	15,170,653	1.000000	-1	1.0000 #	1982	*	178,889,164	.999354	-115,490	.9974
1949	*	16,312,530	1.000000	-1	1.0000 #	1983	*	192,353,940	0.999139206	-165,577	.9966
1950	*	17,540,355	1.000000	-1	1.0000 #	1984	*	179,859,533	1.0159		
1951	*	18,860,597	1.000000	-2	1.0000 #	1985	*	232,070,301	1.0141		
1952	*	20,280,212	1.000000	-2	1.0000 #	1986	*	255,270,789	1.0094	Total	
1953	*	21,806,680	1.000000	-3	1.0000 #	1987	*	338,708,724	1.0111	Development:	
1954	*	23,448,043	1.000000	-5	1.0000 #	1988	*	400,864,014	1.0136	-547,362	
1955	*	25,212,949	1.000000	-7	1.0000 #	1989	*	486,182,240	1.0109		
1956	*	27,110,698	1.000000	-10	1.0000 #	1990	*	528,310,574	1.0087		
1957	*	29,151,288	1.000000	-14	1.0000 #	1991	*	500,305,973	1.0076		
1958	*	31,345,471	.999999	-20	1.0000 #	1992	*	479,072,517	1.0176		
1959	*	33,704,807	.999999	-29	1.0000 #	1993	*	405,238,680	1.0160		
1960	*	36,241,728	.999999	-42	1.0000 #	1994	*	378,616,935	1.0254		
1961	*	38,969,601	.999998	-60	1.0000 #	1995	*	349,485,683	1.0221		
1962	*	41,902,796	.999998	-86	1.0000 #	1996	*	347,432,405	1.0212		
1963	*	45,056,770	.999997	-123	1.0000 #	1997	*	355,049,961	1.0106		
1964	*	48,448,140	.999996	-176	1.0000 #	1998	*	397,637,147	1.0301		
1965	*	52,094,774	.999995	-253	1.0000 #	1999	*	459,782,125	1.0306		
1966	*	56,015,886	.999994	-362	1.0000 #	2000	*	484,079,451	1.0309		
1967	*	60,232,136	.999991	-520	1.0000 #	2001	*	440,983,184	1.0502		
1968	*	64,765,737	.999988	-745	1.0000 #	2002	*	425,108,865	1.1134		
1969	*	69,640,578	.999985	-1,068	.9999 #	2003	*	396,378,492	2.3013		
1970	*	74,882,342	.999980	-1,531	.9999 #	2004	*	188,888,226			
1971	*	80,518,647	.999973	-2,195	.9999 #						

Indemnity: 02v03

Latest 12/31 Prior to 1983 Incurred	2,967,847,667
Next Latest 12/31 Prior to 1983 Incurred	2,967,633,001
CY Development of Prior Yrs	214,666
Next Latest PY 1983 Incurred	391,162,883
# of 1983 Yrs in Prior Data	7.59
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.95

- 1 Policy Yr 1982 Incurred = Average of 1983, 1984, 1985, reduced by PY Deflation ^ 2
- 2 PY 1981 & Prior = Subsequent Yr x PY Deflation
- 3 1982 Development Selected Based on Observed 1983, 1984, 1985
- 4 PY 1981 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0006 vs 1.0005 214,666
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2007 Loss Cost Filing

INDEMNITY

Policy Year	(*=Estimate)	12/31/03 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/03 Incurred	Prior Year Development	Dollar Development	DF
1936	*	40,191,691	1.000000	0	1.0000 #	1970	*	229,897,209	1.000005	1,056	1.0000
1937	*	42,307,043	1.000000	0	1.0000 #	1971	*	241,997,062	1.000006	1,483	1.0000
1938	*	44,533,730	1.000000	0	1.0000 #	1972	*	254,733,749	1.000008	2,081	1.0000
1939	*	46,877,610	1.000000	0	1.0000 #	1973	*	268,140,789	1.000011	2,921	1.0000
1940	*	49,344,853	1.000000	0	1.0000 #	1974	*	282,253,462	1.000015	4,099	1.0001
1941	*	51,941,950	1.000000	0	1.0000 #	1975	*	297,108,907	1.000019	5,753	1.0001
1942	*	54,675,737	1.000000	0	1.0000 #	1976	*	312,746,218	1.000026	8,074	1.0001
1943	*	57,553,407	1.000000	0	1.0000 #	1977	*	329,206,545	1.000034	11,332	1.0001
1944	*	60,582,534	1.000000	0	1.0000 #	1978	*	346,533,206	1.000046	15,905	1.0002
1945	*	63,771,089	1.000000	0	1.0000 #	1979	*	364,771,795	1.000061	22,323	1.0002
1946	*	67,127,462	1.000000	0	1.0000 #	1980	*	383,970,311	1.000082	31,331	1.0003
1947	*	70,660,486	1.000000	0	1.0000 #	1981	*	404,179,275	1.000109	43,973	1.0004
1948	*	74,379,459	1.000000	1	1.0000 #	1982	*	425,451,868	1.00014506	61,716	1.0006 20TH TO ULT.
1949	*	78,294,167	1.000000	1	1.0000 #	1983	*	389,987,738	0.9970		
1950	*	82,414,913	1.000000	1	1.0000 #	1984	*	478,646,535	0.9998	Total	
1951	*	86,752,540	1.000000	2	1.0000 #	1985	*	545,610,164	1.0019	Development:	
1952	*	91,318,463	1.000000	2	1.0000 #	1986	*	640,715,570	1.0021	214,666	
1953	*	96,124,698	1.000000	3	1.0000 #	1987	*	776,693,885	1.0007		
1954	*	101,183,893	1.000000	5	1.0000 #	1988	*	873,813,261	0.9989		
1955	*	106,509,361	1.000000	7	1.0000 #	1989	*	1,024,763,991	1.0002		
1956	*	112,115,116	1.000000	9	1.0000 #	1990	*	1,061,470,384	0.9989		
1957	*	118,015,912	1.000000	13	1.0000 #	1991	*	945,195,749	1.0038		
1958	*	124,227,276	1.000000	18	1.0000 #	1992	*	819,461,749	1.0013		
1959	*	130,765,554	1.000000	25	1.0000 #	1993	*	705,909,803	1.0003		
1960	*	137,647,951	1.000000	36	1.0000 #	1994	*	648,918,349	0.9983		
1961	*	144,892,580	1.000000	50	1.0000 #	1995	*	549,781,669	0.9965		
1962	*	152,518,505	1.000000	70	1.0000 #	1996	*	489,578,546	1.0151		
1963	*	160,545,795	1.000001	98	1.0000 #	1997	*	503,839,366	1.0128		
1964	*	168,995,574	1.000001	138	1.0000 #	1998	*	522,894,170	1.0208		
1965	*	177,890,078	1.000001	194	1.0000 #	1999	*	593,569,230	1.0711		
1966	*	187,252,713	1.000001	272	1.0000 #	2000	*	609,017,440	1.1682		
1967	*	197,108,119	1.000002	382	1.0000 #	2001	*	512,529,705	1.4381		
1968	*	207,482,231	1.000003	536	1.0000 #	2002	*	342,845,222	3.0367		
1969	*	218,402,348	1.000003	753	1.0000 #	2003	*	106,525,140			

Inputs for Tail Factor Estimation - 2007 Loss Cost Filing

Medical **02v03**

Latest 12/31 Prior to 1983 Incurred	713,272,113
Next Latest 12/31 Prior to 1983 Incurred	701,627,833
CY Development of Prior Yrs	11,644,280
Next Latest PY 1983 Incurred	144,814,768
# of 1983 Yrs in Prior Data	4.93
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.93

- 1 Policy Yr 1982 Incurred = Average of 1983, 1984, 1985, reduced by PY Deflation ^ 2
- 2 PY 1981 & Prior = Subsequent Yr x PY Deflation
- 3 1982 Development Selected Based on Observed 1983, 1984, 1985
- 4 PY 1981 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0874 vs 1.0804 11,644,280
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2007 Loss Cost Filing

MEDICAL

Policy Year	(*=Estimate)	12/31/03 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/03 Incurred	Prior Year Development	Dollar Development	DF	
1937	*	6,377,286	1.000000	0	1.0000	#	1971	*	75,199,615	1.000890	66,961	1.0036
1938	*	6,857,296	1.000000	0	1.0000	#	1972	*	80,859,801	1.001187	96,002	1.0048
1939	*	7,373,437	1.000000	1	1.0000	#	1973	*	86,946,022	1.001583	137,637	1.0063
1940	*	7,928,427	1.000000	1	1.0000	#	1974	*	93,490,346	1.002111	197,329	1.0085
1941	*	8,525,190	1.000000	1	1.0000	#	1975	*	100,527,254	1.002814	282,910	1.0113
1942	*	9,166,871	1.000000	2	1.0000	#	1976	*	108,093,822	1.003752	405,605	1.0151
1943	*	9,856,851	1.000000	3	1.0000	#	1977	*	116,229,916	1.005003	581,513	1.0202
1944	*	10,598,764	1.000000	4	1.0000	#	1978	*	124,978,404	1.006671	833,710	1.0270
1945	*	11,396,521	1.000001	6	1.0000	#	1979	*	134,385,381	1.008894	1,195,283	1.0361
1946	*	12,254,323	1.000001	8	1.0000	#	1980	*	144,500,409	1.011859	1,713,667	1.0484
1947	*	13,176,692	1.000001	12	1.0000	#	1981	*	155,376,784	1.015812	2,456,871	1.0650
1948	*	14,168,486	1.000001	17	1.0000	#	1982	*	167,071,811	1.021083120	3,522,395	1.0874
1949	*	15,234,931	1.000002	24	1.0000	#	1983	*	146,198,868	1.0096		20TH TO ULT
1950	*	16,381,646	1.000002	35	1.0000	#	1984	*	187,900,786	1.0185		
1951	*	17,614,673	1.000003	50	1.0000	#	1985	*	245,407,148	1.0154	Total	
1952	*	18,940,509	1.000004	71	1.0000	#	1986	*	277,378,984	1.0282	Development:	
1953	*	20,366,138	1.000005	102	1.0000	#	1987	*	367,708,787	1.0180	11,644,280	
1954	*	21,899,073	1.000007	147	1.0000	#	1988	*	440,848,307	1.0126		
1955	*	23,547,391	1.000009	210	1.0000	#	1989	*	539,195,973	1.0125		
1956	*	25,319,775	1.000012	301	1.0000	#	1990	*	576,764,232	1.0136		
1957	*	27,225,565	1.000016	432	1.0001	#	1991	*	545,185,805	1.0172		
1958	*	29,274,801	1.000021	619	1.0001	#	1992	*	495,590,271	1.0090		
1959	*	31,478,280	1.000028	888	1.0001	#	1993	*	416,663,157	1.0103		
1960	*	33,847,613	1.000038	1,273	1.0002	#	1994	*	385,248,779	1.0173		
1961	*	36,395,283	1.000050	1,825	1.0002	#	1995	*	360,777,701	1.0101		
1962	*	39,134,713	1.000067	2,617	1.0003	#	1996	*	362,935,122	1.0258		
1963	*	42,080,336	1.000089	3,751	1.0004	#	1997	*	384,683,644	1.0043		
1964	*	45,247,674	1.000119	5,378	1.0005	#	1998	*	430,991,464	1.0137		
1965	*	48,653,412	1.000158	7,711	1.0006	#	1999	*	460,672,152	1.0192		
1966	*	52,315,497	1.000211	11,055	1.0008	#	2000	*	488,078,628	1.0363		
1967	*	56,253,223	1.000282	15,849	1.0011	#	2001	*	435,572,930	1.1152		
1968	*	60,487,336	1.000376	22,723	1.0015	#	2002	*	390,167,515	2.3547		
1969	*	65,040,147	1.000501	32,577	1.0020	#	2003	*	174,650,484			
1970	*	69,935,642	1.000668	46,706	1.0027	#						

Inputs for Tail Factor Estimation - 2007 Loss Cost Filing

Indemnity: 01v02

Latest 12/31 Prior to 1982 Incurred	2,817,213,052
Next Latest 12/31 Prior to 1982 Incurred	2,812,669,507
CY Development of Prior Yrs	4,543,545
Next Latest PY 1982 Incurred	348,246,993
# of 1982 Yrs in Prior Data	8.09
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.95

- 1 Policy Yr 1981 Incurred = Average of 1982, 1983, 1984, reduced by PY Deflation ^ 2
- 2 PY 1980 & Prior = Subsequent Yr x PY Deflation
- 3 1981 Development Selected Based on Observed 1982, 1983, 1984
- 4 PY 1980 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0137 vs 1.0130 4,543,545
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2007 Loss Cost Filing

INDEMNITY

Policy Year	(*=Estimate)	12/31/02 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/02 Incurred	Prior Year Development	Dollar Development	DF
1935	*	36,272,299	1.000000	0	1.0000 #	1969	*	207,478,214	1.000108	22,359	1.0004
1936	*	38,181,367	1.000000	0	1.0000 #	1970	*	218,398,120	1.000144	31,381	1.0006
1937	*	40,190,913	1.000000	0	1.0000 #	1971	*	229,892,758	1.000192	44,043	1.0008
1938	*	42,306,224	1.000000	1	1.0000 #	1972	*	241,992,376	1.000255	61,815	1.0010
1939	*	44,532,867	1.000000	1	1.0000 #	1973	*	254,728,817	1.000341	86,758	1.0014
1940	*	46,876,702	1.000000	1	1.0000 #	1974	*	268,135,597	1.000454	121,766	1.0018
1941	*	49,343,897	1.000000	2	1.0000 #	1975	*	282,247,997	1.000605	170,900	1.0024
1942	*	51,940,945	1.000000	2	1.0000 #	1976	*	297,103,155	1.000807	239,860	1.0032
1943	*	54,674,678	1.000000	3	1.0000 #	1977	*	312,740,163	1.001076	336,645	1.0043
1944	*	57,552,293	1.000000	5	1.0000 #	1978	*	329,200,171	1.001435	472,484	1.0058
1945	*	60,581,361	1.000000	7	1.0000 #	1979	*	346,526,496	1.001914	663,136	1.0077
1946	*	63,769,854	1.000000	9	1.0000 #	1980	*	364,764,733	1.002552	930,717	1.0103
1947	*	67,126,162	1.000000	13	1.0000 #	1981	*	383,962,877	1.00340207	1,306,269	1.0137 20TH TO ULT.
1948	*	70,659,118	1.000000	18	1.0000 #	1982	*	348,182,094	0.9998		
1949	*	74,378,019	1.000000	25	1.0000 #	1983	*	412,572,951	1.0007	Total	
1950	*	78,292,651	1.000000	36	1.0000 #	1984	*	515,575,847	0.9989	Development:	
1951	*	82,413,317	1.000001	50	1.0000 #	1985	*	585,122,419	1.0010	4,543,545	
1952	*	86,750,860	1.000001	70	1.0000 #	1986	*	686,153,414	1.0027		
1953	*	91,316,695	1.000001	99	1.0000 #	1987	*	835,619,726	1.0000		
1954	*	96,122,837	1.000001	138	1.0000 #	1988	*	958,437,042	1.0038		
1955	*	101,181,934	1.000002	194	1.0000 #	1989	*	1,114,010,229	1.0021		
1956	*	106,507,298	1.000003	273	1.0000 #	1990	*	1,146,106,992	0.9992		
1957	*	112,112,946	1.000003	383	1.0000 #	1991	*	1,015,586,301	0.9977		
1958	*	118,013,627	1.000005	537	1.0000 #	1992	*	870,306,218	1.0004		
1959	*	124,224,871	1.000006	754	1.0000 #	1993	*	742,340,266	0.9966		
1960	*	130,763,022	1.000008	1,058	1.0000 #	1994	*	688,817,894	0.9987		
1961	*	137,645,286	1.000011	1,485	1.0000 #	1995	*	582,856,678	1.0081		
1962	*	144,889,775	1.000014	2,084	1.0001 #	1996	*	511,440,532	1.0105		
1963	*	152,515,552	1.000019	2,925	1.0001 #	1997	*	535,183,419	1.0301		
1964	*	160,542,687	1.000026	4,106	1.0001 #	1998	*	553,547,060	1.0676		
1965	*	168,992,302	1.000034	5,762	1.0001 #	1999	*	596,174,358	1.1639		
1966	*	177,886,633	1.000045	8,087	1.0002 #	2000	*	547,863,781	1.4337		
1967	*	187,249,088	1.000061	11,351	1.0002 #	2001	*	375,832,838	3.0119		
1968	*	197,104,303	1.000081	15,931	1.0003 #	2002	*	115,626,491			

Inputs for Tail Factor Estimation - 2007 Loss Cost Filing

Medical 01v02

Latest 12/31 Prior to 1982 Incurred 613,359,665
 Next Latest 12/31 Prior to 1982 Incurred 598,016,744
 CY Development of Prior Yrs 15,342,921
 Next Latest PY 1982 Incurred 123,135,800
 # of 1982 Yrs in Prior Data 4.98
 Selected Decrement, Development Factor 0.75
 Selected Average PY Deflation Factor 0.93

- 1 Policy Yr 1981 Incurred = Average of 1982, 1983, 1984, reduced by PY Deflation ^ 2
- 2 PY 1980 & Prior = Subsequent Yr x PY Deflation
- 3 1981 Development Selected Based on Observed 1982, 1983, 1984
- 4 PY 1980 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.1426 vs 1.1246 15,342,921
 0

Pennsylvania Compensation Rating Bureau
 Tail Factor Model - 2007 Loss Cost Filing

MEDICAL

Policy Year	(*=Estimate)	12/31/02 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/02 Incurred	Prior Year Development	Dollar Development	DF	
1936	*	5,266,770	1.000000	0	1.0000	#	1970	*	62,104,649	1.001421	88,231	1.0057
1937	*	5,663,194	1.000000	1	1.0000	#	1971	*	66,779,193	1.001894	126,496	1.0076
1938	*	6,089,456	1.000000	1	1.0000	#	1972	*	71,805,584	1.002526	181,356	1.0101
1939	*	6,547,802	1.000000	1	1.0000	#	1973	*	77,210,305	1.003368	260,008	1.0135
1940	*	7,040,647	1.000000	2	1.0000	#	1974	*	83,021,834	1.004490	372,772	1.0181
1941	*	7,570,588	1.000000	3	1.0000	#	1975	*	89,270,789	1.005987	534,440	1.0242
1942	*	8,140,417	1.000000	4	1.0000	#	1976	*	95,990,095	1.007982	766,222	1.0324
1943	*	8,753,137	1.000001	5	1.0000	#	1977	*	103,215,156	1.010643	1,098,526	1.0434
1944	*	9,411,975	1.000001	8	1.0000	#	1978	*	110,984,039	1.014191	1,574,948	1.0582
1945	*	10,120,404	1.000001	11	1.0000	#	1979	*	119,337,676	1.018921	2,257,989	1.0782
1946	*	10,882,154	1.000001	16	1.0000	#	1980	*	128,320,082	1.025228	3,237,261	1.1054
1947	*	11,701,241	1.000002	22	1.0000	#	1981	*	137,978,583	1.033637350	4,641,234	1.1426
1948	*	12,581,980	1.000003	32	1.0000	#	1982	*	125,364,242	1.0181		20TH TO ULT
1949	*	13,529,011	1.000003	46	1.0000	#	1983	*	152,662,980	1.0143		
1950	*	14,547,323	1.000005	66	1.0000	#	1984	*	200,566,545	1.0128	Total	
1951	*	15,642,283	1.000006	94	1.0000	#	1985	*	256,752,184	1.0109	Development:	
1952	*	16,819,659	1.000008	135	1.0000	#	1986	*	289,096,453	1.0168	15,342,921	
1953	*	18,085,655	1.000011	193	1.0000	#	1987	*	383,743,597	1.0084		
1954	*	19,446,941	1.000014	277	1.0001	#	1988	*	477,707,737	1.0110		
1955	*	20,910,689	1.000019	397	1.0001	#	1989	*	581,263,824	1.0128		
1956	*	22,484,612	1.000025	569	1.0001	#	1990	*	611,681,732	1.0084		
1957	*	24,177,002	1.000034	816	1.0001	#	1991	*	575,404,042	1.0154		
1958	*	25,996,776	1.000045	1,170	1.0002	#	1992	*	521,299,077	1.0073		
1959	*	27,953,523	1.000060	1,677	1.0002	#	1993	*	434,749,861	1.0111		
1960	*	30,057,552	1.000080	2,405	1.0003	#	1994	*	401,004,370	1.0111		
1961	*	32,319,948	1.000107	3,448	1.0004	#	1995	*	380,838,199	1.0218		
1962	*	34,752,632	1.000142	4,943	1.0006	#	1996	*	375,491,810	1.0163		
1963	*	37,368,422	1.000190	7,086	1.0008	#	1997	*	412,533,402	1.0130		
1964	*	40,181,099	1.000253	10,160	1.0010	#	1998	*	453,724,979	1.0041		
1965	*	43,205,482	1.000337	14,566	1.0013	#	1999	*	484,778,644	1.0554		
1966	*	46,457,508	1.000450	20,883	1.0018	#	2000	*	488,062,789	1.1262		
1967	*	49,954,310	1.000599	29,940	1.0024	#	2001	*	407,445,581	2.2107		
1968	*	53,714,311	1.000799	42,925	1.0032	#	2002	*	169,533,312			
1969	*	57,757,324	1.001066	61,541	1.0043	#						