

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 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 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	
		Traditional Approach *	Indicated Factor	Traditional Approach *	Indicated Factor
01V02	20TH TO ULT.	1.0127	1.0133	1.1183	1.1615
00V01	20TH TO ULT.	0.9901	0.9881	1.0878	1.1091
99V00	20TH TO ULT.	1.0166	1.0205	1.0844	1.1029
98V99	20TH TO ULT.	1.0047	1.0059	1.0473	1.0606
AVERAGE OF LATEST 2 VALUATIONS		1.0014	1.0007	1.1031	1.1353
AVERAGE OF LATEST 4 VALUATIONS		1.0060	1.0070	1.0845	1.1085

* I.e. for 01V02 =
$$\frac{\text{Incurred Loss @ 12/31/02} - \text{Incurred Loss @ 12/31/01 for policy years prior to 1982}}{\text{Incurred Loss @ 12/31/01 for policy year 1982}}$$

Indemnity: 01v02

Latest 12/31 Prior to 1982 Incurred	2,880,840,112
Next Latest 12/31 Prior to 1982 Incurred	2,876,218,193
CY Development of Prior Yrs	4,621,919
Next Latest PY 1982 Incurred	364,030,234
# of 1982 Yrs in Prior Data	7.91
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 = 1.0133 vs 1.0127 4,621,919
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2004 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
1934	*	36,169,781	1.000000	0	1.0000 #	1969	*	217,780,852	1.000105	22,789	1.0004
1935	*	38,073,454	1.000000	0	1.0000 #	1970	*	229,243,002	1.000140	31,983	1.0006
1936	*	40,077,320	1.000000	0	1.0000 #	1971	*	241,308,423	1.000186	44,886	1.0007
1937	*	42,186,652	1.000000	0	1.0000 #	1972	*	254,008,866	1.000248	62,994	1.0010
1938	*	44,407,002	1.000000	1	1.0000 #	1973	*	267,377,754	1.000331	88,406	1.0013
1939	*	46,744,213	1.000000	1	1.0000 #	1974	*	281,450,268	1.000441	124,065	1.0018
1940	*	49,204,435	1.000000	1	1.0000 #	1975	*	296,263,440	1.000588	174,100	1.0024
1941	*	51,794,142	1.000000	2	1.0000 #	1976	*	311,856,252	1.000784	244,303	1.0031
1942	*	54,520,149	1.000000	2	1.0000 #	1977	*	328,269,739	1.001045	342,792	1.0042
1943	*	57,389,631	1.000000	3	1.0000 #	1978	*	345,547,094	1.001394	480,944	1.0056
1944	*	60,410,138	1.000000	5	1.0000 #	1979	*	363,733,783	1.001858	674,696	1.0075
1945	*	63,589,618	1.000000	7	1.0000 #	1980	*	382,877,666	1.002478	946,357	1.0100
1946	*	66,936,440	1.000000	9	1.0000 #	1981	*	403,029,122	1.003303761	1,327,127	1.0133 20TH TO ULT.
1947	*	70,459,411	1.000000	13	1.0000 #	1982	*	364,037,129	1.0000		
1948	*	74,167,801	1.000000	18	1.0000 #	1983	*	431,038,119	1.0007	Total	
1949	*	78,071,370	1.000000	26	1.0000 #	1984	*	544,633,746	0.9991	Development:	
1950	*	82,180,389	1.000000	36	1.0000 #	1985	*	629,526,060	1.0005	4,621,919	
1951	*	86,505,673	1.000001	51	1.0000 #	1986	*	740,359,150	1.0017		
1952	*	91,058,603	1.000001	72	1.0000 #	1987	*	902,637,247	0.9978		
1953	*	95,851,161	1.000001	101	1.0000 #	1988	*	1,046,518,171	1.0033		
1954	*	100,895,959	1.000001	141	1.0000 #	1989	*	1,214,959,122	1.0028		
1955	*	106,206,272	1.000002	198	1.0000 #	1990	*	1,232,477,592	0.9994		
1956	*	111,796,076	1.000002	278	1.0000 #	1991	*	1,082,348,301	0.9980		
1957	*	117,680,080	1.000003	390	1.0000 #	1992	*	914,974,717	1.0016		
1958	*	123,873,769	1.000004	548	1.0000 #	1993	*	788,428,395	0.9937		
1959	*	130,393,441	1.000006	768	1.0000 #	1994	*	722,623,996	0.9982		
1960	*	137,256,253	1.000008	1,079	1.0000 #	1995	*	628,199,460	1.0061		
1961	*	144,480,267	1.000010	1,514	1.0000 #	1996	*	537,079,893	1.0098		
1962	*	152,084,491	1.000014	2,124	1.0001 #	1997	*	559,960,774	1.0278		
1963	*	160,088,938	1.000019	2,982	1.0001 #	1998	*	566,273,232	1.0673		
1964	*	168,514,672	1.000025	4,185	1.0001 #	1999	*	606,336,103	1.1619		
1965	*	177,383,865	1.000033	5,873	1.0001 #	2000	*	556,408,387	1.4386		
1966	*	186,719,858	1.000044	8,243	1.0002 #	2001	*	382,448,269	3.0330		
1967	*	196,547,219	1.000059	11,569	1.0002 #	2002	*	118,863,250			
1968	*	206,891,809	1.000078	16,237	1.0003 #						

Medical 01v02

Latest 12/31 Prior to 1982 Incurred	628,361,554
Next Latest 12/31 Prior to 1982 Incurred	613,005,658
CY Development of Prior Yrs	15,355,896
Next Latest PY 1982 Incurred	129,835,374
# of 1982 Yrs in Prior Data	4.84
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 = 1.1615 vs 1.1183 15,355,897
-1

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2004 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
1933	*	3,934,597	1.000000	0	1.0000 #	1969	*	53,643,137	1.001198	64,198	1.0048
1934	*	4,230,750	1.000000	0	1.0000 #	1970	*	57,680,792	1.001598	92,004	1.0064
1935	*	4,549,194	1.000000	0	1.0000 #	1971	*	62,022,357	1.002130	131,835	1.0086
1936	*	4,891,606	1.000000	0	1.0000 #	1972	*	66,690,706	1.002840	188,877	1.0114
1937	*	5,259,791	1.000000	1	1.0000 #	1973	*	71,710,437	1.003787	270,535	1.0152
1938	*	5,655,690	1.000000	1	1.0000 #	1974	*	77,107,997	1.005049	387,377	1.0204
1939	*	6,081,387	1.000000	1	1.0000 #	1975	*	82,911,825	1.006732	554,451	1.0272
1940	*	6,539,125	1.000000	2	1.0000 #	1976	*	89,152,500	1.008976	793,144	1.0365
1941	*	7,031,318	1.000000	3	1.0000 #	1977	*	95,862,903	1.011968	1,133,761	1.0489
1942	*	7,560,557	1.000001	4	1.0000 #	1978	*	103,078,390	1.015958	1,619,082	1.0656
1943	*	8,129,631	1.000001	5	1.0000 #	1979	*	110,836,978	1.021277	2,309,174	1.0883
1944	*	8,741,539	1.000001	8	1.0000 #	1980	*	119,179,547	1.028370	3,287,810	1.1192
1945	*	9,399,504	1.000001	11	1.0000 #	1981	*	120,050,047	1.037826227	4,375,531	1.1615
1946	*	10,106,993	1.000002	16	1.0000 #	1982	*	132,336,425	1.0193		
1947	*	10,867,735	1.000002	23	1.0000 #	1983	*	161,000,787	1.0133		
1948	*	11,685,736	1.000003	33	1.0000 #	1984	*	209,731,361	1.0117	Total	
1949	*	12,565,308	1.000004	48	1.0000 #	1985	*	270,160,814	1.0088	Development:	
1950	*	13,511,084	1.000005	68	1.0000 #	1986	*	306,720,378	1.0157	15,355,897	
1951	*	14,528,047	1.000007	98	1.0000 #	1987	*	408,527,533	1.0025		
1952	*	15,621,556	1.000009	141	1.0000 #	1988	*	509,228,205	1.0098		
1953	*	16,797,372	1.000012	202	1.0000 #	1989	*	624,251,605	1.0110		
1954	*	18,061,690	1.000016	289	1.0001 #	1990	*	649,989,883	1.0047		
1955	*	19,421,172	1.000021	415	1.0001 #	1991	*	611,016,494	1.0133		
1956	*	20,882,981	1.000028	594	1.0001 #	1992	*	544,425,488	1.0053		
1957	*	22,454,818	1.000038	852	1.0002 #	1993	*	459,995,344	1.0088		
1958	*	24,144,966	1.000051	1,222	1.0002 #	1994	*	418,719,947	1.0104		
1959	*	25,962,329	1.000067	1,752	1.0003 #	1995	*	397,090,770	1.0188		
1960	*	27,916,483	1.000090	2,511	1.0004 #	1996	*	395,123,266	0.9981		
1961	*	30,017,723	1.000120	3,600	1.0005 #	1997	*	432,393,203	1.0133		
1962	*	32,277,122	1.000160	5,162	1.0006 #	1998	*	461,544,198	1.0046		
1963	*	34,706,583	1.000213	7,400	1.0009 #	1999	*	490,734,115	1.0547		
1964	*	37,318,906	1.000284	10,608	1.0011 #	2000	*	490,297,806	1.1258		
1965	*	40,127,856	1.000379	15,207	1.0015 #	2001	*	415,523,972	2.2238		
1966	*	43,148,232	1.000505	21,800	1.0020 #	2002	*	175,100,185			
1967	*	46,395,949	1.000674	31,249	1.0027 #						
1968	*	49,888,117	1.000899	44,792	1.0036 #						

20TH TO ULT.

Indemnity: 00v01

Latest 12/31 Prior to 1981 Incurred	2,549,485,519
Next Latest 12/31 Prior to 1981 Incurred	2,553,237,550
CY Development of Prior Yrs	-3,752,031
Next Latest PY 1981 Incurred	379,603,999
# of 1981 Yrs in Prior Data	6.72
Selected Decrement, Development Factor	0.75
Selected Average PY Inflation	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 -3,752,031
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2004 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
1934	*	34,041,255	1.000000	0	1.0000 #	1968	*	194,716,602	.999905	-18,464	.9996
1935	*	35,832,900	1.000000	0	1.0000 #	1969	*	204,964,844	.999874	-25,914	.9995
1936	*	37,718,842	1.000000	0	1.0000 #	1970	*	215,752,467	.999831	-36,371	.9993
1937	*	39,704,044	1.000000	-1	1.0000 #	1971	*	227,107,860	.999775	-51,047	.9991
1938	*	41,793,731	1.000000	-1	1.0000 #	1972	*	239,060,905	.999700	-71,645	.9988
1939	*	43,993,401	1.000000	-1	1.0000 #	1973	*	251,643,058	.999600	-100,554	.9984
1940	*	46,308,843	1.000000	-1	1.0000 #	1974	*	264,887,430	.999467	-141,128	.9979
1941	*	48,746,150	1.000000	-2	1.0000 #	1975	*	278,828,873	.999290	-198,075	.9972
1942	*	51,311,737	1.000000	-3	1.0000 #	1976	*	293,504,077	.999053	-277,999	.9962
1943	*	54,012,355	1.000000	-4	1.0000 #	1977	*	308,951,660	.998737	-390,175	.9950
1944	*	56,855,111	1.000000	-5	1.0000 #	1978	*	325,212,274	.998316	-547,613	.9933
1945	*	59,847,485	1.000000	-8	1.0000 #	1979	*	342,328,709	.997755	-768,580	.9911
1946	*	62,997,352	1.000000	-11	1.0000 #	1980	*	360,346,010	0.99700646	-1,078,709	.9881 20TH TO ULT.
1947	*	66,313,002	1.000000	-15	1.0000 #	1981		379,970,990	1.0010		
1948	*	69,803,161	1.000000	-21	1.0000 #	1982		372,323,631	0.9993	Total	
1949	*	73,477,011	1.000000	-29	1.0000 #	1983		445,531,451	0.9977	Development:	
1950	*	77,344,222	.999999	-41	1.0000 #	1984		568,097,488	1.0006	-3,752,031	
1951	*	81,414,971	.999999	-58	1.0000 #	1985		652,083,047	0.9982		
1952	*	85,699,969	.999999	-81	1.0000 #	1986		760,157,757	0.9991		
1953	*	90,210,494	.999999	-114	1.0000 #	1987		928,353,826	1.0029		
1954	*	94,958,415	.999998	-160	1.0000 #	1988		1,059,092,992	0.9983		
1955	*	99,956,226	.999998	-225	1.0000 #	1989		1,235,061,229	0.9989		
1956	*	105,217,080	.999997	-316	1.0000 #	1990		1,260,912,239	0.9985		
1957	*	110,754,821	.999996	-444	1.0000 #	1991		1,107,918,425	0.9967		
1958	*	116,584,022	.999995	-623	1.0000 #	1992		921,100,448	1.0015		
1959	*	122,720,023	.999993	-874	1.0000 #	1993		798,412,943	1.0020		
1960	*	129,178,972	.999991	-1,226	1.0000 #	1994		732,408,463	0.9982		
1961	*	135,977,865	.999987	-1,721	.9999 #	1995		630,999,732	1.0167		
1962	*	143,134,595	.999983	-2,416	.9999 #	1996		536,864,758	1.0280		
1963	*	150,667,994	.999977	-3,390	.9999 #	1997		553,493,726	1.0514		
1964	*	158,597,889	.999970	-4,758	.9999 #	1998		537,497,944	1.1621		
1965	*	166,945,146	.999960	-6,678	.9998 #	1999		527,699,573	1.4206		
1966	*	175,731,733	.999947	-9,373	.9998 #	2000		393,696,953	3.2605		
1967	*	184,980,771	.999929	-13,156	.9997 #	2001		126,948,348			

Inputs for Tail Factor Estimation - 2004 Loss Cost Filing

Medical 00v01

Latest 12/31 Prior to 1981 Incurred	504,407,679
Next Latest 12/31 Prior to 1981 Incurred	494,056,558
CY Development of Prior Yrs	10,351,121
Next Latest PY 1981 Incurred	117,912,364
# of 1981 Yrs in Prior Data	4.28
Selected Decrement, Development Factor	0.75
Selected Average PY Inflation	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 = 1.1091 vs 1.0878 10,309,602
41,519

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2004 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
1934	*	4,262,026	1.000000	0	1.0000 #	1968	*	50,256,914	1.000826	41,519	1.0033
1935	*	4,582,823	1.000000	0	1.0000 #	1969	*	54,039,693	1.001102	59,525	1.0044
1936	*	4,927,767	1.000000	0	1.0000 #	1970	*	58,107,196	1.001469	85,340	1.0059
1937	*	5,298,674	1.000000	1	1.0000 #	1971	*	62,480,856	1.001958	122,352	1.0079
1938	*	5,697,499	1.000000	1	1.0000 #	1972	*	67,183,716	1.002611	175,415	1.0105
1939	*	6,126,343	1.000000	1	1.0000 #	1973	*	72,240,555	1.003481	251,491	1.0140
1940	*	6,587,466	1.000000	2	1.0000 #	1974	*	77,678,016	1.004642	360,560	1.0187
1941	*	7,083,297	1.000000	2	1.0000 #	1975	*	83,524,749	1.006189	516,932	1.0250
1942	*	7,616,448	1.000000	4	1.0000 #	1976	*	89,811,558	1.008252	741,122	1.0335
1943	*	8,189,729	1.000001	5	1.0000 #	1977	*	96,571,568	1.011003	1,062,540	1.0448
1944	*	8,806,160	1.000001	7	1.0000 #	1978	*	103,840,395	1.014670	1,523,355	1.0602
1945	*	9,468,989	1.000001	10	1.0000 #	1979	*	111,656,339	1.019560	2,184,022	1.0809
1946	*	10,181,709	1.000001	15	1.0000 #	1980	*	120,060,579	1.026080285	3,131,214	1.1091 20TH TO ULT.
1947	*	10,948,074	1.000002	22	1.0000 #	1981		119,994,537	1.0177		
1948	*	11,772,123	1.000003	31	1.0000 #	1982		132,705,598	1.0071	Total	
1949	*	12,658,197	1.000003	44	1.0000 #	1983		163,743,082	1.0155	Development:	
1950	*	13,610,964	1.000005	63	1.0000 #	1984		215,364,593	1.0195	10,309,602	
1951	*	14,635,445	1.000006	91	1.0000 #	1985		275,579,877	1.0120		
1952	*	15,737,038	1.000008	130	1.0000 #	1986		309,162,414	0.9992		
1953	*	16,921,546	1.000011	187	1.0000 #	1987		418,411,298	1.0105		
1954	*	18,195,211	1.000015	268	1.0001 #	1988		513,167,946	1.0261		
1955	*	19,564,743	1.000020	384	1.0001 #	1989		627,824,167	1.0136		
1956	*	21,037,358	1.000026	551	1.0001 #	1990		663,272,784	1.0120		
1957	*	22,620,815	1.000035	789	1.0001 #	1991		620,542,428	1.0155		
1958	*	24,323,457	1.000047	1,132	1.0002 #	1992		543,864,871	1.0315		
1959	*	26,154,255	1.000062	1,622	1.0002 #	1993		460,441,760	1.0198		
1960	*	28,122,855	1.000083	2,326	1.0003 #	1994		421,298,536	1.0190		
1961	*	30,239,629	1.000110	3,335	1.0004 #	1995		394,984,765	1.0214		
1962	*	32,515,730	1.000147	4,781	1.0006 #	1996		401,023,516	1.0296		
1963	*	34,963,151	1.000196	6,854	1.0008 #	1997		432,207,224	1.0247		
1964	*	37,594,786	1.000261	9,827	1.0010 #	1998		465,199,710	1.0660		
1965	*	40,424,501	1.000349	14,089	1.0014 #	1999		470,199,763	1.1438		
1966	*	43,467,205	1.000465	20,199	1.0019 #	2000		443,150,066			
1967	*	46,738,930	1.000620	28,959	1.0025 #						

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 - 2004 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
1946	*	63,049,013	1.000000	24	1.0000 #	1980	*	365,157,687	1.0023		20TH TO ULT.
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 - 2004 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 - 2004 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	1,801,578	1.0763
1942	*	7,147,656	1.000001	4	1.0000 #	1979	*	104,783,892	1.024649847	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 - 2004 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 - 2004 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 - 2004 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 - 2004 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	#						