

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
02V03	20TH TO ULT.	0.9988	0.9987	1.0769	1.1073
01V02	20TH TO ULT.	1.0130	1.0137	1.1246	1.1426
00V01	20TH TO ULT.	0.9901	0.9881	1.0878	1.1096
99V00	20TH TO ULT.	1.0166	1.0205	1.0844	1.1029
AVERAGE OF LATEST 2 VALUATIONS		1.0059	1.0062	1.1008	1.1250
AVERAGE OF LATEST 4 VALUATIONS		1.0046	1.0053	1.0934	1.1156

* I.e. for 02V03 =
$$\frac{\text{Incurred Loss @ 12/31/03} - \text{Incurred Loss @ 12/31/02 for policy years prior to 1983}}{\text{Incurred Loss @ 12/31/02 for policy year 1983}}$$

Indemnity: 02v03

Latest 12/31 Prior to 1983 Incurred	3,137,333,100
Next Latest 12/31 Prior to 1983 Incurred	3,137,835,703
CY Development of Prior Yrs	-502,603
Next Latest PY 1983 Incurred	411,401,835
# of 1983 Yrs in Prior Data	7.63
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 = .9987 vs .9988 -502,603
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2005 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
1935	*	40,753,637	1.000000	0	1.0000 #	1970	*	245,380,579	.999990	-2,473	1.0000
1936	*	42,898,565	1.000000	0	1.0000 #	1971	*	258,295,347	.999987	-3,471	.9999
1937	*	45,156,384	1.000000	0	1.0000 #	1972	*	271,889,839	.999982	-4,871	.9999
1938	*	47,533,036	1.000000	0	1.0000 #	1973	*	286,199,830	.999976	-6,837	.9999
1939	*	50,034,775	1.000000	0	1.0000 #	1974	*	301,262,979	.999968	-9,596	.9999
1940	*	52,668,184	1.000000	0	1.0000 #	1975	*	317,118,925	.999958	-13,468	.9998
1941	*	55,440,194	1.000000	0	1.0000 #	1976	*	333,809,395	.999943	-18,902	.9998
1942	*	58,358,099	1.000000	0	1.0000 #	1977	*	351,378,311	.999925	-26,530	.9997
1943	*	61,429,578	1.000000	0	1.0000 #	1978	*	369,871,906	.999899	-37,236	.9996
1944	*	64,662,713	1.000000	0	1.0000 #	1979	*	389,338,848	.999866	-52,263	.9995
1945	*	68,066,014	1.000000	-1	1.0000 #	1980	*	409,830,367	.999821	-73,354	.9993
1946	*	71,648,436	1.000000	-1	1.0000 #	1981	*	431,400,386	.999761	-102,960	.9990
1947	*	75,419,406	1.000000	-1	1.0000 #	1982	*	454,105,669	0.999681858	-144,516	.9987 20TH TO ULT.
1948	*	79,388,849	1.000000	-1	1.0000 #	1983	*	410,220,017	0.9971		
1949	*	83,567,209	1.000000	-2	1.0000 #	1984	*	514,306,463	0.9996	Total	
1950	*	87,965,483	1.000000	-3	1.0000 #	1985	*	584,966,050	1.0015	Development:	
1951	*	92,595,246	1.000000	-4	1.0000 #	1986	*	682,867,896	1.0012	-502,603	
1952	*	97,468,680	1.000000	-6	1.0000 #	1987	*	833,679,180	1.0006		
1953	*	102,598,610	1.000000	-8	1.0000 #	1988	*	954,576,534	0.9991		
1954	*	107,998,537	1.000000	-11	1.0000 #	1989	*	1,111,182,382	1.0000		
1955	*	113,682,670	1.000000	-15	1.0000 #	1990	*	1,148,495,944	0.9991		
1956	*	119,665,969	1.000000	-21	1.0000 #	1991	*	1,020,925,673	1.0033		
1957	*	125,964,178	1.000000	-30	1.0000 #	1992	*	870,125,594	1.0010		
1958	*	132,593,871	1.000000	-42	1.0000 #	1993	*	743,362,543	1.0006		
1959	*	139,572,496	1.000000	-59	1.0000 #	1994	*	687,230,930	0.9993		
1960	*	146,918,417	.999999	-83	1.0000 #	1995	*	586,619,174	0.9972		
1961	*	154,650,965	.999999	-117	1.0000 #	1996	*	517,847,256	1.0148		
1962	*	162,790,490	.999999	-164	1.0000 #	1997	*	539,476,231	1.0146		
1963	*	171,358,410	.999999	-231	1.0000 #	1998	*	562,582,001	1.0223		
1964	*	180,377,274	.999998	-324	1.0000 #	1999	*	634,932,151	1.0705		
1965	*	189,870,815	.999998	-454	1.0000 #	2000	*	639,731,113	1.1686		
1966	*	199,864,016	.999997	-637	1.0000 #	2001	*	536,788,821	1.4311		
1967	*	210,383,174	.999996	-894	1.0000 #	2002	*	352,557,233	3.0590		
1968	*	221,455,973	.999994	-1,255	1.0000 #	2003	*	106,939,040			
1969	*	233,111,550	.999992	-1,762	1.0000 #						

Medical 02v03

Latest 12/31 Prior to 1983 Incurred	746,646,720
Next Latest 12/31 Prior to 1983 Incurred	734,968,101
CY Development of Prior Yrs	11,678,619
Next Latest PY 1983 Incurred	151,957,682
# of 1983 Yrs in Prior Data	4.91
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 = 1.1073 vs 1.0769 11,678,619
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2005 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	
1934	*	4,552,793	1.000000	0	1.0000	#	1970	*	62,071,427	1.000813	50,443	1.0033
1935	*	4,895,476	1.000000	0	1.0000	#	1971	*	66,743,470	1.001084	72,301	1.0043
1936	*	5,263,953	1.000000	0	1.0000	#	1972	*	71,767,172	1.001446	103,619	1.0058
1937	*	5,660,164	1.000000	0	1.0000	#	1973	*	77,169,002	1.001928	148,487	1.0077
1938	*	6,086,198	1.000000	0	1.0000	#	1974	*	82,977,421	1.002571	212,748	1.0103
1939	*	6,544,299	1.000000	1	1.0000	#	1975	*	89,223,033	1.003427	304,754	1.0138
1940	*	7,036,881	1.000000	1	1.0000	#	1976	*	95,938,746	1.004570	436,427	1.0184
1941	*	7,566,538	1.000000	1	1.0000	#	1977	*	103,159,942	1.006093	624,755	1.0246
1942	*	8,136,063	1.000000	2	1.0000	#	1978	*	110,924,668	1.008124	893,901	1.0330
1943	*	8,748,455	1.000000	3	1.0000	#	1979	*	119,273,837	1.010832	1,278,145	1.0441
1944	*	9,406,940	1.000000	4	1.0000	#	1980	*	128,251,438	1.014443	1,825,944	1.0592
1945	*	10,114,990	1.000001	6	1.0000	#	1981	*	137,904,772	1.019257	2,605,475	1.0796
1946	*	10,876,333	1.000001	9	1.0000	#	1982	*	120,050,047	1.025676165	3,005,261	1.1073
1947	*	11,694,982	1.000001	13	1.0000	#	1983	*	154,609,314	1.0174		
1948	*	12,575,249	1.000001	18	1.0000	#	1984	*	203,678,383	1.0187		
1949	*	13,521,773	1.000002	26	1.0000	#	1985	*	260,470,879	1.0145	Total	
1950	*	14,539,541	1.000003	38	1.0000	#	1986	*	295,711,441	1.0285	Development:	
1951	*	15,633,915	1.000003	54	1.0000	#	1987	*	390,230,225	1.0175	11,678,619	
1952	*	16,810,661	1.000005	77	1.0000	#	1988	*	482,217,610	1.0111		
1953	*	18,075,980	1.000006	111	1.0000	#	1989	*	587,605,060	1.0129		
1954	*	19,436,538	1.000008	158	1.0000	#	1990	*	621,854,745	1.0135		
1955	*	20,899,503	1.000011	227	1.0000	#	1991	*	588,628,505	1.0174		
1956	*	22,472,584	1.000014	326	1.0001	#	1992	*	526,439,656	1.0082		
1957	*	24,164,069	1.000019	467	1.0001	#	1993	*	441,143,450	1.0112		
1958	*	25,982,869	1.000026	669	1.0001	#	1994	*	408,465,440	1.0165		
1959	*	27,938,569	1.000034	960	1.0001	#	1995	*	384,688,010	1.0109		
1960	*	30,041,472	1.000046	1,376	1.0002	#	1996	*	383,868,687	1.0245		
1961	*	32,302,658	1.000061	1,973	1.0002	#	1997	*	413,548,642	1.0058		
1962	*	34,734,041	1.000081	2,828	1.0003	#	1998	*	458,270,795	1.0142		
1963	*	37,348,431	1.000109	4,054	1.0004	#	1999	*	492,975,838	1.0216		
1964	*	40,159,604	1.000145	5,812	1.0006	#	2000	*	509,027,428	1.0418		
1965	*	43,182,370	1.000193	8,333	1.0008	#	2001	*	453,469,264	1.1150		
1966	*	46,432,655	1.000257	11,946	1.0010	#	2002	*	403,391,339	2.3859		
1967	*	49,927,587	1.000343	17,125	1.0014	#	2003	*	176,111,016			
1968	*	53,685,577	1.000457	24,550	1.0018	#						
1969	*	57,726,427	1.000610	35,191	1.0024	#						

20TH TO ULT.

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 - 2005 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 - 2005 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 - 2005 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 #						

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
1947	*	66,313,002	1.000000	-15	1.0000 #	1981	*	379,970,990	1.0010		20TH TO ULT.
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 - 2005 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 = 1.1096 vs 1.0878 10,351,121
0

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	1.000829	41,686	1.0033
1935	*	4,582,823	1.000000	0	1.0000	#	1969	*	54,039,693	1.001106	59,765	1.0044
1936	*	4,927,767	1.000000	0	1.0000	#	1970	*	58,107,196	1.001475	85,684	1.0059
1937	*	5,298,674	1.000000	1	1.0000	#	1971	*	62,480,856	1.001966	122,845	1.0079
1938	*	5,697,499	1.000000	1	1.0000	#	1972	*	67,183,716	1.002621	176,121	1.0105
1939	*	6,126,343	1.000000	1	1.0000	#	1973	*	72,240,555	1.003495	252,504	1.0141
1940	*	6,587,466	1.000000	2	1.0000	#	1974	*	77,678,016	1.004660	362,012	1.0188
1941	*	7,083,297	1.000000	2	1.0000	#	1975	*	83,524,749	1.006214	519,014	1.0251
1942	*	7,616,448	1.000000	4	1.0000	#	1976	*	89,811,558	1.008285	744,106	1.0336
1943	*	8,189,729	1.000001	5	1.0000	#	1977	*	96,571,568	1.011047	1,066,819	1.0450
1944	*	8,806,160	1.000001	7	1.0000	#	1978	*	103,840,395	1.014729	1,529,490	1.0604
1945	*	9,468,989	1.000001	11	1.0000	#	1979	*	111,656,339	1.019639	2,192,817	1.0813
1946	*	10,181,709	1.000001	15	1.0000	#	1980	*	120,060,579	1.026185315	3,143,824	1.1096
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	1.000004	44	1.0000	#	1983	*	163,743,082	1.0155	Development:	
1950	*	13,610,964	1.000005	64	1.0000	#	1984	*	215,364,593	1.0195	10,351,121	
1951	*	14,635,445	1.000006	91	1.0000	#	1985	*	275,579,877	1.0120		
1952	*	15,737,038	1.000008	131	1.0000	#	1986	*	309,162,414	0.9992		
1953	*	16,921,546	1.000011	188	1.0000	#	1987	*	418,411,298	1.0105		
1954	*	18,195,211	1.000015	269	1.0001	#	1988	*	513,167,946	1.0261		
1955	*	19,564,743	1.000020	386	1.0001	#	1989	*	627,824,167	1.0136		
1956	*	21,037,358	1.000026	553	1.0001	#	1990	*	663,272,784	1.0120		
1957	*	22,620,815	1.000035	792	1.0001	#	1991	*	620,542,428	1.0155		
1958	*	24,323,457	1.000047	1,136	1.0002	#	1992	*	543,864,871	1.0315		
1959	*	26,154,255	1.000062	1,629	1.0002	#	1993	*	460,441,760	1.0198		
1960	*	28,122,855	1.000083	2,335	1.0003	#	1994	*	421,298,536	1.0190		
1961	*	30,239,629	1.000111	3,348	1.0004	#	1995	*	394,984,765	1.0214		
1962	*	32,515,730	1.000148	4,800	1.0006	#	1996	*	401,023,516	1.0296		
1963	*	34,963,151	1.000197	6,882	1.0008	#	1997	*	432,207,224	1.0247		
1964	*	37,594,786	1.000262	9,867	1.0011	#	1998	*	465,199,710	1.0660		
1965	*	40,424,501	1.000350	14,146	1.0014	#	1999	*	470,199,763	1.1438		
1966	*	43,467,205	1.000467	20,280	1.0019	#	2000	*	443,150,066			
1967	*	46,738,930	1.000622	29,076	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 - 2005 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 #						