

DELAWARE COMPENSATION RATING BUREAU, INC.

Measures of Goodness of Fit in Trend Calculations Using Severity Ratios – Unlimited Losses

Estimates of trended severity ratios using from 4 to 10 data points for each loss development technique are shown in Exhibit 2.

The first page of the attachment shows  $R^2$  values for the regressions producing those trended severity ratios.

Pages 2 through 5 show fitted values for the curves used in the trend projections. Page 2 shows indemnity results using linear regression, page 3 is for indemnity-exponential, page 4 for medical-linear, and page 5 for medical-exponential.

Pages 6 through 9 show residuals resulting from the comparison of actual and fitted (actual minus fitted) values for the curves used in the trend projections. Page 6 shows indemnity results using linear regression, page 7 is for indemnity-exponential, page 8 for medical-linear, and page 9 for medical-exponential.

INDEMNITY		(Average)	(Incur)	(Pd-20)
r <sup>2</sup>				
4 Point	Linear	0.005	0.472	0.193
5 Point	Linear	0.058	0.132	0.352
6 Point	Linear	0.197	0.501	0.000
7 Point	Linear	0.490	0.684	0.208
8 Point	Linear	0.618	0.743	0.397
9 Point	Linear	0.727	0.818	0.551
10 Point	Linear	0.801	0.867	0.666
4 Point	Expon'l	0.007	0.480	0.205
5 Point	Expon'l	0.055	0.132	0.363
6 Point	Expon'l	0.218	0.503	0.001
7 Point	Expon'l	0.510	0.679	0.233
8 Point	Expon'l	0.635	0.735	0.429
9 Point	Expon'l	0.744	0.815	0.587
10 Point	Expon'l	0.812	0.864	0.699
MEDICAL		(Average)	(Incur)	(Pd-20)
r <sup>2</sup>				
4 Point	Linear	0.715	0.548	0.944
5 Point	Linear	0.678	0.562	0.812
6 Point	Linear	0.808	0.740	0.872
7 Point	Linear	0.880	0.836	0.919
8 Point	Linear	0.918	0.884	0.946
9 Point	Linear	0.941	0.913	0.962
10 Point	Linear	0.948	0.920	0.970
4 Point	Expon'l	0.708	0.560	0.922
5 Point	Expon'l	0.660	0.556	0.786
6 Point	Expon'l	0.804	0.745	0.863
7 Point	Expon'l	0.870	0.838	0.903
8 Point	Expon'l	0.913	0.892	0.930
9 Point	Expon'l	0.936	0.924	0.943
10 Point	Expon'l	0.953	0.941	0.958

INDEMNITY Linear <b>FITTED</b>	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2001	0.5120	0.5227	0.5011
	2002	0.5135	0.5394	0.4875
	2003	0.5150	0.5562	0.4739
	2004	0.5166	0.5729	0.4603
5 Point	2000	0.5273	0.5371	0.5174
	2001	0.5232	0.5435	0.5029
	2002	0.5191	0.5498	0.4884
	2003	0.5150	0.5562	0.4739
	2004	0.5109	0.5625	0.4594
6 Point	1999	0.4787	0.4797	0.4775
	2000	0.4890	0.5000	0.4778
	2001	0.4993	0.5202	0.4782
	2002	0.5095	0.5405	0.4785
	2003	0.5198	0.5608	0.4789
	2004	0.5301	0.5811	0.4792
7 Point	1998	0.4216	0.4162	0.4268
	1999	0.4427	0.4465	0.4388
	2000	0.4638	0.4767	0.4507
	2001	0.4849	0.5070	0.4627
	2002	0.5059	0.5372	0.4747
	2003	0.5270	0.5675	0.4866
	2004	0.5481	0.5977	0.4986
8 Point	1997	0.3935	0.3934	0.3936
	1998	0.4160	0.4221	0.4098
	1999	0.4385	0.4509	0.4260
	2000	0.4610	0.4797	0.4422
	2001	0.4835	0.5084	0.4584
	2002	0.5059	0.5372	0.4747
	2003	0.5284	0.5660	0.4909
	2004	0.5509	0.5947	0.5071
9 Point	1996	0.3574	0.3546	0.3603
	1997	0.3823	0.3851	0.3795
	1998	0.4072	0.4157	0.3987
	1999	0.4321	0.4462	0.4180
	2000	0.4570	0.4767	0.4372
	2001	0.4819	0.5073	0.4564
	2002	0.5067	0.5378	0.4757
	2003	0.5316	0.5683	0.4949
	2004	0.5565	0.5989	0.5141
10 Point	1995	0.3202	0.3149	0.3255
	1996	0.3470	0.3469	0.3472
	1997	0.3739	0.3789	0.3689
	1998	0.4007	0.4108	0.3906
	1999	0.4275	0.4428	0.4122
	2000	0.4544	0.4748	0.4339
	2001	0.4812	0.5068	0.4556
	2002	0.5080	0.5388	0.4773
	2003	0.5349	0.5707	0.4990
	2004	0.5617	0.6027	0.5207

INDEMNITY Expon'l <b>FITTED</b>	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2001	0.5109	0.5219	0.5007
	2002	0.5128	0.5386	0.4865
	2003	0.5146	0.5558	0.4726
	2004	0.5165	0.5735	0.4592
5 Point	2000	0.5266	0.5365	0.5177
	2001	0.5226	0.5428	0.5022
	2002	0.5186	0.5492	0.4872
	2003	0.5146	0.5558	0.4726
	2004	0.5107	0.5624	0.4585
6 Point	1999	0.4757	0.4769	0.4754
	2000	0.4863	0.4967	0.4760
	2001	0.4972	0.5173	0.4765
	2002	0.5084	0.5388	0.4771
	2003	0.5198	0.5611	0.4776
	2004	0.5314	0.5844	0.4782
7 Point	1998	0.4171	0.4129	0.4223
	1999	0.4373	0.4404	0.4344
	2000	0.4585	0.4698	0.4468
	2001	0.4808	0.5011	0.4596
	2002	0.5041	0.5345	0.4728
	2003	0.5286	0.5701	0.4863
	2004	0.5543	0.6082	0.5002
8 Point	1997	0.3918	0.3939	0.3903
	1998	0.4121	0.4187	0.4056
	1999	0.4334	0.4451	0.4214
	2000	0.4558	0.4731	0.4379
	2001	0.4793	0.5029	0.4550
	2002	0.5041	0.5345	0.4728
	2003	0.5302	0.5682	0.4912
	2004	0.5576	0.6039	0.5104
9 Point	1996	0.3579	0.3580	0.3586
	1997	0.3791	0.3828	0.3757
	1998	0.4015	0.4094	0.3936
	1999	0.4253	0.4379	0.4123
	2000	0.4505	0.4683	0.4319
	2001	0.4771	0.5008	0.4525
	2002	0.5053	0.5356	0.4741
	2003	0.5352	0.5728	0.4966
	2004	0.5669	0.6126	0.5203
10 Point	1995	0.3231	0.3214	0.3256
	1996	0.3447	0.3459	0.3438
	1997	0.3677	0.3723	0.3630
	1998	0.3922	0.4008	0.3833
	1999	0.4183	0.4314	0.4048
	2000	0.4462	0.4643	0.4274
	2001	0.4760	0.4997	0.4513
	2002	0.5077	0.5379	0.4766
	2003	0.5416	0.5790	0.5032
	2004	0.5777	0.6232	0.5314

MEDICAL Linear <b>FITTED</b>	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2001	0.8277	1.0022	0.6533
	2002	0.9284	1.1239	0.7329
	2003	1.0291	1.2457	0.8125
	2004	1.1298	1.3674	0.8921
5 Point	2000	0.8036	0.9637	0.6437
	2001	0.8788	1.0577	0.7000
	2002	0.9539	1.1517	0.7562
	2003	1.0291	1.2457	0.8125
	2004	1.1042	1.3396	0.8688
6 Point	1999	0.7033	0.8102	0.5965
	2000	0.7853	0.9204	0.6503
	2001	0.8673	1.0306	0.7041
	2002	0.9493	1.1408	0.7579
	2003	1.0314	1.2511	0.8117
	2004	1.1134	1.3613	0.8654
7 Point	1998	0.5900	0.6576	0.5225
	1999	0.6792	0.7776	0.5810
	2000	0.7685	0.8976	0.6394
	2001	0.8577	1.0176	0.6979
	2002	0.9469	1.1376	0.7563
	2003	1.0362	1.2576	0.8148
	2004	1.1254	1.3776	0.8732
8 Point	1997	0.4960	0.5373	0.4547
	1998	0.5862	0.6574	0.5150
	1999	0.6764	0.7774	0.5753
	2000	0.7666	0.8975	0.6357
	2001	0.8567	1.0175	0.6960
	2002	0.9469	1.1376	0.7563
	2003	1.0371	1.2576	0.8167
	2004	1.1273	1.3777	0.8770
9 Point	1996	0.4073	0.4279	0.3868
	1997	0.4973	0.5461	0.4485
	1998	0.5872	0.6642	0.5101
	1999	0.6771	0.7824	0.5718
	2000	0.7670	0.9006	0.6335
	2001	0.8569	1.0188	0.6951
	2002	0.9468	1.1370	0.7568
	2003	1.0368	1.2552	0.8184
	2004	1.1267	1.3733	0.8801
10 Point	1995	0.3420	0.3511	0.3329
	1996	0.4280	0.4628	0.3933
	1997	0.5141	0.5744	0.4538
	1998	0.6001	0.6861	0.5142
	1999	0.6862	0.7977	0.5746
	2000	0.7722	0.9093	0.6351
	2001	0.8582	1.0210	0.6955
	2002	0.9443	1.1326	0.7560
	2003	1.0303	1.2442	0.8164
	2004	1.1163	1.3559	0.8768

MEDICAL Expon'l <b>FITTED</b>	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2001	0.8247	0.9937	0.6543
	2002	0.9183	1.1078	0.7274
	2003	1.0226	1.2351	0.8087
	2004	1.1388	1.3770	0.8991
5 Point	2000	0.8071	0.9660	0.6476
	2001	0.8733	1.0484	0.6974
	2002	0.9451	1.1379	0.7510
	2003	1.0226	1.2351	0.8087
	2004	1.1066	1.3405	0.8709
6 Point	1999	0.7108	0.8171	0.6032
	2000	0.7793	0.9078	0.6490
	2001	0.8545	1.0085	0.6983
	2002	0.9368	1.1204	0.7514
	2003	1.0271	1.2447	0.8085
	2004	1.1261	1.3829	0.8699
7 Point	1998	0.6026	0.6736	0.5312
	1999	0.6720	0.7637	0.5787
	2000	0.7493	0.8658	0.6305
	2001	0.8355	0.9816	0.6869
	2002	0.9316	1.1129	0.7483
	2003	1.0387	1.2617	0.8152
	2004	1.1582	1.4304	0.8882
8 Point	1997	0.5185	0.5696	0.4678
	1998	0.5830	0.6513	0.5139
	1999	0.6555	0.7446	0.5645
	2000	0.7369	0.8513	0.6201
	2001	0.8286	0.9734	0.6812
	2002	0.9316	1.1129	0.7483
	2003	1.0474	1.2723	0.8220
	2004	1.1776	1.4547	0.9030
9 Point	1996	0.4411	0.4775	0.4057
	1997	0.4998	0.5501	0.4495
	1998	0.5664	0.6336	0.4980
	1999	0.6419	0.7299	0.5518
	2000	0.7274	0.8408	0.6113
	2001	0.8242	0.9685	0.6773
	2002	0.9340	1.1156	0.7504
	2003	1.0584	1.2851	0.8315
	2004	1.1994	1.4803	0.9212
10 Point	1995	0.3890	0.4197	0.3596
	1996	0.4409	0.4825	0.3996
	1997	0.4996	0.5548	0.4440
	1998	0.5663	0.6378	0.4933
	1999	0.6417	0.7332	0.5481
	2000	0.7273	0.8430	0.6090
	2001	0.8242	0.9691	0.6767
	2002	0.9341	1.1142	0.7519
	2003	1.0586	1.2809	0.8354
	2004	1.1997	1.4726	0.9282

INDEMNITY Linear RESIDUALS	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2001	-0.0262	-0.0183	-0.0340
	2002	0.0391	0.0331	0.0451
	2003	0.0004	-0.0112	0.0119
	2004	-0.0133	-0.0036	-0.0229
5 Point	2000	0.0113	0.0208	0.0018
	2001	-0.0374	-0.0391	-0.0358
	2002	0.0335	0.0227	0.0442
	2003	0.0004	-0.0112	0.0119
	2004	-0.0076	0.0068	-0.0220
6 Point	1999	-0.0480	-0.0465	-0.0495
	2000	0.0496	0.0579	0.0414
	2001	-0.0135	-0.0158	-0.0111
	2002	0.0431	0.0320	0.0541
	2003	-0.0044	-0.0158	0.0069
	2004	-0.0268	-0.0118	-0.0418
7 Point	1998	-0.0540	-0.0498	-0.0580
	1999	-0.0120	-0.0133	-0.0108
	2000	0.0748	0.0812	0.0685
	2001	0.0009	-0.0026	0.0044
	2002	0.0467	0.0353	0.0579
	2003	-0.0116	-0.0225	-0.0008
	2004	-0.0448	-0.0284	-0.0612
8 Point	1997	-0.0098	0.0103	-0.0299
	1998	-0.0484	-0.0557	-0.0410
	1999	-0.0078	-0.0177	0.0020
	2000	0.0776	0.0782	0.0770
	2001	0.0023	-0.0040	0.0087
	2002	0.0467	0.0353	0.0579
	2003	-0.0130	-0.0210	-0.0051
	2004	-0.0476	-0.0254	-0.0697
9 Point	1996	-0.0223	-0.0165	-0.0281
	1997	0.0014	0.0186	-0.0158
	1998	-0.0396	-0.0493	-0.0299
	1999	-0.0014	-0.0130	0.0100
	2000	0.0816	0.0812	0.0820
	2001	0.0039	-0.0029	0.0107
	2002	0.0459	0.0347	0.0569
	2003	-0.0162	-0.0233	-0.0091
	2004	-0.0532	-0.0296	-0.0767
10 Point	1995	-0.0234	-0.0173	-0.0294
	1996	-0.0119	-0.0088	-0.0150
	1997	0.0098	0.0248	-0.0052
	1998	-0.0331	-0.0444	-0.0218
	1999	0.0032	-0.0096	0.0158
	2000	0.0842	0.0831	0.0853
	2001	0.0046	-0.0024	0.0115
	2002	0.0446	0.0337	0.0553
	2003	-0.0195	-0.0257	-0.0132
	2004	-0.0584	-0.0334	-0.0833

INDEMNITY Expon'l RESIDUALS	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2001	-0.0251	-0.0175	-0.0336
	2002	0.0398	0.0339	0.0461
	2003	0.0008	-0.0108	0.0132
	2004	-0.0132	-0.0042	-0.0218
5 Point	2000	0.0120	0.0214	0.0015
	2001	-0.0368	-0.0384	-0.0351
	2002	0.0340	0.0233	0.0454
	2003	0.0008	-0.0108	0.0132
	2004	-0.0074	0.0069	-0.0211
6 Point	1999	-0.0450	-0.0437	-0.0474
	2000	0.0523	0.0612	0.0432
	2001	-0.0114	-0.0129	-0.0094
	2002	0.0442	0.0337	0.0555
	2003	-0.0044	-0.0161	0.0082
	2004	-0.0281	-0.0151	-0.0408
7 Point	1998	-0.0495	-0.0465	-0.0535
	1999	-0.0066	-0.0072	-0.0064
	2000	0.0801	0.0881	0.0724
	2001	0.0050	0.0033	0.0075
	2002	0.0485	0.0380	0.0598
	2003	-0.0132	-0.0251	-0.0005
	2004	-0.0510	-0.0389	-0.0628
8 Point	1997	-0.0081	0.0098	-0.0266
	1998	-0.0445	-0.0523	-0.0368
	1999	-0.0027	-0.0119	0.0066
	2000	0.0828	0.0848	0.0813
	2001	0.0065	0.0015	0.0121
	2002	0.0485	0.0380	0.0598
	2003	-0.0148	-0.0232	-0.0054
	2004	-0.0543	-0.0346	-0.0730
9 Point	1996	-0.0228	-0.0199	-0.0264
	1997	0.0046	0.0209	-0.0120
	1998	-0.0339	-0.0430	-0.0248
	1999	0.0054	-0.0047	0.0157
	2000	0.0881	0.0896	0.0873
	2001	0.0087	0.0036	0.0146
	2002	0.0473	0.0369	0.0585
	2003	-0.0198	-0.0278	-0.0108
	2004	-0.0636	-0.0433	-0.0829
10 Point	1995	-0.0263	-0.0238	-0.0295
	1996	-0.0096	-0.0078	-0.0116
	1997	0.0160	0.0314	0.0007
	1998	-0.0246	-0.0344	-0.0145
	1999	0.0124	0.0018	0.0232
	2000	0.0924	0.0936	0.0918
	2001	0.0098	0.0047	0.0158
	2002	0.0449	0.0346	0.0560
	2003	-0.0262	-0.0340	-0.0174
	2004	-0.0744	-0.0539	-0.0940



MEDICAL Linear RESIDUALS	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2001	-0.0561	-0.0892	-0.0228
	2002	0.1151	0.1948	0.0354
	2003	-0.0621	-0.1219	-0.0023
	2004	0.0030	0.0163	-0.0103
5 Point	2000	0.0511	0.0555	0.0466
	2001	-0.1072	-0.1447	-0.0695
	2002	0.0896	0.1670	0.0121
	2003	-0.0621	-0.1219	-0.0023
	2004	0.0286	0.0441	0.0130
6 Point	1999	-0.0229	-0.0542	0.0083
	2000	0.0694	0.0988	0.0400
	2001	-0.0957	-0.1176	-0.0736
	2002	0.0942	0.1779	0.0104
	2003	-0.0644	-0.1273	-0.0015
	2004	0.0194	0.0224	0.0164
7 Point	1998	-0.0361	-0.0489	-0.0233
	1999	0.0012	-0.0216	0.0238
	2000	0.0862	0.1216	0.0509
	2001	-0.0861	-0.1046	-0.0674
	2002	0.0966	0.1811	0.0120
	2003	-0.0692	-0.1338	-0.0046
	2004	0.0074	0.0061	0.0086
8 Point	1997	-0.0067	-0.0003	-0.0132
	1998	-0.0323	-0.0487	-0.0158
	1999	0.0040	-0.0214	0.0295
	2000	0.0881	0.1217	0.0546
	2001	-0.0851	-0.1045	-0.0655
	2002	0.0966	0.1811	0.0120
	2003	-0.0701	-0.1338	-0.0065
	2004	0.0055	0.0060	0.0048
9 Point	1996	0.0026	0.0174	-0.0123
	1997	-0.0080	-0.0091	-0.0070
	1998	-0.0333	-0.0555	-0.0109
	1999	0.0033	-0.0264	0.0330
	2000	0.0877	0.1186	0.0568
	2001	-0.0853	-0.1058	-0.0646
	2002	0.0967	0.1817	0.0115
	2003	-0.0698	-0.1314	-0.0082
	2004	0.0061	0.0104	0.0017
10 Point	1995	0.0466	0.0786	0.0146
	1996	-0.0181	-0.0175	-0.0188
	1997	-0.0248	-0.0374	-0.0123
	1998	-0.0462	-0.0774	-0.0150
	1999	-0.0058	-0.0417	0.0302
	2000	0.0825	0.1099	0.0552
	2001	-0.0866	-0.1080	-0.0650
	2002	0.0992	0.1861	0.0123
	2003	-0.0633	-0.1204	-0.0062
	2004	0.0165	0.0278	0.0050

MEDICAL Expon'l RESIDUALS	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2001	-0.0531	-0.0807	-0.0238
	2002	0.1252	0.2109	0.0409
	2003	-0.0556	-0.1113	0.0015
	2004	-0.0060	0.0067	-0.0173
5 Point	2000	0.0476	0.0532	0.0427
	2001	-0.1017	-0.1354	-0.0669
	2002	0.0984	0.1808	0.0173
	2003	-0.0556	-0.1113	0.0015
	2004	0.0262	0.0432	0.0109
6 Point	1999	-0.0304	-0.0611	0.0016
	2000	0.0754	0.1114	0.0413
	2001	-0.0829	-0.0955	-0.0678
	2002	0.1067	0.1983	0.0169
	2003	-0.0601	-0.1209	0.0017
	2004	0.0067	0.0008	0.0119
7 Point	1998	-0.0487	-0.0649	-0.0320
	1999	0.0084	-0.0077	0.0261
	2000	0.1054	0.1534	0.0598
	2001	-0.0639	-0.0686	-0.0564
	2002	0.1119	0.2058	0.0200
	2003	-0.0717	-0.1379	-0.0050
	2004	-0.0254	-0.0467	-0.0064
8 Point	1997	-0.0292	-0.0326	-0.0263
	1998	-0.0291	-0.0426	-0.0147
	1999	0.0249	0.0114	0.0403
	2000	0.1178	0.1679	0.0702
	2001	-0.0570	-0.0604	-0.0507
	2002	0.1119	0.2058	0.0200
	2003	-0.0804	-0.1485	-0.0118
	2004	-0.0448	-0.0710	-0.0212
9 Point	1996	-0.0312	-0.0322	-0.0312
	1997	-0.0105	-0.0131	-0.0080
	1998	-0.0125	-0.0249	0.0012
	1999	0.0385	0.0261	0.0530
	2000	0.1273	0.1784	0.0790
	2001	-0.0526	-0.0555	-0.0468
	2002	0.1095	0.2031	0.0179
	2003	-0.0914	-0.1613	-0.0213
	2004	-0.0666	-0.0966	-0.0394
10 Point	1995	-0.0004	0.0100	-0.0121
	1996	-0.0310	-0.0372	-0.0251
	1997	-0.0103	-0.0178	-0.0025
	1998	-0.0124	-0.0291	0.0059
	1999	0.0387	0.0228	0.0567
	2000	0.1274	0.1762	0.0813
	2001	-0.0526	-0.0561	-0.0462
	2002	0.1094	0.2045	0.0164
	2003	-0.0916	-0.1571	-0.0252
	2004	-0.0669	-0.0889	-0.0464