

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 ²				
4 Point	Linear	0.023	0.032	0.000
5 Point	Linear	0.392	0.330	0.057
6 Point	Linear	0.044	0.024	0.032
7 Point	Linear	0.200	0.170	0.178
8 Point	Linear	0.089	0.099	0.069
9 Point	Linear	0.340	0.346	0.320
10 Point	Linear	0.486	0.473	0.482
4 Point	Expon'l	0.023	0.032	0.000
5 Point	Expon'l	0.389	0.327	0.059
6 Point	Expon'l	0.048	0.027	0.030
7 Point	Expon'l	0.188	0.158	0.170
8 Point	Expon'l	0.111	0.122	0.087
9 Point	Expon'l	0.368	0.375	0.347
10 Point	Expon'l	0.512	0.498	0.508
MEDICAL		(Average)	(Incur)	(Pd-20)
r ²				
4 Point	Linear	0.486	0.156	0.861
5 Point	Linear	0.681	0.378	0.916
6 Point	Linear	0.798	0.640	0.888
7 Point	Linear	0.727	0.488	0.868
8 Point	Linear	0.802	0.650	0.906
9 Point	Linear	0.849	0.749	0.925
10 Point	Linear	0.888	0.817	0.943
4 Point	Expon'l	0.492	0.174	0.851
5 Point	Expon'l	0.685	0.396	0.912
6 Point	Expon'l	0.788	0.655	0.862
7 Point	Expon'l	0.709	0.484	0.845
8 Point	Expon'l	0.775	0.635	0.882
9 Point	Expon'l	0.816	0.726	0.892
10 Point	Expon'l	0.856	0.795	0.909

INDEMNITY Linear FITTED	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2003	0.6099	0.6172	0.6025
	2004	0.6091	0.6155	0.6026
	2005	0.6082	0.6137	0.6027
	2006	0.6074	0.6120	0.6028
5 Point	2002	0.6203	0.6302	0.6103
	2003	0.6163	0.6247	0.6078
	2004	0.6122	0.6192	0.6052
	2005	0.6082	0.6137	0.6027
	2006	0.6042	0.6082	0.6002
6 Point	2001	0.6036	0.6097	0.5975
	2002	0.6053	0.6113	0.5992
	2003	0.6069	0.6129	0.6008
	2004	0.6085	0.6145	0.6025
	2005	0.6101	0.6161	0.6041
	2006	0.6117	0.6177	0.6058
7 Point	2000	0.6326	0.6388	0.6264
	2001	0.6271	0.6333	0.6210
	2002	0.6217	0.6278	0.6156
	2003	0.6163	0.6223	0.6102
	2004	0.6108	0.6169	0.6048
	2005	0.6054	0.6114	0.5994
	2006	0.6000	0.6059	0.5940
8 Point	1999	0.5829	0.5844	0.5815
	2000	0.5885	0.5909	0.5861
	2001	0.5941	0.5974	0.5908
	2002	0.5997	0.6039	0.5955
	2003	0.6052	0.6104	0.6001
	2004	0.6108	0.6169	0.6048
	2005	0.6164	0.6233	0.6095
	2006	0.6220	0.6298	0.6142
9 Point	1998	0.5261	0.5253	0.5270
	1999	0.5408	0.5411	0.5405
	2000	0.5554	0.5569	0.5539
	2001	0.5700	0.5726	0.5674
	2002	0.5846	0.5884	0.5808
	2003	0.5992	0.6042	0.5943
	2004	0.6138	0.6199	0.6077
	2005	0.6285	0.6357	0.6212
10 Point	1997	0.4933	0.4966	0.4901
	1998	0.5108	0.5144	0.5072
	1999	0.5283	0.5322	0.5244
	2000	0.5458	0.5500	0.5416
	2001	0.5633	0.5679	0.5587
	2002	0.5808	0.5857	0.5759
	2003	0.5983	0.6035	0.5930
	2004	0.6158	0.6213	0.6102
	2005	0.6333	0.6391	0.6274
	2006	0.6508	0.6569	0.6445

INDEMNITY Expon'l FITTED	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2003	0.6099	0.6172	0.6025
	2004	0.6090	0.6154	0.6025
	2005	0.6082	0.6136	0.6025
	2006	0.6074	0.6119	0.6024
5 Point	2002	0.6202	0.6301	0.6103
	2003	0.6162	0.6245	0.6077
	2004	0.6122	0.6191	0.6051
	2005	0.6082	0.6136	0.6025
	2006	0.6042	0.6082	0.5999
6 Point	2001	0.6033	0.6092	0.5974
	2002	0.6050	0.6109	0.5990
	2003	0.6067	0.6126	0.6006
	2004	0.6084	0.6143	0.6022
	2005	0.6101	0.6160	0.6039
	2006	0.6118	0.6177	0.6055
7 Point	2000	0.6315	0.6376	0.6255
	2001	0.6262	0.6323	0.6202
	2002	0.6210	0.6270	0.6149
	2003	0.6158	0.6218	0.6097
	2004	0.6107	0.6166	0.6045
	2005	0.6056	0.6114	0.5994
	2006	0.6005	0.6063	0.5943
8 Point	1999	0.5785	0.5793	0.5778
	2000	0.5848	0.5866	0.5831
	2001	0.5912	0.5939	0.5883
	2002	0.5976	0.6014	0.5937
	2003	0.6041	0.6089	0.5991
	2004	0.6107	0.6166	0.6045
	2005	0.6173	0.6243	0.6100
	2006	0.6240	0.6322	0.6155
9 Point	1998	0.5190	0.5175	0.5206
	1999	0.5338	0.5334	0.5343
	2000	0.5490	0.5497	0.5482
	2001	0.5646	0.5665	0.5626
	2002	0.5807	0.5839	0.5773
	2003	0.5972	0.6018	0.5924
	2004	0.6142	0.6202	0.6079
	2005	0.6317	0.6392	0.6238
	2006	0.6496	0.6588	0.6401
10 Point	1997	0.4883	0.4915	0.4851
	1998	0.5048	0.5083	0.5013
	1999	0.5219	0.5256	0.5181
	2000	0.5395	0.5435	0.5354
	2001	0.5578	0.5621	0.5533
	2002	0.5767	0.5813	0.5719
	2003	0.5962	0.6011	0.5910
	2004	0.6163	0.6216	0.6108
	2005	0.6371	0.6428	0.6312
	2006	0.6587	0.6648	0.6523

MEDICAL Linear FITTED	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2003	1.0333	1.0674	0.9994
	2004	1.0664	1.0893	1.0436
	2005	1.0995	1.1113	1.0877
	2006	1.1325	1.1332	1.1319
5 Point	2002	0.9937	1.0255	0.9618
	2003	1.0289	1.0541	1.0038
	2004	1.0642	1.0827	1.0458
	2005	1.0995	1.1113	1.0877
	2006	1.1347	1.1399	1.1297
6 Point	2001	0.9018	0.9410	0.8626
	2002	0.9525	0.9848	0.9202
	2003	1.0032	1.0287	0.9778
	2004	1.0539	1.0725	1.0353
	2005	1.1046	1.1164	1.0929
	2006	1.1553	1.1602	1.1505
7 Point	2000	0.8976	0.9551	0.8402
	2001	0.9376	0.9856	0.8896
	2002	0.9776	1.0161	0.9391
	2003	1.0175	1.0465	0.9886
	2004	1.0575	1.0770	1.0381
	2005	1.0975	1.1074	1.0875
	2006	1.1374	1.1379	1.1370
8 Point	1999	0.8027	0.8443	0.7610
	2000	0.8536	0.8908	0.8164
	2001	0.9046	0.9374	0.8718
	2002	0.9556	0.9839	0.9272
	2003	1.0065	1.0304	0.9826
	2004	1.0575	1.0770	1.0381
	2005	1.1085	1.1235	1.0935
	2006	1.1594	1.1701	1.1489
9 Point	1998	0.7009	0.7299	0.6719
	1999	0.7608	0.7884	0.7332
	2000	0.8208	0.8469	0.7946
	2001	0.8807	0.9054	0.8560
	2002	0.9406	0.9639	0.9173
	2003	1.0005	1.0225	0.9787
	2004	1.0605	1.0810	1.0400
	2005	1.1204	1.1395	1.1014
	2006	1.1803	1.1980	1.1628
10 Point	1997	0.6086	0.6296	0.5876
	1998	0.6737	0.6947	0.6526
	1999	0.7387	0.7598	0.7175
	2000	0.8037	0.8249	0.7825
	2001	0.8688	0.8900	0.8475
	2002	0.9338	0.9551	0.9125
	2003	0.9988	1.0203	0.9775
	2004	1.0639	1.0854	1.0425
	2005	1.1289	1.1505	1.1074
	2006	1.1940	1.2156	1.1724

MEDICAL Expon'l FITTED	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2003	1.0315	1.0639	0.9990
	2004	1.0646	1.0868	1.0421
	2005	1.0988	1.1103	1.0870
	2006	1.1341	1.1343	1.1338
5 Point	2002	0.9933	1.0238	0.9628
	2003	1.0273	1.0518	1.0025
	2004	1.0625	1.0807	1.0439
	2005	1.0988	1.1103	1.0870
	2006	1.1364	1.1408	1.1318
6 Point	2001	0.9011	0.9393	0.8630
	2002	0.9483	0.9807	0.9157
	2003	0.9980	1.0240	0.9716
	2004	1.0502	1.0691	1.0309
	2005	1.1052	1.1163	1.0938
	2006	1.1631	1.1655	1.1606
7 Point	2000	0.8992	0.9545	0.8440
	2001	0.9356	0.9831	0.8879
	2002	0.9736	1.0125	0.9341
	2003	1.0131	1.0428	0.9827
	2004	1.0542	1.0740	1.0338
	2005	1.0969	1.1062	1.0876
	2006	1.1414	1.1393	1.1442
8 Point	1999	0.8034	0.8399	0.7666
	2000	0.8483	0.8822	0.8139
	2001	0.8956	0.9267	0.8640
	2002	0.9456	0.9734	0.9173
	2003	0.9984	1.0225	0.9738
	2004	1.0542	1.0740	1.0338
	2005	1.1130	1.1282	1.0975
	2006	1.1751	1.1850	1.1652
9 Point	1998	0.7031	0.7255	0.6802
	1999	0.7528	0.7753	0.7298
	2000	0.8060	0.8284	0.7830
	2001	0.8629	0.8852	0.8401
	2002	0.9239	0.9460	0.9013
	2003	0.9892	1.0108	0.9670
	2004	1.0591	1.0802	1.0375
	2005	1.1339	1.1543	1.1131
10 Point	1997	0.6167	0.6314	0.6014
	1998	0.6668	0.6825	0.6506
	1999	0.7211	0.7377	0.7039
	2000	0.7797	0.7974	0.7615
	2001	0.8432	0.8619	0.8239
	2002	0.9117	0.9316	0.8913
	2003	0.9859	1.0070	0.9643
	2004	1.0661	1.0885	1.0432
	2005	1.1529	1.1765	1.1287
	2006	1.2466	1.2717	1.2211

INDEMNITY Linear RESIDUALS	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2003	-0.0020	-0.0115	0.0075
	2004	0.0074	0.0132	0.0016
	2005	-0.0088	0.0082	-0.0255
	2006	0.0034	-0.0099	0.0165
5 Point	2002	0.0063	0.0074	0.0052
	2003	-0.0084	-0.0190	0.0022
	2004	0.0043	0.0095	-0.0010
	2005	-0.0088	0.0082	-0.0255
	2006	0.0066	-0.0061	0.0191
6 Point	2001	-0.0187	-0.0235	-0.0139
	2002	0.0213	0.0263	0.0163
	2003	0.0010	-0.0072	0.0092
	2004	0.0080	0.0142	0.0017
	2005	-0.0107	0.0058	-0.0269
	2006	-0.0009	-0.0156	0.0135
7 Point	2000	0.0352	0.0354	0.0352
	2001	-0.0422	-0.0471	-0.0374
	2002	0.0049	0.0098	-0.0001
	2003	-0.0084	-0.0166	-0.0002
	2004	0.0057	0.0118	-0.0006
	2005	-0.0060	0.0105	-0.0222
	2006	0.0108	-0.0038	0.0253
8 Point	1999	-0.0772	-0.0839	-0.0705
	2000	0.0793	0.0833	0.0755
	2001	-0.0092	-0.0112	-0.0072
	2002	0.0269	0.0337	0.0200
	2003	0.0027	-0.0047	0.0099
	2004	0.0057	0.0118	-0.0006
	2005	-0.0170	-0.0014	-0.0323
	2006	-0.0112	-0.0277	0.0051
9 Point	1998	-0.0842	-0.0866	-0.0819
	1999	-0.0351	-0.0406	-0.0295
	2000	0.1124	0.1173	0.1077
	2001	0.0149	0.0136	0.0162
	2002	0.0420	0.0492	0.0347
	2003	0.0087	0.0015	0.0157
	2004	0.0027	0.0088	-0.0035
	2005	-0.0291	-0.0138	-0.0440
10 Point	2006	-0.0323	-0.0494	-0.0153
	1997	-0.0345	-0.0246	-0.0446
	1998	-0.0689	-0.0757	-0.0621
	1999	-0.0226	-0.0317	-0.0134
	2000	0.1220	0.1242	0.1200
	2001	0.0216	0.0183	0.0249
	2002	0.0458	0.0519	0.0396
	2003	0.0096	0.0022	0.0170
	2004	0.0007	0.0074	-0.0060
	2005	-0.0339	-0.0172	-0.0502
2006	-0.0400	-0.0548	-0.0252	

INDEMNITY Expon'l RESIDUALS	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2003	-0.0020	-0.0115	0.0075
	2004	0.0075	0.0133	0.0017
	2005	-0.0088	0.0083	-0.0253
	2006	0.0034	-0.0098	0.0169
5 Point	2002	0.0064	0.0075	0.0052
	2003	-0.0083	-0.0188	0.0023
	2004	0.0043	0.0096	-0.0009
	2005	-0.0088	0.0083	-0.0253
	2006	0.0066	-0.0061	0.0194
6 Point	2001	-0.0184	-0.0230	-0.0138
	2002	0.0216	0.0267	0.0165
	2003	0.0012	-0.0069	0.0094
	2004	0.0081	0.0144	0.0020
	2005	-0.0107	0.0059	-0.0267
	2006	-0.0010	-0.0156	0.0138
7 Point	2000	0.0363	0.0366	0.0361
	2001	-0.0413	-0.0461	-0.0366
	2002	0.0056	0.0106	0.0006
	2003	-0.0079	-0.0161	0.0003
	2004	0.0058	0.0121	-0.0003
	2005	-0.0062	0.0105	-0.0222
	2006	0.0103	-0.0042	0.0250
8 Point	1999	-0.0728	-0.0788	-0.0668
	2000	0.0830	0.0876	0.0785
	2001	-0.0063	-0.0077	-0.0047
	2002	0.0290	0.0362	0.0218
	2003	0.0038	-0.0032	0.0109
	2004	0.0058	0.0121	-0.0003
	2005	-0.0179	-0.0024	-0.0328
	2006	-0.0132	-0.0301	0.0038
9 Point	1998	-0.0771	-0.0788	-0.0755
	1999	-0.0281	-0.0329	-0.0233
	2000	0.1188	0.1245	0.1134
	2001	0.0203	0.0197	0.0210
	2002	0.0459	0.0537	0.0382
	2003	0.0107	0.0039	0.0176
	2004	0.0023	0.0085	-0.0037
	2005	-0.0323	-0.0173	-0.0466
10 Point	2006	-0.0388	-0.0567	-0.0208
	1997	-0.0295	-0.0195	-0.0396
	1998	-0.0629	-0.0696	-0.0562
	1999	-0.0162	-0.0251	-0.0071
	2000	0.1283	0.1307	0.1262
	2001	0.0271	0.0241	0.0303
	2002	0.0499	0.0563	0.0436
	2003	0.0117	0.0046	0.0190
	2004	0.0002	0.0071	-0.0066
	2005	-0.0377	-0.0209	-0.0540
2006	-0.0479	-0.0627	-0.0330	

MEDICAL Linear RESIDUALS	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2003	-0.0416	-0.0621	-0.0213
	2004	0.0567	0.0884	0.0251
	2005	0.0114	0.0094	0.0136
	2006	-0.0265	-0.0357	-0.0174
5 Point	2002	-0.0044	-0.0133	0.0044
	2003	-0.0372	-0.0488	-0.0257
	2004	0.0589	0.0950	0.0229
	2005	0.0114	0.0094	0.0136
	2006	-0.0287	-0.0424	-0.0152
6 Point	2001	-0.0514	-0.0508	-0.0521
	2002	0.0368	0.0274	0.0460
	2003	-0.0115	-0.0234	0.0003
	2004	0.0692	0.1052	0.0334
	2005	0.0063	0.0043	0.0084
	2006	-0.0493	-0.0627	-0.0360
7 Point	2000	0.0537	0.0669	0.0406
	2001	-0.0872	-0.0954	-0.0791
	2002	0.0117	-0.0038	0.0271
	2003	-0.0258	-0.0412	-0.0105
	2004	0.0656	0.1007	0.0306
	2005	0.0135	0.0133	0.0138
	2006	-0.0314	-0.0404	-0.0225
8 Point	1999	-0.0771	-0.1125	-0.0416
	2000	0.0977	0.1312	0.0644
	2001	-0.0542	-0.0472	-0.0613
	2002	0.0337	0.0283	0.0390
	2003	-0.0148	-0.0251	-0.0045
	2004	0.0656	0.1007	0.0306
	2005	0.0024	-0.0028	0.0078
	2006	-0.0534	-0.0725	-0.0344
9 Point	1998	-0.0836	-0.1118	-0.0555
	1999	-0.0352	-0.0566	-0.0138
	2000	0.1305	0.1751	0.0862
	2001	-0.0303	-0.0152	-0.0455
	2002	0.0487	0.0483	0.0489
	2003	-0.0088	-0.0172	-0.0006
	2004	0.0626	0.0967	0.0287
	2005	-0.0095	-0.0188	-0.0001
10 Point	1997	-0.0613	-0.0792	-0.0435
	1998	-0.0564	-0.0766	-0.0362
	1999	-0.0131	-0.0280	0.0019
	2000	0.1476	0.1971	0.0983
	2001	-0.0184	0.0002	-0.0370
	2002	0.0555	0.0571	0.0537
	2003	-0.0071	-0.0150	0.0006
	2004	0.0592	0.0923	0.0262
	2005	-0.0180	-0.0298	-0.0061
	2006	-0.0880	-0.1181	-0.0579

MEDICAL Expon'l RESIDUALS	Policy Year	Severity Ratio (Average)	Severity Ratio (Incur)	Severity Ratio (Pd-20)
4 Point	2003	-0.0398	-0.0586	-0.0209
	2004	0.0585	0.0909	0.0266
	2005	0.0121	0.0104	0.0143
	2006	-0.0281	-0.0368	-0.0193
5 Point	2002	-0.0040	-0.0116	0.0034
	2003	-0.0356	-0.0465	-0.0244
	2004	0.0606	0.0970	0.0248
	2005	0.0121	0.0104	0.0143
	2006	-0.0304	-0.0433	-0.0173
6 Point	2001	-0.0507	-0.0491	-0.0525
	2002	0.0410	0.0315	0.0505
	2003	-0.0063	-0.0187	0.0065
	2004	0.0729	0.1086	0.0378
	2005	0.0057	0.0044	0.0075
	2006	-0.0571	-0.0680	-0.0461
7 Point	2000	0.0521	0.0675	0.0368
	2001	-0.0852	-0.0929	-0.0774
	2002	0.0157	-0.0003	0.0321
	2003	-0.0214	-0.0375	-0.0046
	2004	0.0689	0.1037	0.0349
	2005	0.0140	0.0145	0.0137
	2006	-0.0354	-0.0418	-0.0297
8 Point	1999	-0.0778	-0.1081	-0.0472
	2000	0.1030	0.1398	0.0669
	2001	-0.0452	-0.0365	-0.0535
	2002	0.0437	0.0388	0.0489
	2003	-0.0067	-0.0172	0.0043
	2004	0.0689	0.1037	0.0349
	2005	-0.0021	-0.0075	0.0038
	2006	-0.0691	-0.0875	-0.0507
9 Point	1998	-0.0858	-0.1074	-0.0638
	1999	-0.0272	-0.0435	-0.0104
	2000	0.1453	0.1936	0.0978
	2001	-0.0125	0.0050	-0.0296
	2002	0.0654	0.0662	0.0649
	2003	0.0025	-0.0055	0.0111
	2004	0.0640	0.0975	0.0312
	2005	-0.0230	-0.0336	-0.0118
10 Point	1997	-0.0694	-0.0810	-0.0573
	1998	-0.0495	-0.0644	-0.0342
	1999	0.0045	-0.0059	0.0155
	2000	0.1716	0.2246	0.1193
	2001	0.0072	0.0283	-0.0134
	2002	0.0776	0.0806	0.0749
	2003	0.0058	-0.0017	0.0138
	2004	0.0570	0.0892	0.0255
	2005	-0.0420	-0.0558	-0.0274
	2006	-0.1406	-0.1742	-0.1066