

Supplementary Material

A Tables and Figures of Empirical Analysis

	Bias				RMSE				CI			
	N	B	F	P	N	B	F	P	N	B	F	P
Random selection												
(Intercept)	-0.0397	5.2379	-0.0024	0.1668	0.4793	5.2381	0.1561	0.4782	0.9237	0.0000	0.9217	0.8835
Insured.age	0.0001	-0.0004	0.0000	-0.0002	0.0020	0.0007	0.0006	0.0008	0.8554	0.8032	0.8795	0.8916
Insured.sexFemale	0.0015	0.0836	-0.0002	0.0030	0.0308	0.0842	0.0097	0.0123	0.9016	0.0000	0.9197	0.8956
Car.age	0.0002	-0.0042	0.0000	-0.0001	0.0041	0.0044	0.0014	0.0018	0.9016	0.0743	0.8936	0.8976
MaritalSingle	-0.0004	-0.0116	-0.0008	-0.0022	0.0334	0.0161	0.0108	0.0137	0.8835	0.7309	0.9076	0.8936
Car.useCommercial	-0.0001	0.1356	0.0008	0.0119	0.0837	0.1385	0.0268	0.0387	0.8956	0.0000	0.9177	0.8695
Car.useCommute	0.0016	0.0460	0.0007	0.0171	0.0383	0.0475	0.0126	0.0250	0.9056	0.0201	0.9116	0.7530
Car.useFarmer	-0.0042	-0.1010	0.0005	-0.0118	0.2227	0.1264	0.0752	0.0812	0.8936	0.5843	0.8916	0.9096
Credit.score	0.0000	0.0002	0.0000	0.0000	0.0002	0.0002	0.0001	0.0001	0.9056	0.0321	0.9157	0.8896
RegionRural	-0.0006	-0.1211	-0.0008	-0.0179	0.0440	0.1219	0.0141	0.0251	0.8795	0.0000	0.8855	0.7108
Annual.miles.drive	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.9277	0.1205	0.9237	0.8815
Years.noclaims	-0.0001	-0.0043	0.0000	-0.0006	0.0018	0.0044	0.0006	0.0009	0.8715	0.0000	0.8614	0.7831
TerritoryEmb	0.0021	0.0993	0.0010	0.0124	0.0528	0.1011	0.0187	0.0267	0.9157	0.0000	0.8815	0.8293
Annual.pct.driven	-0.0044	-0.2516	-0.0006	-0.0435	0.0494	0.2560	0.0158	0.0645	0.9277	0.0000	0.9398	0.7631
Pct.drive.mon	0.0445	-5.2968	0.0015	-0.0336	0.5932	5.3067	0.1935	0.5881	0.9277	0.0000	0.9418	0.8855
Pct.drive.tue	0.0000	-4.5884	0.0049	0.2161	0.5140	4.5970	0.1798	0.5506	0.9458	0.0000	0.9317	0.8715
Pct.drive.wed	0.0655	-4.3149	0.0086	0.0047	0.5960	4.3292	0.2032	0.5707	0.9337	0.0000	0.9297	0.8936
Pct.drive.thr	0.0266	-4.5704	0.0027	0.2415	0.5212	4.5783	0.1673	0.5714	0.9458	0.0000	0.9538	0.8293
Pct.drive.fri	0.0017	-4.6748	0.0056	-0.2023	0.5976	4.6883	0.1877	0.6216	0.9217	0.0000	0.9257	0.8815
Pct.drive.sat	0.0629	-7.0900	0.0123	0.3019	0.7352	7.0985	0.2359	0.7783	0.9056	0.0000	0.9217	0.8635
Pct.drive.rush.am	0.0009	0.1609	-0.0032	0.1207	0.2363	0.2783	0.0729	0.2535	0.9076	0.8233	0.9217	0.8614
Pct.drive.rush.pm	0.0078	-0.4622	0.0007	-0.4822	0.2633	0.5288	0.0882	0.5401	0.8936	0.4137	0.8956	0.3494
Avgdays.week	0.0006	-0.0784	-0.0001	-0.0153	0.0156	0.0795	0.0052	0.0214	0.9197	0.0000	0.9237	0.7470
Accel.06miles	0.0000	-0.0001	0.0000	-0.0001	0.0003	0.0003	0.0001	0.0003	0.9337	0.9197	0.9177	0.8815
Brake.06miles	0.0000	-0.0004	0.0000	-0.0003	0.0002	0.0004	0.0001	0.0004	0.9317	0.4217	0.8956	0.5080
Acbr.others	0.0000	0.0001	0.0000	0.0000	0.0001	0.0001	0.0000	0.0001	1.0000	0.9759	0.9960	0.8896
Left.turns	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.9799	0.9739	0.9859	0.8896
Right.turns	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.9478	0.9378	0.9538	0.9157

	Bias				RMSE				CI			
	N	B	F	P	N	B	F	P	N	B	F	P
Age selection												
(Intercept)	0.7518	5.2356	-0.0008	0.2226	0.8798	5.2358	0.1479	0.5285	0.5416	0.0000	0.9270	0.8337
Insured.age	-0.0014	-0.0004	0.0000	-0.0003	0.0025	0.0007	0.0006	0.0009	0.7951	0.8134	0.8925	0.8905
Insured.sexFemale	-0.0093	0.0838	0.0001	0.0028	0.0305	0.0844	0.0105	0.0128	0.8824	0.0000	0.8864	0.8925
Car.age	-0.0062	-0.0042	0.0000	-0.0003	0.0075	0.0044	0.0014	0.0018	0.5538	0.0609	0.9229	0.8925
MaritalSingle	0.0240	-0.0108	0.0001	-0.0011	0.0382	0.0154	0.0106	0.0129	0.8114	0.7241	0.9108	0.9087
Car.useCommercial	-0.0502	0.1339	-0.0002	0.0104	0.0980	0.1369	0.0276	0.0378	0.7992	0.0020	0.8925	0.8864
Car.useCommute	0.0203	0.0458	0.0010	0.0173	0.0427	0.0474	0.0126	0.0245	0.8560	0.0183	0.9026	0.7627
Car.useFarmer	0.0847	-0.1017	-0.0006	-0.0151	0.2607	0.1255	0.0736	0.0840	0.8398	0.6227	0.8986	0.9047
Credit.score	-0.0001	0.0002	0.0000	0.0000	0.0002	0.0002	0.0001	0.0001	0.8053	0.0284	0.9229	0.8966
RegionRural	-0.0351	-0.1198	0.0005	-0.0150	0.0551	0.1206	0.0138	0.0241	0.7485	0.0000	0.8966	0.7546
Annual.miles.drive	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.8154	0.1156	0.8986	0.8621
Years.noclaims	0.0000	-0.0043	0.0000	-0.0006	0.0019	0.0044	0.0006	0.0010	0.8884	0.0000	0.8884	0.8073
TerritoryEmb	-0.0399	0.0981	-0.0002	0.0104	0.0672	0.0997	0.0177	0.0256	0.7931	0.0000	0.9189	0.8600
Annual.pct.driven	0.0172	-0.1801	-0.0008	-0.0404	0.0510	0.1863	0.0158	0.0636	0.9229	0.0223	0.9533	0.7830
Pct.drive.mon	-0.5714	-5.5471	0.0007	-0.0963	0.8022	5.5555	0.1859	0.6002	0.8195	0.0000	0.9452	0.8986
Pct.drive.tue	-0.3559	-4.5953	-0.0056	0.1918	0.6051	4.6025	0.1572	0.5526	0.8884	0.0000	0.9655	0.8905
Pct.drive.wed	-0.2657	-4.3386	0.0039	-0.0452	0.6112	4.3515	0.1991	0.5918	0.9087	0.0000	0.9290	0.9067
Pct.drive.thr	-0.3588	-4.6131	0.0091	0.1824	0.6098	4.6213	0.1604	0.5561	0.8763	0.0000	0.9655	0.8641
Pct.drive.fri	0.1618	-4.0822	0.0130	-0.2360	0.6120	4.0973	0.1833	0.6810	0.9026	0.0000	0.9412	0.8560
Pct.drive.sat	-0.7164	-7.3035	0.0088	0.1847	0.9959	7.3108	0.2317	0.7634	0.7505	0.0000	0.9391	0.8905
Pct.drive.rush.am	-0.1784	0.0262	-0.0104	0.1123	0.2730	0.2021	0.0752	0.2424	0.8357	0.9229	0.9026	0.8742
Pct.drive.rush.pm	-0.1809	-0.4371	-0.0039	-0.4838	0.2945	0.4953	0.0889	0.5412	0.8174	0.4097	0.8803	0.3367
Avgdays.week	-0.0402	-0.0977	-0.0003	-0.0159	0.0432	0.0985	0.0056	0.0234	0.2069	0.0000	0.9026	0.7221
Accel.06miles	0.0001	0.0001	0.0000	-0.0001	0.0003	0.0003	0.0001	0.0003	0.8803	0.9006	0.8986	0.9006
Brake.06miles	0.0001	-0.0002	0.0000	-0.0003	0.0002	0.0003	0.0001	0.0003	0.8499	0.7850	0.9270	0.5740
Acbr.others	0.0000	0.0001	0.0000	0.0000	0.0001	0.0001	0.0000	0.0001	0.9919	0.9351	1.0000	0.8905
Left.turns	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.9736	0.9655	0.9777	0.9047
Right.turns	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5923	0.5801	0.9452	0.8641

	Bias				RMSE				CI			
	N	B	F	P	N	B	F	P	N	B	F	P
Favorable selection												
(Intercept)	-0.7098	5.2288	-0.0207	0.2264	0.9702	5.2290	0.1540	0.6308	0.738	0.000	0.932	0.862
Insured.age	-0.0018	-0.0004	0.0000	-0.0002	0.0032	0.0007	0.0006	0.0009	0.804	0.820	0.878	0.900
Insured.sexFemale	-0.0162	0.0838	-0.0001	0.0031	0.0462	0.0844	0.0105	0.0130	0.856	0.000	0.880	0.892
Car.age	-0.0035	-0.0042	0.0001	-0.0002	0.0070	0.0044	0.0014	0.0018	0.820	0.080	0.900	0.902
MaritalSingle	0.0033	-0.0110	-0.0001	-0.0012	0.0427	0.0154	0.0104	0.0132	0.928	0.728	0.918	0.892
Car.useCommercial	-0.0306	0.1340	0.0000	0.0130	0.1278	0.1370	0.0275	0.0395	0.866	0.002	0.892	0.902
Car.useCommute	0.0055	0.0451	0.0000	0.0189	0.0527	0.0467	0.0125	0.0272	0.894	0.018	0.914	0.782
Car.useFarmer	-0.0289	-0.1026	-0.0014	-0.0182	0.3323	0.1256	0.0724	0.0818	0.884	0.610	0.916	0.902
Credit.score	0.0000	0.0002	0.0000	0.0000	0.0002	0.0002	0.0001	0.0001	0.898	0.038	0.910	0.890
RegionRural	-0.0061	-0.1194	0.0009	-0.0174	0.0613	0.1202	0.0141	0.0264	0.880	0.000	0.882	0.754
Annual.miles.drive	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.874	0.126	0.898	0.878
Years.noclaims	0.0006	-0.0043	0.0000	-0.0007	0.0025	0.0044	0.0006	0.0010	0.878	0.000	0.894	0.802
TerritoryEmb	-0.0143	0.0978	-0.0002	0.0116	0.0769	0.0993	0.0171	0.0262	0.890	0.000	0.936	0.854
Annual.pct.driven	0.0604	-0.1923	0.0004	-0.0438	0.0919	0.2036	0.0161	0.0780	0.834	0.152	0.946	0.820
Pct.drive.mon	0.1276	-6.0659	0.0129	-0.1141	0.7854	6.0833	0.1898	0.7420	0.944	0.000	0.928	0.918
Pct.drive.tue	0.2819	-5.0445	0.0064	0.2103	0.7451	5.0587	0.1656	0.6941	0.936	0.000	0.960	0.902
Pct.drive.wed	0.1370	-4.9515	0.0087	-0.0487	0.7995	4.9760	0.2001	0.7465	0.928	0.000	0.928	0.902
Pct.drive.thr	0.3365	-5.0052	0.0146	0.1977	0.7494	5.0171	0.1660	0.6719	0.932	0.000	0.950	0.880
Pct.drive.fri	-0.0310	-5.4363	0.0162	-0.2604	0.7945	5.4580	0.1857	0.8148	0.930	0.000	0.942	0.892
Pct.drive.sat	0.2600	-7.9588	0.0246	0.2315	1.0200	7.9731	0.2428	0.9619	0.906	0.000	0.922	0.880
Pct.drive.rush.am	-0.0449	0.2168	-0.0091	0.1099	0.3063	0.3615	0.0735	0.3055	0.912	0.836	0.922	0.900
Pct.drive.rush.pm	-0.2798	-0.7046	-0.0012	-0.5188	0.4407	0.7839	0.0896	0.6060	0.814	0.328	0.884	0.486
Avgdays.week	-0.0075	-0.0864	0.0003	-0.0172	0.0242	0.0882	0.0054	0.0277	0.896	0.000	0.922	0.758
Accel.06miles	0.0000	-0.0002	0.0000	-0.0001	0.0004	0.0004	0.0001	0.0003	0.952	0.946	0.902	0.898
Brake.06miles	-0.0001	-0.0005	0.0000	-0.0003	0.0003	0.0006	0.0001	0.0004	0.946	0.514	0.908	0.660
Acbr.others	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0001	0.998	0.994	1.000	0.882
Left.turns	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.956	0.960	0.978	0.918
Right.turns	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.922	0.910	0.962	0.874

	Bias				RMSE				CI			
	N	B	F	P	N	B	F	P	N	B	F	P
Mileage selection												
(Intercept)	-0.3057	5.2333	-0.0133	0.1533	0.5654	5.2335	0.1504	0.4707	0.856	0.000	0.924	0.888
Insured.age	0.0004	-0.0004	0.0000	-0.0002	0.0019	0.0007	0.0006	0.0009	0.874	0.816	0.880	0.878
Insured.sexFemale	-0.0019	0.0839	0.0001	0.0027	0.0323	0.0845	0.0103	0.0134	0.898	0.000	0.872	0.860
Car.age	0.0001	-0.0042	0.0001	-0.0002	0.0043	0.0044	0.0014	0.0018	0.890	0.072	0.912	0.916
MaritalSingle	0.0114	-0.0109	-0.0001	-0.0016	0.0338	0.0154	0.0104	0.0139	0.902	0.720	0.922	0.878
Car.useCommercial	0.0489	0.1339	-0.0001	0.0109	0.1064	0.1370	0.0278	0.0417	0.840	0.002	0.900	0.884
Car.useCommute	-0.0269	0.0455	0.0004	0.0160	0.0469	0.0470	0.0125	0.0245	0.814	0.020	0.910	0.784
Car.useFarmer	0.1312	-0.1034	-0.0019	-0.0190	0.2606	0.1267	0.0735	0.0818	0.780	0.592	0.898	0.906
Credit.score	0.0001	0.0002	0.0000	0.0000	0.0002	0.0002	0.0001	0.0001	0.900	0.030	0.928	0.878
RegionRural	0.0301	-0.1195	0.0007	-0.0156	0.0538	0.1204	0.0146	0.0257	0.790	0.000	0.892	0.754
Annual.miles.drive	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.830	0.132	0.900	0.856
Years.noclaims	-0.0012	-0.0043	0.0000	-0.0006	0.0021	0.0044	0.0006	0.0010	0.806	0.000	0.886	0.772
TerritoryEmb	0.0100	0.0980	-0.0001	0.0114	0.0566	0.0997	0.0179	0.0261	0.904	0.000	0.910	0.876
Annual.pct.driven	0.0528	-0.2068	-0.0009	-0.0438	0.0739	0.2128	0.0161	0.0675	0.786	0.004	0.942	0.798
Pct.drive.mon	0.2508	-5.2697	0.0119	-0.0221	0.6285	5.2788	0.1875	0.6004	0.912	0.000	0.944	0.898
Pct.drive.tue	-0.0423	-4.7960	0.0021	0.2260	0.5116	4.8047	0.1623	0.5665	0.950	0.000	0.958	0.894
Pct.drive.wed	-0.1419	-4.7005	0.0047	0.0249	0.5959	4.7148	0.1970	0.5775	0.938	0.000	0.928	0.910
Pct.drive.thr	0.1299	-4.6386	0.0145	0.2396	0.5234	4.6467	0.1668	0.5626	0.948	0.000	0.946	0.866
Pct.drive.fri	0.0249	-4.8215	0.0134	-0.1698	0.5800	4.8351	0.1785	0.6131	0.936	0.000	0.956	0.890
Pct.drive.sat	0.0766	-7.3809	0.0186	0.2822	0.7344	7.3893	0.2361	0.7882	0.916	0.000	0.930	0.876
Pct.drive.rush.am	0.0158	0.1795	-0.0062	0.1065	0.2261	0.2815	0.0750	0.2551	0.926	0.820	0.906	0.888
Pct.drive.rush.pm	0.0393	-0.4596	-0.0006	-0.4737	0.2691	0.5321	0.0903	0.5411	0.886	0.438	0.876	0.426
Avgdays.week	0.0257	-0.0559	0.0003	-0.0164	0.0305	0.0574	0.0054	0.0234	0.582	0.008	0.916	0.692
Accel.06miles	0.0000	-0.0001	0.0000	-0.0001	0.0003	0.0003	0.0001	0.0003	0.936	0.916	0.884	0.886
Brake.06miles	-0.0001	-0.0005	0.0000	-0.0003	0.0003	0.0006	0.0001	0.0004	0.846	0.188	0.908	0.502
Acbr.others	0.0001	0.0002	0.0000	0.0000	0.0001	0.0002	0.0000	0.0001	0.950	0.784	1.000	0.780
Left.turns	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.992	0.986	0.988	0.898
Right.turns	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.966	0.948	0.964	0.900

Table S-1: Estimation performance with the bootstrap samples of the actual data

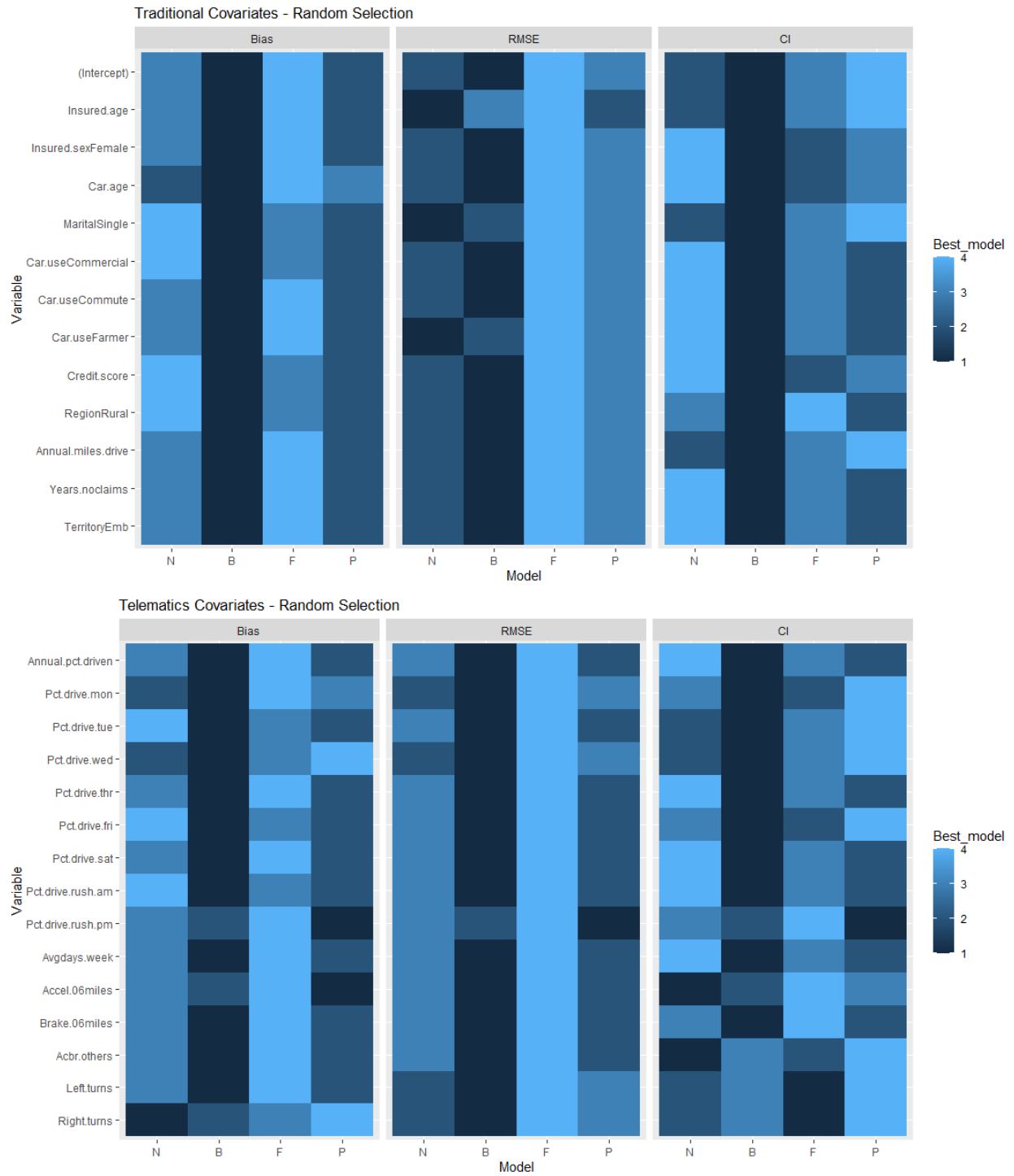


Figure S-1: Ranks of the models in estimation performance with the random selection

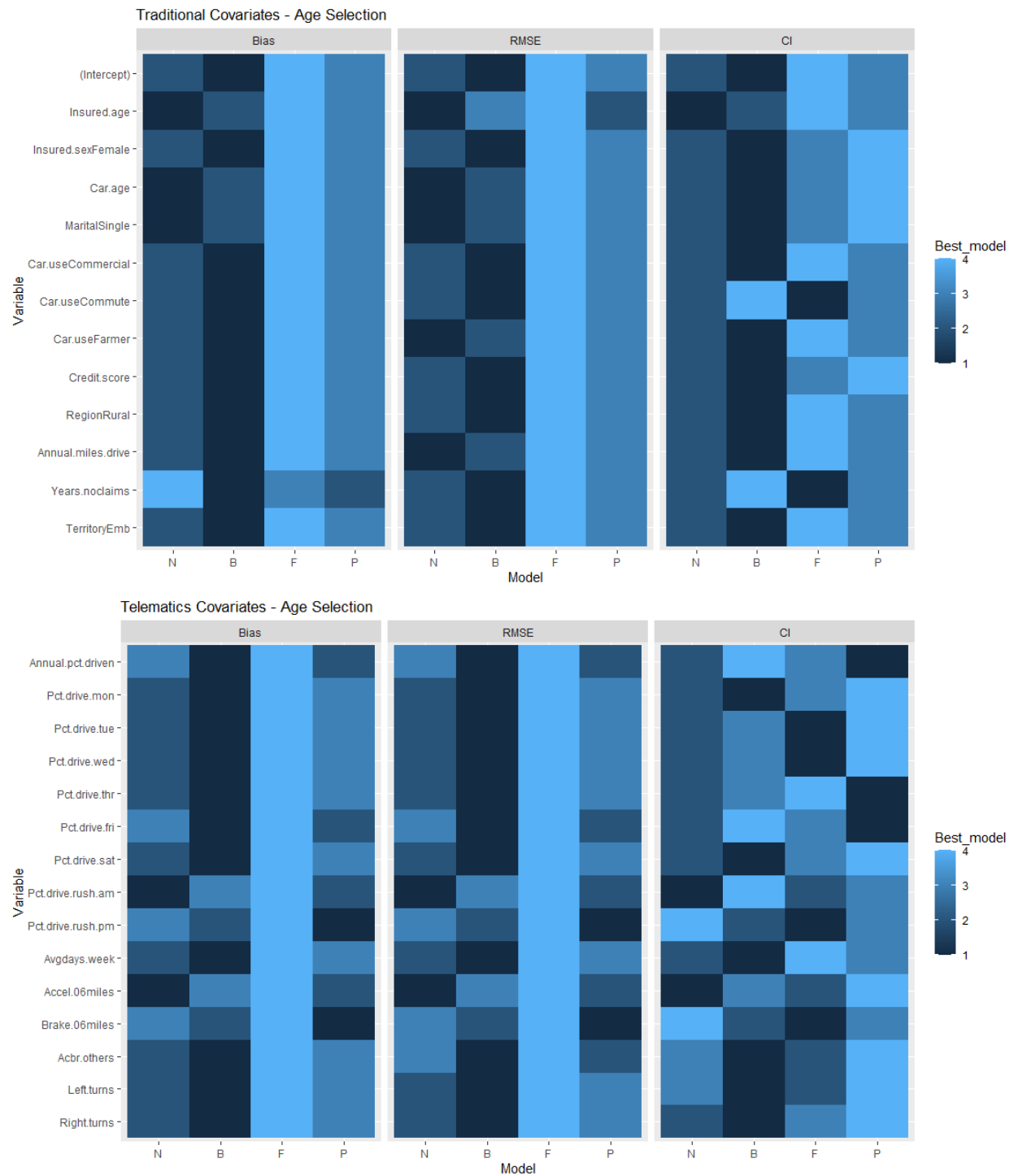


Figure S-2: Ranks of the models in estimation performance with the age selection

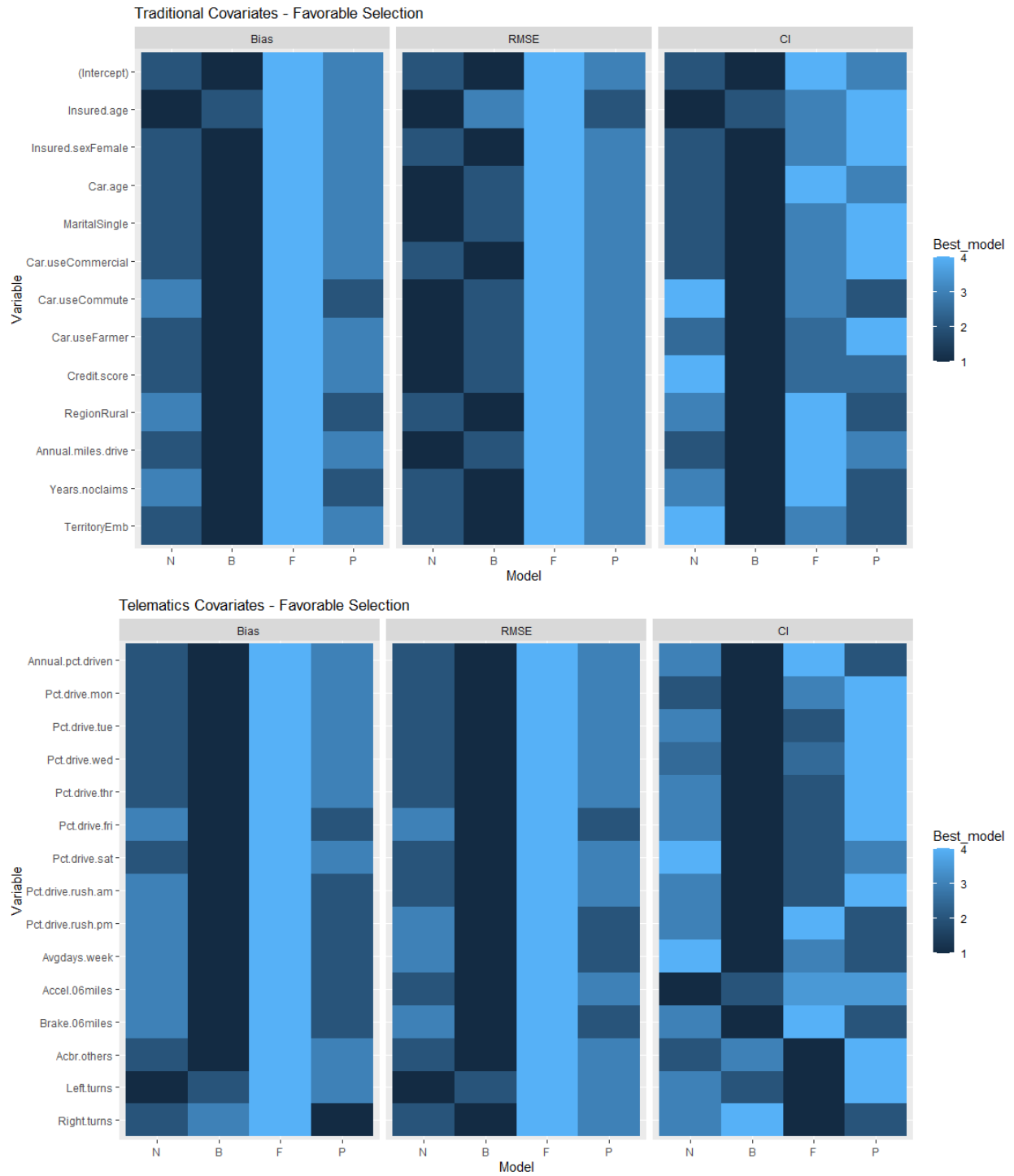


Figure S-3: Ranks of the models in estimation performance with the favorable selection

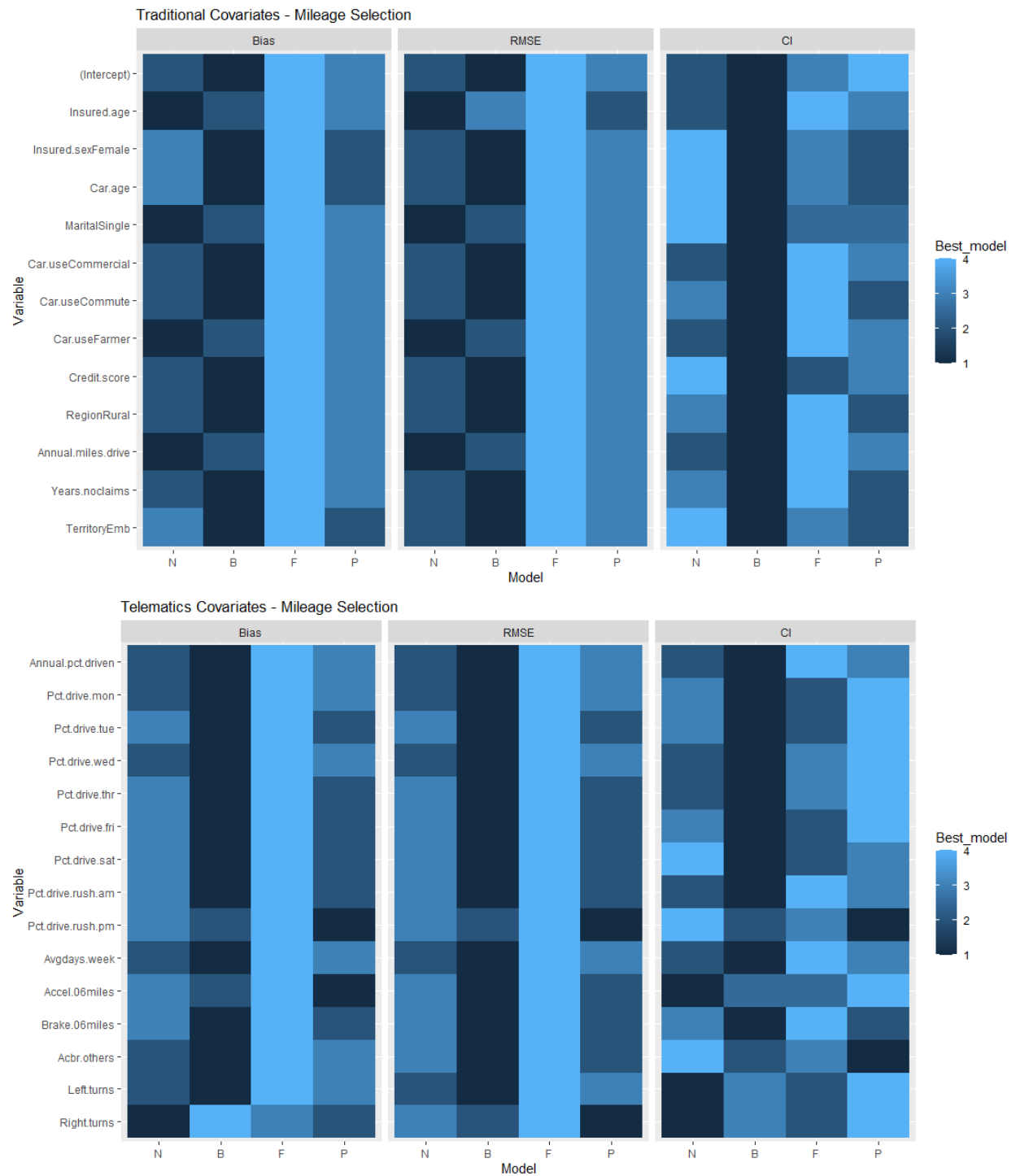


Figure S-4: Ranks of the models in estimation performance with the mileage selection

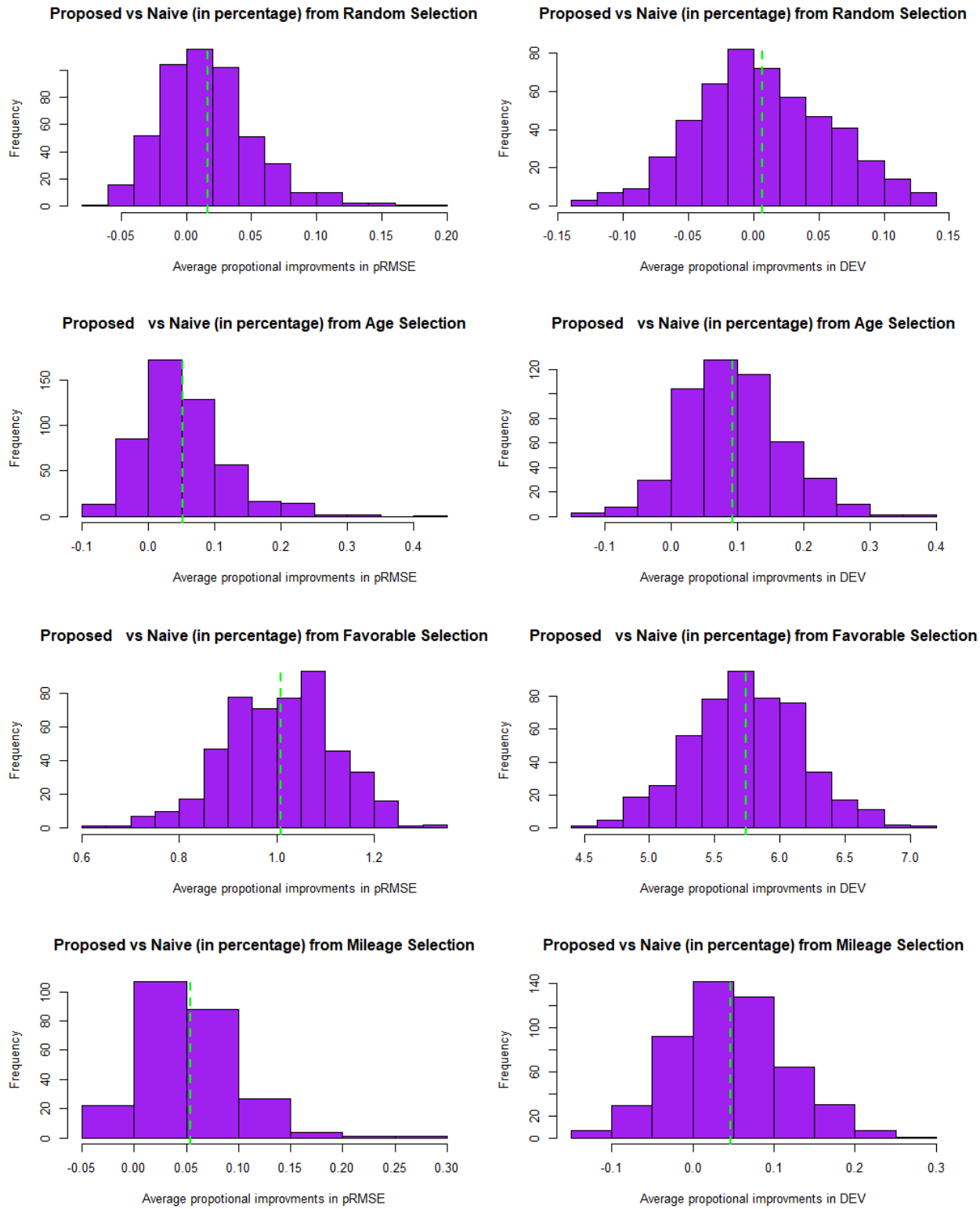


Figure S-5: Proportional improvements in pRMSEs and DEVs