MISCALIBRATION DUE TO HETEROGENEITY IN RECEIVED TREATMENT IN PROGNOSTIC MODELS: A SIMULATION STUDY

SUPPLEMENTARY MATERIALS

Tables of results for simultaneous heterogeneity in treatment effect size and treatment proportion

The code to create these tables is available at https://github.com/emsulo/Master-Thesis.

Study 1

Table 1 Study 1 results for the Ignore Treatment approach for the performance measures Calibration-in-the-large coefficient, Calibration slope, c-statistic, and scaled Brier score for heterogeneity in both treatment properties simultaneously.

Effect size	ES_d	ES_v	Proportion	p_d	p_v	Calibr. coeff.[1]	Calibr. slope[2]	c-statistic	Brier
-0.6	0.80	0.20	-0.8	0.90	0.10	0.7242	1.0393	0.8106	0.2504
-0.6	0.80	0.20	-0.4	0.50	0.10	0.3742	1.1269	0.8232	0.3033
-0.6	0.80	0.20	-0.4	0.90	0.50	0.6305	1.0311	0.8077	0.2537
-0.6	0.80	0.20	0.4	0.10	0.50	-0.0359	1.0230	0.8059	0.2808
-0.6	0.80	0.20	0.4	0.50	0.90	0.2135	1.1419	0.8221	0.3069
-0.6	0.80	0.20	0.8	0.10	0.90	-0.0986	1.0454	0.8103	0.2882
-0.3	0.50	0.20	-0.8	0.90	0.10	0.4415	1.0393	0.8068	0.2707
-0.3	0.80	0.50	-0.8	0.90	0.10	0.6751	1.0207	0.8059	0.2462
-0.3	0.50	0.20	-0.4	0.50	0.10	0.2530	1.0714	0.8145	0.2912
-0.3	0.50	0.20	-0.4	0.90	0.50	0.3496	1.0208	0.8027	0.2676
-0.3	0.80	0.50	-0.4	0.50	0.10	0.3678	1.1066	0.8195	0.2966
-0.3	0.80	0.50	-0.4	0.90	0.50	0.4782	0.9651	0.7955	0.2438
-0.3	0.50	0.20	0.4	0.10	0.50	-0.0582	0.9939	0.8027	0.2746
-0.3	0.50	0.20	0.4	0.50	0.90	0.0803	1.0784	0.8153	0.2970
-0.3	0.80	0.50	0.4	0.10	0.50	-0.1838	0.9857	0.7972	0.2629
-0.3	0.80	0.50	0.4	0.50	0.90	-0.0571	1.1202	0.8211	0.3076
-0.3	0.50	0.20	0.8	0.10	0.90	-0.1330	1.0203	0.8079	0.2828
-0.3	0.80	0.50	0.8	0.10	0.90	-0.3900	1.0081	0.8044	0.2673
0.3	0.20	0.50	-0.8	0.90	0.10	0.1400	0.9767	0.8097	0.2886
0.3	0.50	0.80	-0.8	0.90	0.10	0.3899	0.9761	0.7961	0.2544
0.3	0.20	0.50	-0.4	0.50	0.10	0.0578	0.9832	0.7995	0.2692
0.3	0.20	0.50	-0.4	0.90	0.50	-0.0351	0.9197	0.7998	0.2677
0.3	0.50	0.80	-0.4	0.50	0.10	0.1791	1.0353	0.8092	0.2839
0.3	0.50	0.80	-0.4	0.90	0.50	0.0402	0.8950	0.7783	0.2318
0.3	0.20	0.50	0.4	0.10	0.50	-0.2256	0.9300	0.7906	0.2484
0.3	0.20	0.50	0.4	0.50	0.90	-0.3659	1.0007	0.8033	0.2655
0.3	0.50	0.80	0.4	0.10	0.50	-0.3487	0.8857	0.7822	0.2269
0.3	0.50	0.80	0.4	0.50	0.90	-0.4710	1.0264	0.8066	0.2671
0.3	0.20	0.50	0.8	0.10	0.90	-0.4332	0.9861	0.8029	0.2600
0.3	0.50	0.80	0.8	0.10	0.90	-0.6781	0.9819	0.8009	0.2368
0.6	0.20	0.80	-0.8	0.90	0.10	0.1149	0.9556	0.8051	0.2804
0.6	0.20	0.80	-0.4	0.50	0.10	0.0155	0.9803	0.7964	0.2637
0.6	0.20	0.80	-0.4	0.90	0.50	-0.2026	0.8775	0.7882	0.2398
0.6	0.20	0.80	0.4	0.10	0.50	-0.3727	0.8614	0.7774	0.2176
0.6	0.20	0.80	0.4	0.50	0.90	-0.6124	0.9849	0.7979	0.2390
0.6	0.20	0.80	0.8	0.10	0.90	-0.6919	0.9572	0.7974	0.2301

Table 2 Study 1 results for the Treatment-Naïve approach for the performance measures Calibration-in-the-large coefficient, Calibration slope, c-statistic, and scaled Brier score for heterogeneity in both treatment properties simultaneously.

Effect size	ES_d	ES_v	Proportion	p_d	p_v	Calibr. coeff.[3]	Calibr. slope[4]	c-statistic	Brier
-0.6	0.80	0.20	-0.8	0.90	0.10	-0.0041	0.9750	0.8106	0.2792
-0.6	0.80	0.20	-0.4	0.50	0.10	-0.0101	0.9817	0.8232	0.3094
-0.6	0.80	0.20	-0.4	0.90	0.50	-0.1197	1.0176	0.8077	0.2615
-0.6	0.80	0.20	0.4	0.10	0.50	-0.1108	0.9682	0.8059	0.2787
-0.6	0.80	0.20	0.4	0.50	0.90	-0.1832	0.9909	0.8221	0.2956
-0.6	0.80	0.20	0.8	0.10	0.90	-0.1734	0.9914	0.8103	0.2851
-0.3	0.50	0.20	-0.8	0.90	0.10	0.0001	1.0085	0.8068	0.2787
-0.3	0.80	0.50	-0.8	0.90	0.10	-0.0456	0.9678	0.8059	0.2655
-0.3	0.50	0.20	-0.4	0.50	0.10	0.0035	0.9773	0.8145	0.2959
-0.3	0.50	0.20	-0.4	0.90	0.50	-0.0790	1.0009	0.8027	0.2650
-0.3	0.80	0.50	-0.4	0.50	0.10	-0.0108	0.9728	0.8195	0.3025
-0.3	0.80	0.50	-0.4	0.90	0.50	-0.1738	0.9133	0.7955	0.2278
-0.3	0.50	0.20	0.4	0.10	0.50	-0.1002	0.9637	0.8027	0.2731
-0.3	0.50	0.20	0.4	0.50	0.90	-0.1618	0.9881	0.8153	0.2903
-0.3	0.80	0.50	0.4	0.10	0.50	-0.2526	0.9324	0.7972	0.2570
-0.3	0.80	0.50	0.4	0.50	0.90	-0.4411	0.9839	0.8211	0.2671
-0.3	0.50	0.20	0.8	0.10	0.90	-0.1789	0.9864	0.8079	0.2803
-0.3	0.80	0.50	0.8	0.10	0.90	-0.4648	0.9525	0.8044	0.2563
0.3	0.20	0.50	-0.8	0.90	0.10	-0.0776	0.9778	0.8097	0.2811
0.3	0.50	0.80	-0.8	0.90	0.10	-0.0226	0.9357	0.7961	0.2569
0.3	0.20	0.50	-0.4	0.50	0.10	-0.0341	0.9574	0.7995	0.2683
0.3	0.20	0.50	-0.4	0.90	0.50	-0.2092	0.8706	0.7998	0.2501
0.3	0.50	0.80	-0.4	0.50	0.10	-0.0551	0.9550	0.8092	0.2840
0.3	0.50	0.80	-0.4	0.90	0.50	-0.3418	0.8701	0.7783	0.1858
0.3	0.20	0.50	0.4	0.10	0.50	-0.2442	0.9162	0.7906	0.2464
0.3	0.20	0.50	0.4	0.50	0.90	-0.4607	0.9657	0.8033	0.2520
0.3	0.50	0.80	0.4	0.10	0.50	-0.3879	0.8596	0.7822	0.2202
0.3	0.50	0.80	0.4	0.50	0.90	-0.6974	0.9505	0.8066	0.2212
0.3	0.20	0.50	0.8	0.10	0.90	-0.4525	0.9761	0.8029	0.2571
0.3	0.50	0.80	0.8	0.10	0.90	-0.7193	0.9510	0.8009	0.2267
0.6	0.20	0.80	-0.8	0.90	0.10	-0.0442	0.9308	0.8051	0.2750
0.6	0.20	0.80	-0.4	0.50	0.10	-0.0713	0.9521	0.7964	0.2616
0.6	0.20	0.80	-0.4	0.90	0.50	-0.3290	0.8767	0.7882	0.2224
0.6	0.20	0.80	0.4	0.10	0.50	-0.3850	0.8501	0.7774	0.2153
0.6	0.20	0.80	0.4	0.50	0.90	-0.7133	0.9538	0.7979	0.2161
0.6	0.20	0.80	0.8	0.10	0.90	-0.7075	0.9459	0.7974	0.2263

[1]Calibration-in-the-large coefficient
[2]Calibration slope
[3]Calibration-in-the-large coefficient
[4]Calibration slope

Study 2

Table 3 Study 2 results for the Ignore Treatment approach comprising the median, mean, and variance for the performance measures Calibration-in-the-large coefficient, Calibration slope, c-statistic, and scaled Brier score for heterogeneity in both treatment properties simultaneously.

Setting						Calibr. coeff.[5]			Calibr. slope[6]			c-statistic			Brier		
ES	ES_d	ES_v	Prop.	p_d	p_v	median	mean	var	median	mean	var	median	mean	var	median	mean	var
-0.3	0.50	0.20	-0.4	0.50	0.10	0.2702	0.2721	9.2352e-03	1.0230	1.0257	3.9997e-03	0.8008	0.8007	7.4189e-05	0.1330	0.1320	1.0118e-03
-0.3	0.80	0.50	-0.4	0.50	0.10	0.3934	0.3975	7.0874e-03	1.0447	1.0478	3.9624e-03	0.7925	0.7927	6.6849e-05	0.1091	0.1092	8.9811e-04
-0.3	0.50	0.20	-0.4	0.90	0.50	0.3319	0.3317	8.2118e-03	0.9832	0.9853	3.4953e-03	0.7898	0.7899	7.3167e-05	0.0715	0.0719	1.1985e-03
-0.3	0.80	0.50	-0.4	0.90	0.50	0.4192	0.4225	8.7519e-03	0.9648	0.9679	3.5020e-03	0.7860	0.7862	6.8318e-05	0.0212	0.0195	1.3030e-03
-0.3	0.50	0.20	-0.05	0.15	0.10	0.0694	0.0727	9.2026e-03	1.0102	1.0128	4.0609e-03	0.7999	0.8000	7.9173e-05	0.1928	0.1922	7.8660e-04
-0.3	0.80	0.50	-0.05	0.15	0.10	0.0816	0.0843	9.4270e-03	1.0111	1.0151	4.3736e-03	0.7972	0.7973	8.1350e-05	0.1867	0.1856	7.9646e-04
-0.3	0.50	0.20	-0.05	0.55	0.50	0.1958	0.1976	9.2276e-03	1.0130	1.0149	3.9926e-03	0.7966	0.7967	7.2792e-05	0.1481	0.1473	9.4510e-04
-0.3	0.80	0.50	-0.05	0.55	0.50	0.1970	0.2022	8.3831e-03	1.0166	1.0202	4.2648e-03	0.7928	0.7926	7.1667e-05	0.1519	0.1508	8.3316e-04
-0.3	0.50	0.20	-0.05	0.95	0.90	0.2821	0.2849	8.7735e-03	0.9871	0.9900	4.0331e-03	0.7899	0.7898	7.8668e-05	0.0981	0.0980	1.0692e-03
-0.3	0.80	0.50	-0.05	0.95	0.90	0.2918	0.2951	8.6015e-03	0.9906	0.9907	3.5147e-03	0.7904	0.7904	7.0425e-05	0.0936	0.0928	1.1004e-03
-0.3	0.50	0.20	0.05	0.10	0.15	0.0144	0.0181	9.2571e-03	0.9968	0.9990	3.9796e-03	0.8054	0.8053	8.0984e-05	0.2091	0.2085	8.2794e-04
-0.3	0.80	0.50	0.05	0.10	0.15	0.0034	-0.0005	9.7151e-03	0.9946	0.9953	3.8715e-03	0.8048	0.8048	8.1170e-05	0.2103	0.2100	8.1338e-04
-0.3	0.50	0.20	0.05	0.50	0.55	0.1650	0.1677	8.6715e-03	1.0203	1.0201	4.0323e-03	0.7997	0.7996	7.1869e-05	0.1656	0.1647	8.6374e-04
-0.3	0.80	0.50	0.05	0.50	0.55	0.1493	0.1516	7.1694e-03	1.0267	1.0279	4.0506e-03	0.7900	0.7902	7.3628e-05	0.1772	0.1767	6.2225e-04
-0.3	0.50	0.20	0.05	0.90	0.95	0.2734	0.2733	9.0076e-03	1.0038	1.0050	3.9271e-03	0.7930	0.7931	7.3172e-05	0.1086	0.1084	1.0336e-03
-0.3	0.80	0.50	0.05	0.90	0.95	0.2612	0.2632	9.6108e-03	1.0080	1.0099	4.0430e-03	0.7956	0.7955	7.3612e-05	0.1208	0.1193	1.0426e-03
-0.3	0.50	0.20	0.4	0.10	0.50	-0.0697	-0.0625	9.1343e-03	0.9899	0.9904	3.7821e-03	0.8041	0.8043	7.7320e-05	0.2306	0.2294	7.3673e-04
-0.3	0.80	0.50	0.4	0.10	0.50	-0.2090	-0.2076	9.2699e-03	0.9781	0.9770	3.9344e-03	0.8022	0.8019	8.8551e-05	0.2653	0.2630	6.7491e-04
-0.3	0.50	0.20	0.4	0.50	0.90	0.1078	0.1100	8.9634e-03	1.0228	1.0250	3.8383e-03	0.8021	0.8018	7.4413e-05	0.1890	0.1886	8.3137e-04
-0.3	0.80	0.50	0.4	0.50	0.90	0.0017	0.0028	7.4221e-03	1.0480	1.0500	4.2407e-03	0.7953	0.7953	8.0230e-05	0.2305	0.2309	4.8823e-04

0.3	0.20	0.50	-0.4	0.50	0.10	0.0307	0.0367	8.9368e-03	0.9852	0.9849	3.7945e-03	0.7941	0.7939	8.0223e-05	0.1856	0.1851	7.6410e-04
0.3	0.50	0.80	-0.4	0.50	0.10	0.1744	0.1787	8.7872e-03	0.9971	0.9978	3.7755e-03	0.7962	0.7958	7.7155e-05	0.1462	0.1447	9.7005e-04
0.3	0.20	0.50	-0.4	0.90	0.50	-0.1439	-0.1428	7.0433e-03	0.9391	0.9413	3.6696e-03	0.7821	0.7819	8.5516e-05	0.2136	0.2119	6.4523e-04
0.3	0.50	0.80	-0.4	0.90	0.50	-0.0490	-0.0490	7.8206e-03	0.9116	0.9126	3.5353e-03	0.7774	0.7776	8.4672e-05	0.1624	0.1614	8.5880e-04
0.3	0.20	0.50	-0.05	0.15	0.10	-0.0479	-0.0460	8.7420e-03	0.9752	0.9779	3.7182e-03	0.7984	0.7983	8.4276e-05	0.2118	0.2106	7.7367e-04
0.3	0.50	0.80	-0.05	0.15	0.10	-0.0279	-0.0253	9.1097e-03	0.9761	0.9789	3.7808e-03	0.7959	0.7957	7.4930e-05	0.2035	0.2036	7.1794e-04
0.3	0.20	0.50	-0.05	0.55	0.50	-0.1985	-0.1964	8.6401e-03	0.9497	0.9534	3.8041e-03	0.7909	0.7907	8.8822e-05	0.2415	0.2413	6.3363e-04
0.3	0.50	0.80	-0.05	0.55	0.50	-0.1731	-0.1742	8.3970e-03	0.9467	0.9505	3.7384e-03	0.7863	0.7862	9.7855e-05	0.2292	0.2279	6.4033e-04
0.3	0.20	0.50	-0.05	0.95	0.90	-0.3013	-0.2954	8.4921e-03	0.9682	0.9750	4.1507e-03	0.7932	0.7933	9.7878e-05	0.2788	0.2780	4.9128e-04
0.3	0.50	0.80	-0.05	0.95	0.90	-0.2838	-0.2818	8.0397e-03	0.9642	0.9654	3.7310e-03	0.7889	0.7886	8.9669e-05	0.2680	0.2673	4.7598e-04
0.3	0.20	0.50	0.05	0.10	0.15	-0.0982	-0.0966	9.0538e-03	0.9668	0.9682	3.5746e-03	0.7965	0.7964	8.9409e-05	0.2209	0.2207	6.8526e-04
0.3	0.50	0.80	0.05	0.10	0.15	-0.1148	-0.1075	9.5862e-03	0.9633	0.9658	4.1177e-03	0.7996	0.7995	8.5966e-05	0.2274	0.2260	7.1679e-04
0.3	0.20	0.50	0.05	0.50	0.55	-0.2235	-0.2233	8.7845e-03	0.9586	0.9586	3.9974e-03	0.7901	0.7899	9.4460e-05	0.2498	0.2497	5.7901e-04
0.3	0.50	0.80	0.05	0.50	0.55	-0.2299	-0.2281	8.3878e-03	0.9580	0.9586	3.8825e-03	0.7897	0.7897	8.8277e-05	0.2508	0.2502	5.7372e-04
0.3	0.20	0.50	0.05	0.90	0.95	-0.3167	-0.3130	8.5379e-03	0.9816	0.9847	3.9978e-03	0.7916	0.7916	9.0021e-05	0.2852	0.2841	4.6010e-04
0.3	0.50	0.80	0.05	0.90	0.95	-0.3202	-0.3207	8.7019e-03	0.9867	0.9859	4.4758e-03	0.7941	0.7943	1.0112e-04	0.2905	0.2891	4.9003e-04
0.3	0.20	0.50	0.4	0.10	0.50	-0.3047	-0.3025	9.2173e-03	0.9462	0.9496	4.0485e-03	0.7942	0.7939	9.9096e-05	0.2720	0.2709	5.9167e-04
0.3	0.50	0.80	0.4	0.10	0.50	-0.4280	-0.4288	8.7179e-03	0.9306	0.9317	4.0859e-03	0.7948	0.7945	1.0613e-04	0.2981	0.2974	5.5210e-04
0.3	0.20	0.50	0.4	0.50	0.90	-0.3634	-0.3610	8.4600e-03	0.9900	0.9909	4.1626e-03	0.7981	0.7980	9.8405e-05	0.3043	0.3043	4.6133e-04
0.3	0.50	0.80	0.4	0.50	0.90	-0.4583	-0.4538	9.2255e-03	1.0038	1.0048	4.3753e-03	0.8018	0.8017	1.0113e-04	0.3337	0.3322	4.0452e-04

Table 4 Study 2 results for the Treatment-Naïve approach comprising the median, mean, and variance for the performance measures Calibration-in-the-large coefficient, Calibration slope, c-statistic, and scaled Brier score for heterogeneity in both treatment properties simultaneously.

	Setting					Calibr. coeff.[7]			Calibr. slope[8]			c-statistic			Brier		
ES	ES_d	ES_v	Prop.	p_d	p_v	median	mean	var	median	mean	var	median	mean	var	median	mean	var
-0.3	0.50	0.20	-0.4	0.50	0.10	-0.0480	-0.0478	1.3482e-02	0.9656	0.9670	5.4757e-03	0.8000	0.7999	7.4499e-05	0.2321	0.2300	9.4725e-04
-0.3	0.80	0.50	-0.4	0.50	0.10	-0.0862	-0.0846	7.6919e-03	0.9507	0.9548	4.4865e-03	0.7924	0.7927	6.5055e-05	0.2435	0.2432	4.5197e-04
-0.3	0.50	0.20	-0.4	0.90	0.50	-0.2312	-0.2171	5.3581e-02	0.8347	0.8473	1.7894e-02	0.7772	0.7769	1.3955e-04	0.2180	0.2055	3.3019e-03
-0.3	0.80	0.50	-0.4	0.90	0.50	-0.3583	-0.3448	4.2585e-02	0.8309	0.8328	1.5732e-02	0.7755	0.7752	1.0853e-04	0.2385	0.2316	1.3940e-03
-0.3	0.50	0.20	-0.05	0.15	0.10	-0.0424	-0.0407	9.5705e-03	0.9803	0.9815	4.1602e-03	0.7996	0.7999	7.8525e-05	0.2212	0.2216	7.1737e-04
-0.3	0.80	0.50	-0.05	0.15	0.10	-0.0934	-0.0911	9.0008e-03	0.9603	0.9656	4.2518e-03	0.7972	0.7972	8.1556e-05	0.2304	0.2298	6.4751e-04
-0.3	0.50	0.20	-0.05	0.55	0.50	-0.1480	-0.1479	1.3658e-02	0.9513	0.9522	5.7638e-03	0.7954	0.7954	7.5815e-05	0.2477	0.2450	7.5209e-04
-0.3	0.80	0.50	-0.05	0.55	0.50	-0.3169	-0.3153	1.0090e-02	0.9205	0.9241	5.3204e-03	0.7915	0.7912	7.3545e-05	0.2730	0.2724	3.7358e-04
-0.3	0.50	0.20	-0.05	0.95	0.90	-0.3889	-0.3695	8.2371e-02	0.7109	0.7306	2.8424e-02	0.7652	0.7632	3.4819e-04	0.1968	0.1742	9.2295e-03
-0.3	0.80	0.50	-0.05	0.95	0.90	-0.5927	-0.5686	7.9789e-02	0.7313	0.7480	2.6903e-02	0.7677	0.7653	3.0777e-04	0.2282	0.2147	3.9759e-03
-0.3	0.50	0.20	0.05	0.10	0.15	-0.0651	-0.0622	9.0562e-03	0.9745	0.9767	3.9471e-03	0.8055	0.8052	8.1451e-05	0.2299	0.2288	7.5800e-04
-0.3	0.80	0.50	0.05	0.10	0.15	-0.1260	-0.1245	9.5018e-03	0.9545	0.9590	3.8227e-03	0.8045	0.8046	8.0413e-05	0.2406	0.2396	6.9947e-04
-0.3	0.50	0.20	0.05	0.50	0.55	-0.1570	-0.1533	1.2920e-02	0.9591	0.9599	5.8280e-03	0.7986	0.7985	7.4519e-05	0.2546	0.2521	6.6195e-04
-0.3	0.80	0.50	0.05	0.50	0.55	-0.3206	-0.3214	8.1256e-03	0.9322	0.9320	5.1990e-03	0.7886	0.7890	7.5659e-05	0.2722	0.2716	2.9376e-04
-0.3	0.50	0.20	0.05	0.90	0.95	-0.3024	-0.2778	5.4601e-02	0.8528	0.8673	1.9557e-02	0.7805	0.7803	1.3919e-04	0.2388	0.2273	2.8057e-03
-0.3	0.80	0.50	0.05	0.90	0.95	-0.5490	-0.5459	4.3255e-02	0.8542	0.8619	1.5856e-02	0.7849	0.7840	1.3611e-04	0.2760	0.2721	9.0305e-04
-0.3	0.50	0.20	0.4	0.10	0.50	-0.1469	-0.1428	9.0893e-03	0.9678	0.9676	3.8376e-03	0.8040	0.8041	7.6833e-05	0.2486	0.2477	6.4305e-04
-0.3	0.80	0.50	0.4	0.10	0.50	-0.3359	-0.3323	8.9867e-03	0.9405	0.9392	3.9204e-03	0.8016	0.8013	8.9148e-05	0.2864	0.2852	5.5730e-04
-0.3	0.50	0.20	0.4	0.50	0.90	-0.2171	-0.2123	1.3122e-02	0.9627	0.9645	5.2537e-03	0.8011	0.8009	7.7660e-05	0.2699	0.2692	6.3843e-04
-0.3	0.80	0.50	0.4	0.50	0.90	-0.4773	-0.4766	8.4549e-03	0.9563	0.9598	5.2455e-03	0.7953	0.7954	7.8898e-05	0.3032	0.3027	2.4175e-04
0.3	0.20	0.50	-0.4	0.50	0.10	-0.1115	-0.1043	1.5340e-02	0.9512	0.9514	5.7762e-03	0.7923	0.7922	8.4119e-05	0.2214	0.2199	1.0214e-03
0.3	0.50	0.80	-0.4	0.50	0.10	-0.1405	-0.1406	1.3422e-02	0.9312	0.9345	5.3355e-03	0.7946	0.7943	8.0139e-05	0.2371	0.2354	7.7199e-04
0.3	0.20	0.50	-0.4	0.90	0.50	-0.4557	-0.4279	6.4955e-02	0.7904	0.8011	1.7590e-02	0.7684	0.7675	1.7017e-04	0.2343	0.2172	4.4285e-03
0.3	0.50	0.80	-0.4	0.90	0.50	-0.5525	-0.5435	4.7871e-02	0.7771	0.7855	1.5676e-02	0.7659	0.7648	1.5549e-04	0.2478	0.2397	1.6359e-03
0.3	0.20	0.50	-0.05	0.15	0.10	-0.0952	-0.0954	9.8963e-03	0.9626	0.9632	3.9842e-03	0.7981	0.7980	8.4363e-05	0.2231	0.2219	8.1059e-04
0.3	0.50	0.80	-0.05	0.15	0.10	-0.1387	-0.1359	9.4327e-03	0.9461	0.9482	3.9452e-03	0.7952	0.7953	7.5262e-05	0.2310	0.2301	6.3929e-04
0.3	0.20	0.50	-0.05	0.55	0.50	-0.3458	-0.3423	1.7226e-02	0.9118	0.9170	6.2690e-03	0.7885	0.7885	9.3019e-05	0.2688	0.2671	7.2872e-04
0.3	0.50	0.80	-0.05	0.55	0.50	-0.5090	-0.5049	1.2272e-02	0.8782	0.8831	5.3035e-03	0.7836	0.7832	1.0576e-04	0.2885	0.2878	4.3329e-04
0.3	0.20	0.50	-0.05	0.95	0.90	-0.7265	-0.6884	9.8157e-02	0.6775	0.6933	2.9511e-02	0.7659	0.7625	4.6643e-04	0.2397	0.2107	1.2025e-02
0.3	0.50	0.80	-0.05	0.95	0.90	-0.8979	-0.8835	7.7417e-02	0.7088	0.7148	2.5681e-02	0.7645	0.7619	3.7969e-04	0.2632	0.2502	3.6016e-03
0.3	0.20	0.50	0.05	0.10	0.15	-0.1334	-0.1307	9.4963e-03	0.9559	0.9578	3.8249e-03	0.7964	0.7962	8.9099e-05	0.2287	0.2281	6.8496e-04
0.3	0.50	0.80	0.05	0.10	0.15	-0.1940	-0.1862	9.4926e-03	0.9374	0.9424	4.1821e-03	0.7991	0.7991	8.6113e-05	0.2449	0.2431	6.6658e-04
0.3	0.20	0.50	0.05	0.50	0.55	-0.3675	-0.3610	1.4544e-02	0.9218	0.9248	5.7681e-03	0.7882	0.7881	9.7889e-05	0.2745	0.2738	6.4961e-04
0.3	0.50	0.80	0.05	0.50	0.55	-0.5446	-0.5375	1.2631e-02	0.8913	0.8934	5.1739e-03	0.7872	0.7871	9.3493e-05	0.3010	0.3005	4.0059e-04
0.3	0.20	0.50	0.05	0.90	0.95	-0.6271	-0.6087	5.9579e-02	0.8338	0.8412	1.9199e-02	0.7786	0.7771	1.8705e-04	0.2881	0.2795	2.0244e-03
0.3	0.50	0.80	0.05	0.90	0.95	-0.8611	-0.8517	5.5691e-02	0.8460	0.8542	1.8685e-02	0.7826	0.7820	1.6107e-04	0.3174	0.3139	9.4368e-04
0.3	0.20	0.50	0.4	0.10	0.50	-0.3346	-0.3344	9.5021e-03	0.9362	0.9402	4.1461e-03	0.7939	0.7935	9.9305e-05	0.2779	0.2762	5.8470e-04
0.3	0.50	0.80	0.4	0.10	0.50	-0.5103	-0.5058	8.7050e-03	0.9074	0.9080	4.0467e-03	0.7940	0.7937	1.0784e-04	0.3082	0.3074	5.0626e-04
0.3	0.20	0.50	0.4	0.50	0.90	-0.5019	-0.4993	1.3977e-02	0.9571	0.9577	5.9598e-03	0.7968	0.7964	1.0066e-04	0.3222	0.3214	4.6715e-04
0.3	0.50	0.80	0.4	0.50	0.90	-0.7793	-0.7732	1.2206e-02	0.9403	0.9437	5.7166e-03	0.8006	0.8005	1.0203e-04	0.3600	0.3595	2.6774e-04

Visualization of results for simultaneous heterogeneity in treatment effect size and treatment proportion

The presented visualizations were rendered using a version of the Shiny App available at https://emilialoescher.shinyapps.io/6_visualization_app/. Plot aesthetics were changed to obtain the presented visualizations. The code for the Shiny App can be found at https://github.com/emsulo/Master-Thesis.

Study 1

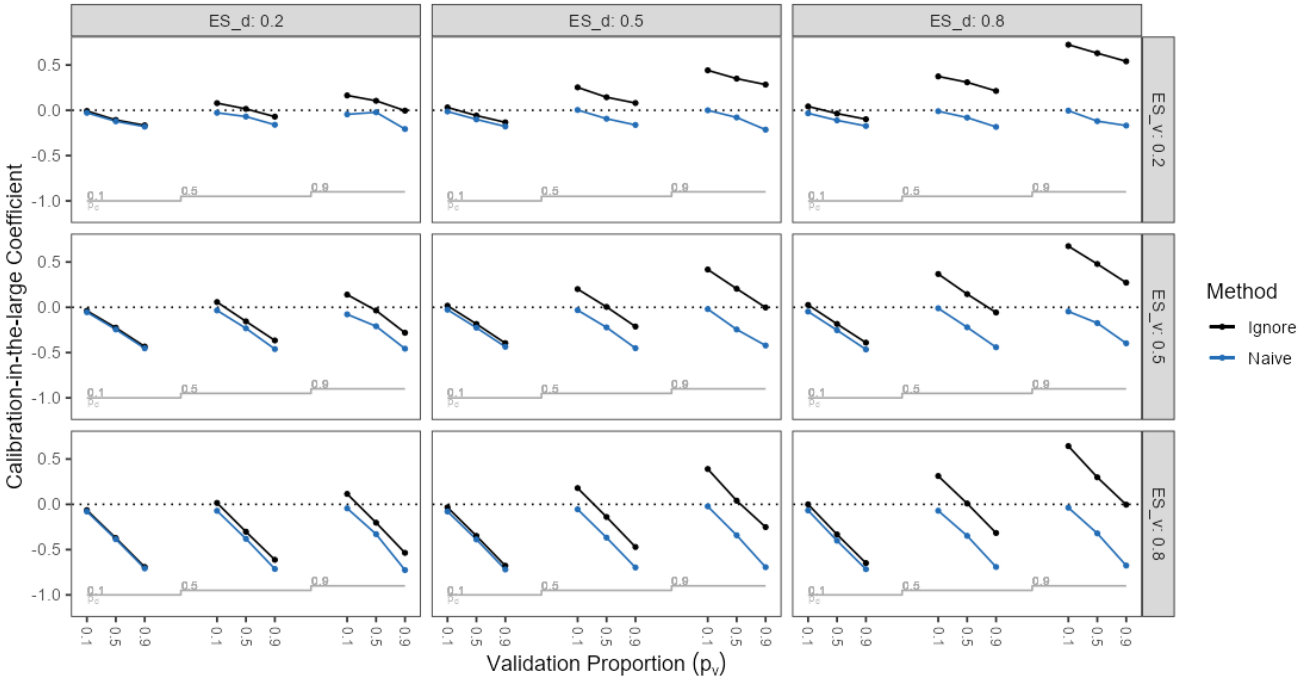

Figure 1 Study 1 - Calibration-in-the-large coefficient for varying or equal treatment effect and treatment proportion with ES_d and p_d being the treatment effect size and proportion at derivation, respectively, and ES_v and p_v being the treatment effect size and proportion at validation, respectively.

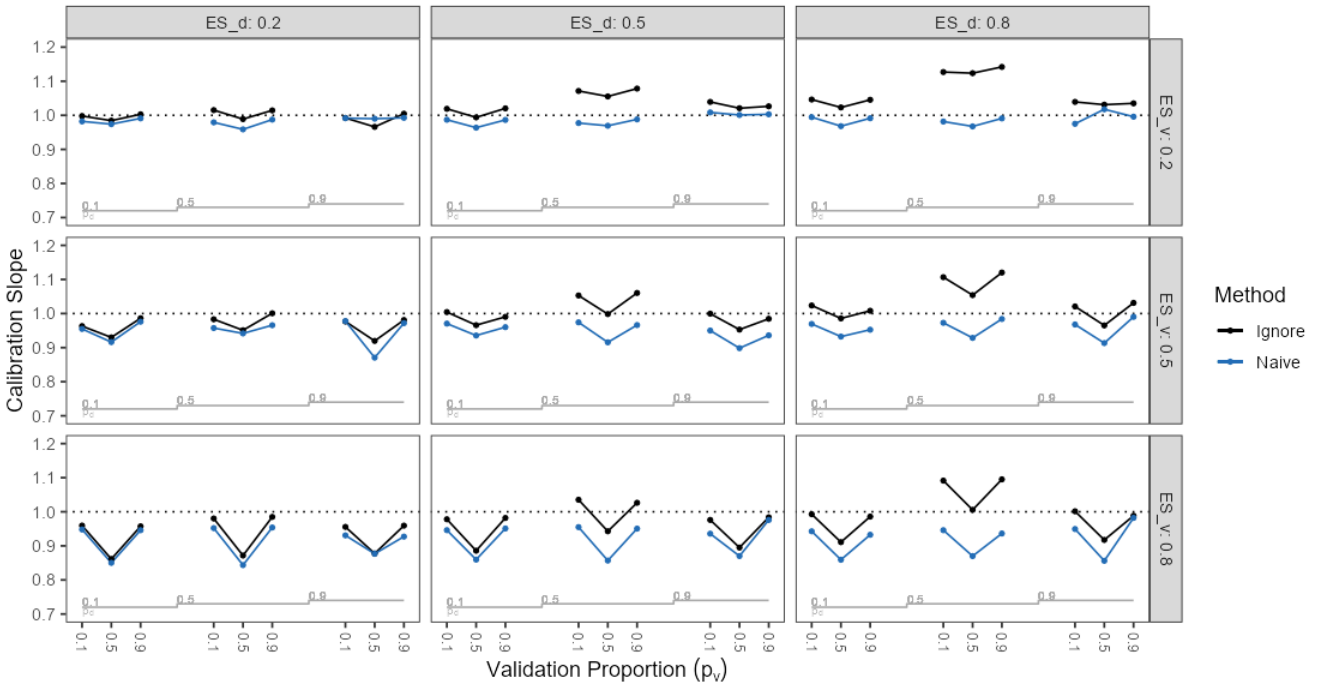

Figure 2 Study 1 - Calibration Slope for varying or equal treatment effect and treatment proportion with ES_d and p_d being the treatment effect size and proportion at derivation, respectively, and ES_v and p_v being the treatment effect size and proportion at validation, respectively.

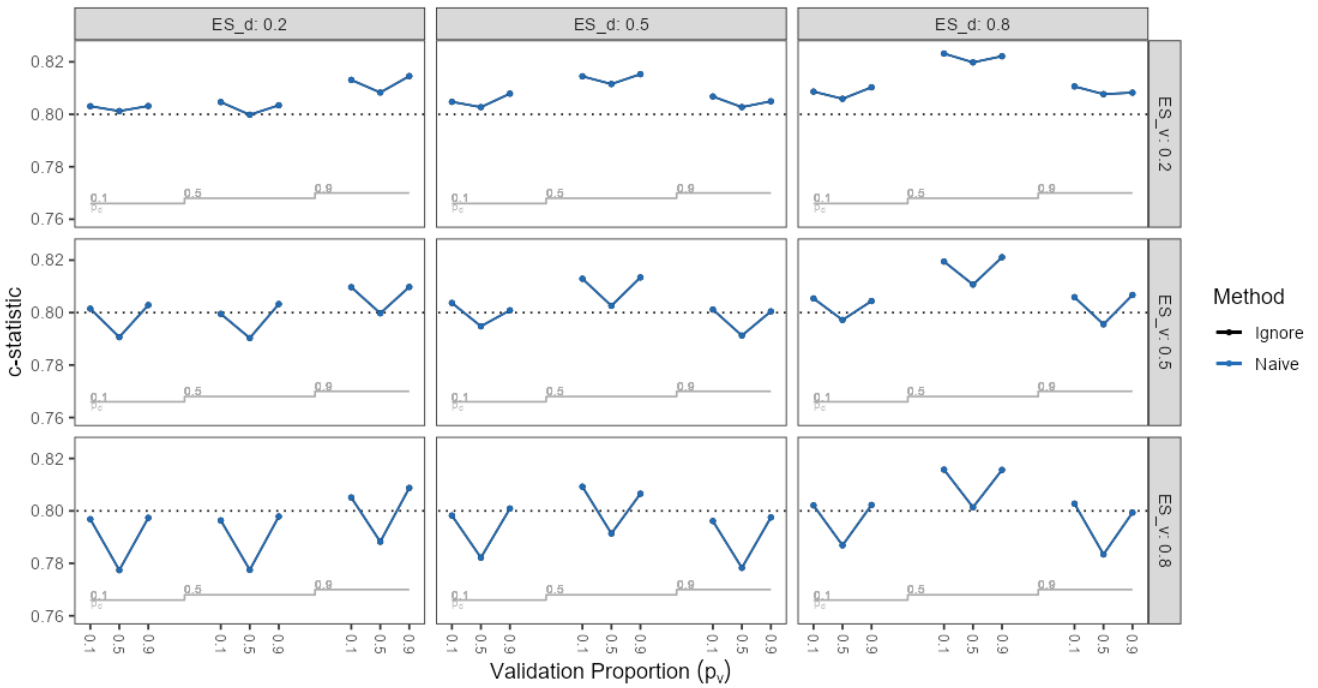

Figure 3 Study 1 - C-statistic for varying or equal treatment effect and treatment proportion with ES_d and p_d being the treatment effect size and proportion at derivation, respectively, and ES_v and p_v being the treatment effect size and proportion at validation, respectively.

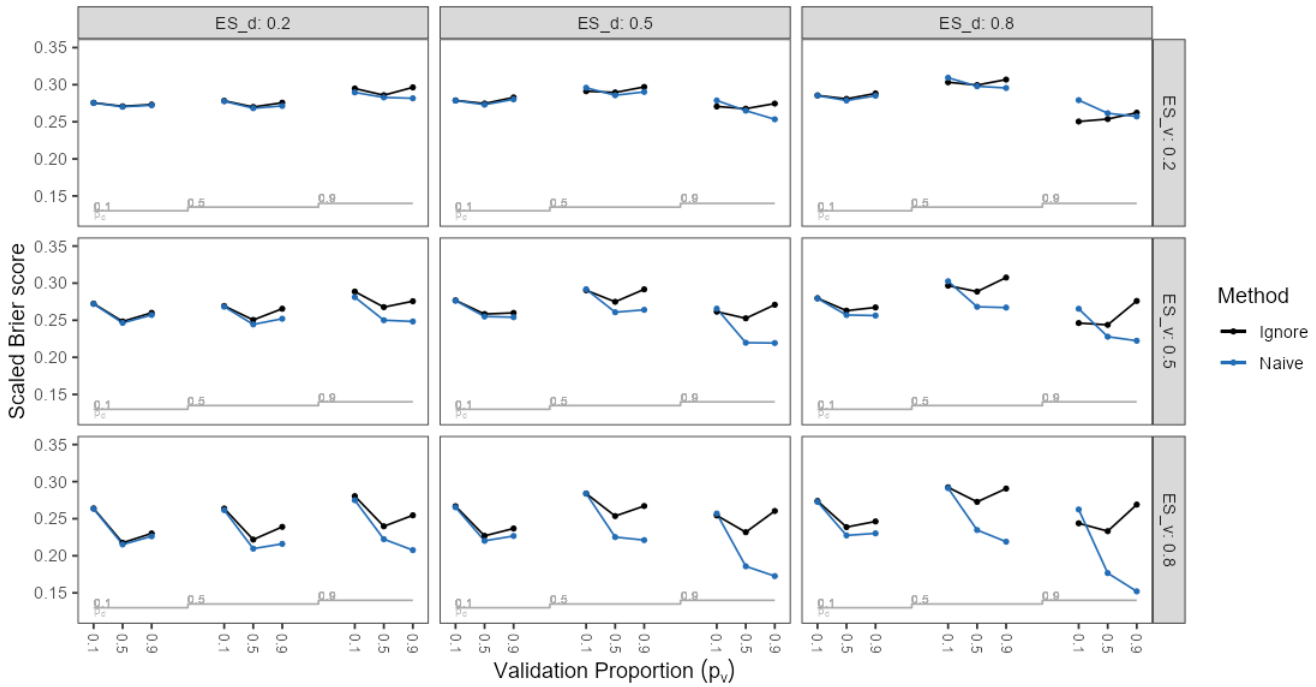

Figure 4 Study 1 - Scaled Brier score for varying or equal treatment effect and treatment proportion with ES_d and p_d being the treatment effect size and proportion at derivation, respectively, and ES_v and p_v being the treatment effect size and proportion at validation, respectively.

Study 2

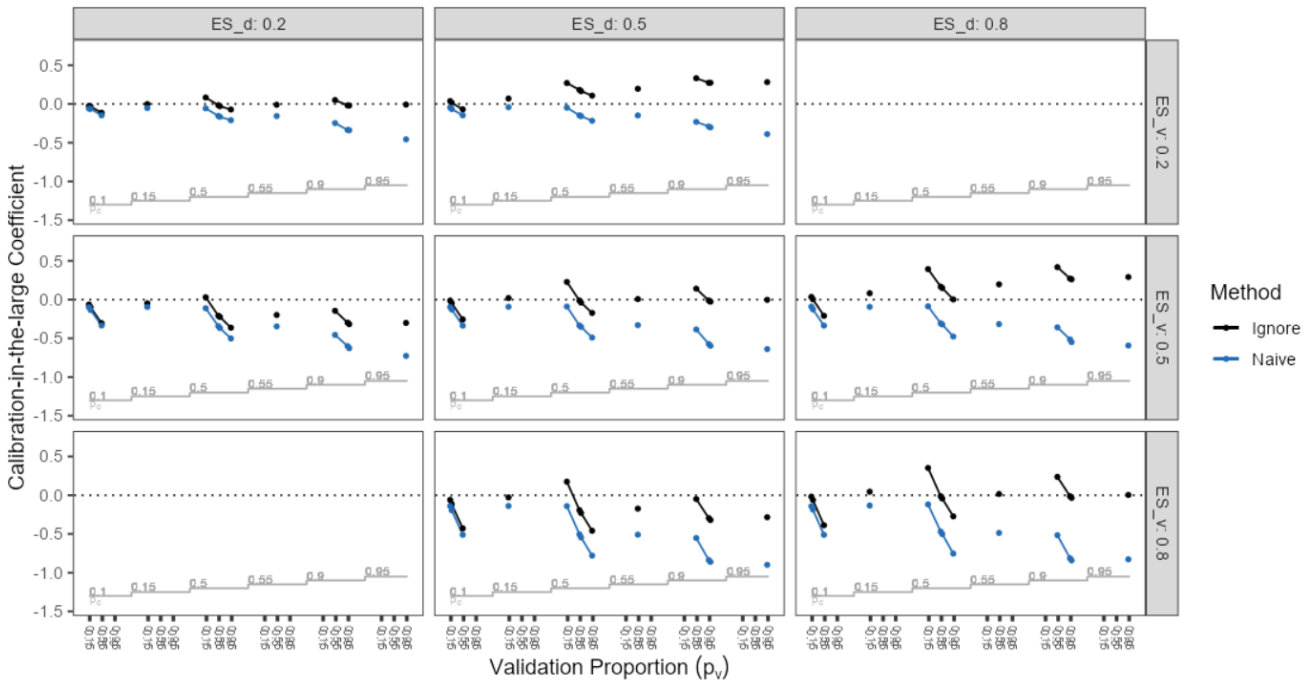

Figure 5 Study 2 - Calibration-in-the-large coefficient for varying or equal treatment effect and treatment proportion with ES_d and p_d being the treatment effect size and proportion at derivation, respectively, and ES_v and p_v being the treatment effect size and proportion at validation, respectively.

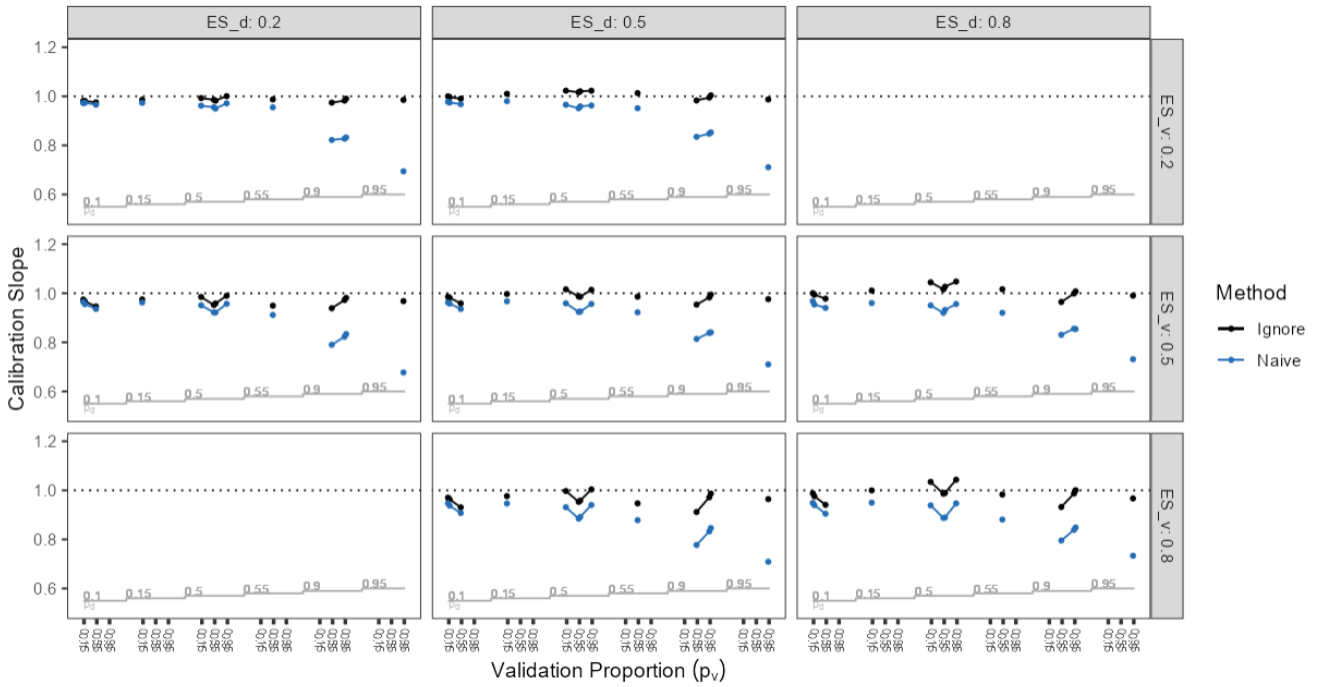

Figure 6 Study 2 - Calibration Slope for varying or equal treatment effect and treatment proportion with ES_d and p_d being the treatment effect size and proportion at derivation, respectively, and ES_v and p_v being the treatment effect size and proportion at validation, respectively.

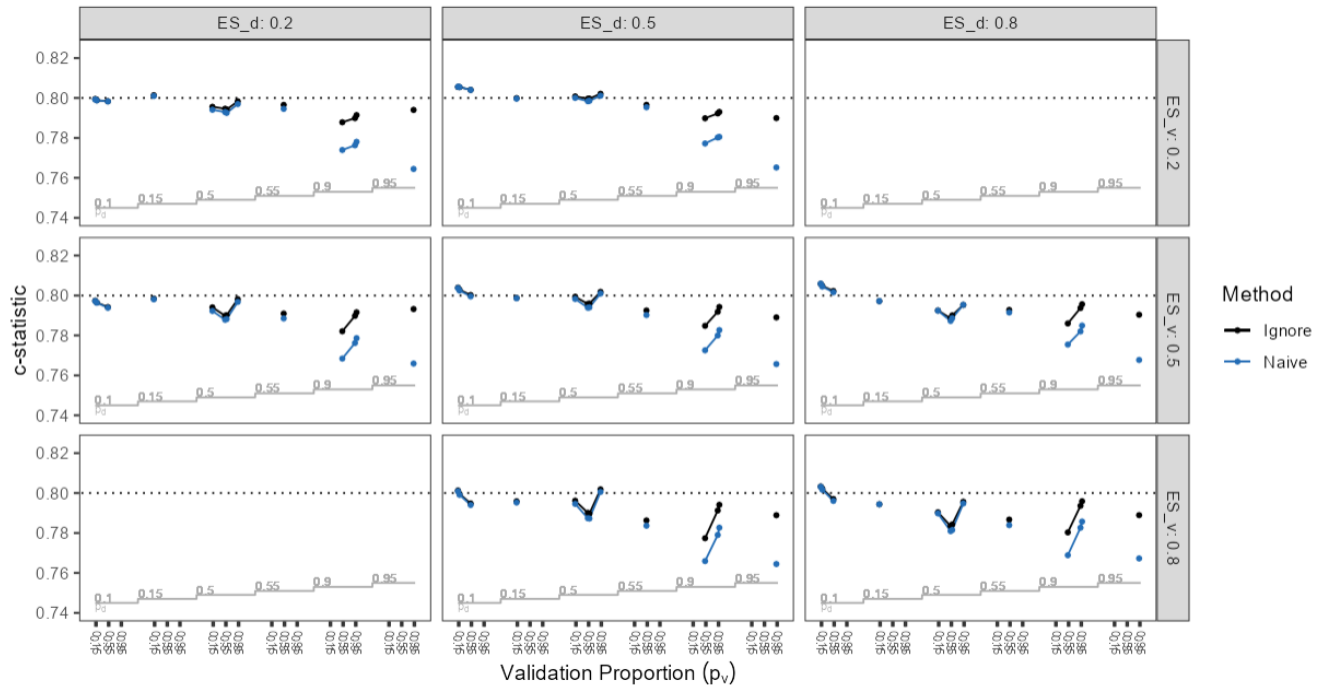

Figure 7 Study 2 - C-statistic for varying or equal treatment effect and treatment proportion with ES_d and p_d being the treatment effect size and proportion at derivation, respectively, and ES_v and p_v being the treatment effect size and proportion at validation, respectively.

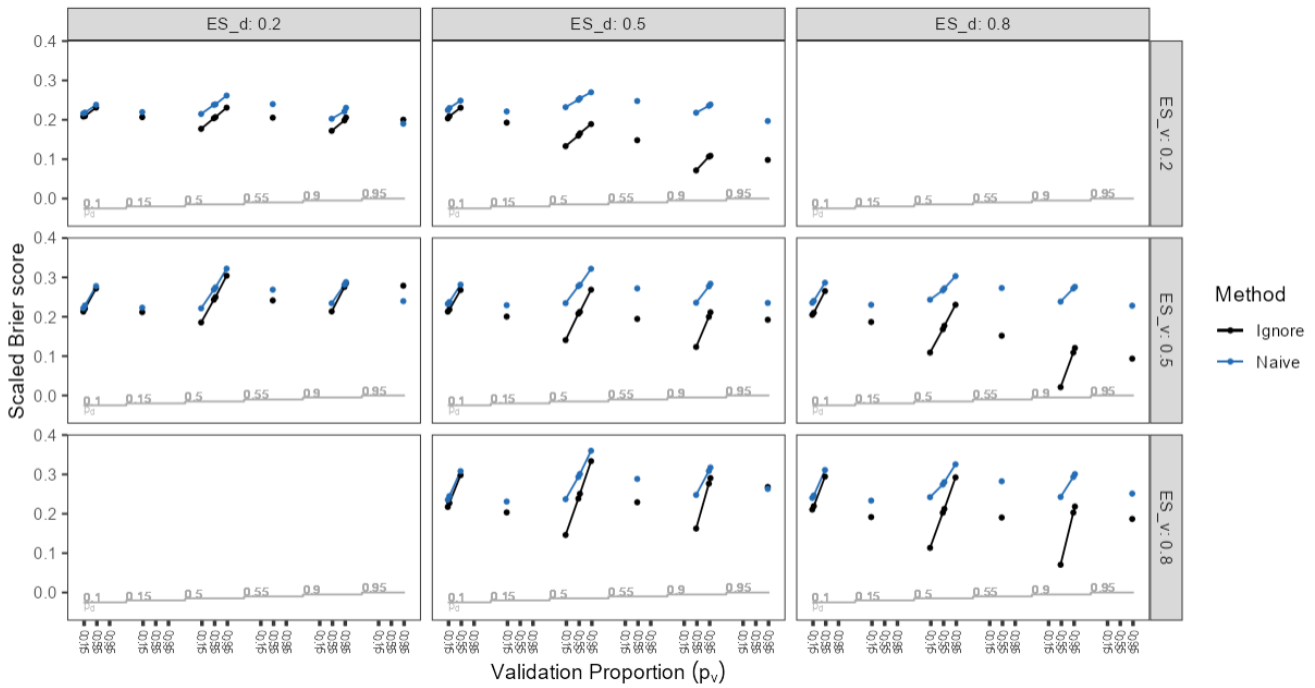

Figure 8 Study 2 - Scaled Brier score for varying or equal treatment effect and treatment proportion with ES_d and p_d being the treatment effect size and proportion at derivation, respectively, and ES_v and p_v being the treatment effect size and proportion at validation, respectively.