

Simulation 1__1

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2024-09-30

Simulation Settings

Consistency simulation for Estimator performed over 1000 rep simulation.

Data generative model :

$$Y_{it,1}|H_t, A_t = I_{(A_{it}=1)}(\beta_1 + \beta_2 Z_{it}) + I_{(A_{i,t}=2)}(\beta_3 + \beta_4 Z_{it}) + (0.2I_{Z_{it}=0} + 0.5I_{Z_{it}=1} + 0.4I_{Z_{it}=2}) + \epsilon_{i,t}$$

$$\beta_1 = 0.1 \text{ (Intercept of treatment 1)}$$

$$\beta_2 = 0.3 \text{ (slope of treatment 1)}$$

$$\beta_3 = 0.2 \text{ (Intercept of treatment 2)}$$

$$\beta_4 = 0.1 \text{ (slope of treatment 2)}$$

$$I_t \sim \text{Bern}(1)$$

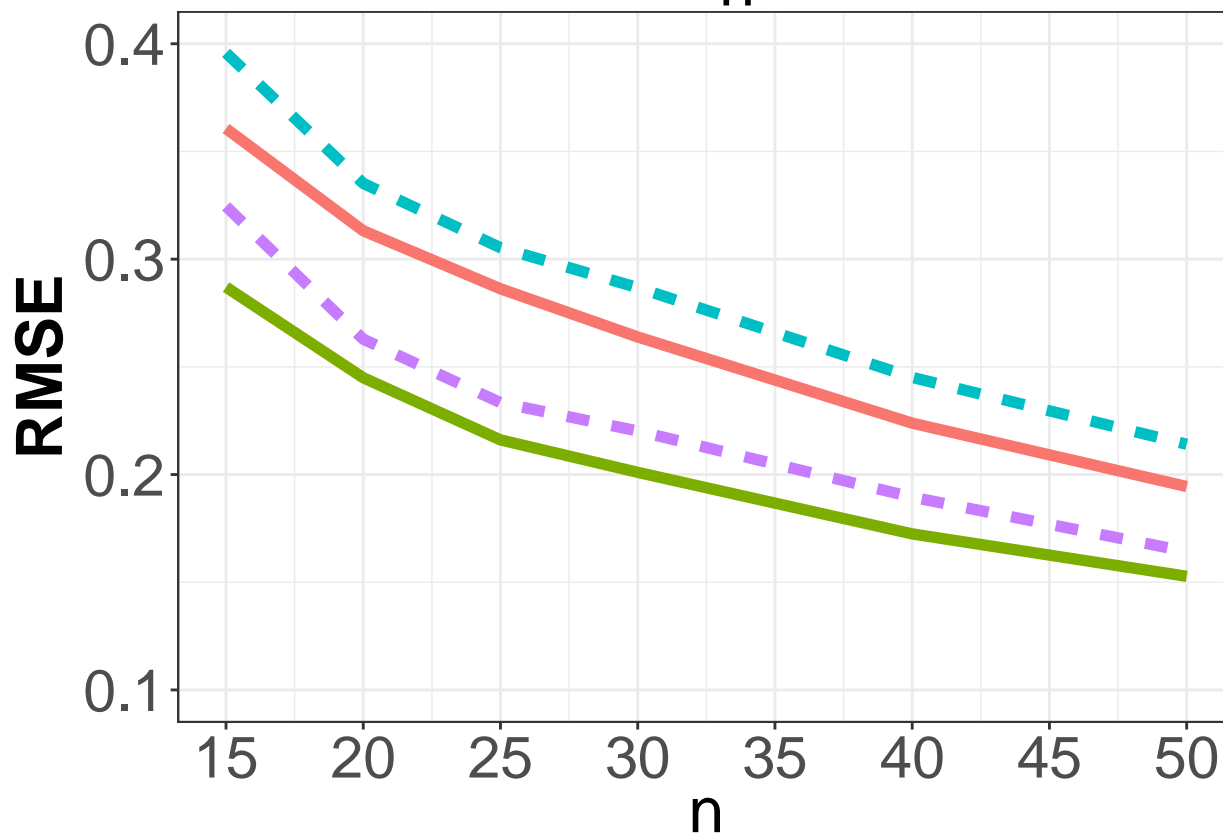
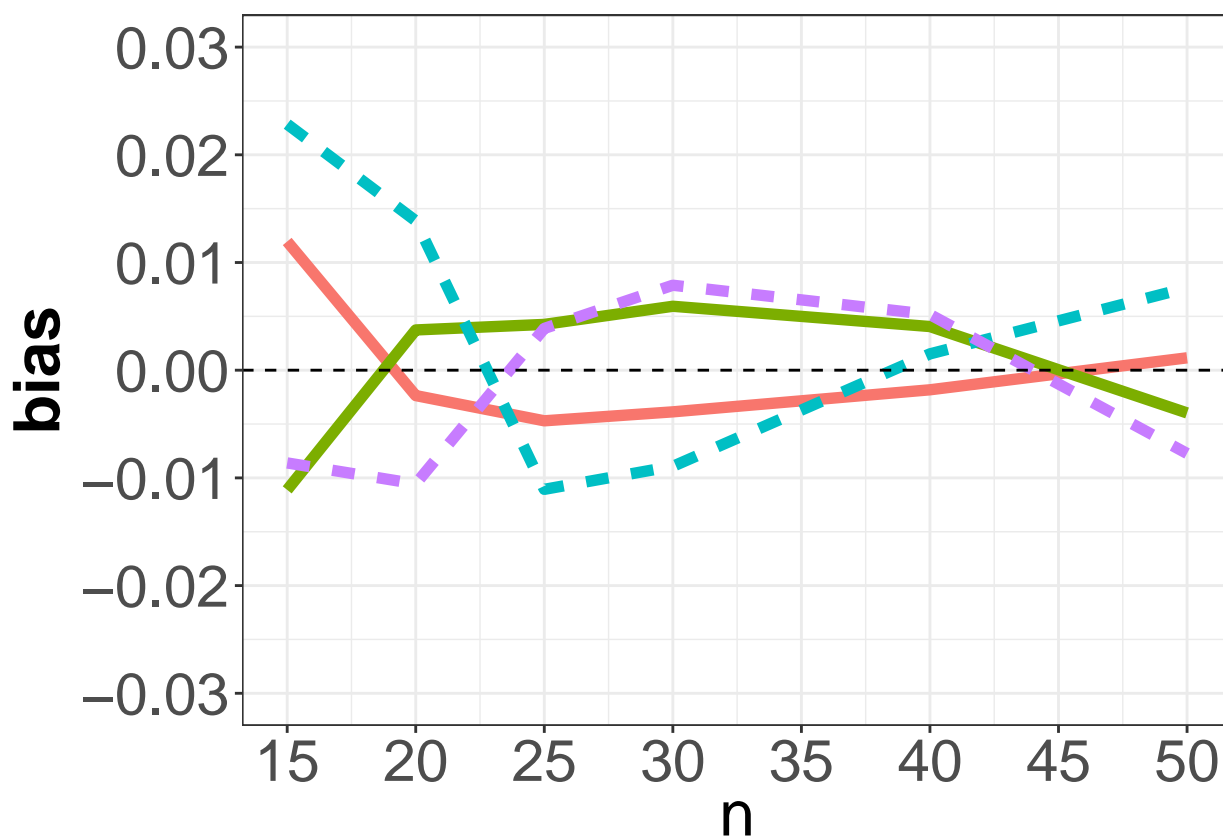
$$A_{i,t} = \{0, 1, 2\}$$

$$P(A_{it} = 0|H_t) = \tilde{p}_0 = 0.2$$

$$P(A_{it} = 1|H_t) = \tilde{p}_1 = 0.5$$

$$P(A_{it} = 2|H_t) = \tilde{p}_2 = 0.3$$

Parameter



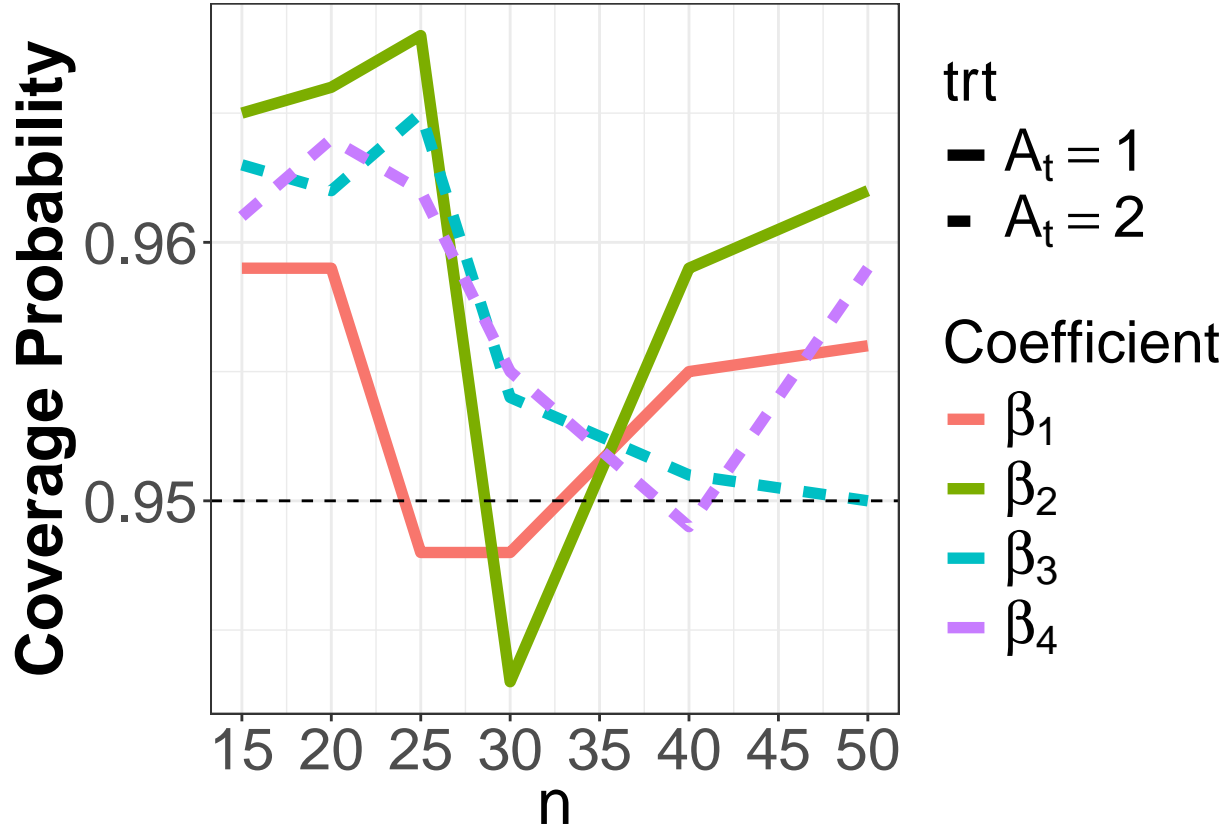


Table 1: Performance of MEE

Trt	Sample size	Intercept				Slope			
		Bias	RMSE	SD	CP(t-adj)	Bias	RMSE	SD	CP(t-adj)
1	15	0.012	0.361	0.360	0.959	-0.011	0.287	0.287	0.965
	20	-0.002	0.313	0.313	0.959	0.004	0.245	0.245	0.966
	25	-0.005	0.286	0.286	0.948	0.004	0.216	0.216	0.968
	30	-0.004	0.264	0.264	0.948	0.006	0.201	0.201	0.943
	40	-0.002	0.224	0.224	0.955	0.004	0.172	0.172	0.959
	50	0.001	0.194	0.194	0.956	-0.004	0.153	0.153	0.962
2	15	0.023	0.396	0.395	0.963	-0.009	0.325	0.324	0.959
	20	0.014	0.335	0.335	0.962	-0.011	0.263	0.263	0.959
	25	-0.011	0.305	0.305	0.965	0.004	0.233	0.233	0.948
	30	-0.009	0.287	0.287	0.954	0.008	0.220	0.220	0.948
	40	0.002	0.245	0.245	0.951	0.005	0.190	0.189	0.955
	50	0.008	0.214	0.214	0.950	-0.008	0.164	0.164	0.956

Table 2: β_1 Confidence Interval with different adjustment

Sample size	unadjusted		adjusted with z dist		adjusted with t dist	
	lower ci	upper ci	lower ci	upper ci	lower ci	upper ci
15	-0.548	0.772	-0.654	0.878	-0.772	0.996
20	-0.482	0.677	-0.547	0.743	-0.608	0.804
25	-0.432	0.623	-0.479	0.669	-0.518	0.708
30	-0.388	0.580	-0.423	0.615	-0.450	0.642
40	-0.323	0.519	-0.345	0.541	-0.361	0.558
50	-0.277	0.480	-0.293	0.496	-0.304	0.507

Table 3: β_2 Confidence Interval with different adjustment

Sample size	unadjusted		adjusted with z dist		adjusted with t dist	
	lower ci	upper ci	lower ci	upper ci	lower ci	upper ci
15	-0.226	0.804	-0.314	0.892	-0.407	0.985
20	-0.147	0.755	-0.202	0.809	-0.249	0.857
25	-0.107	0.715	-0.145	0.753	-0.175	0.784
30	-0.068	0.680	-0.097	0.709	-0.118	0.730
40	-0.022	0.630	-0.040	0.648	-0.053	0.661
50	0.004	0.588	-0.009	0.601	-0.018	0.610

Table 4: β_3 Confidence Interval with different adjustment

Sample size	unadjusted		adjusted with z dist		adjusted with t dist	
	lower ci	upper ci	lower ci	upper ci	lower ci	upper ci
15	-0.252	1.197	-0.372	1.318	-0.503	1.448
20	-0.165	1.092	-0.237	1.165	-0.303	1.231
25	-0.137	1.015	-0.189	1.067	-0.232	1.110
30	-0.088	0.970	-0.127	1.009	-0.157	1.039
40	-0.008	0.911	-0.033	0.936	-0.051	0.954
50	0.042	0.874	0.024	0.891	0.012	0.904

Table 5: β_4 Confidence Interval with different adjustment

Sample size	unadjusted		adjusted with z dist		adjusted with t dist	
	lower ci	upper ci	lower ci	upper ci	lower ci	upper ci
15	-0.471	0.654	-0.571	0.753	-0.673	0.855
20	-0.400	0.579	-0.461	0.640	-0.513	0.692
25	-0.341	0.549	-0.384	0.591	-0.417	0.624
30	-0.302	0.518	-0.334	0.550	-0.358	0.573
40	-0.251	0.462	-0.272	0.482	-0.286	0.496
50	-0.229	0.413	-0.243	0.428	-0.253	0.437