The correct model specification is

$$m_0(U) = \beta_{01} U$$
$$m_1(U) = \beta_{11} + \beta_{12} U,$$

where $U \sim \mathit{Unif}[0,1]$. Noise is added to the outcome variables to generate the observed outcomes,

$$Y_0 = m_0(U) + V_0$$
$$Y_1 = m_1(U) + V_1,$$

where $V_0 \sim N(0, 0.5^2)$, and $V_1 \sim N(0, 0.75^2)$. The true values of the MTR coefficients are $\beta_{01} = 6$, $\beta_{11} = 7$, and $\beta_{12} = 8$.

The instrument Z is equal to either 1 or 2, and the true propensity scores are

$$\mathbb{P}[D = 1 \mid Z = 1] = \phi_1 = 0.4$$
$$\mathbb{P}[D = 1 \mid Z = 2] = \phi_2 = 0.6.$$

The true ATU is 8.48.

The model is specified correctly for the estimator. A nonparametric probability model is estimated.

To estimate the coverage probabilities for the confidence intervals constructed in each simulation, I count the number of Monte Carlo simulations for which the coefficient of interest falls within the confidence interval, and then divide by the total number of Monte Carlo simulations (1000 for each sample size).

	N = 100	N = 1000	N = 2000
ATU: avg. estimate	8.962	8.801	8.569
ATU: avg. bootstrap s.e. estimate	112.464	2.179	1.211
ATU: population s.d.	69.953	1.738	1.145
Propensity: avg. coef. estimate, ϕ_1	0.402	0.401	0.400
Propensity: avg. coef. estimate, ϕ_2	0.602	0.599	0.600
Propensity: avg. bootstrap s.e., ϕ_1	0.069	0.022	0.015
Propensity: avg. bootstrap s.e., ϕ_2	0.069	0.022	0.015
Propensity: population s.d., ϕ_1	0.069	0.021	0.015
Propensity: population s.d., ϕ_2	0.068	0.022	0.015
MTR: avg. coef. estimate, β_{01}	6.018	5.999	6.001
MTR: avg. coef. estimate, β_{11}	6.783	6.840	6.958
MTR: avg. coef. estimate, β_{12}	8.888	8.639	8.172
MTR: avg. bootstrap s.e., β_{01}	0.316	0.097	0.069
MTR: avg. bootstrap s.e., β_{11}	55.247	1.077	0.602

MTR: avg. bootstrap s.e., β_{12}	224.936	4.341	2.411
MTR: population s.d., β_{01}	0.315	0.093	0.068
MTR: population s.d., β_{11}	34.237	0.856	0.567
MTR: population s.d., β_{12}	139.942	3.457	2.273
ATU: 90% CI1 (quantile method) coverage prob.	0.941	0.914	0.903
ATU: 95% CI1 (quantile method) coverage prob.	0.967	0.954	0.953
ATU: 90% CI2 (percentile method) coverage prob.	0.958	0.939	0.918
ATU: 95% CI2 (percentilemethod) coverage prob.	0.967	0.966	0.958
Propensity: 90% CI1 coverage prob., ϕ_1	0.896	0.909	0.900
Propensity: 90% CI1 coverage prob., ϕ_2	0.900	0.894	0.902
Propensity: 95% CI1 coverage prob., ϕ_1	0.953	0.959	0.956
Propensity: 95% CI1 coverage prob., ϕ_2	0.952	0.945	0.959
Propensity: 90% CI2 coverage prob., ϕ_1	0.897	0.910	0.902
Propensity: 90% CI2 coverage prob., ϕ_2	0.903	0.899	0.902
Propensity: 95% CI2 coverage prob., ϕ_1	0.953	0.960	0.955
Propensity: 95% CI2 coverage prob., ϕ_2	0.947	0.946	0.955
MTR: 90% CI1 coverage prob., β_{01}	0.905	0.912	0.897
MTR: 90% CI1 coverage prob., β_{11}	0.937	0.913	0.907
MTR: 90% CI1 coverage prob., β_{12}	0.938	0.911	0.908
MTR: 95% CI1 coverage prob., β_{01}	0.957	0.957	0.958
MTR: 95% CI1 coverage prob., β_{11}	0.972	0.960	0.959
MTR: 95% CI1 coverage prob., β_{12}	0.967	0.952	0.952
MTR: 90% CI2 coverage prob., β_{01}	0.096	0.018	0.002
MTR: 90% CI2 coverage prob., β_{11}	0.932	0.439	0.272
MTR: 90% CI2 coverage prob., β_{12}	0.999	0.998	1.000
MTR: 95% CI2 coverage prob., β_{01}	0.115	0.020	0.002
MTR: 95% CI2 coverage prob., β_{11}	0.947	0.569	0.345
MTR: 95% CI2 coverage prob., β_{12}	0.999	1.000	1.000
Bootstraps per simulation	1000.000	1000.000	1000.000
Avg. # bootstraps with collinearities	2.679	0.000	0.000