

Table 1: Comparative analysis for the impact of cross-fitting on TMLEs and one-step estimators in conjunction with the use of random forests. RF refers to random forest with 500 trees and a minimum node size of 5 for a continuous variable and 1 for binary, and CF denotes random forest with cross fitting using 5 folds.

	TMLEs								One-step estimators					
	<i>Univariate Binary</i>				<i>Univariate Continuous</i>				<i>Univariate Binary</i>		<i>Univariate Continuous</i>			
	$\psi_1(\hat{Q}^*)$		$\psi_{2a}(\hat{Q}^*)$		$\psi_{2b}(\hat{Q}^*)$		$\psi_1^+(\hat{Q})$		$\psi_{2a}^+(\hat{Q})$		$\psi_{2b}^+(\hat{Q})$			
	RF	CF	RF	CF	RF	CF	RF	CF	RF	CF	RF	CF	RF	CF
n=500														
Bias	-0.162	-0.020	-0.312	0.055	-0.486	0.017	-0.103	-0.028	0.009	0.066	-0.492	0.014		
SD	0.166	0.140	0.372	0.331	0.369	0.285	0.051	0.128	0.432	0.318	0.373	0.286		
MSE	0.054	0.020	0.235	0.113	0.373	0.081	0.013	0.017	0.186	0.105	0.381	0.082		
CI coverage	17.4%	82.8%	48.8%	86.9%	36.1%	87.3%	18.8%	86.3%	56.7%	87.6%	35.5%	87%		
CI width	0.128	0.389	0.681	0.980	0.717	0.862	0.119	0.388	0.682	0.977	0.718	0.861		
n=1000														
Bias	-0.162	-0.016	-0.329	0.054	-0.490	0.008	-0.100	-0.021	-0.017	0.059	-0.497	0.005		
SD	0.114	0.096	0.252	0.212	0.267	0.221	0.040	0.091	0.286	0.215	0.271	0.221		
MSE	0.039	0.009	0.172	0.048	0.312	0.049	0.012	0.009	0.082	0.049	0.320	0.049		
CI coverage	13.3%	88.5%	30.1%	88.6%	19.5%	86.6%	12.4%	89.7%	52.4%	88.3%	18.3%	87.1%		
CI width	0.101	0.315	0.417	0.690	0.520	0.656	0.098	0.315	0.420	0.689	0.520	0.655		
n=2000														
Bias	-0.161	-0.010	-0.326	0.063	-0.473	0.019	-0.096	-0.013	-0.041	0.065	-0.479	0.016		
SD	0.083	0.074	0.176	0.148	0.186	0.164	0.034	0.072	0.197	0.150	0.189	0.164		
MSE	0.033	0.006	0.137	0.026	0.259	0.027	0.010	0.005	0.041	0.027	0.265	0.027		
CI coverage	7.8%	90.4%	14.4%	89.8%	6.4%	86.5%	8.9%	90.7%	56.6%	88.9%	6.3%	86.5%		
CI width	0.081	0.246	0.292	0.520	0.376	0.499	0.080	0.246	0.294	0.519	0.376	0.499		