

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					
	$\psi_{dnorm}(\hat{Q}^*)$		$\psi_{densratio}(\hat{Q}^*)$		$\psi_{bayes}(\hat{Q}^*)$		$\psi_{dnorm}^+(\hat{Q})$		$\psi_{densratio}^+(\hat{Q})$		$\psi_{bayes}^+(\hat{Q})$	
	RF	CF	RF	CF	RF	CF	RF	CF	RF	CF	RF	CF
n=500												
Bias	0.046	-0.100	0.052	-0.079	0.064	0.046	-0.383	0.003	-0.791	-0.975	-0.362	0.086
SD	0.458	0.494	0.452	0.475	0.453	0.525	0.395	0.518	0.498	0.847	0.389	0.630
MSE	0.212	0.254	0.207	0.232	0.209	0.277	0.302	0.268	0.873	1.667	0.282	0.404
CI coverage	92.8%	94.4%	96.6%	99.9%	93%	95.5%	87.9%	94.7%	63.8%	75.4%	89.4%	92%
CI width	1.636	1.873	1.958	3.088	1.632	2.100	1.659	1.935	1.983	3.177	1.654	2.193
n=1000												
Bias	0.153	-0.010	0.148	-0.012	0.161	0.079	-0.217	0.060	-0.564	-0.755	-0.202	0.075
SD	0.337	0.353	0.334	0.349	0.334	0.380	0.319	0.363	0.368	0.549	0.316	0.441
MSE	0.137	0.125	0.133	0.122	0.137	0.151	0.149	0.135	0.453	0.872	0.141	0.200
CI coverage	89.2%	93.9%	94.7%	99.6%	89.6%	95.2%	86.7%	94.5%	62.6%	71.6%	86.8%	92.4%
CI width	1.158	1.330	1.347	2.072	1.155	1.526	1.168	1.368	1.358	2.123	1.164	1.578
n=2000												
Bias	0.186	0.025	0.174	0.002	0.186	0.074	-0.099	0.068	-0.493	-0.869	-0.092	0.026
SD	0.236	0.248	0.234	0.245	0.235	0.270	0.239	0.252	0.280	0.402	0.238	0.312
MSE	0.090	0.062	0.085	0.060	0.090	0.078	0.067	0.068	0.321	0.916	0.065	0.098
CI coverage	82.9%	94.2%	92.3%	99.8%	83.1%	95.8%	88.5%	93.7%	52.4%	46.6%	89.1%	93.7%
CI width	0.821	0.945	1.008	1.637	0.819	1.121	0.823	0.966	1.012	1.669	0.821	1.151