

Supplementary Materials

July 16, 2022

Table 1: Estimation results for β_S under different types of data contamination when $N = 500$

Contamination Type	r%	Method	Estimate	Bias	MSE $\times 10^3$	ASE $\times 10^2$	ESE $\times 10^2$	CR	MET
Outlier	10%	Mean	1.33	-0.17	30.9	2.98	1.77	NA	
		Median	1.48	-0.02	0.74	1.58	1.56	94.6	3958
		DOME	1.48	-0.02	0.72	1.75	1.61	93.8	5848
	25%	Mean	1.06	-0.44	198.1	4.02	2.00	NA	
		Median	1.44	-0.06	3.59	1.99	1.68	93.4	2551
		DOME	1.44	-0.06	3.75	2.04	1.73	92.8	5031
Leverage Observation	10%	Mean	1.05	-0.45	202	6.21	1.47	NA	
		Median	1.05	-0.45	203	5.63	1.93	93.0	8796
		DOME	1.44	-0.06	3.77	2.65	1.90	94.4	7230
	25%	Mean	0.38	-1.12	1265	8.84	1.48	NA	
		Median	0.38	-1.12	1269	7.58	2.09	93.8	10380
		DOME	1.30	-0.20	39.3	4.50	2.64	92.4	8218
50-50 Mix	10%	Mean	1.19	-0.31	98.3	4.94	2.59	NA	
		Median	1.22	-0.28	81.2	4.70	3.40	94.8	7254
		DOME	1.46	-0.04	2.00	2.31	1.79	96.4	8210
	25%	Mean	0.72	-0.78	614	7.04	3.57	NA	
		Median	0.77	-0.73	530	6.69	4.71	96.2	6582
		DOME	1.37	-0.13	17.6	3.59	2.12	94.3	7910

Note. CR = convergence rate; MET = median estimation time in seconds; 50-50 Mix: data contain outliers and leverage observations with equal probabilities.

Table 2: Estimation results for σ_S^2 under different types of data contamination when N = 500

Contamination Type	r%	Method	Estimate	Bias	MSE $\times 10^3$	ASE $\times 10^2$	ESE $\times 10^2$	CR	MET
Outlier	10%	Mean	0.26	0.16	27.4	3.06	3.40	NA	
		Median	0.12	0.02	1.00	31.7	2.61	91.0	3966
		DOME	0.12	0.02	1.60	33.2	3.59	96.4	5852
	25%	Mean	0.40	0.30	91.3	5.60	4.49	NA	
		Median	0.23	0.13	17.1	57.9	3.09	92.4	2570
		DOME	0.25	0.15	28.0	71.7	8.26	93.6	5007
Leverage Observation	10%	Mean	1.92	1.82	3317	12.21	4.14	NA	
		Median	0.10	0.00	0.07	27.5	2.57	93.6	8911
		DOME	0.24	0.14	20.4	61.9	4.71	93.8	7211
	25%	Mean	3.90	3.80	14420	24.71	5.79	NA	
		Median	0.10	0.00	0.46	28.9	2.14	0.898	10376
		DOME	0.89	0.79	657	250	0.18	92.6	8231
50-50 Mix	10%	Mean	1.12	1.02	1054	7.76	12.69	NA	
		Median	1.22	1.12	1284	8.00	13.71	96.4	7254
		DOME	0.55	0.45	207	5.08	7.04	94.0	8218
	25%	Mean	2.26	2.16	4676	15.70	16.70	NA	
		Median	2.61	2.51	6376	17.05	16.95	94.0	6583
		DOME	1.74	1.64	2712	15.93	18.03	95.2	7911

Note. CR = convergence rate; MET = median estimation time in seconds; 50-50 Mix: data contain outliers and leverage observations with equal probabilities.