Robust covariance estimation for partially observed functional data

2021-06-24

1. Partially observed case

Table 1: 4 FPCs from 30 repetitions

Type	Method	PVE	Reconstruction	Completion	Eigenfunction
Not contaminated	Yao	1.00	2.17 (9.93)	9.26 (44.28)	0.05 (0.03)
	Kraus	0.99		0.29 (0.26)	0.06 (0.03)
	Huber	0.86	0.08 (0.03)	0.27 (0.12)	0.06 (0.07)
	Boente	1.00	26.35 (133.16)	76.37 (369.40)	0.12 (0.02)
	M-est	0.95	0.08 (0.06)	0.26 (0.19)	0.13 (0.09)
	M-est-noise	0.95	0.04 (0.02)	0.14 (0.08)	
	M-est(smooth)	0.99	0.38 (0.83)	1.14 (2.47)	0.08 (0.04)
	M-est(smooth)-noise	0.99	0.04 (0.01)	0.10 (0.04)	
Contaminated	Yao	0.82	42.53 (102.54)	62.78 (145.71)	1.70 (0.17)
	Kraus	0.65		2.72 (0.68)	1.82 (0.08)
	Huber	0.87	0.09 (0.03)	0.33 (0.11)	0.06 (0.05)
	Boente	1.00	21.79 (68.31)	59.95 (180.04)	1.42 (0.33)
	M-est	0.68	0.17 (0.11)	0.49 (0.43)	0.21 (0.13)
	M-est-noise	0.71	0.10 (0.04)	0.26 (0.11)	
	M-est(smooth)	0.99	3.72 (4.80)	11.87 (14.63)	0.09 (0.06)
	M-est(smooth)-noise	0.99	0.06 (0.02)	0.20 (0.08)	