BOOTSTRAP RESULTS

CLEMENT CARRIER

Bootstrap

We simulate the data by choosing, the sparsity of the true parameters (number of non zero coefficient), the number of covariates, the number of observations and the nature of the noise (here we choose iid N(0,1)).

Table 1. Simulation Result

		iid5					iid10				
Model	X.p.n.	lenght	cov1	fn	biais1	biais2	lenght2	cov1.1	fn2	biais1.1	biais2.1
1	(50,100)	0.446	0.553	266.458	0.276	0.475	0.232		901.437	0.233	0.703
2	(100,100)	0.265	0.381	417.053	0.306	0.606	0.031		989.848	0.315	0.678
3	(200,100)	0.108	0.173	475.595	0.326	0.648	0.003		999.048	0.832	0.167

In the following one, we increase the number of nonzero parameter.

Table 2. Simulation Result 2

		iid5 beta =5					iid10 beta =5 n=200				
Model	X.p.n.	lenght	cov1	fn	biais1	biais2	lenght2	cov1.1	fn2	biais1.1	biais2.1
1	(50,100)	0.427	0.302	0.000	0.280	0.316	0.279		0.000	0.173	0.191
2	(100,100)	0.465	0.199	0.000	0.340	0.404	0.300		0.000	0.214	0.248
3	(200,100)	0.497	0.161	0.000	0.377	0.479	0.322		0.000	0.248	0.307

Then we compute the method used by lahiri (On the residual empirical process based on the ALASSO in high dimensions and its functional oracle property). In this paper, Lahiri uses the ALASSO estimator and shows that the empirical distribution of estimated residual behaves approximately as a gaussian noise. He then deduces a confidence band of prediction of the variable of interest (y) based on the empirical distribution of the residual.

Table 3. Simulation Result

		iid1		iid5		AR	
Model	X.pn.	coverage	lenght	coverage.1	lenght.1	coverage.2	lenght.2
1	(10,100)	0.948	3.715	0.999	4.347	0.869	3.408
2	(50,100)	0.863	3.383	0.895	3.508	0.758	2.971
3	(120,100)	0.996	3.954	0.943	3.907	0.964	4.341
4	(200,100)	0.889	3.485	0.949	3.718	1.000	4.604

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