BOOTSTRAP RESULTS

CLMENT CARRIER

Bootstrap

```
library(knitr)
library(glmnet)
library(MASS)
library(xtable)
require(ggplot2)
```

```
source('../../laurent/lasso.R')
source('../../Functions/RW.R')
source('../../Functions/fun.R')
source('../../Functions/lahiri.R')
source('../../Functions/lahiriboot.R')
source('../../Functions/AR1.R')
source('../../Functions/edfAR1.R')
source('../../Functions/edfiid4.R')
source('../../Functions/edfiid1.R')
source('../../Functions/iid1.R')
source('../../Functions/iid5.R')
```

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

		iid		AR	
Model	X.p.n.	coverage	lenght	coverage.1	lenght.1
1	(10,100)	0.735	0.467	0.517	0.203
2	(50,100)	0.659	0.338	0.512	0.201
3	(120,100)	0.840	0.329	0.569	0.223
4	(200,100)	0.557	0.271	0.678	0.266

Table 2. Simulation Result

iid5		post		nonpost	
Model	X.pn.	coverage	lenght	coverage.1	lenght.1
1	(10,100)	0.783	0.324	0.688	0.345
2	(50,100)	0.747	0.349	0.194	0.427
3	(120,100)	0.722	0.353	0.101	0.452
4	(200,100)	0.645	0.396	0.000	0.328

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,

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TABLE 3. Simulation Result

		AR1 (0.7)		AR1 (1)	
Model	X.p.n.	coverage	lenght	coverage.1	lenght.1
1	(10,100)	0.497	0.277	0.492	0.193
2	(50,100)	0.344	0.245	0.308	0.121
3	(120,100)	0.670	0.343	0.576	0.226
4	(200,100)	0.737	0.289	0.451	0.177

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 4. Simulation Result

		iid1		iid5		AR	
Model	X.pn.	coverage	lenght	coverage.1	lenght.1	coverage.2	lenght.2
1	(10,100)	0.937	3.765	0.910	3.654	0.938	3.814
2	(50,100)	0.929	3.752	0.938	3.723	0.910	3.595
3	(120,100)	0.947	3.821	0.982	4.188	0.880	3.513
4	(200,100)	0.926	3.719	0.956	3.979	0.931	3.947