Tese

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1 Introduction

As opposed to the conventional work of doing a model to forecast the conditional mean, our work focus on finding a distribution for y_t on each t.

We find a time series model, based on quantile autoregression (as in Konker 2005).

As we are interested in the whole distribution of $\hat{y}_{t+k|t}$, we estimate a phin grid of quantiles in $0 < \alpha_1 < \alpha_2 < \cdots < \alpha_{|A|} < 1$, such that the distribution can be well approximated.

As a Quantile Autoregression model, we are interested in selecting the best subset of variables do model the time series.

As we are trying to model the whole k-step ahead distribution, we estimate many quantiles. We didn't find any previous work where a given α-quantile model influenced another model.

Regularization by introducing a penalty on the ℓ_1-norm of the coefficients has been having many developments. The work by [1] defines proprieties and convergence analysis. The AdaLasso variant, where each coefficient may have a different weight on the objective function to ensure oracle proprieties, is developed on [2].

References

[1] Alexandre Belloni and Victor Chernozhukov. L1-Penalized Quantile Regression in High-Dimensional Sparse Models. *arXiv:0904.2931 [math, stat]*, April 2009. arXiv: 0904.2931.

[2] Gabriela Ciuperca. Adaptive LASSO model selection in a multiphase quantile regression. *Statistics*, 50(5):1100–1131, September 2016.