



ECONOMETRICS RESEARCH SEMINAR

December 15, 2011, 9 am

**Institute for Advanced Studies
1060 Vienna, Stumpergasse 56
HS II (lecture room II)**

Please note that the seminar will start at 9 am sharp!

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Distributional Properties of Lasso-Type and Thresholding Estimators

Penalized least-squares estimators, such as the famous Lasso estimator, have been studied intensively in recent literature. While many properties of these estimators are now well understood, the understanding of their distributional characteristics, such as finite- and large-sample distributions, convergence rates and confidence sets is still incomplete.

We give a literature overview and discuss results for penalized least-squares estimators in an orthogonal linear regression model. We also present results for thresholding estimators within a (non-orthogonal) linear regression model where the number of parameters k can depend on sample size n and may diverge with n . In this setting we study versions of the estimators when the error-variance is unknown and also investigate the effects of having to estimate the variance when the degrees of freedom $n-k$ does not tend to infinity or does so very slowly.

with Benedikt Pötscher (University of Vienna and IHS)

References:

B.M. Pötscher and U. Schneider, Distributional Results for Thresholding Estimators in High-Dimensional Gaussian Regression Models, arxiv:1106.6002, submitted.

B.M. Pötscher and U. Schneider, Confidence Sets Based on Penalized Maximum Likelihood Estimators, *Electron. J. Stat.* 4 (2010) 334-360.

B.M. Pötscher and U. Schneider, On the Distribution of the Adaptive LASSO Estimator, *J. Stat. Plann. Inference* 139 (2009) 2775-2790.