



SEMINAR IN STATISTICS & ECONOMETRICS

Per Hjertstrand (Lund University): "A Modified Klein-Spady Estimator"

Thursday March 12, at 12.30–14.00 at the Hanken School of Economics, Department of Finance and Statistics, Arkadiagatan 22, Helsinki, in room D601 (6th floor). Further information from gunnar.rosenqvist@hanken.fi (tel. 040-3521363) or Per Hjertstrand nekphj@nek.lu.se

Welcome!

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Abstract:

Binary choice models are of great importance in applied microeconometrics. A very common way to introduce such models is through a latent continuous variable, which is mapped into an observed binary variable. Most often, one specifies a distributional assumption for the latent variable. If the latent variable is assumed to follow a normal distribution, then the model becomes a probit model, or if it assumed to follow a logistic distribution, then the underlying specification becomes a logit model. The above discussion suggests that the cost of misspecifying the underlying distribution can be considerable, at least from a theoretical point of view, and much effort has therefore gone into developing procedures that can be used in the absence of such assumptions. One such study that has received considerable attention is that of Klein and Spady (1993), in which the authors propose to treat the distribution as unknown and to estimate it using kernel methods. This estimator is theoretically very appealing since it can be shown to be asymptotically as efficient as parametric estimation (under some regularity conditions) when the parametric assumption also is the correct one. In spite of these theoretical properties, however, the Klein and Spady (1993) estimator has been shown to perform poorly in small samples, as the optimand can be badly behaved with saddle points and many local optima. In fact, as Frölich (2006) demonstrates, the performance of the Klein and Spady (1993) estimator can be so poor that it more than compensates for the inefficiency and inconsistency of the parametric alternative when the model is erroneously assumed to be logit. In this paper, we propose a modification of the Klein and Spady (1993) estimator. It is shown that both estimators have equivalent asymptotic properties, but that the modified estimator has superior small-sample properties. Simulation evidence show that the modified estimator performs better than parametric assumption when the parametric assumption is misspecified.