

Efficient estimation for diffusions

Wednesday, August 16, 2017 2:00 PM (30 minutes)

This talk concerns estimation of the diffusion parameter of a diffusion process observed over a fixed time interval. We present conditions on approximate martingale estimating functions under which estimators are consistent, rate optimal, and efficient under high frequency (in-fill) asymptotics. Here, limit distributions of the estimators are non-standard in the sense that they are generally normal variance-mixture distributions. In particular, the mixing distribution depends on the full sample path of the diffusion process over the observation time interval. Making use of stable convergence in distribution, we also present the more easily applicable result that estimators normalized by a suitable data-dependent transformation converge in distribution to a standard normal distribution. The theory is illustrated by a simulation study.

The work presented in this talk is published in:

Jakobsen, N. M. and Sørensen, M. (2017). *Efficient estimation for diffusions sampled at high frequency over a fixed time interval*. *Bernoulli*, 23(3):1874-1910.

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