Sample partitioning estimation for ergodic diffusions. Applications

Luís Ramos, Pedro P. Mota, and João T. Mexia

New University of Lisbon, Portugal

Abstract

When a diffusion is ergodic its transition density converges to its invariant density, see Durrett (1996). This convergence enabled us to introduce a sample partitioning technique that gives in each subsample, maximum likelihood estimators. The averages of these being a natural choice as estimators. Application of that technique for a few diffusion are given.

Keywords

Ergodic diffusions, Transition and invariant densities, Maximum likelihood estimators.

References

Bibby, B.M. and Sørensen, M. (1995). Martingale estimating. Functions for discretely observed diffusion processes. *Bernoulli 1*, 17–39.

Durrett, R. (1996). *Stochastic Calculus: A practical Introduction*. Boca Raton, CRC Press.

Küchler, U. and Sørensen, M. (1997). *Exponential Families of Stochastic Processes*. Springer-Verlag.

Iacus, S. (2008). *Simulation and Inference for Stochastic Differential Equations with R Examples*. Springer.

Øksendal, B. (1998). *Stochastic Differential Equations. An Introduction*, 5th edition. Springer-Verlag.

Sørensen, M. (1997). *Statistical Inference for Discretely Observed Diffusions*. Lecture Notes. Berlin Graduiertenkolleg.