

Estimation of Diffusion Process with Jumps from Discretely Observed Data

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Summary Consider a diffusion process with jumps described by a stochastic differential equation:

$$\begin{aligned}dX_t &= a(X_t, \theta) dt + b(X_t, \sigma) dw_t + \int c(X_{t-}, z, \theta)(p - q^\theta)(dt, dz) \\X_0 &= x_0.\end{aligned}$$

Here θ and σ are (possibly multi-dimensional) unknown parameters. We will propose a minimum contrast estimator based on the observations $\{X_{ih}\}_{i=0}^n$ and show consistency and asymptotic normality in the case where $nh \rightarrow \infty$ and $h \rightarrow 0$. Also, asymptotic expansion of the estimator is to be discussed.

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