

Does a discretely observed process have infinitely many jumps?

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(joint work with Y. Aït-Sahalia)

Abstract

Suppose that a continuous-time process $X = (X_t)_{t \geq 0}$ is observed at finitely many times, regularly spaced, on the fixed time interval $[0; T]$, and that this process is an Itô semimartingale, with a non-vanishing diffusion coefficient, and with jumps. Suppose also that we know that a particular path of this process has jumps. The aim is to decide whether these jumps are finitely or infinitely many, and more specifically to derive tests with a prescribed asymptotic level, for both possible null hypotheses. Such tests are based on the behavior of some test statistics built from sums of truncated powers of the increments of the observed processes.