

On the excess of average squared error for data-driven bandwidths in nonparametric trend estimation

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Abstract:

We consider the problem of the optimal selection of the smoothing parameter h in kernel estimation of a trend in nonparametric regression models with strictly stationary errors. We suppose that the errors are stochastic volatility sequences. Three types of volatility sequences are studied: the log-normal volatility, the Gamma volatility and the log-linear volatility with Bernoulli innovations. We take the weighted average squared error (ASE) as the global measure of performance of the trend estimation using h and we study two classical criteria for selecting h from the data, namely the adjusted generalized cross validation and Mallows-type criteria. We establish the asymptotic distribution of the gap between the ASE evaluated at one of these selectors and the smallest possible ASE. The talk is based on a common work with Karim Benhenni and Didier Girard.

Keyword : Nonparametric trend estimation, Smoothing parameter selection, Average squared error, Excess of average squared error, Mean average squared error, Mallows criterion, Cross validation, Generalized cross validation, SV models.

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