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Kolloquium über Mathematische Statistik und Stochastische Prozesse

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Empirical characteristic functions-based estimation and distance correlation for locally stationary processes

Abstract:

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We propose a kernel-type estimator for the local characteristic function (local CF) of locally stationary processes. Under weak moment conditions, we prove joint asymptotic normality for local empirical characteristic functions (local ECF). Precisely, for processes having a (two-sided) time-varying MA(1) representation, we establish a central limit theorem under the assumption of finite absolute first moments of the process. Additionally, we prove process convergence of the local ECF. We use our results to estimate the local distance correlation of locally stationary processes and provide an application to real data of German stock prices.

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