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Testing for Modality, Residual Empirical Process and Weighted Sums for Time Varying Processes

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10:20 a.m. - 11:10 a.m.
Refreshments: 10:00 a.m.

Abstract

In the context of a time-varying AR-model, we construct a test for modality of the variance function that under appropriate assumptions is asymptotically distribution free, even though non-parametric estimation is involved. Simulation studies and applications to real data sets illustrate the behavior of the test. The large sample analysis of the test statistic hinges on properties of both residual empirical processes and weighted sums processes indexed by function classes. Properties of these processes will be presented that are of independent interest. For instance, it will be shown that under appropriate assumptions non-parametric estimation in our model does not influence the asymptotic distribution of the residual process. An exponential inequality for weighted sums of time-varying processes is also derived.

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