The estimation of parameter curves for locally stationary processes

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The problem of nonparametric inference for locally stationary processes is discussed. An example is an autoregressive process with time-varying coefficients and a time-varying innovation-variance. The parameters are now curves which have to be estimated - either parametrically or nonparametrically.

First we discuss estimates where stationary methods are applied locally on a segment. We then give a special approximation of the likelihood function for locally stationary processes which leads to a local likelihood at a fixed time. This likelihood turns out to be a general tool for parametric and nonparametric estimation. We discuss the properties of several estimates based on this likelihood.