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Specification Testing for Nonlinear Multivariate Cointegrating Regressions[*]

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Abstract

This paper considers a general model specification test for nonlinear multivariate cointegrating regressions where the regressor consists of a univariate integrated time series and a vector of stationary time series. The regressors and the errors are generated from the same innovations, so that the model accommodates endogeniety. A new and simple test is proposed and the resulting asymptotic theory is established. The test statistic is constructed based on a natural distance function between a nonparametric estimate and a smoothed parametric counterpart. The asymptotic distribution of the test statistic under the parametric specification is proportional to that of a local–time random variable with a known distribution. In addition, the finite sample performance of the proposed test is evaluated through using both simulated and real data examples.

Key words: Cointegration, endogeneity, nonparametric kernel estimation, parametric model specification, time series.

JEL Classification: C12, C14, C22.

Abbreviated Title: Model Specification in Nonstationary Cointegration.