

“Testing for cointegration in high-dimensional systems”

This paper considers cointegration tests for dynamic systems where the number of variables is large relative to the sample size. Typical examples include tests for cointegration in panels of a large number of countries. It is well known that conventional cointegration tests based on a parametric (vector autoregressive) representation of the system break down if the number of variables approaches the number of time periods. To sidestep this difficulty we propose nonparametric cointegration tests based on eigenvalue problems that are asymptotically free of nuisance parameters. We distinguish two different alternatives. A system is said to be weakly cointegrated if the number of cointegration relationships is small relative to the dimension of the system, whereas strong cointegration refers to a system where the variables are driven by a small number of common trends. It turns out that nonparametric tests outperform the parametric (likelihood-ratio) tests by a clear margin, in particular, if the system is strongly cointegrated. Since uncovered interest parity suggests that all cross-country difference of interest rates are stationary (strong cointegration), the proposed tests are applied to a panel of short-term interest rates from various countries.