

STANFORD UNIVERSITY
DEPARTMENT OF STATISTICS
DEPARTMENTAL SEMINAR

4:15 p.m., Tuesday, May 22, 2001
Sequoia Hall Rm. 200
(Cookies at 3:45 in 1st Floor Lounge)

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Unit Roots, Cointegration, and the Continuous-Path Block-Bootstrap

The problem of nonparametric resampling in the context of time series that are suspected to be integrated and/or cointegrated is described. A nonparametric block bootstrap procedure is proposed for testing for a unit root. The resampling procedure is based on weak assumptions on the dependence structure of the process, and successfully generates unit root integrated pseudo-series retaining the important characteristics of the data. As a consequence the procedure can accurately capture the distribution of many unit root test statistics proposed in the literature. Large sample theory is developed and the asymptotic validity of the block bootstrap-based unit root testing is shown via a bootstrap functional limit theorem. Applications to some particular test statistics of the unit root hypothesis, e.g., least squares and Dickey-Fuller type statistics are given. Time permitting, the problem of testing for cointegration will also be discussed.

(this is joint work with E. Paparoditis, Univ. of Cyprus)