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Title:

A Bayesian Approach to Unit Root and Level Shifts

Abstract:

If an economic time series contains a unit root, the shocks to it will not dissipate but instead will have permanent effect and lead to far reaching implications in policy making. The classical tests for testing the unit root hypothesis are largely based on asymptotic justification and often lead to low power of the test, particularly in finite samples.

The Bayesian approach, on the other hand, is free from such problems and, therefore, provides a more convenient and formal framework. The present talk deals with the Bayesian approach for testing the presence of unit root for the autoregressive model with single or multiple break points in deterministic trend and intercept. The posterior odds ratios for the unit root hypothesis have been derived for models involving single and multiple structural breaks under appropriate prior assumptions. For examining the implications of ignoring structural break on the posterior odds ratio for the unit root hypothesis the results of a numerical simulation have been discussed. The theoretical results have been applied to export series of selected ASEAN countries and the possibility of presence of linear/nonlinear trend and structural breaks has been explored. The Bayesian unit root test has also been considered for the model involving structural break in disturbances variance and affect of ignoring structural break is analysed with the help of a numerical simulation.