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Maximum likelihood inference on cointegration and seasonal cointegration. (English)  
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Summary: Testing procedures for cointegration and seasonal cointegration are developed for nonstationary time series which have unit roots at seasonal frequencies as well as at the zero frequency. Using maximum likelihood inference, we estimate and test the hypothesis for the existence of cointegrating vectors at each frequency in the presence of unit roots at other seasonal frequencies. The basic finding is that several null hypotheses can be tested separately for each case of interest without any prior knowledge about the existence of cointegration relations at other frequencies.

The asymptotic distribution theory is derived, and the critical values are generated by Monte Carlo simulations. The problems on the use of seasonally adjusted data are discussed, and an empirical example is illustrated by using Canadian data on unemployment and immigration rates.

MSC:
62P20  Applications of statistics to economics  
62M10  Time series, auto-correlation, regression, etc. in statistics (GARCH)  
91B84  Economic time series analysis  
62E20  Asymptotic distribution theory in statistics

Keywords:  
testing procedures; cointegration; seasonal cointegration; nonstationary time series; unit roots; seasonal frequencies; maximum likelihood inference; existence of cointegrating vectors; critical values; Monte Carlo simulation; seasonally adjusted data; Canadian data; unemployment; immigration rates

Full Text: DOI

References:


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