A Comparative Analysis of Semiparametric Tests for Fractional Cointegration in Panel Data Models

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Abstract

Several authors have studied fractional cointegration in time series data, but little or no consideration has been extended to panel data settings. Therefore, in this paper, we compare the finite sample behaviour of existing fractional cointegration time-series test procedures in panel data settings. This comparison is performed to determine the best tests that can be adapted to fractional cointegration in panel data settings. Specifically, simulation studies and real-life data analysis were performed to study the changes in the empirical type I error rate and power of six semiparametric fractional cointegration tests in panel settings. The various results revealed the limitations of the tests in the nonstationary and low or high correlation of the residual errors conditions. Also, two of the test procedures were recommended for testing the null hypothesis of no fractional cointegration in both time series and panel data settings.

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