The behaviour of seasonal unit root tests under neglected local drifts[*]

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Abstract. This paper analyses the limit distributions of the seasonal unit root test procedures proposed by Dickey, Hasza and Fuller (1984) and Hylleberg, Engle, Granger and Yoo (1990), when local trends at different frequencies are present in data generation processes, but ignored in the test regressions used. The findings presented explicitly show that neglected deterministic trends have negative effects on the distributions of the test statistics. Analytical observations and Monte Carlo simulations reveal that seasonal unit root test statistics become severely undersized as the values of standardized local trends increase. Hence, failure to consider local trends may often bear the undesirable effect of biasing decisions towards non-rejection of unit roots.

Key words: Seasonal unit roots – Local deterministic trends – Asymptotic normality

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