NOTE

1. In the simulations, ω is estimated by the sample variance of Δy_t. In cases where the errors are serially correlated, ω is estimated by using the usual estimator for the long-run variance of the residuals from the Dickey–Fuller regression, as otherwise the estimator for the long-run variance tends to zero (cf. Phillips and Oularis, 1990).

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This is a useful contribution to the solution of two problems that confront every user of unit root tests: how to handle the trend and what to do about the initial condition. The authors provide compelling evidence that in the setting they study, combinations of tests via the "union of rejections" (*UR*) rule work best. Will their work settle the debate?

1. The authors select from the plethora of tests available on the basis of frequency of use and simplicity, which is of course reasonable. However, I'd like to see some comments on the tests not studied in detail. For example, can we be reassured that no omitted procedure is a serious competitor in some plausible but unexamined setting? I'd hope so, but perhaps they could say why they think the list of tests they examine is long enough.
2. The paper ends with two speculations: one concerning more complicated trend functions and a second concerning a fourfold combination, UR^2, perhaps, that could deal with both of their sources of uncertainty simultaneously. In fact, in Ayat and Burridge (2000), which they cite, we considered a quadratic extension of the quasi-differencing (QD) test of Elliott, Rothenberg, and Stock (1996), within a sequential procedure. The *UR* approach might start to become unwieldy even in that simple case; do they have any comment on this? The fourfold combination is quite appealing, but considering it begs an obvious question: what other combinations of circumstances should we factor into our degree of "uncertainty"? Variance shifts, breaks, heavy-tailed distributions? Perhaps the two factors considered are indeed

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the most important in practice, but do the authors have any evidence that this is the case?

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I congratulate Harvey, Leybourne, and Taylor on writing a truly interesting and stimulating paper on an important issue in practice: how to conduct unit root tests. The authors provided a simple practical guide that should prove very useful in time series applications. I find myself with really nothing to criticize. I will comment on a few issues related to this research problem.

The Impact of Preliminary Data Analysis

In the last two decades, there has been much discussion on how to improve sampling performance of unit root testing, and many procedures were proposed. Depending on the empirical feature of the data, there are different directions that can potentially improve the performance of unit root testing. A partial list of these directions includes

1. initial condition;
2. trend uncertainty and efficient detrending;
3. information of the innovation distribution (non-Gaussianity);
4. regression model specification;
5. using useful covariates to improve univariate unit root testing (as Hansen, 1995).

Harvey, Leybourne, and Taylor focuses on issues related to trend and initial condition uncertainty. Initial condition is not observable or estimable in practice, and so it is impossible to directly use information about initial condition. However, initial condition uncertainty does affect the selection of a more efficient (say) detrending procedure. For this reason, researchers want to take into account initial condition uncertainty when selecting a detrending method.

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