REGENSBURGECONNEWS

NEWSLETTER 2020-14

CALENDAR:

Departmental Seminar
Uwe Hassler (University of Frankfurt):
Self-normalizing Tests from Heterogeneous Samples under Cross-dependence: The case of stationarity testing

Zoom-meeting
Monday, June 8
16:30-18:00

Lunch Seminar
Tobias Hartl (Uni Regensburg):
Fractional trends and cycles in macroeconomic time series

Zoom-meeting
Wednesday, June 10
12:00-13:30

Departmental Seminar

Uwe Hassler:

Self-normalizing Tests from Heterogeneous Samples under Cross-dependence: The case of stationarity testing

Abstract: Our first contribution is to propose two families of tests for stationarity (integration of order 0). They are directed against (local) alternatives of, first, a unit root, and second, a break in mean. They build on the Karhunen-Loève expansions of the limiting CUSUM processes under the null hypothesis and local alternatives. The test statistics VR_q^{rw} and VR_q^{mb}, respectively, are variance ratio type statistics of quadratic forms of q weighted Gaussian sums such that the nuisance long-run variance cancels asymptotically without having to be estimated, and critical values can be calculated by standard numerical means. Monte Carlo experiments show that q may not be too large in finite samples to obtain tests with correct size under the null. In particular, the VR_q^{rw} procedure is more powerful than the classical KPSS test. As a second contribution, we show how the self-normalizing tests can be carried to a multivariate framework with a finite number N of units under cross-dependence: the long-run covariance matrix melts into a scaling parameter that cancels from the ratio statistics as the time dimension goes o   to infinity. Hence, problems with the control of the overall size due multiple testing are evaded. This approach is illustrated with a panel of inflation series. In fact, this multivariate extension is not limited to the present case of stationarity testing; it holds more generally for the approach of self-normalizing variance ratios that we employ.

Info: For further information such as the Zoom-meeting details please visit: www-vwl.ur.de/forschung

Lunch Seminar

Tobias Hartl:

Fractional trends and cycles in macroeconomic time series

Abstract: We develop a generalization of correlated trend-cycle decompositions that avoids prior assumptions about the long-run dynamic characteristics by modelling the permanent component as a fractionally integrated process and incorporating a fractional lag operator into the autoregressive polynomial of the cyclical component. The model allows for an endogenous estimation of the integration order jointly with the other model parameters and, therefore, no prior specification tests with respect to persistence are required. We relate the model to the Beveridge-Nelson decomposition and derive a modified Kalman filter estimator for the fractional components. Identification, consistency, and asymptotic normality of the maximum likelihood estimator are shown. For US macroeconomic data we demonstrate that, unlike I(1)correlated unobserved components models, the new model estimates a smooth trend together with a cycle hitting all NBER recessions. While I(1) unobserved components models yield an upward-biased signal-to-noise ratio whenever the integration order of the data-generating mechanism is greater than one, the fractionally integrated model attributes less variation to the long-run shocks due to the fractional trend specification and a higher variation to the cycle shocks due to the fractional lag operator, leading to more persistent cycles and smooth trend estimates that reflect macroeconomic common sense.

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NEW AND LEAVING STAFF:

On June 1, Dr. Michael Eichenseer joined the team of Prof. Dr. Jürgen Jerger (Chair of International and Monetary Economics).

RegensburgEconNews
Newsletter of the Institute of Economics and Econometrics, University of Regensburg

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Editorial deadline for Newsletter No. 2020-15: Wednesday, June 10 – 11 am

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