Title: Improving real-time trend estimates using local parametrisation of polynomial regression filters

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Abstract:
This paper examines and compares real-time estimates of the trend-cycle component using moving averages constructed with local polynomial regression. It enables to reproduce Henderson's symmetric and Musgrave's asymmetric filters used in the X-13ARIMA-SEATS seasonal adjustment algorithm. This paper proposes two extensions of local polynomial filters for real-time trend-cycle estimates: first including a timeliness criterion to minimise the phase shift; second with procedure for parametrising asymmetric filters locally while they are generally parametrised globally, which can be suboptimal around turning points. An empirical comparison, based on simulated and real data, shows that modelling polynomial trends that are too complex introduces more revisions without reducing the phase shift, and that local parametrisation reduces the delay in detecting turning points and reduces revisions. The results are reproducible and all the methods can be easily applied using the R package `rjd3filters`.

Keywords: time series, trend-cycle, seasonal adjustment, turning points, R statistical software.

JEL Classification: E32, E37.