Kernel-based short-term forecasting of trending seasonal time series

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Trending nonlinear seasonal time series are modeled and forecasted using multiplicative smoothing kernel regressions. The proposed kernel functions allow to flexibly take into account the periodic structure of seasonality. Bandwidths are estimated based on out-of-sample forecast loss taking into account the dependency structure of the series. A Monte Carlo study and real data applications point at a superior short-term forecasting performance of the proposed method compared to standard benchmarks, while matching the computational costs of the latter.