

Signal extraction for doubly nonstationary time series and application to time-dependent seasonal adjustment

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Abstract:

Most economic time series have level fluctuations and seasonality making them nonstationary. Therefore, they are often presented as seasonally adjusted data. A large deal of these time series are better fitted by time-dependent models, adding a second cause of nonstationarity. It is therefore logical to try extending ARIMA model-based seasonal adjustment (AMBSA) procedures to time-dependent ARIMA models. Since these procedures are based on Wiener-Kolmogorov filters and spectral analysis, it does not seem an easy task. Nevertheless, I will show conceptually that it is possible to do signal extraction in a time-dependent context and illustrate it on a simpler two-component (permanent and irregular) or $tdIMA(1,1)$ model.