

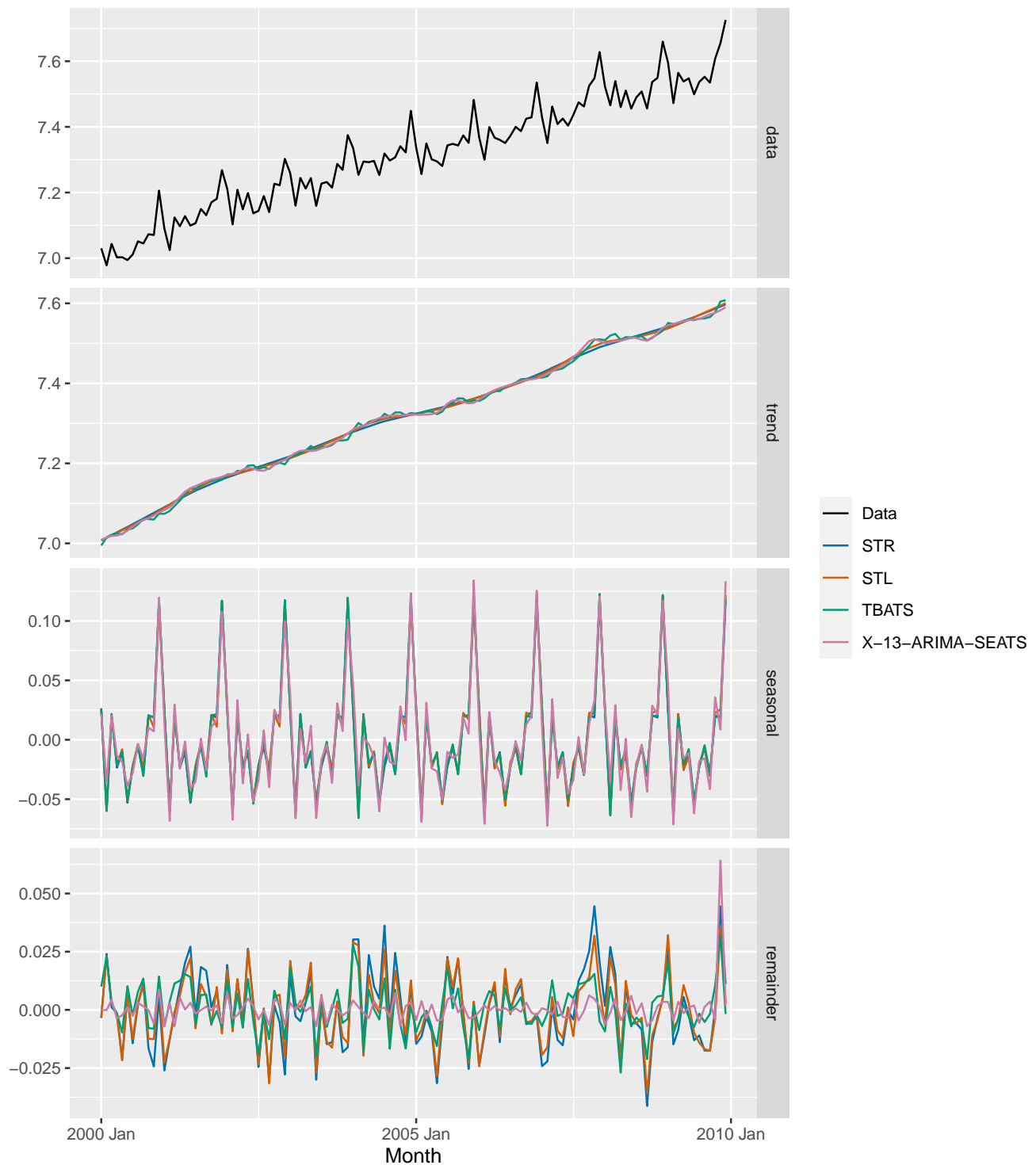
Appendix: Comparison of decomposition methods

Rob J Hyndman and Alexander Dokumentov

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We compare STR with three other decomposition methods on monthly data of supermarket and grocery store log revenue in New South Wales, Australia. The three comparison methods are STL (Cleveland et al., 1990), TBATS (De Livera, Hyndman & Snyder, 2011), and X-13-ARIMA-SEATS (Findley, 2005; Dagum & Bianconcini, 2016)

The components are shown below.



The results are very similar, with the main differences as follows.

- The trend component obtained via TBATS is less smooth than the other methods. This is not surprising, as TBATS uses only data prior to each time period to estimate the components, whereas the other methods use all the data to estimate components.
- X-13-ARIMA-SEATS allows the seasonal component to change more rapidly than the other methods, resulting in a smaller remainder component. Essentially some of the variation in the remainder component has been incorporated into the seasonal component (and to a lesser extent into the trend component). In our judgement, this is over-fitting the data.

References

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