Forecasting: principles and practice

Lab Session 6 24 September 2014

Before doing any exercises in R, load the **fpp** package using `library(fpp)`.

1. For the following series, find an appropriate Box-Cox transformation and order of differencing in order to obtain stationary data.
   (a) `usnetelec`
   (b) `usgdp`
   (c) `mcopper`
   (d) `enplanements`
   (e) `visitors`

2. Why is a Box-Cox transformation unhelpful for the `cangas` data?

3. Download the data at `http://robjhyndman.com/data/retail.xls`. Choose *one* of the series and find an appropriate Box-Cox transformation and order of differencing in order to obtain stationary data.

4. For the same retail data, compare:
   (a) an ETS model;
   (b) an additive ETS model applied to a Box-Cox transformed series;
   (c) an STL model applied to a Box-Cox transformed series, followed by ETS on the seasonally adjusted data;
   (d) a seasonal naive method applied to the Box-Cox transformed series;

   For each model, look at the residual diagnostics and compare the forecasts on a test set of the last two years.

5. Repeat the previous question but use time series cross-validation to compare the four models.