Forecasting: principles and practice

Lab Session 8 — 24 September 2014

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

1. Choose one of the following seasonal time series: `condmilk`, `hsales`, `uselec`
   (a) Do the data need transforming? If so, find a suitable transformation.
   (b) Are the data stationary? If not, find an appropriate differencing which yields stationary data.
   (c) Identify a couple of ARIMA models that might be useful in describing the time series. Which of your models is the best according to their AIC values?
   (d) Estimate the parameters of your best model and do diagnostic testing on the residuals. Do the residuals resemble white noise? If not, try to find another ARIMA model which fits better.
   (e) Forecast the next 24 months of data using your preferred model.
   (f) Compare the forecasts obtained using `ets()`.

2. For the time series you selected from the retail data set in Lab Session 6, develop an appropriate seasonal ARIMA model, and compare the forecasts with those you obtained earlier.

   Obtain up-to-date data from January 2008 onwards from the ABS website (`www.abs.gov.au`) (Cat. 8501.0, Table 11), and compare your forecasts with the actual numbers. How good were the forecasts from the various models?