ETW3420
Principles of Forecasting and Applications

Topic 4 Post-Tutorial Activity

Instructions

- Perform and complete the following tasks before answering the Quiz questions on Moodle.
- In this activity, you will examine the Malaysia unemployment numbers and perform decomposition analysis to extract some useful insights.
- Download and import into R, the Excel file which reports the Malaysia unemployment numbers (**in thousands**) from January 2009 to December 2015. When importing the data into R, please also add the following argument `header = FALSE` in the `read.csv()` function. In this way, the first row of the data set will NOT be regarded as headings/labels.

Question 1: Plot the series

Plot the data and determine if an additive or multiplicative decomposition is more appropriate.

Question 2: Decomposition

Perform a multiplicative classical decomposition on the data and obtain the decomposition plot. Also, print the decomposition output and note the following:

- Trend-cycle values, and how it was calculated
- Seasonal indices for the months

Question 3: Seasonally adjusted data

(a) Obtain the seasonally adjusted unemployment numbers. Observe the first value.

(b) Plot a graph which superimposes the seasonally adjusted unemployment numbers with the actual unemployment numbers.

Question 4: Decomposition and Forecasting

Use the `stlf()` function to produce a 24 month forecast for the unemployment numbers, whereby a random walk with drift is used to produce forecasts of the seasonally adjusted unemployment numbers which are then subsequently reseasonalized. Set `s.window = 13` in the `stlf()` function.

Note the forecasted value for Dec 2017.