Economics 144: Homework 3
Spring 2020, UCLA
Instructor: Dr. Rojas

Due Date: May 4, 2020

1. (30%) The file `w-gs1yr.txt` contains the U.S. weekly interest rates (in percentages) from January 5, 1962, to April 10, 2009. For this assignment you will fit an appropriate ARMA(p,q) model and make a 24-steps-ahead forecast.

   (a) Show a plot of the data, along with the respective ACF and PACF functions. Discuss the plots.

   (b) Based on your discussion in (a), fit 3 different ARMA(p,q) models, and show the fits over the original data. Discuss your results, and select one model as your preferred choice.

   (c) Now that you fit an ARMA(p,q) model to the data, plot the ACF and PACF of the residuals from your preferred fit model, and discuss your results.

   (d) Compute and plot the recursive residuals from your best fit model. Interpret the plot.

   (e) Compute and plot the CUSUM from your best fit model. Interpret the plot.

   (f) Compute the best fit model according to 'R' and compare it against your model. Discuss these results.

   (g) Using your best fit model as well as 'R's' best fit model, compute the respective 24-steps-ahead forecast, and compare your results.

2. (10%) Problem 7.2 (i.e., Chapter 7 Problem 2) from Textbook[a].

3. (10%) Problem 7.5 (i.e., Chapter 7 Problem 5) from Textbook[a].

4. (10%) Problem 7.6 (i.e., Chapter 7 Problem 6) from Textbook[a].

5. (10%) Problem 7.8 (i.e., Chapter 7, Problem 8) from Textbook[a].

6. (10%) Problem 8.6 (i.e., Chapter 8, Problem 6) from Textbook[a].

7. (10%) Problem 8.7 (i.e., Chapter 8, Problem 7) from Textbook[a].