Econometrics II: Time Series Data
Homework and Reading Assignment #3

October 12, 2021

1 Reading Assignment

- Section 2.9 Enders
- Chapter 3 in Enders.
- Chapter 1 in Pfaff.

2 Homework Assignment

- Choose any time series of your choice (preferably monthly/quarterly data without too many structural breaks)
- Perform the following:
  - 1. Find the order of integration (by performing the unit root test - make sure your unit root tests are not affected by serial correlation issues)
  - 2. Look at `acf` and `pacf` of you data and fit an ARIMA model. Also, check `auto.arima`, what does it suggest to be the best model. You should select a few competing models (at least 2 models).
    - * Make sure your models clear the diagnostic tests before using them for forecasting.
  - 3. Perform an in-sample forecast of your selected models

- 4. Compare your foretasted models with the performance of an AR(1) model.
- Perform forecast evaluations of your models using:
  * Regression based method
  * Mean square prediction error (MPSE)
  * Root Mean Square Error (RMSE)

Note: Please include your equations and formulae of your methods (whenever applicable)