SOAS – University of London

Advanced Econometrics

Exercise 6

Please answer the questions below.

If you are in **Group 4**, you will need to prepare a presentation with a detailed explanation for **Seminar 6** (AS3: 10% grade). You have 20 minutes to present the results.

Use the same information from last seminar, i.e. Market Yield on U.S. Treasury Securities at 10-Year Constant Maturity and Federal Funds Effective Rate. We noticed that each series had unit roots and there was a structural break in the 1980s.

You also need to read Liew (2004) before answering the questions below.

1) Define ARDL models.
2) Do we need to address unit roots when estimating a ARDL model?
3) What are four possible information criteria?
4) Based on Liew (2004), what would be the best information criteria if we have:
   (i) Large sample (120+ observations)?
   (ii) Small sample (<120 observations)?

5) Ensure you have no missing values in your dataset.
6) Use the "auto_ardl" command with AIC and BIC in order to select the most appropriate ARDL model on the effects of interest rates and bond yield in the US. If the results differ, select the one you find more reliable.
7) Run the best ARDL model using the "dynlm" (tip: you need to transform the data into zoo format). Does the result seem reasonable to you? Please think of the relationship between interest rates and bond yield you have learned in Macroeconomics.
8) Export the table using the stargazer command. Does the R-squared seems reasonable to you?

In class:

1) Compare the results using "dynlm" above with the results using "ardl". Which do you prefer?
2) Define short- and equilibrium long-run multipliers.
3) Calculate these multipliers and explain what they mean.