MKT691

Kilger

Exercise 2

Reading in data to GRETL and Unit Root tests

Name:

This exercise will give you the opportunity to find an appropriate time series data set and read it in to GRETL. Once read into GRETL, you can then plot and proceed to apply some unit root tests to the data to see whether or not there is a constant mean across time. There is also an extra credit challenge portion that is worth 7 points if you want to attempt it.

1. Find yourself a nice happy time series data set online. The good news is that unlike market research data sets, free time series data sets are easy to find and download. Here is a starting place for you:

<https://archive.ics.uci.edu/ml/datasets.php?format=&task=&att=&area=&numAtt=10to100&numIns=&type=ts&sort=nameUp&view=table>

1. Once you have found your time series data set then plot the data set (be sure to include the plot in your exercise). Use your Mark I eyeball and tell me if you think the mean is constant across time or not.
2. Run an ACF plot for the data set (be sure to include that plot in your exercise). First, tell me what prominent feature is usually there in an ACF plot if there is a trend or non-constant mean across time? Does your plot look like there is a non-constant mean?
3. Next apply the two unit root tests that test for constant mean across time.
   1. What is the null and alternative hypothesis for the KPSS test?
   2. What do you conclude from the KPSS test on your data? Be sure to include the test in your exercise.
   3. What is the null and alternative hypothesis for the Augmented Dickey Fuller test?
   4. What do you conclude from the Augmented Dickey Fuller test on your data?
4. **Select another raw time series data set and repeat steps 2 through 4d.**

**Extra credit 7 points**

1. Identify a third time series data set. Read that data set into R, Python, SAS, Stata or name your poison.
2. What are the null and alternative hypotheses for the Phillips-Perron test?
3. Apply the Phillips-Perron test to the data set you found in step 1 above. What do you conclude? Be sure to cut and paste a legible copy of the results table that shows the Phillips-Perron test into your exercise.