PS5 - Time Series

Problem 1

Using the GAUSS L-E-STAR, and quarterly american data contained in the files *cpiqnew*, *gdpq* and *tb3qnew*:

1. Estimate a LSTAR model of the interest rate with 4 lags and student's t distribution, with equal degrees of freedom for both states. Present the estimated coefficients in a table with its S.E and t-statistic.
2. Analyze the standardized residuals and the squared standardized residuals.
3. Plot the estimated threshold value and the mixing functions.
4. Repeat 1-3 but with student's t distribution and no constraints on d.o.f.
5. Repeat 1-3 but with gaussian distribution.

Problem 2

Using the file rate.wf1, estimate an LSTAR model with 4 lags in Eviews. Compare it to the one estimated in the preceding exercise. What are the differences?

Problem 3

Open the files L-E-STAR-SDT and ttstand22.

1. What model specification are we working with?

2. Close the ttstand22 file and run L-E-STAR-SDT, under the logistic specification, using 4 lags, and assuming student's t distribution with distinct d.o.f. in each state

3. Compare the results with the previous exercise

Problem 4

Read the paper from Dueker, Psaradakis, Sola and Spagnolo (2012). Using the Gauss file newthret, and quarterly american data contained in the files cpiqnew gdpq and tb3qnew, we will replicate columns 3 and 4 from Table 3.

1. Write down the SDC- STAR(4) and RC - STARX(4) specifications.

2. Estimate a SDC - STAR(4) model.

3. Plot the threshold, the mixing functions and the variables.

4. Estimate a RC - STARX(4) model and plot