

**Homework 11. Due Wednesday April 25.**

1. Using the program I posted, simulate and estimate an AR(1)-model.

- Run the “AR(1) Maximum Likelihood” program.
- Add to the AR-program an OLS regression of  $x_t$  on a constant and a lag and compare the results (this has to either be done in the same regression or you set a “seed” for the random number generator so that the draws are identical).
- Try different values of the autoregressive parameter. Does the conclusion change in the autoregressive parameter is very close to unity (like 0.99).
- The program calculates standard deviations using the inverse Hessian. Add an estimator based on the outer products of the scores and compare. Compare the standard deviations.