

Homework 3. Due Wednesday September 28.

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).
- The program calculates standard deviations using the inverse Hessian. Add an estimator based on the outer products of the scores and compare (use the “gradp” routine as indicated in the program). Compare the standard deviations.

2. Use the GAUSS panel data program that I have posted. Interpret the regression results (excess sensitivity and excess smoothness). Try and add lagged consumption and more lags of disposable income and interpret the results. Try (in a separate regression) to include state fixed effects—are the results sensitive to this? NOTE: You can write a MATLAB program if you prefer (in which case you will not need to write up all the routines) or, if you prefer, you can do the regressions in Stata (if you write your own program, it is just as easy to download the data from the BEA from scratch—you should do that together).

3. Install the Stata program reghdfe and verify that it correctly estimates fixed effects it you absorb both firm (“id”) and sector (NACE2) dummies in the dataset

`all_data_final_tfp_2015jul15_rndm_sample.dta`

So you are asked to verify that using dummies and using the reghdfe procedure gives the same result.

4. Davidson and MacKinnon 11.7.

5. Davidson and MacKinnon 11.8.