Problem Set #9

ECON 815, Prof. Jason DeBacker
Due Thursday, December 14, 5:00 p.m.

This problem set requires you estimate models of firm dynamics using a simulated method of moments estimator.

Specifically, I want to you to replicate the results for the unconstrained and costly external finance models in Cooper and Ejarque [2003]. Please find the point estimates for the parameters you estimate and compute standard errors using the variance-covariance matrix computed using the identify matrix as the weighting matrix.

You will submit your problem set by pushing the `*.py` and `*.pdf` files to your GitHub repository that you created from forking the repository for this class. You will put this and all other problem sets in the path `/CompEcon_Fall2017/ProblemSets/ProblemSet8`.

Tips:

1. You can reuse much of the code you wrote for PS #8
2. In the minimization of your statistical objective function, you'll want to use a global optimizer - like simulated annealing or differential evolution.
3. Write out how you want to structure your code before you start typing
4. You will probably want to simulate a long panel of firms in order to calculate the q-theory regressions. You can do this in place of finding the stationary distribution. You'll just want to chop of the first few hundred periods from your simulations so that initial conditions do not matter.
5. Estimation can take a while - do not wait until the last minute!

References

Russell Cooper and Joao Ejarque. Financial Frictions and Investment: Requiem in Q. *Review of Economic Dynamics*, 6(4):710–728, October 2003. doi: 10.1016/j.red.2003.08.001. URL https://ideas.repec.org/a/red/issued/v6y2003i4p710-728.html.