

ECON 5350 Problem Set #6

Due: Friday, November 27, 2020

Using Matlab and the Box-Cox transformation, estimate a Phillips Curve for U.S. annual data:

$$\pi_t = \beta_1 + \beta_2 \left(\frac{un_t^\lambda - 1}{\lambda} \right) + \varepsilon_t \quad (1)$$

where π_t is inflation, un_t is the unemployment rate, and $t = 1958, \dots, 1969$. Show the best fitting regression line and sample data.

Then use the estimates of the parameters to perform a Monte Carlo experiment that compares the non-linear least squares sampling distributions of $\hat{\lambda}$ for Gauss-Newton, steepest descent, Newton-Raphson, and quadratic hill climbing.

Comment on the results. Which estimation procedure is best?