Model Selection and Averaging
Summer School in Economics and Econometrics
University of Crete
July 22-26, 2019

Exercise 3

Use the CPS (cps09mar) dataset posted at

- https://www.ssc.wisc.edu/~bhansen/econometrics/

The data is posted in text, excel, and stata formats.
A data description is posted and is included here.
The recommended software is R.

1) Extract the same data as in Exercises 1 and 2, estimate the same regressions and target parameter (coefficient on *married*).
   a) You have calculated the SBIC and SAIC weights.
   b) Now calculate the Mallows and JMA weights for the seven models.
   c) Create a 4x7 table of the weights.
   d) Estimate the target parameter using model averaging using each of the 4 weight methods.
   e) Create a 1x4 table of the 4 estimates of the target parameter
   f) Comment and interpret
2) Use a Stein shrinkage estimator to shrink the full model (model #7) towards the quadratic in experience (model #3). For the weight matrix use the inverse of the covariance matrix estimate from the full model as in the lecture slides
   a) How many restrictions are there? What is the appropriate shrinkage constant c?
   b) Present the results by plotting the experience profile (the conditional mean of log wages as a function of experience) for
      i) The full model estimates
      ii) The small model estimates
      iii) The shrinkage estimates

      When plotting a regression, fix the other regressors at their sample means.