Prof. Atkinson

Each student must turn in a unique writeup. Be sure to carefully document your program.

1) Tobit type I model.
   a. Reproduce the results from pg. 678 of Wooldridge, Table 17.1, where you run the OLS, the canned Tobit, and Tobit based on a hand-written ML routine.
   b. Compute the Tobit effect of one more year of education.
   c. In Example 17.3 test for the endogeneity of nwifeinc using the canned routine.

2) Tobit Type II.
   a. Reproduce the results in Table 19.1 for example 19.6 on page 807 of Wooldridge.
   b. Compute the Heckman estimates using the canned Stata routine. Are the second-step estimate standard errors corrected? Write a bootstrap program to confirm your answer.
   c. Estimate the log likelihood at bottom of page 808. Be careful here. Some of the log wage data is missing and it will be dropped incorrectly. You need to reset it to zero. See the maximum likelihood.do Stata file for how to do this.
   d. Compare all results. Comment on differences.
   e. Reproduce the results from Example 19.7 on page 811, which is a test for sample selection bias.

3) Tobit Type III. Reproduce Example 19.8 on page 816 using canned routines to produce your own 2-step procedure.

4) Failure time model. Reproduce the results for Example 22.5 on page 995 by obtaining the ML estimates based on (22.25) using the canned routine and using a hand-written ML routine. See maximum likelihood.do for details.

5) Log-normal hurdle model. On the web site I have given you the Stata code to compute the MLE for the normal hurdle model. Change this to estimate the log normal hurdle model on page 695 and reproduce the results for the lognormal hurdle model in Table 17.2 on page 700. You have to do this without help from me (group work is fine) since I have given you the normal hurdle ML code.

6) Estimate a hand-written likelihood for the Poisson with explanatory variables and truncation—make up a truncation point and use the data in example 18.1 page 730 Wooldridge; replicate these results using tpoisson in Stata.

7) Estimate a hand-written likelihood for the ordered logistic regression. Work with code on web site, using data from example 16.2 page 657 Wooldridge. Compare results to the ordered probit model you have already calculated and replicate your ordered logistic results using the ologit canned routine in Stata.

8) Estimate a hand-written likelihood for the negative binomial regression—work with code on the web site and use the data in example 18.1 page 730 Wooldridge. Replicate these results using the canned nbreg routine in Stata.

Due Date: Last day of classes for the university.