Midterm test-Spring 2019

Econ 390A

Q1. Import the **lawsch85** data on R studio using Wooldridge package. Type a command to look at the first and last few observations. Now attach your data.

Q2. Draw as scatter plot of **lsalary** against **LSAT**. Customize your plot, such as give it a title, x-axis and y-axis labels, and you may put nice color to make it pretty.

Q3. use lm() to estimate a regression model with the **lsalary** as the response variable and **LSAT** as the control variable. Save the regression results to a variable called ***reg1***. use summary () to display your results and explain/report your regression results using summary results for slope and intercept coefficient, t-values, p-values, the Goodness of fit.

Q4. Construct the 95% confidence interval for the mean **lsalary,** and also construct the 99% confidence interval for the mean **LSAT**. Show your fitted regression line using a scatter plot and abline. Also calculate predicted values and residuals;

Q5. Construct a 95% bootstrap confidence interval for the mean **clsize**.

Q6. Run a multiple regression model of ***lsalary*** on ***LSAT****,* ***GPA, llibvol***and save the regression model as **reg2**. Show the summary result. What do you find about slope coefficients? Is this what you expected? Interpret t-values, p-values, R-square and F value of this model.

Q7. Check the multicollinearity problem for **reg2** model using **car** package. (hints: use VIF)

Q8. Now assume that our true population model is the following one. Estimate the following model and save your result as **myreg1**

lsalary= β0 + β1 LSAT + β2 GPA + ε…………(1)

However, due to our ignorance or data unavailability, we estimate the model by excluding GPA and save our result as **myreg2**

lsalary= β0 + β1 LSAT + v………..(2)

What type of problem one would confront if s/he excludes relevant variable GPA? Estimate the size and the direction of the bias in this case.

**How to submit your test: Please email to** masud@niu.edu