Listed under Homework #4 on our class page is a link to data in comma delimited format. This is data from the 1987 General Social Survey. The second page of this homework provides a codebook describing each variable.

(1) Estimate a linear regression with conservative as the dependent variable, and three independent variables of your choice. Describe the results of this regression. (Even though conservative is a 7 point scale, we will treat it as a continuous variable for this exercise).

(2) We notice that some people elected not to answer the survey question about ideology. Estimate a Heckman selection model to account for this selection process. Describe your results, and how they differ from your results in (1).

(3) Perform multiple imputation on the data. Explain which variables you used in the imputation procedure, how many imputations you calculated, and anything you did to set up the imputation procedure (such as transform variables).

(4) Examine the diagnostic plots for the multiple imputation. What do these plots show us? Describe anything unusual that you notice in these plots. Attach these plots to your homework.

(5) Estimate a model with the same specification as in (1), but using the imputed data. Describe the differences and similarities in your results here as compared to your results in (1).

(6) Are you feeling brave? Let’s estimate a Heckman selection model using the imputed data. Describe the differences and similarities in your results here as compared to your results in (2).

Hints for Question 6: You’ll follow the same procedure we followed in the lab with the multinomial logit. Suppose your Heckman selection model was called heckman1. You can obtain the coefficients from this model with heckman1$coefficients and the standard errors with sqrt(diag(heckman1$vcov)) (this information is all contained in the help file, which you can access by typing ?selection). Then use the mi.meld command to combine the results from your imputed datasets.
Codebook for Homework #4 Data

married: 0 = not married, 1 = married.

age: Age in years.

education: Formal education in years.

minority: 0 = white, 1 = racial minority.

income: A 12 point scale, with higher numbers indicating greater income.

size: The size of the respondent’s community, in thousands of people.

partyid: A 7 point partisan identification scale, 0 = strong Democrat, 3 = nonpartisan, 6 = strong Republican.

conservative: A 7 point ideology scale, with higher numbers indicating more conservative.

newspaper: A 5 point scale indicating frequency of newspaper reading, higher indicates more often.

observedview: 0 = did not answer conservative question, 1 = answered.

unionhouse: 0 = nobody in the household belongs to a union, 1 = union household.

female: 0 = male, 1 = female.

protestant: 0 = not a member of the Protestant religion, 1 = a member of the Protestant religion.