Problem Set 2
Econometrics 410
Prof. Taber
Due: Thurs Feb. 10

Problem 1. Pick any data set from the Wooldridge data sets

    a) Run a regression of one variable on another and report the results.

    b) Interpret the regression coefficients in a descriptive manner. That is, if you think about this as an estimate of a conditional expectation, what does it mean?

    c) Now interpret the same coefficients in a causal manner.

    d) What are the issues with causality? That is, do you believe this is truly a causal effect, and if not, why not?

Problem 2. Consider a regression model

$$y = \beta_0 + \beta_1 x + u$$

But instead of assuming $E(u \mid x) = 0$ suppose you assumed that $E(u|x) = 1 + 2x$. Derive estimates of β_0 and β_1 under these assumptions. (Hint note that this implies that $E(u - 1 - 2x) = 0$ and that $E[x(u - 1 - 2x)]=0$.)

Problem 3 Wooldridge problem 2.4, (i) and (ii).

Problem 4 Wooldridge problem 2.11.

Problem 5 Wooldridge problem C2.7.

    a) (i) and (ii)

    b) (iii) but don't worry about the R-Squared

    c) Do (v), but interpret the slope coefficient as a causal model

    d) Now think about this as a forecasting model and forecast the amount of gifts assuming that there were 2 average mailings per year last year?