Economics 312 — Spring 2020

Daily Problem #17 — February 26

This problem uses the same model from the 1991 Current Population Survey as Daily Problem #16.

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. regress lwage educ exper expersq

      Source |       SS           df       MS      Number of obs   =     3,286
-------------+----------------------------------   F(3, 3282)      =    281.59
       Model |  185.380638         3  61.7935461   Prob > F        =    0.0000
    Residual |  720.208763     3,282  .219442036   R-squared       =    0.2047
-------------+----------------------------------   Adj R-squared   =    0.2040
       Total |  905.589401     3,285  .275674095   Root MSE        =    .46845

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       lwage |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        educ |   .0989959   .0035216    28.11   0.000      .092091    .1059007
       exper |   .0197854   .0032841     6.02   0.000     .0133463    .0262246
     expersq |  -.0003472    .000077    -4.51   0.000    -.0004981   -.0001963
       _cons |   .6504143   .0587319    11.07   0.000     .5352594    .7655692
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1. Interpret the coefficient on education. What does 0.099 measure in terms of the effect of education on log(wage)? What does it measure in terms of the effect of education on wage? Does this seem reasonable?

2. Consider using this equation to predict wage. Suppose that the values of the regressors are such that $lwage$ is 2. It would seem logical to use $e^{lwage} = e^2 = 7.39$ as a forecast for the wage. But the error term in the regression will create a distribution of forecasts that will sometimes be too high and sometimes be too low. Consider the two values for the error term +0.5 and –0.5. These errors (which are equally likely in the normal distribution) would lead to forecasts of $e^{2.5} = 12.18$ and $e^{1.5} = 4.48$. Do these values average to 7.39? Why does this mean that e^{lwage} is a biased forecast for wage?