

Download the data file "CPS2015.xls" from D2L. Import it into R. This data has four variables:

female = 1 if student is female; = 0 otherwise

ahe = average hourly earnings

bachelor = 1 if the individual has a bachelor's degree; = 0 otherwise

age = age of individual (in years)

Use R to answer the following questions. You will need to turn in a printout of your work in R and answers for each of the questions listed above.

1. Run a regression with *ahe* as the dependent variable and the other three variables as the independent variables. Write out the estimated regression equation.
2. Interpret the coefficient on *age* from the regression in (1).
3. Create a variable that is the natural log of *ahe*. Run a regression with $\ln(ahe)$ as the dependent variable and the other three variables as the independent variables. Write out the estimated regression equation.
4. Interpret the coefficient on *age* from the regression in (3).
5. Create a variable that is the natural log of *age*. Run a regression with *ahe* as the dependent variable and $\ln(age)$ and the other two variables as the independent variables. Write out the estimated regression equation.
6. Interpret the coefficient on $\ln(age)$ from the regression in (5).

7. Run a regression with $\ln(ahe)$ as the dependent variable and $\ln(age)$ and the other two variables as the independent variables. Write out the estimated regression equation.
8. Interpret the coefficient on $\ln(age)$ from the regression in (7).
9. Create a variable that is the $(age)^2$. Run a regression with ahe as the dependent variable and age and $(age)^2$ and the other two variables as the independent variables. Write out the estimated regression equation.
10. Calculate the effect of age on ahe from the regression in (9). Interpret this value.