

Assignment 9. Regression
Due Thursday, November 29 at 3PM

1. We expect that negative emotions decrease with age. We use a nationally representative sample of 40 U.S. adults and ask people to record every time they notice having each of the negative emotions on the list we provide. Then we regress the number of times per day that people record negative emotions on their age (in years). We end up obtaining slope $b = -0.438$, with a standard error of .145.
 - a. Write a sentence summarizing how exactly changes in one of these variables are linked to changes in the other in the sample (i.e., interpret the size and direction of the effect).
 - b. Using 95% confidence level, can we conclude that negative emotions decrease with age? Make sure to state your null and research hypotheses in words as well as using formal notation. After finishing the test, state your formal conclusion with regard to the null hypothesis as well as your substantive answer.

2. Use Stata on `gss2012.dta` dataset and focus on variables *educ* and *hrs1* to evaluate whether higher levels of education lead to longer hours spent at work among employed Americans. Please use 99% confidence level in this assessment. Make sure to state your null and research hypotheses in words as well as using formal notation. After finishing the test, state your formal conclusion with regard to the null hypothesis as well as your substantive answer.
- Write a sentence summarizing how exactly changes in one of these variables are linked to changes in the other in the sample (i.e., interpret the size and direction of the effect).
 - Interpret the intercept coefficient in words.
 - If the effect exists in the population, describe the slope in words using the 99% confidence interval.
 - Discuss the practical significance of this effect.
 - State what proportion of variance in your dependent variable is explained by your independent variable.
 - Construct a scatterplot with a lowess curve for these two variables. Using this graph, discuss whether the relationship is or is not linear and explain why you see it that way.

Please make sure to print out and include your Stata output (log and graph) with this assignment.

