# POLS 418/GEOG 418: Quantitative Methods

Problem Set 5

Due June, 17th 2020

*Problem Set #5:*

*Bivariate and Multivariate Regression*

Please complete each task listed below. You should type your problem set and turn in a hard copy to me. You do not need to include a cover page. I expect, however, that your first page will include your full name, the problem set number, the due date, and the date you submit the work. The final page(s) of your assignment ***must*** include the STATA code you used, otherwise it is incomplete, and it will receive the grade of “I”. Likewise, I will grade your assignment “I” if you use screenshots from STATA instead of making your own tables in MS Word (note: if you want to do section 3 by hand that is fine).

In this problem set, we will use the NES2016.dta dataset (the same dataset we used for Problem Set 4) to test two hypotheses about an individual’s orientations toward government guaranteed jobs and incomes and Christian Fundamentalists. The data comes from the National Election Survey (NES) of 2016, which asked respondents about their opinions on a range of topics.

Please provide all corresponding tables and figures to support your analysis.

1. Please conduct a bivariate regression analysis (i.e. one dependent variable, one independent variable), then answer questions (a) through (d) below. Make sure you have properly dealt with all missing/inappropriate values before conducting the regression analysis.

*Ha1*: In comparing individuals, those with more education will be less supportive of government guaranteed jobs and income (V161189), than those with less education.

1. What is the direction of effect? Is it consistent with or contrary to the hypothesis?
2. What is the magnitude of effect, if any?
3. What is the strength of the relationship (i.e. the association), if any?
4. Do you accept or reject the hypothesis? How confident are you (i.e. what is the p-value)?
5. Select a variable from the 2016 ANES you feel might affect attitudes towards government guaranteed jobs and income. Add this additional variable to the previous regression model that included ‘education’ as an independent variable (note: still include education, you are adding a second independent variable). Make sure you have properly dealt with all missing/inappropriate values before conducting the regression analysis.

1. What is the direction of effect? Is it consistent with or contrary to the hypothesis?
2. What is the magnitude of effect, if any?
3. What is the strength of the relationship, if any?
4. Do you accept or reject the hypothesis? How confident are you?
5. Did adding this third variable alter the effect of ‘education’?
6. Please conduct a bivariate regression analysis (i.e. one dependent variable, one independent variable), then answer questions (a) through (d) below. Make sure you have properly dealt with all missing/inappropriate values before conducting the regression analysis.

*Ha1*: In comparing individuals, those with more income (income) will have a less favorable view of Christian Fundamentalists (V162095) those with less income.

1. What is the direction of effect? Is it consistent with or contrary to the hypothesis?
2. What is the magnitude of effect, if any?
3. What is the strength of the relationship (i.e. the association), if any?
4. Do you accept or reject the hypothesis? How confident are you (i.e. what is the p-value)?
5. Select a variable from the 2016 ANES you feel might affect attitudes towards Christian Fundamentalists. Add this additional variable to the previous regression model that included ‘income’ as an independent variable (note: still include income, you are adding a second independent variable). Make sure you have properly dealt with all missing/inappropriate values before conducting the regression analysis.

1. What is the direction of effect? Is it consistent with or contrary to the hypothesis?
2. What is the magnitude of effect, if any?
3. What is the strength of the relationship, if any?
4. Do you accept or reject the hypothesis? How confident are you?
5. Did adding this third variable alter the effect of ‘income’?
6. Political scientists love to watch *The Simpsons*, so much so that some will watch it for several hours a day. The following figures are the average number of hours per day that seven political scientists spend watching re-runs of *The Simpsons*.

1 5 .5 1 9 8 11 3 0

Make the following calculations by hand and show your work.

1. What is the sum of squares for the number of hours these political scientists spent watching *The Simpsons*?
2. What is the variance?
3. What is the standard deviation?
4. The *z* scores
5. The mean of the *z* scores
6. The standard deviation of the *z* scores