

**Homework #6 (Regression)**  
**PSCI 2300 - Spring 2018 (Dr. Hensel)**

This homework assignment is due at the beginning of class (i.e., before lecture starts) on **Wednesday, May 2**. Any work turned in after lecture begins that day (even if only a few minutes into class) will be assessed a late penalty. Also, note that all work must be your own -- students found to have copied their answers from other students (or to have had their answers copied by other students) will receive automatic zero grades on this assignment, and may face further disciplinary action.

Be sure to show your work wherever relevant; correct answers that do not show their work will only receive half credit.

*This homework assignment requires you to analyze data on the 50 U.S. states compiled by the author of our textbook, which is available from the same portion of the class web site where you access the homework assignments. You will analyze this data using SPSS (or PSPP) statistical software. The last page of this homework assignment sheet provides instructions for using SPSS, and PSPP is usually very close to the same instructions and options.*

1. Use SPSS (or PSPP) to run a bivariate regression analysis of the relationship between voter turnout and education. The dependent variable is **vep12\_turnout** ("Turnout of voting eligible pop. 2012") and the independent variable is **college** ("Percent of pop w/college or higher").

Be sure that your homework includes the full output, including the "Model Summary" box (where you will find  $R^2$ ), "ANOVA" (where you will find F and its significance), and "Coefficients" (the unstandardized coefficients with their t values and significance).

2. Interpret the value of the constant/intercept in this model.

3. Interpret the value of the coefficient for education in this model.

4. Interpret the significance of the model overall, using the F-ratio.

5. Interpret the model fit, using  $R^2$ .

6. Use SPSS (or PSPP) to run a multiple regression analysis of voter turnout, adding population age and battleground state status as well as education. The dependent variable is **vep12\_turnout** ("Turnout of voting eligible pop. 2012") and the independent variables are **college** ("Percent of pop w/college or higher"), **over64** ("Percent age 65 and over"), and **battle04** ("Battleground state").

Be sure that your homework includes the full output, including the "Model Summary" box (where you will find  $R^2$ ), "ANOVA" (where you will find F and its significance), and "Coefficients" (the unstandardized coefficients with their t values and significance).

7. Interpret the value of the coefficient for education in this model.

8. Interpret the value of the coefficient for over64 in this model.

9. Interpret the value of the coefficient for battleground states in this model. (Note that this is a dummy variable!)

10. Interpret the model fit, using  $R^2$ .

### SPSS Instructions for This Assignment

- For more detail about using SPSS, see my SPSS Guidelines and Instructions document that is posted on the class web site. At the time when this assignment was first posted, this SPSS Guidelines document does not include any instructions for using PSPP, although such instructions will be added when the instructor has time to investigate it more completely.

<<http://www.paulhensel.org/Teaching/spss.pdf>>

- Download the data set that you will need for this assignment (perhaps to a flash drive if you are not working on your own personal computer) -- *please note that this is the same data set used for homework #5, so if you still have that available, you do not need to do any additional work to reacquire it.* From a computer that has SPSS or PSPP, open this data file, using one of the following two options:
  - Double-click on the data set, which should automatically open SPSS and then open the data set in SPSS. [Note that this option does not appear to work in PSPP]
  - Open SPSS manually by clicking on the icon or on an alias/shortcut to it. Once it is open, select and open the data set using **File > Open** from the menu bar at the top of the screen.

#### *Regression*

- Go to **Analyze > Regression > Linear**. This will open a dialog box that allows you to choose variables for analysis.
- Select the dependent variable on the left side of this box, push the arrow button toward the top of the screen, and the variable should then appear in the "Dependent" window at the right side of the box. Do the same to select the independent variables, and push the button in the middle of the screen to select this for the "Independent(s)" box. Using the Statistics button, make sure that Estimates, Confidence Intervals, and Model Fit are selected, click Continue to return to the variable selection screen, and click OK to run the analysis. (If you want to remove a variable from the list, select the variable in the right side of the box, and click the arrow in the middle of the screen.)
- Once the output appears in the Output Viewer window, be sure to print it out (or copy and paste it into a word processing document), because you will need to turn this in to get full credit for your assignment.