Homework 2

RII Workshop

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Instructions

This is the second homework for the workshop. Please turn in this homework Monday (8/18) by noon so I can go over them before the final session. As a reminder, while the workshop is not graded, you will get the most out of it if you make an honest effort on the homework. That said, I do not expect (or want) this to take an unreasonable amount of time (>10 hours). I do, however, want you to make a genuine attempt at solving each problem on your own. If there are any problems that you are unable to do, then come to the next session with questions!

Question 1

We're going to use the primary elections study data from homework 1.

a.). First, write a function called 'over_mean()' to indicate if a variable's value is above or below it's mean. Make it so this function returns 'above' when the variable is above its mean, and 'below' when it is below the mean. Using 'mutate()', create

b.). There are four variables in the data that assess how much respondents attribute blame to various groups for polarization, in_party_el, out_party_el, in_party_vo, and out_party_vo. These variables take values of "none at all", "a little", "a moderate amount", "a lot", and "a great deal". Write a function called 'to_numeric()' that converts these 5 values to numeric values, and make 4 new variables. Then, using 'over_mean()', assess how many respondents are above or below the mean for each variable.

c.). Write a custom function to create a plot called 'blame_plot()'. You can use base R or 'ggplot'. For the plot, place the treatment group on the x-axis, and the average level of blame on the y-axis. Then, make 4 plots, one for each group that is blamed.

Question 2

For this question, use the pokemon data from class 2. Return to the model estimated class 2. Using the sandwich package, do the following

a.). First, create a new variable called 'single_type', which indicates if a pokemon has one typing or two. To do this, you can use 'ifelse()' or 'case_when()'. If type_2 for a pokemon is "none", then that means they only have one type.

b.). Estimate heteroskedastic 95% confidence intervals and store these results.

c.). Estimate clustered-robust 95% confidence intervals and store these results, clustering on if a pokemon has a single type or multiple.

d.). Estimate bootstrapped clustered 95% confidence intervals, again clustering on 'single_type'.

e.). Create a plot showing all the coefficients, along with each type of confidence interval being used. How do the confidence intervals compare?