GSERMCDA17 A4: Count

Your Name: Points received: ____ out of 75

1. ___ of 5: Using one of the class datasets, choose a substantively reasonable dependent count variable Y. **Note:** Counts such as # of children that have limited range often cause problems and should not be used for this assignment. Choose or create three substantively meaningful independent variables. I'll refer to the binary independent variable as B, the continuous as C, and the other as X. Keep only the variables you will be using and drop all missing cases (listwise deletion). Demonstrate that the data are clean by including output from `codebook, compact` and `sum`.
2. ___ of 5: Use `poisson` and `nbreg` to regress Y on C, B and X. Note that C and B must be statistically significant in both models.
3. ___ of 10: Using Excel or another method, construct a table comparing the effects and significance of C and B from the PRM and the NBRM. Column 1=Name of variable; Column 2=PRM unstandardized coefficient; Column 3=NBRM unstandardized coefficient; Column 4=ratio of Col2 and Col3; Column 5=PRM z-value; Column 6=NBRM z-value; Column 7=ratio of Col5 and Col6.
4. ___ of 5: Why do you expect the ratio in Column 4 to be close to 1.0? Relate this to the mean structure of the two models.
5. ___ of 5: What do you expect for Column 7? Relate what you find to the results of question 4 and the effects of ignoring unobserved heterogeneity.
6. ___ of 5: Test the NBRM against the alternative of the PRM. Write up the result as though it were part of a research paper. Include information on statistical significance.
7. ___ of 5: Using the preferred model from above, compute the factor change coefficients using `listcoef, help`. Include the output. Interpret the standardized factor change coefficient for C and the unstandardized factor change coefficients for C and B. Include statistical significance. This should read as though it were part of a published article.
8. ___ of 5: Using `mchange`, calculate the discrete change for B holding the other variables at some location you find interesting or useful. Interpret these results. It is not necessary to interpret the discrete change for all values of the dependent variable (although you should interpret more than just one). Rather, paint an overall picture of the effect. Include information on statistical significance.
9. ___ of 5: Use `zip` and `zinb` to estimate a zero-inflated poisson model and a zero-inflated negative binomial model. Think carefully about which IVs you will "inflate." Note that C and B must be statistically significant in either the count or the binary portion of the model.
10. ___ of 5: Test the ZINB against the alternative of the ZIP. Write up the result as though it were part of a research paper. Include information on statistical significance.
11. ___ of 10: Use `countfit` to compare PRM, NBRM, ZIP and ZINB. Based on these results and your substantive understanding of the process being studied, which model would you use and why? Include the graph from `countfit` and any other output that supports your conclusion.
12. ___ of 10: My assessment of the overall effectiveness of your answers.