

Stat 503 Assignment 6: the multinomial logit model

Your Name: _____

Points received: ____ out of 115

Your dependent variable **must** have value labels where the first letter of the label differs for each outcome. To help me match your results to the output, **you must** include in parentheses the first letter from the value label for each outcome when you refer to it (e.g., The odds of reporting poor health {p} compared to excellent health {e} are 1.4 times greater for men than women, holding all other variables constant). To avoid possible problems, your outcome variable Y should be coded 1, 2, 3...

1. ____ of 5: Choose one of the data sets available for class. Pick or construct a nominal dependent variable and at least four independent variables: a binary variable B; a continuous variable C; and two additional variables X and W. (Note that you can use the same model from your OLM assignment **IF** the parallel regression assumption was violated). Keep only the variables you will be using and drop all missing cases (listwise deletion).
2. ____ of 5: Demonstrate that the data are clean by including the output from the following commands:

```
. codebook, compact  
. sum
```
3. ____ of 5. Present a simple table describing your variables. Include the distribution of the dependent variable and the value labels and letters you will use in your graphs. This should look similar to the table on slide 20 of the Lecture Notes.
4. ____ of 5: Estimate the MNLM of Y on C, B, X, and W. Include the output from `listcoef`, `help`.
5. ____ of 5: Use `mlogtest` to compute a Wald and LR test that the effect of C is zero; do the same for B. Write up the results of the Wald test **OR** the LR test (not both tests) of C as though it were part of a published article. (Note: C and B must be statistically significant; if not, you must find new variables.)
6. ____ of 10: Use `mlogview` (or `mlogplot`) to create an **odds ratio plot** for variables C and B. Include lines to indicate statistical significance. Show the plot. Use the `note` option to provide a key to the meaning of the symbols.
7. ____ of 10: In outline form, describe the pattern of effects of C and B in general, substantive terms. Use the graph from question 6 to help you uncover the overall pattern. Do not discuss specific numbers, but only the pattern of effects, the relative magnitudes, and significance.
8. ____ of 10: Use `prchange` to compute the discrete change in probabilities for C and B with other variables held at some value you find interesting or useful. Only show the output for variables C and B. Use `mlogview` (or `mlogplot`) to **plot the discrete changes** for C and B that you find interesting or useful. Show the plot. Use the `note` option to provide a key to the symbols in the plot.
9. ____ of 10: Use `prchange` to compute the discrete change in probabilities for C and B with the other variables held at a location different from that in question 8. Only show the output for variables C and B. Use `mlogview` (or `mlogplot`) to **plot the discrete changes** for C and B that you find interesting or useful. Show the plot. Use the `note` option to provide a key to the symbols in the plot.
10. ____ of 10: In outline form, describe the pattern of effects of C and B in general, substantive terms. Use the graphs from questions 8 and 9 to help you uncover the overall pattern. Do not discuss specific numbers, but only the pattern of effects, the relative magnitudes, and significance.

11. ___ of 20: Using the information gathered in questions 4 through 10, write a paragraph telling the story of your results for C and B as it might appear in a published paper. Assume that you are NOT including the plots in your paper, but instead are using the plots to uncover the patterns. Include the magnitude of the effects and information on statistical significance. These numbers should be drawn from the output given by `listcoef`; `prchange`; and `prvalue save/dif`.
12. ___ of 10: What do you learn substantively from the information on discrete changes that was not clear from the information on odds ratios? What do you learn substantively from the information on odds ratios that was not clear from the information on discrete changes?
13. ___ of 10: My assessment of the overall effectiveness of your answers.