**Individual Report: Categorical Data**

This report asks you to complete parts of the quantitative reasoning process: formulation of the problem, problem-solving, examining the reasonableness of the method, and explaining the results in the context of the problem.

In this report, you will deal with one categorical variable with two categories. You will select from the following list of categorical variables available from the General Social Survey (GSS). All of the questions below have the same set-up and same answer choices (about right, not about right):

* I would like to talk with you about some things people think about today. We are faced with many problems in this country, none of which can be solved easily or inexpensively. I'm going to name some of these problems, and for each one I'd like you to tell me whether you think we're spending about the right amount or not.

**Available categorical data**

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| --- | --- |
| 1. Assistance for childcare [NATCHLD] | 5. Highways and bridges [NATROAD] |
| 2. Developing alternative energy sources [NATENRGY] | 6. Supporting scientific research [NATSCI] |
| 3. Mass transportation [NATMASS] | 7. Social Security [NATSOC] |
| 4. Parks and recreation [NATPARK] |  |

* No more than four people may use the same categorical variable, and selection is first-come, first-serve.

After your variable selection is confirmed, you should hypothesize what the proportion of American adults who would respond that we’re spending about the right amount. This will be your null hypothesis proportion.

Your report should include the following parts:

1. An introduction to the problem: what question are you trying to answer about the variable that you chose in the context of the question, and an investigation of whether you believe the data is random and representative. For this latter part, you will need to do some internet research to determine how GSS data is collected. Briefly describe the positives and any potential shortcomings in the data collection.
2. Descriptive statistics and graphs to guide an initial impression. Recall what type of descriptive statistics should be used for this type of variable and what graph is appropriate. From this, you should state an initial impression about whether you believe that the expected opinions are or are not supported by the data. This impression should cite features of the descriptive stats and the graph. Note that this is not quite the same as what a conclusion in a hypothesis test addresses.
3. The actual inference test, listing all appropriate steps as outlined in the course slides, including checking all conditions and documenting all steps of the hypothesis test (you don’t need to re-check conditions you’ve addressed in a previous part of the report). This should be in paragraph form, not in the list form that appears in the slides.
4. A conclusion that ties the whole process together. How does your inferential conclusion tie together with your initial impression? Provide a brief closing statement that is readable by a general audience who may not know as much inference as you do.

This report will be graded on all of the following:

1. Writing quality, including grammar and spelling
2. Presence and completeness of graphs and descriptive analysis
3. Presence and completeness of all steps of inference
4. Presence and completeness of introduction and conclusion