List Experiment and Racial Prejudice

Despite the legal end of desegregation in the United States South, racial tension persists. While outright discrimination against African-Americans is illegal, some believe that many white Southerners continue to be prejudiced against blacks at higher rates than whites in the rest of the United States. Others have suggested that, during the 1970s and 1980s, a 'new South' emerged, in which racial tensions declined and the attitudes of white Southerners came to closely mirror the rest of the country. Because of the sensitive nature of racial prejudice, however, asking respondents directly about their feelings towards blacks is likely to elicit untruthful answers from some people. To get around this, researchers used a list experiment to estimate the proportion of respondents who exhibit racial prejudice. We saw the application of list experiment in Section 3.1 where it was used to measure support for combatants among Afghan citizens. Readers are encouraged to read that section before they begin this exercise.

In the 1991 National Race and Politics survey, researchers randomly divided respondents into two groups. Those assigned to the control condition were read the following script:

> Now, I am going to read you three things that sometimes make people angry or upset. After I read all three, just tell me HOW MANY of them upset you. I don't want to know which ones, just HOW MANY.
>
> - The federal government increasing the tax on gasoline
> - Professional athletes getting million-dollar contracts
> - Large corporations polluting the environment

Those respondents assigned to the treatment group, on the other hand, received the same script except that the list included one additional item that read 'a black family moving in next door.' The data set we will be analyzing for this exercise is contained in the csv file *listexp.csv*. The names and descriptions of the variables in this data set are listed in the table below.

Name	Description
`id`	Unique id of the respondent
`y`	The number of items selected from the list
`treat`	The treatment indicator (binary)
`south`	An indicator for residence in a Southern state

Question 1

Begin by computing the overall proportion of respondents who demonstrate racial prejudice. For now, remove all observations for which there are missing values on the outcome variable. Compute the standard error and 95% confidence interval for this estimate. Give a brief interpretation of the result.

Question 2

Conduct a two-sided hypothesis test where the null hypothesis is that the population proportion of respondents exhibiting racial prejudice is zero. Calculate the z-score and its associated two-sided p-value. Finally, conduct the hypothesis test using 0.05 as the statistical significance threshold. What assumptions are required in order for this estimate to be valid?

Question 3

Conduct the same hypothesis test as in the previous question separately for Southern and non-Southern respondents. Test the null hypothesis of zero difference between the proportion of respondents exhibiting racial prejudice between the Southern and non-Southern respondents. Report the p-values under the alternative hypothesis that the population proportion of respondents exhibiting racial prejudice is greater in the Southern sample than in the non-Southern sample. Interpret the results of this hypothesis test.

Question 4

Construct the 95 percent confidence interval for the difference in the population proportion of those who are prejudiced between the South and non-Southern whites. Interpret the result.

Question 5

A critical assumption of the list experiment is that the inclusion of the sensitive item does not alter the respondents' willingness to give a truthful answer to the number of items that upset them. Test this assumption by examining the rates of non-response. Compare the Southern and non-Southern subsets. Are there differences between the Southern and non-Southern respondents? What does this tell us about the validity of the list experiment and racial attitudes between the regions?

Question 6

Now we conduct randomization inference separately for the South and non-South samples. Using the difference-in-means estimator as a test statistic, simulate the randomization distribution for 10,000 possible treatment assignments under the null hypothesis that the population proportion of those who are racially prejudiced is zero. For both the South and non-South samples, create a histogram of this randomization distribution and include as a vertical line the actual estimated proportion. Then, use these distributions to approximate the one-sided p-values and conduct the hypothesis test using 0.05 as the threshold of statistical significance. Provide a brief interpretation of the result.