HW6: Comparing several samples

Dr. Islam

Due: March 24, 2022

Last name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_First name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Homework 6, Ref: Chapter 5+case0502**

Homework 6 requires the dataset case0502 which is accessible from package Sleuth3 or from canvas. This dataset provides information about the percent of women in 30-juror venires for Boston area U.S. District Court trials, grouped according to the judge presiding.

Using this data we seek to find out whether Dr. Benjamin Spock had a fair trial. We also wish to find out if women were underrepresented on his jury pool.

In this homework, it is intended to perform the following computations:

1. Report how many cases and variables are in the dataset.
2. Report the first 2 observations of the data.
3. Extract descriptive statistics n, mean, and sd of the percent women due to different Judges.
4. Report margin of error of the 90% confidence interval for the mean of the percent women due to different Judges.
5. Provide the 90% CI estimates labelled as LCL and UCL for the mean of the percent women due to different Judges.
6. Create a dataframe named **datfr** with columns n, mean, LCL and UCL, with values in one decimal points.
7. Assign Judge types as rownames of the dataframe datfr, and print it.
8. Assume that the variance of the percent women due to different Judge is equal and unknown. Find the pooled estimate of the common variance () and standard deviation () of the percent women due to different Judges.
9. Test against two sided alternative at 5% level of significance usng a t-test. Report the value of the test statistic, degrees of freedom and p-value for this test. What is your conclusion of the test.
10. Test against two sided alternative at 5% level of significance usng a t-test. Report the value of the test statistic, degrees of freedom and p-value for this test. What is your conclusion of the test.
11. Perform ANOVA test for testing against two sided alternative that at least one mean differs from the others at 5% level of significance. Report value of the F test statistic, p-value, and . What is the conclusion in regard to the ANOVA test?
12. Test against two sided alternative at 5% level of significance using a t-test. Report the value of the test statistic, degrees of freedom and p-value for this test. What is your conclusion of the test.