

TMATH 390 R Lab 8

Lab 6: Estimation in R

For this lab we will use the data you obtained in HW 1 and used in previous labs (2 and 3).

C1. (4) Submit your R script for this lab.

C2 (2) For this lab you will select ONE quantitative variable and compare it between TWO of the levels of your qualitative variable. Describe your quantitative variable, your qualitative variable, and the two levels of your qualitative variable. Use the results of the past lab to guide which two levels of your qualitative variable that you choose.

C3 (1) Produce a publication-quality boxplot comparing the distribution of your chosen quantitative variable between the two levels of your qualitative variable. Provide your boxplot here.

C4 (2) Comment on what you see in the boxplot, focusing in particular on a comparison of the middle of each distribution and the variability. Is there evidence here that the variances are the same between the two levels of your qualitative variable?

C5 (2) Produce a publication-quality normal QQ plot for your quantitative variable separately for each level of your qualitative variable. Include the plot in your report.

C6 (2) Comment on whether you think it looks like the data could follow a normal distribution. For the purposes of hypothesis testing and confidence interval estimation does it matter if either of these samples violate a normal distribution?

ESTIMATION

C7 (2) Use R to compute summaries of your quantitative variable separately for each of the two levels of your qualitative variable. Report the mean, median, and standard deviation for each (to 2 decimal places). Also report the sample size for each level of your qualitative variable.

C8 (2) Compute a 95% confidence interval for the population mean value of your quantitative variable separately for each of the two levels of your qualitative variable. Note, you can use R here to calculate the limits and to determine the t-critical value. Show your work and give the CI limits.

C9 (3) Interpret each confidence interval and compare the confidence intervals between the two groups.