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ECO 602 – Analysis of Environmental Data

Week 7 Questions

Due: Oct 23, 2022

1. Differences in the population mean do not have any effect on the width of the CI unless there are differences in the distribution of the individual data points since the mean only shows what the average value is.
2. The population standard deviation has a great effect on the width of the CI because with a higher standard deviation, the larger the dispersion within a data set, which means that there is a wider set of values that the confidence interval could encompass.
3. Since the population size refers to the entire hypothetical group that a statistical test is trying to describe, the size of the population does not change the confidence interval since you would hypothetically already know the true population parameters.
4. The sample size does have an effect on the confidence interval since as a sample size increases, it gets closer to the true population, causing the confidence interval to shrink as each trial's hypothetical parameters are within a smaller range compared to the population parameters.
5. Using the heights of males within a given population as an example, assuming a normal distribution, a confidence interval of 95% can be interpreted that out of many hypothetical trials, 95% of the calculated confidence intervals calculated for each trial will output the true mean of the population. In the context of the example, if 100 surveys were done on male heights and a 95% confidence interval was calculated for each one, approximately 95% of those confidence intervals would contain the true population mean of male heights in that region.