Ednita Tavarez-Jimenez
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Week 7 Reading Questions

Q1: Explain the effect, if any, of the population mean on the width of CIs for a population that is normally distributed. If the population mean does not affect the widths of CIs explain why not.

The mean in repeated men affects the width of Cis, by looking at the standard errors, when it gets smaller with increasing sample size. This means that the width of the CI gets narrower with larger samples.

Q2: Explain the effect, if any, of the population standard deviation on the width of CIs. If population standard deviation does not affect the widths of CIs explain why not.

The standard error is the standard deviation, when the sample size increases the standard deviation stabilized which means the width increases if the standard deviation increases and decreases when the standard deviation decreases.

Q3: Explain the effect, if any, of the *population size* on the width of CIs. If *population size* does not affect the widths of CIs explain why not.

The population size affects the width by making it wider with smaller sample sizes.

Q4: Explain the effect, if any, of the *sample size* on the width of CIs. If *sample size* does not affect the widths of CIs explain why not.

As the sample size increases, it decreases the width of the CI, because the standard error decreases.

Q5: Interpreting a CI. Use a narrative example of a real (or made-up) dataset to describe what a Frequentist 95% confidence interval really means.

Make sure you cover any relevant assumptions of the Frequentist paradigm.

You answer must be in non-technical language.

Imagine you were explaining confidence intervals to an audience of teenagers, or perhaps a family member who doesn't have training in statistics.

I will be looking a data containing looking at the population of wood turtles taken for the illegal wildlife trade in the Northeastern region of the United States. Interpreting the confidence interval we will first look at the population mean, this graph is narrow which means the population size is large. Next, we will look at the standard deviation which is also the standard error (which is just another version of the standard deviation just modified, the graph has a pretty wide width. The

population size we already know is large, so this confirms why our graph is narrow. Lastly, the sample size decreases the width when you increase the sample size. All this to say we use the 95% interval because if someone or you were to repeat the experiment their mean would fall in the 95% interval.