**College Student Debt – Part II**

In an earlier activity, you created a 95% bootstrap confidence interval to explore what the average college student debt is.

In this activity, you are going to use the same data (*CollegeStudentDebt103.csv*) but you will now compare average college student debt for public and private colleges.

**Discuss the Following Questions**

1. Suppose you plan to look at college debt for public and private colleges. What would be an appropriate research question for this study?

* Use the statistical software of your choice (e.g., R, SAS, StatCrunch) to examine the distribution of the sample data for public colleges.

1. Describe the distribution of the data for public colleges. Make sure to include all 3 characteristics of a distribution.
2. How might you use confidence intervals to help answer this research question?

You will start by creating a bootstrap interval for *public colleges* and see how that compares to a confidence interval using the *t*-distribution approach.

1. Create a bootstrap interval for public colleges in *StatKey*.
2. What distribution does the bootstrap distribution approximate?
3. What conditions need to be met in order to create a confidence interval using the *t*-distribution approach for public colleges? Are they met?

* Use the statistical software of your choice (e.g., R, SAS, StatCrunch) to create a confidence interval for public colleges using the *t*-distribution approach.

1. What is your confidence interval for public colleges?
2. Provide an interpretation of the confidence interval for public colleges.
3. What was the formula that was used to compute the confidence interval?
4. How does the bootstrap interval for public colleges compare to the *t*-distribution confidence interval found above?

* Use the statistical software of your choice (e.g., R, SAS, StatCrunch) to examine the distribution of the sample data for *private colleges*.

1. Are the conditions met in order to create a confidence interval for private colleges?

* Use the statistical software of your choice (e.g., R, SAS, StatCrunch) to create a confidence interval for private colleges using the *t*-distribution approach.

1. What is your confidence interval for private colleges?
2. Compare the confidence intervals for public and private colleges.
3. Provide an answer to the research question.

**EXTENSIONS**

1. Consider both the bootstrap interval approach and the *t*-distribution confidence interval approach. Is one better to use than the other? When would you use one and not the other? Is there one that you think that would be better for this example?