

## Confidence Interval Example

The UW recently conducted a survey of 400 Washington State residents to assess attitudes and support for public colleges and universities. This survey was conducted in conjunction with a similar nationwide survey of 700 people.

- a. **Seventy-two percent of Washington residents rated the quality of education at their public colleges and universities as “excellent” or “good”.** Provide 90 percent, 95 percent, and 99 percent confidence intervals for this estimate. What would the intervals be if the sample size had been 100?
- b. **Eighty-four percent of Washingtonians believe that the public colleges and universities make significant economic contributions to the state’s economy.** Provide 90, 95, and 99 percent confidence intervals for this estimate.
- c. **Washington residents estimated that the average yearly total price of attending a public university was \$20,389 (including tuition, fees, books, and room and board). [S=10,000].** Provide 90, 95, and 99 percent confidence intervals around the estimate. The actual average was \$13,700. Which intervals include the actual value?
- d. What size sample would we likely need in order to be able construct a 95 percent confidence interval for the percentage favoring increased state spending with a 3 percent point margin of error? [What if you think the sample p will be 48%? Or what would the largest sample needed be given that we don’t know p?]
- e. **Thirty-nine percent of Washington respondents and 48 percent of the nationwide sample said that they would favor increased state spending for campuses.** Provide 90 and 95 percent confidence intervals for the estimate of the difference between Washington residents and the rest of the country.
- f. **Write up the results for the UW legislative relations staff.**<sup>1</sup> [FYI--UW is a public university directly funded by state legislative action. UW does not currently have control over undergraduate tuition levels.] What should they know? How might they use this information?

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<sup>1</sup> Don’t present all Cis for each part—choose one level.