

Lecture 25: more Chapter 10, Section 1

Inference for Quantitative Variable: Hypothesis Tests

- z Test about Population Mean: 4 Steps
- Examples: 1-sided or 2-sided Alternative
- Relating Test and Confidence Interval
- Factors in Rejecting Null Hypothesis
- Inference Based on t vs. z

Looking Back: *Review*

□ 4 Stages of Statistics

- Data Production (discussed in Lectures 1-4)
- Displaying and Summarizing (Lectures 5-12)
- Probability (discussed in Lectures 13-20)
- Statistical Inference
 - 1 categorical (discussed in Lectures 21-23)
 - 1 quantitative: confidence intervals, hypothesis tests
 - categorical and quantitative
 - 2 categorical
 - 2 quantitative

Behavior of Sample Mean (*Review*)

For random sample of size n from population with mean μ and standard deviation σ , sample mean \bar{X} has

- mean μ
- standard deviation $\frac{\sigma}{\sqrt{n}}$
- shape approximately normal for large enough n

→ If σ is known, standardized \bar{X} follows z (standard normal) distribution