Normal Distribution

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Case Studies
"Data Analytics"

Outline

1 Introduction
- ▶ Normality as a requirement for statistical methods
- ▶ Data Set Overview

2 Normality Testing
- ▶ Graphical Methods for Normality Testing
  - ★ Q-Q-Plots
  - ★ Chi-Square Plot
- ▶ Quantitative Methods for Normality Testing
  - ★ Shapiro-Wilk Test
  - ★ Pearson's Chi-Squared Test
  - ★ Kolmogorov-Smirnov Test

3 Transformation to Normality
- ▶ Box-Cox Transformation
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4 Summary

Normality as a requirement for statistical methods

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3. **Transformation to Normality**
   - Box-Cox Transformation
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4. **Summary**

Graphical Methods for Normality Testing
Q-Q-Plots

Graphical Methods for Normality Testing
Chi-Square Plot

Graphical Methods for Normality Testing
Shapiro-Wilk Test

Graphical Methods for Normality Testing
Pearson's Chi-Squared Test

Graphical Methods for Normality Testing
Kolmogorov-Smirnov Test

Let $X = (x_1, x_2, \ldots, x_n)$ be a sample of a given size n

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Transformation Results Testing

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