

2017-18 SAT/ACT Outcomes

The problem

ACT

The ACT (American College Testing) is a standardized test used for college admissions in the United States. It is currently administered by ACT, a nonprofit organization of the same name.

The ACT test covers four academic skill areas: English, mathematics, reading, and science reasoning. ACT scores range from 1-36.

SAT

The SAT is a standardized test for college admissions managed by the College Board in the United States first administered in 1926.

The SAT covers writing, reading, and mathematics. SAT scores range from 400 to 1600, with each of the two sections—Evidence-based Reading and Writing and Mathematics—worth up to 800 points.

Problem statement

Significant fluctuations to the participation rates and mean scores for the SAT exam have been observed.

This case study summarizes the observations from data collected between 2017-2018.

The report will make recommendations to the College Board on strategies to help improve participation rates.

Process

Data Cleaning

Identify and process errors

- Spelling mistakes
- Data entry errors
- Duplicates
- Math calculating mistakes
- Extra non-relevant information

Exploratory Data Analysis

Mathematical analysis

- Mean
- Standard Dev
- Highest/Lowest
- Pearson correlation

Data Visualization

Plot graphs

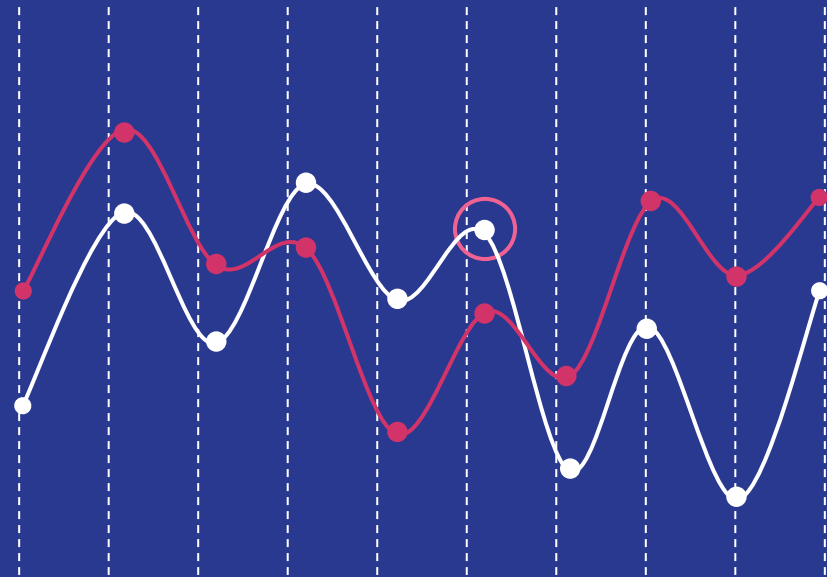
- Heat map
- Histograms
- Box Plots
- Scatterplots

Inferences and Outside Research

Statistical Analysis and Outside Research

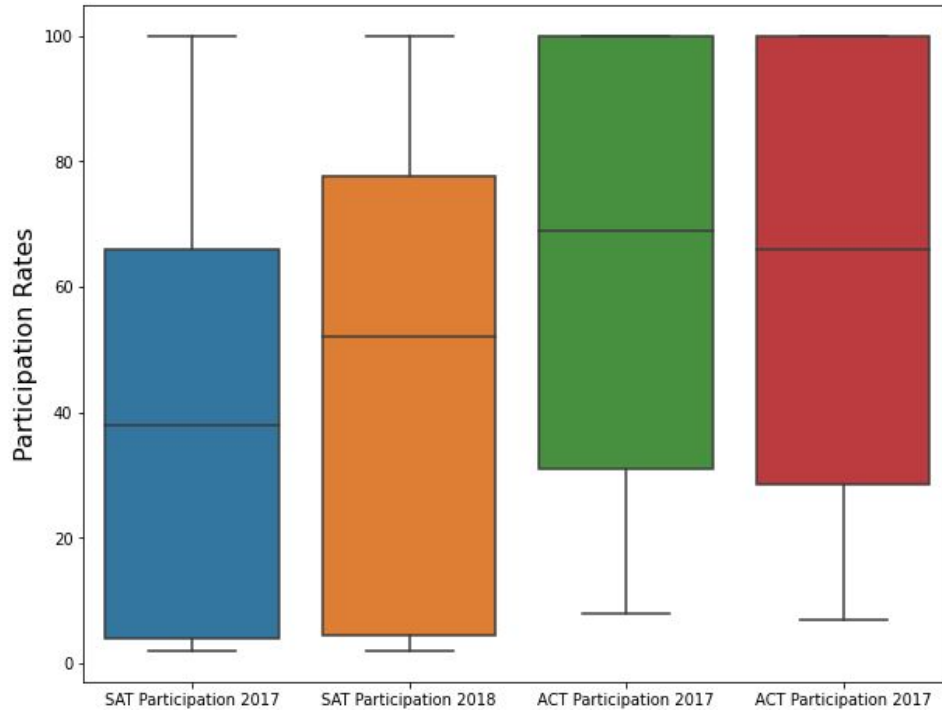
- Identifying distributions for numerical variables
- Additional research outside the scope of given data to get a broader perspective

Visualizing Correlations

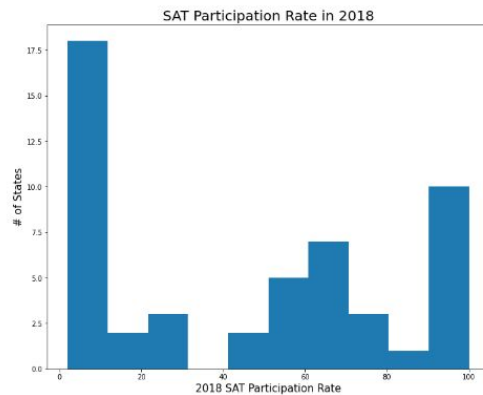
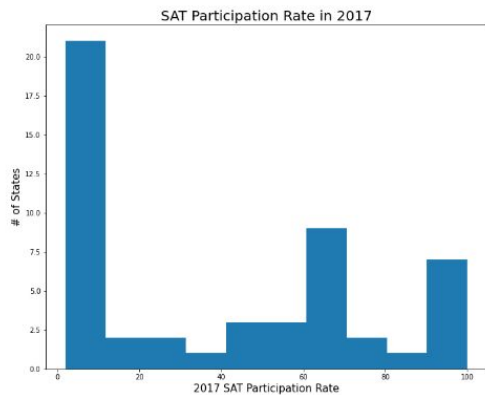
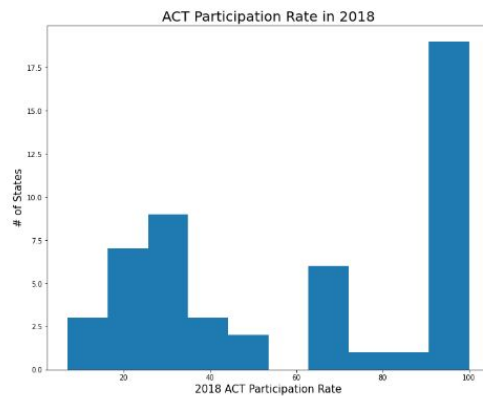
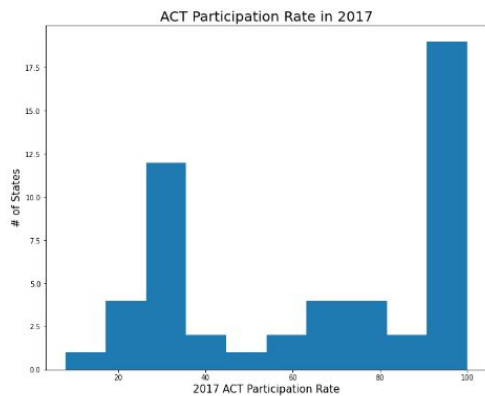


—

Comparing Participation rates

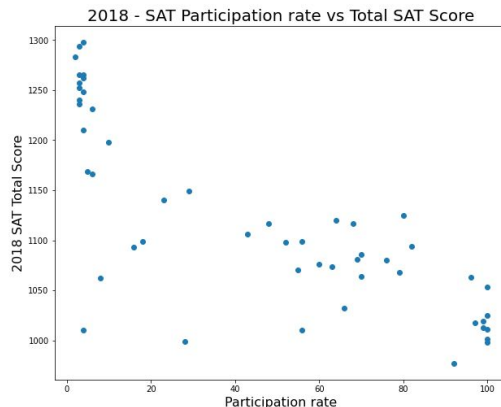
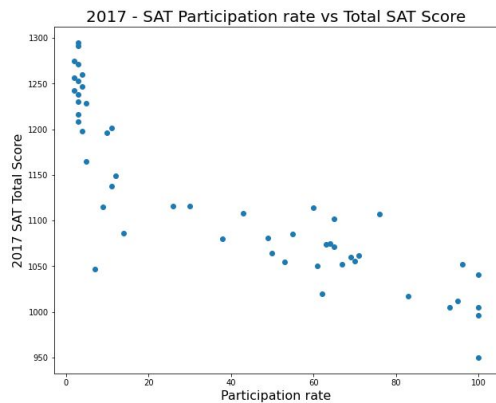


- Higher overall ACT Participation rates
- Increased SAT participation in 2018
- Slightly decreased ACT participation in 2018

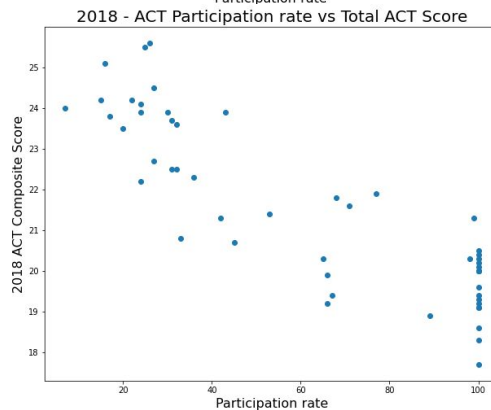
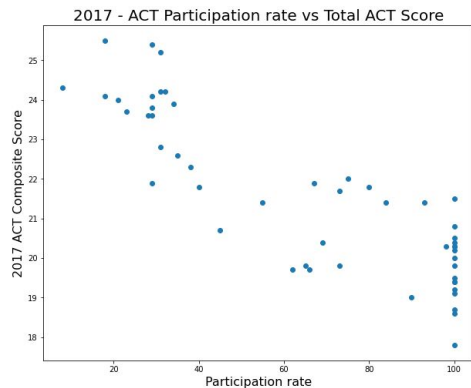


- ACT has significantly more states with 100% participation
- SAT has more states with mid (40-80%) participation rates

Trends



- Lower Participation rates
=> Higher test scores
- Higher Participation rates
=> Lower Test scores



Conclusions

1. State mandates lead to significant increase in participation rates.
2. Subsidies/sponsorships lead to rise in participation rates.

Recommendations

Conclusions

1. State mandates lead to significant increase in participation rates.
2. Subsidies/sponsorships lead to rise in participation rates.

Recommendations

1. Work with States' Dept of Education
 - Mandate testing
 - Sponsorships/Subsidies
2. Make test prep material accessible for students