



Project 1: SAT & ACT Analysis

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Problem Statement

- Recommendations on where marketing efforts should be directed and money best spent to improve SAT participation rate for a suitable state

Work Flow

Data

- 2017 / 2018 ACT & SAT datasets
- Problem statement

Exploration

- Data size & format
- Minimum viable domain knowledge

Cleaning

- Correction of data types and erroneous values

Analysis

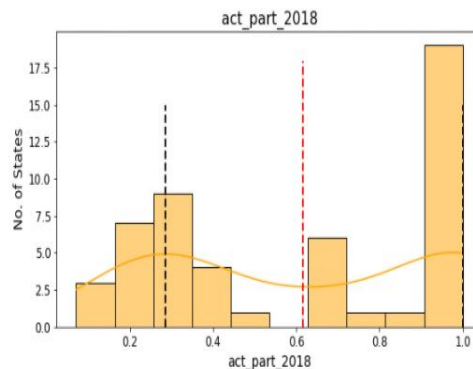
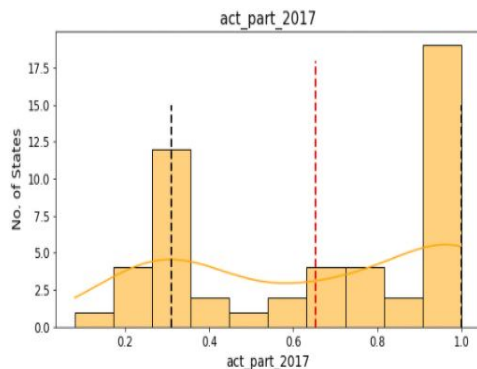
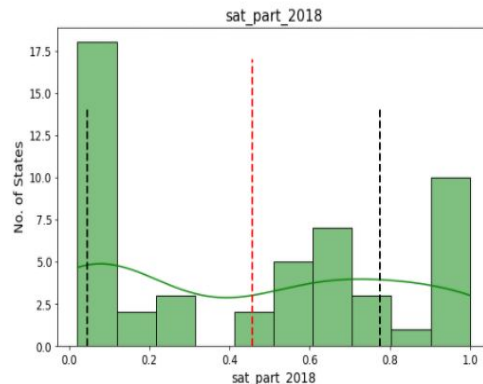
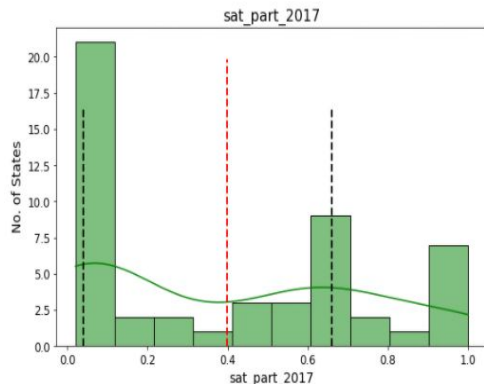
- Statistical Inferences
- Data Visualisation

Findings

- External research to understand trends
- Form recommendations



SAT vs ACT Participation Rates



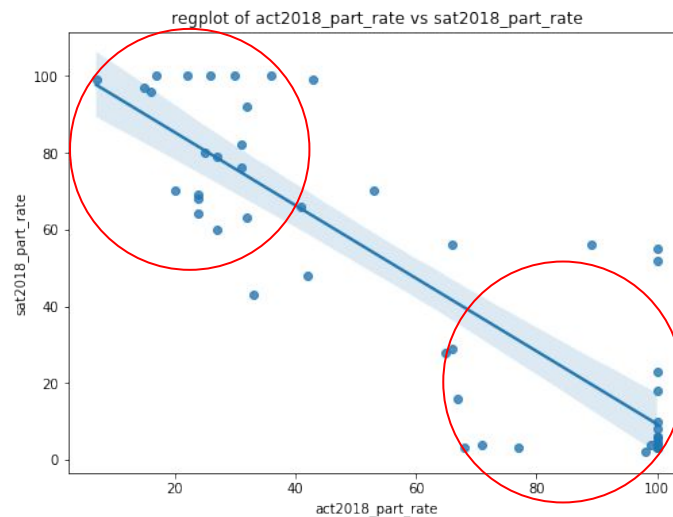
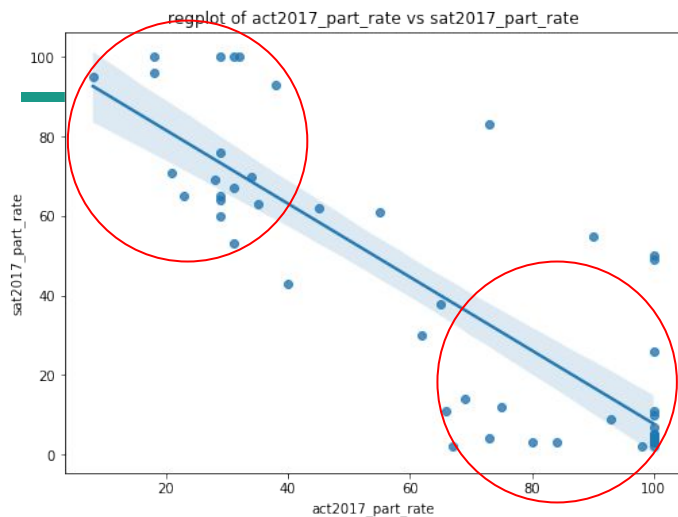
Observations:

- Similar distributions year-on-year
- Highly concentrated around the extremities
- SAT: High number of states with low rates (<10%)
- ACT: High number of states with high rates (> 90%)

Promising signs:

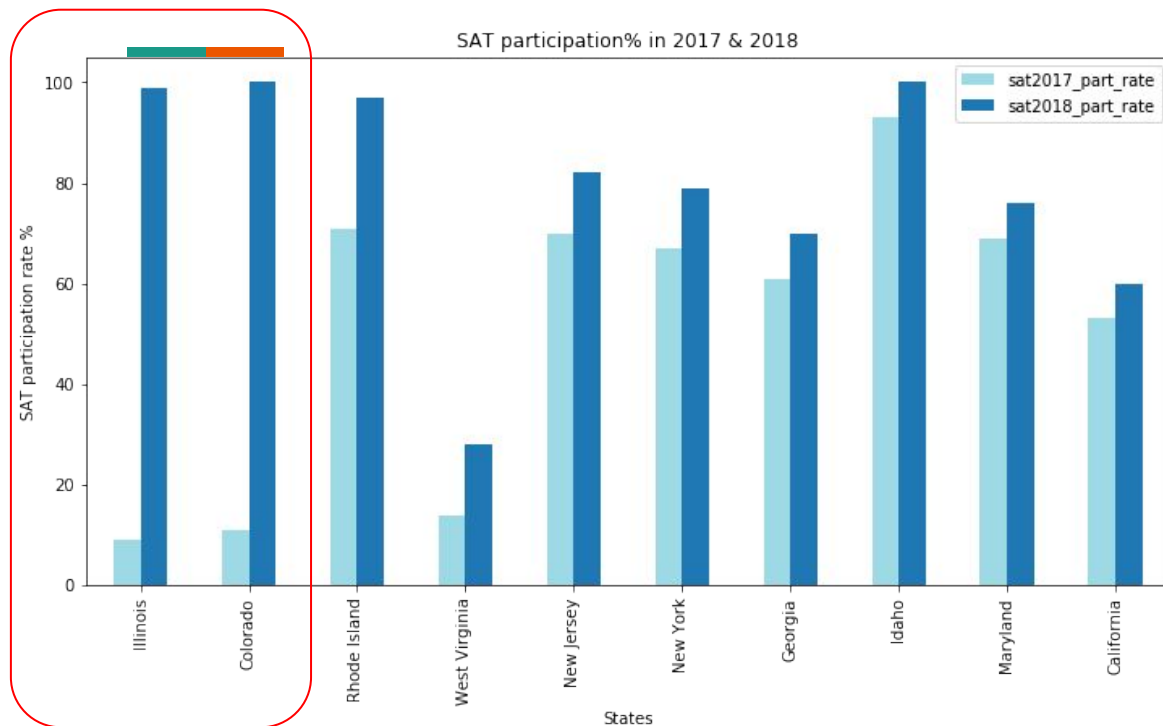
- Notable increase in SAT rates with >90% rate from 6 to 10 states
- Median: Increase in SAT vs decrease in ACT

SAT vs ACT Participation Rates



High SAT participation rate have low ACT participation rate and vice versa.

Top 10 States with Largest SAT Participation Increase from 2017 to 2018

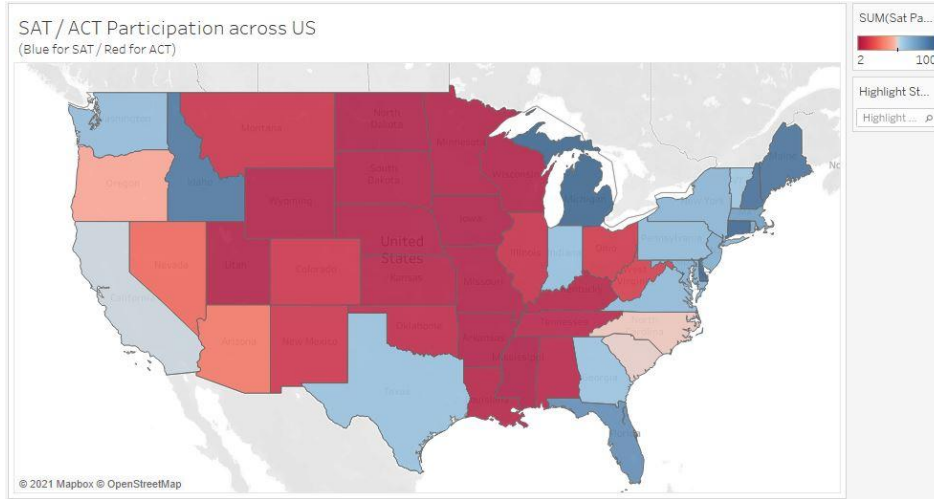


- New state policy in Illinois and Colorado made SAT mandatory in their states in 2018

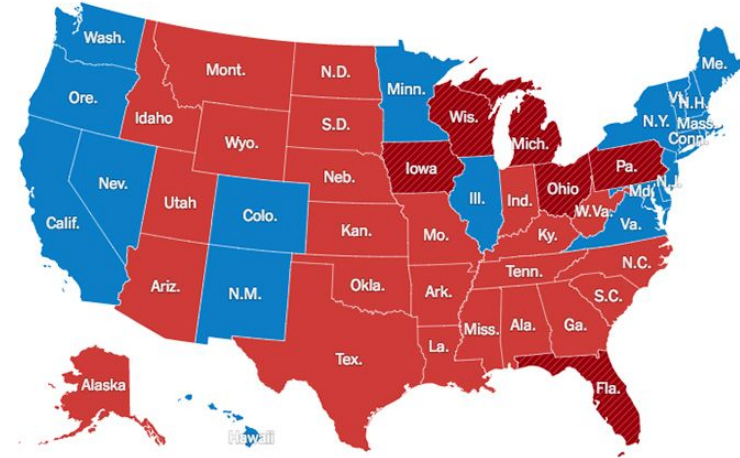
- Hence increase in SAT participation rates to 100%

Political Affiliation

SAT vs ACT Participation Map (Blue – SAT, Red – ACT)



2016 US Election Map



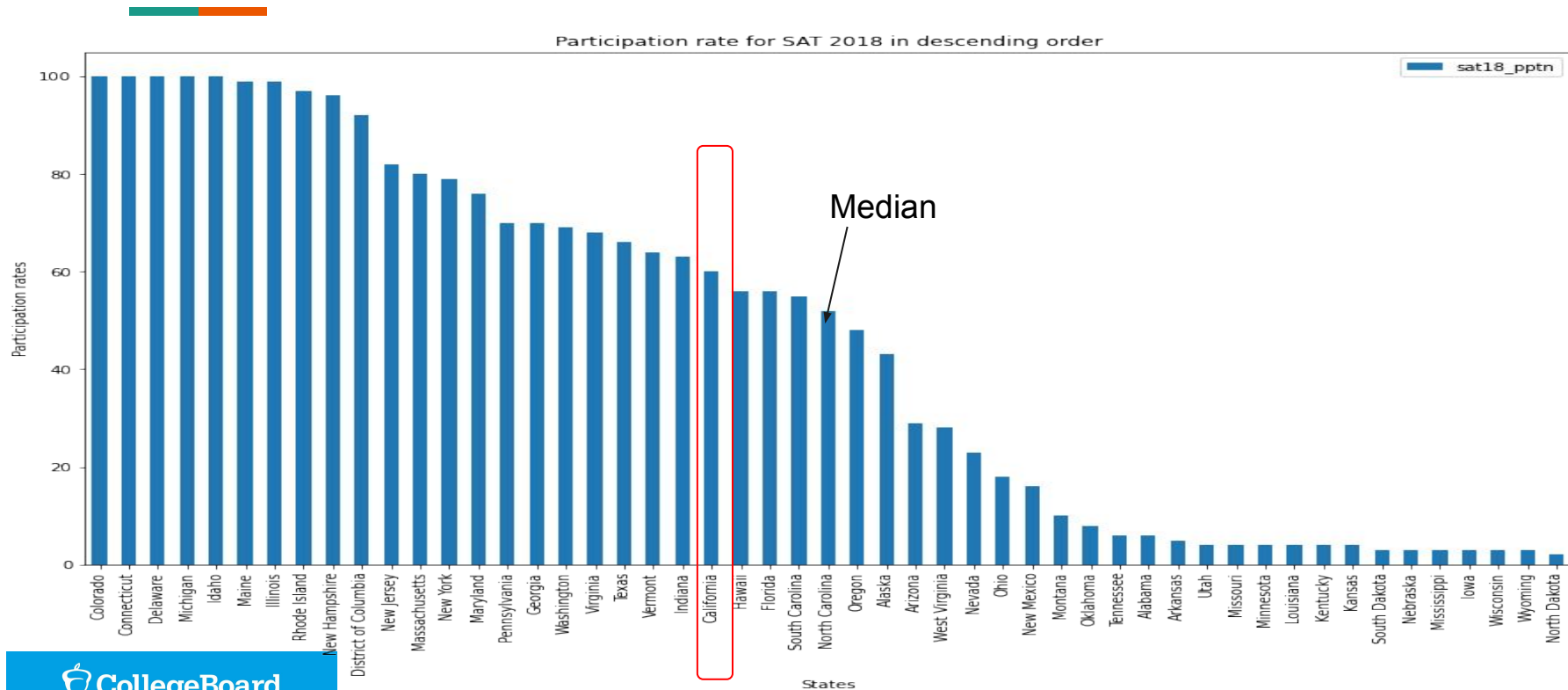
Source: <https://www.nytimes.com/elections/2016/results/president>

- Coastal states are more likely to pick SAT, midland states to pick ACT
- Republican states more biased towards ACT
- Democratic states more biased towards SAT



State to Choose for Improving SAT Participation

California as Focus





Why California?

- Coastal state (likely to pick SAT)
- Most populous state (more market share!)
- No existing state law mandating SAT participation
- 63% Participation rate (above median for SAT 2018)
 - Chances of pushing it up is higher

Rank	State	July 2019 Estimate	Percent of Total
1	California	39,512,223	11.91%
2	Texas	28,995,881	8.74%
3	Florida	21,477,737	6.47%
4	New York	19,453,561	5.86%
5	Illinois	12,671,821	3.86%



Recommendations

- Replacing California High School Proficiency Examination (CHSPE) with SAT
- Legislating SAT as state compulsory exam
 - Push participation to 100%
- Promote **SAT School Day**
 - Convenience for SAT takers



Recommendations (Cont'd)

- Scholarships for students with exemplary scores
- Full coverage of exam fees
- Subsidised test preparation programs
- Improve quality of SAT teaching

End

