

Lorem Ipsum Dolor

SAT & ACT Analysis

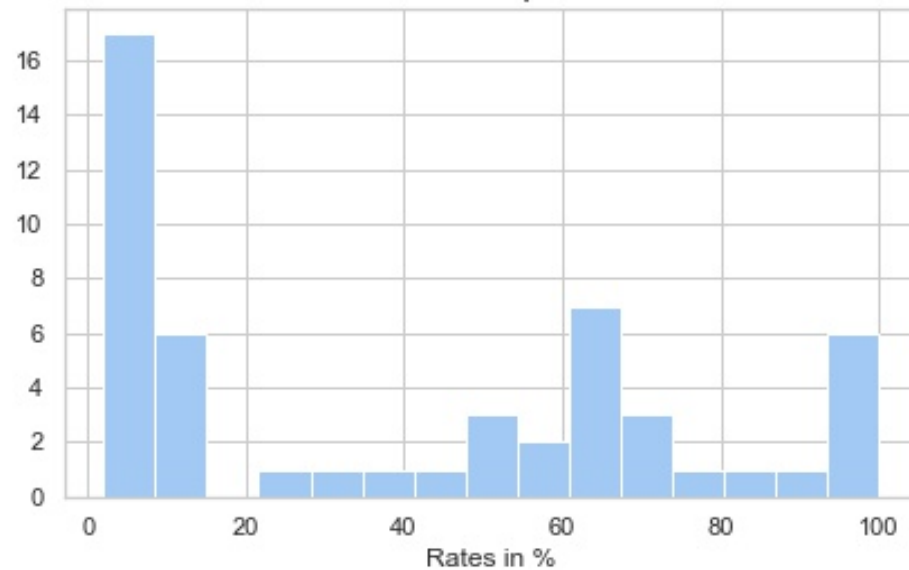
GABRIELLE JIAXIAN TAN

Problem Statement

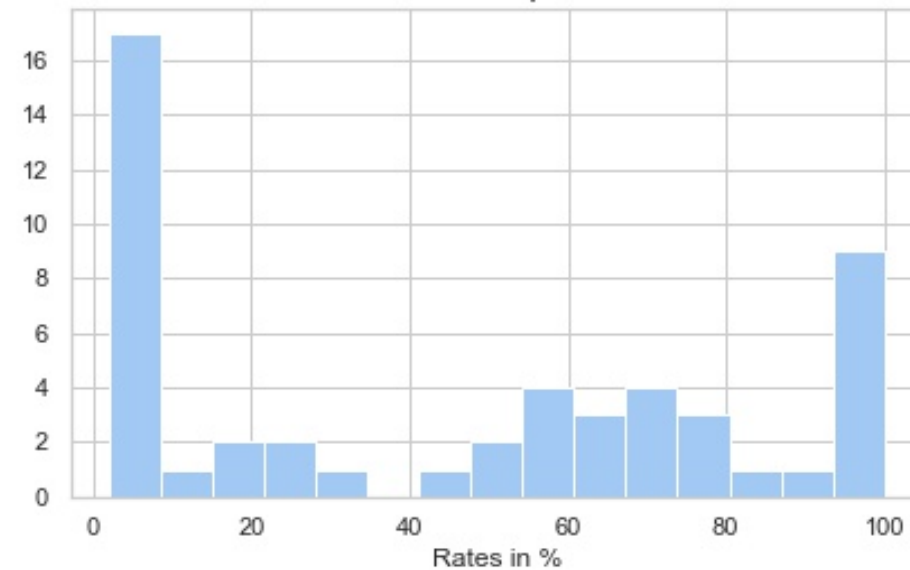
Analyse participation rates across states to determine the appropriate allocation of resources to improve SAT/ACT participation across states.

Participation

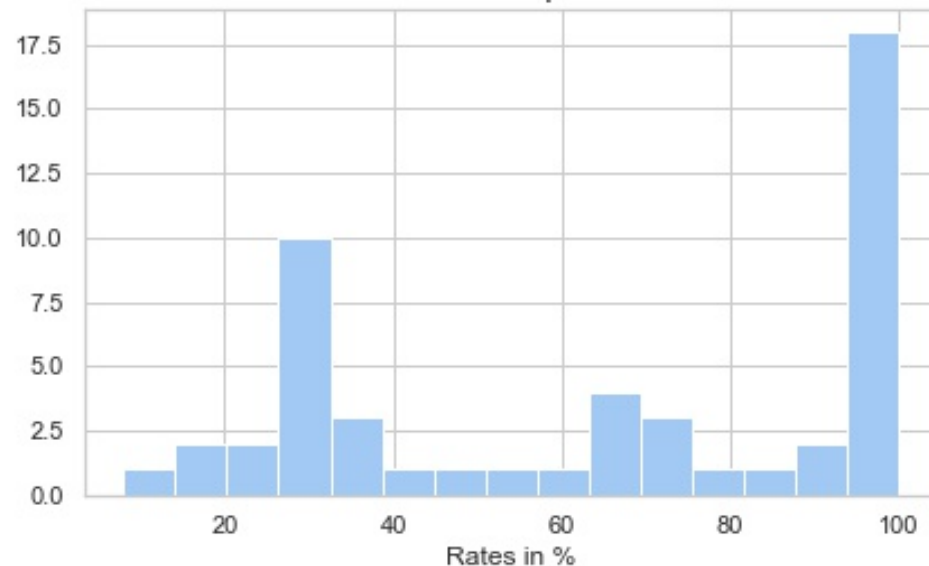
2017 SAT Participation Rates



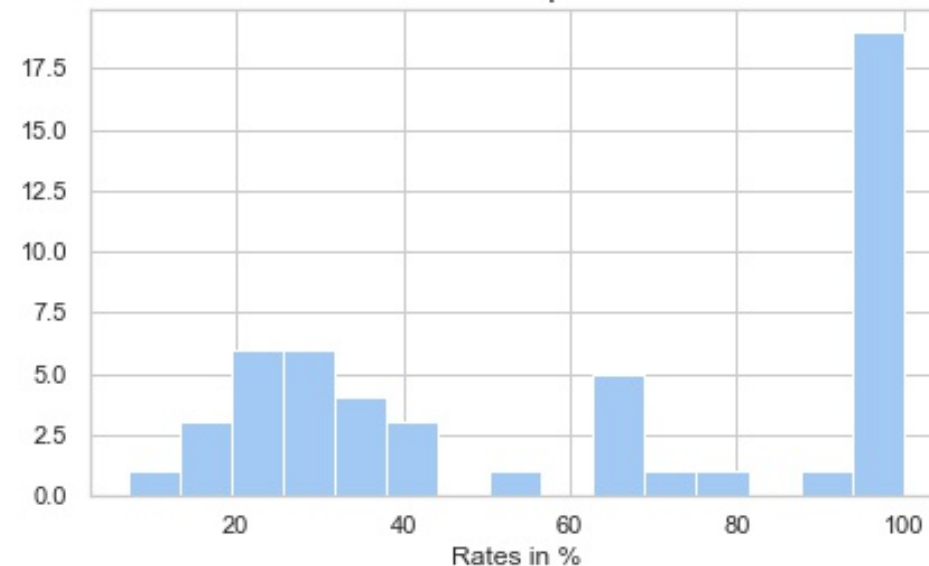
2018 SAT Participation Rates



2017 ACT Participation Rates



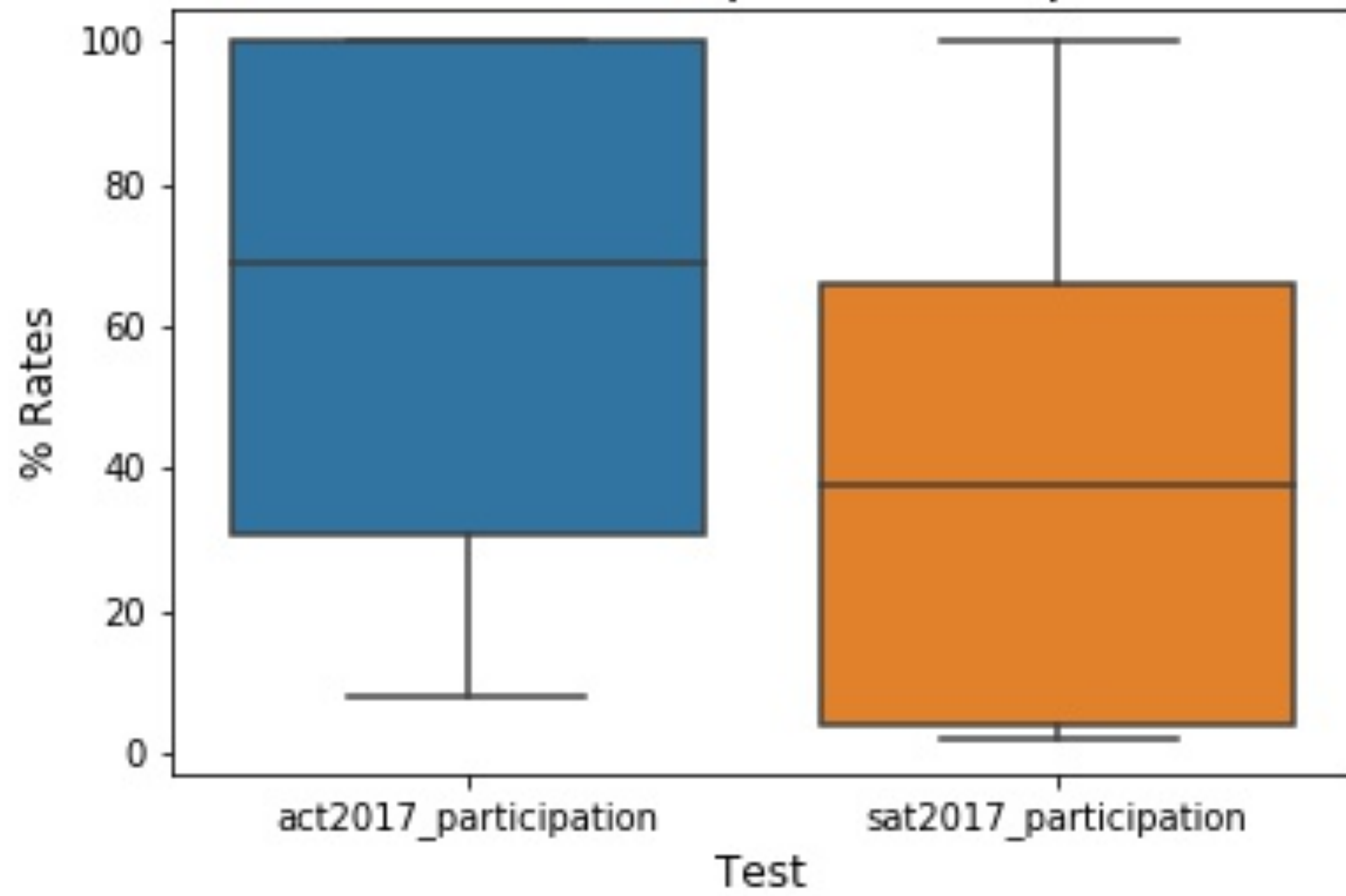
2018 ACT Participation Rates



The histogram on participation rates indicates that the distributions are somewhat trimodal. SAT has a huge peak around 0 and a smaller peak around 1. ACT has a huge peak around 1 and a smaller peak around 0. Both display a center peaks.

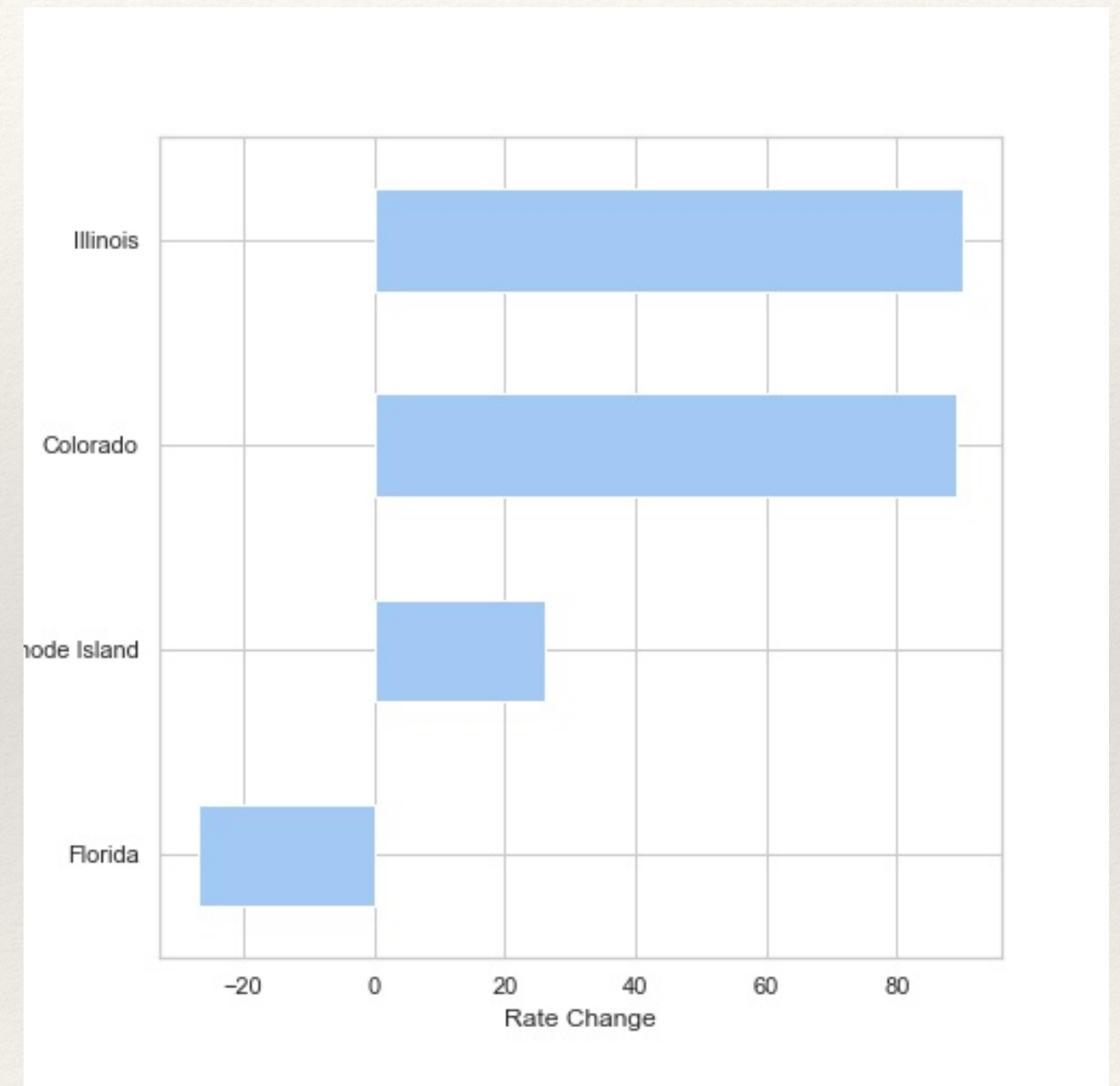
Distribution for both years did not change much from 2017 to 2018. SAT has a number of states with very low single digit participation rate of less than 10%, of the median to 75%, of the 100% participation. The ACT barely compares to the SAT with states of less than 10% participation, with largely concentrated at or near 100%.

2017 Participation Boxplot

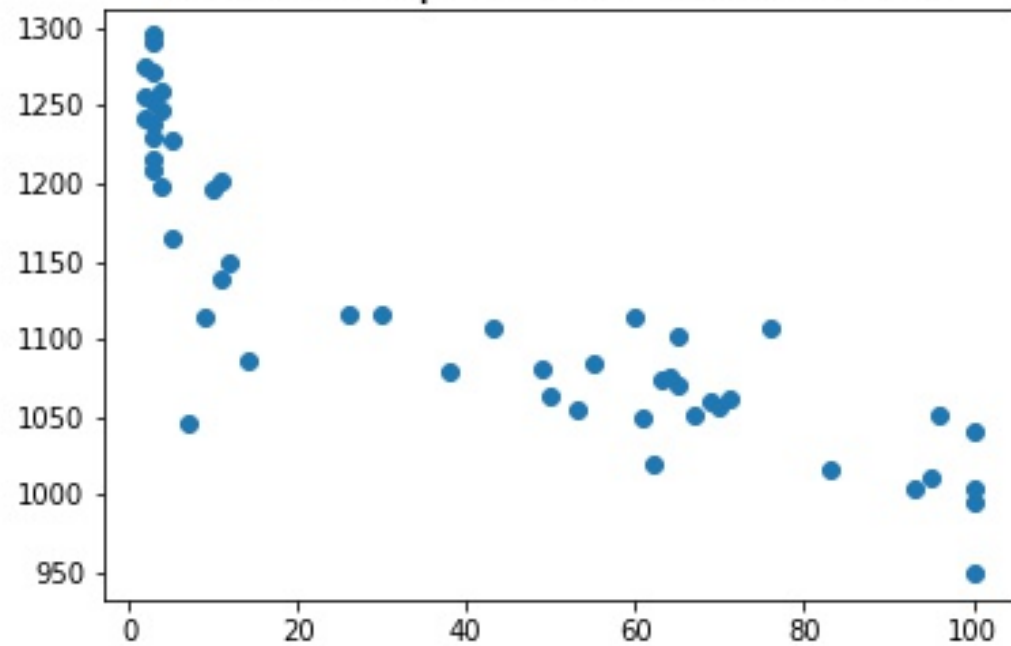


Rate of Change

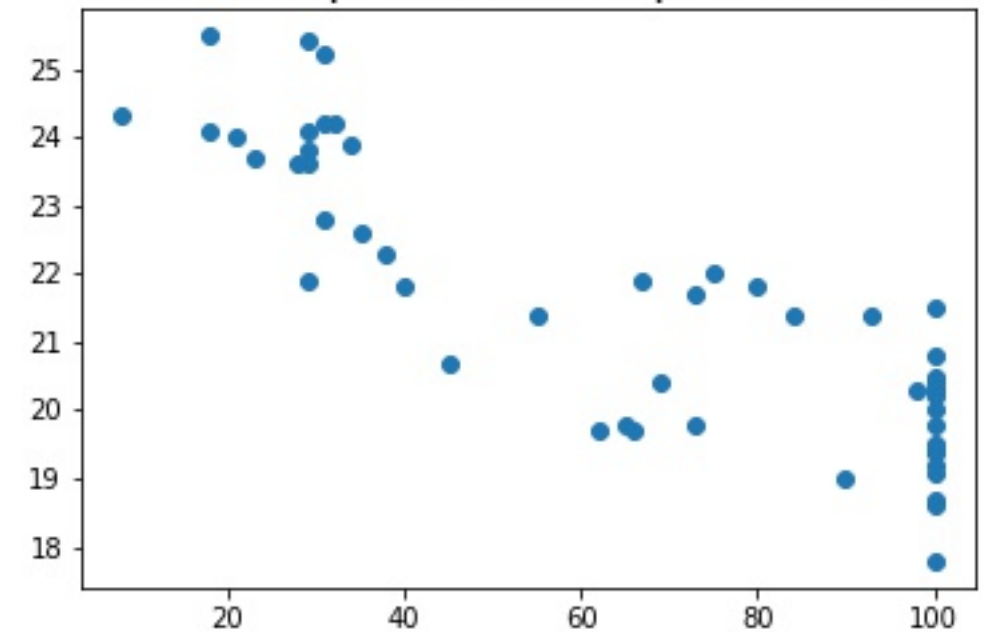
- ❖ Massive increase for the SAT in 2018?
- ❖ mandatory testing from ACT to SAT
- ❖ part of accountability standards
- ❖ Colorado 89%;
Illinois 90%



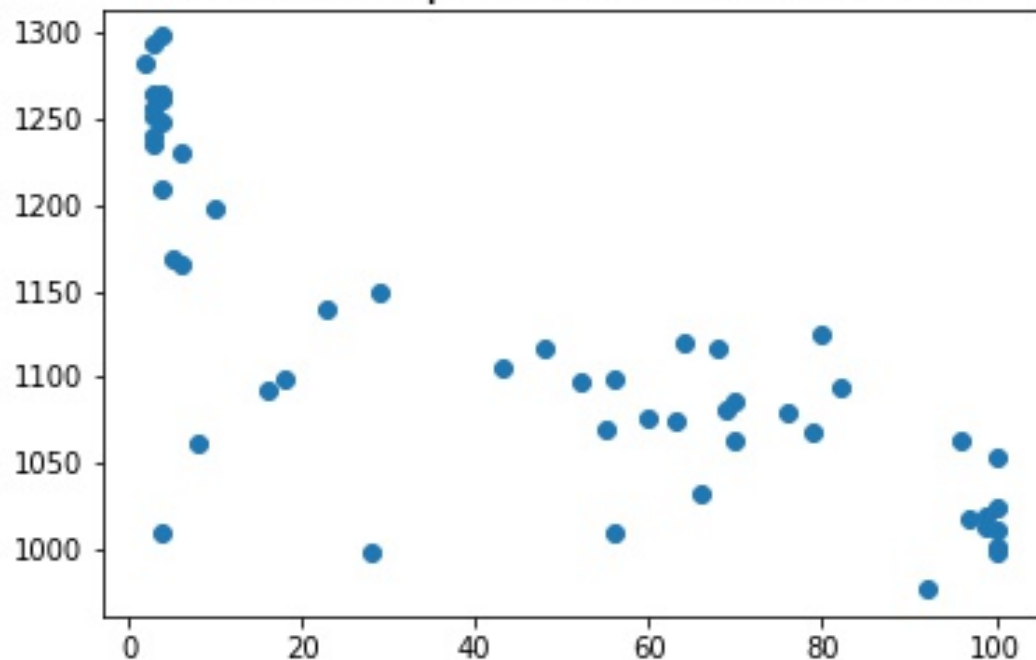
SAT Participation vs Total in 2017



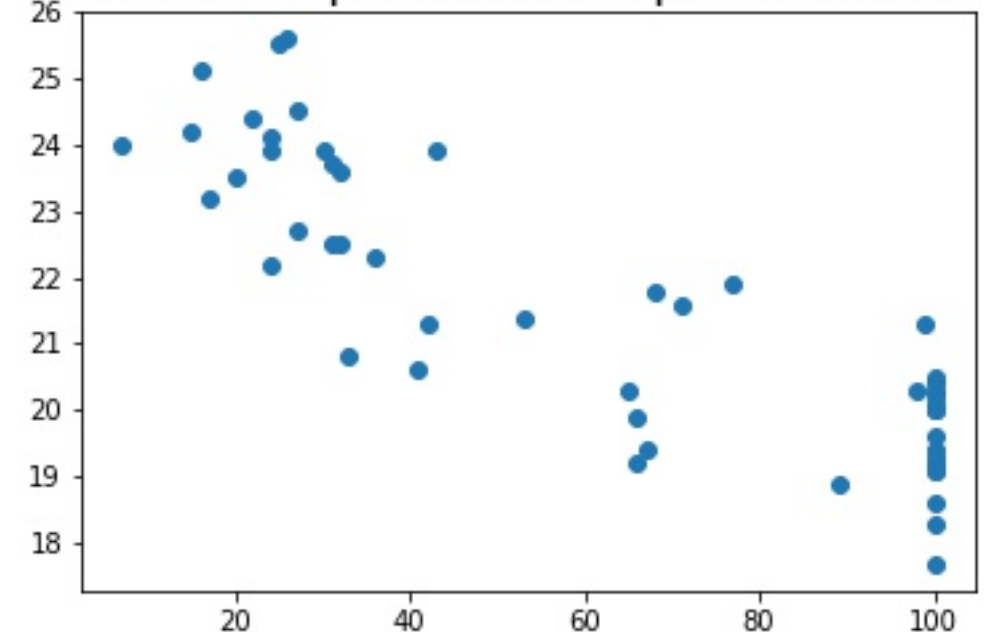
ACT Participation vs Composite in 2017



SAT Participation vs Total in 2018

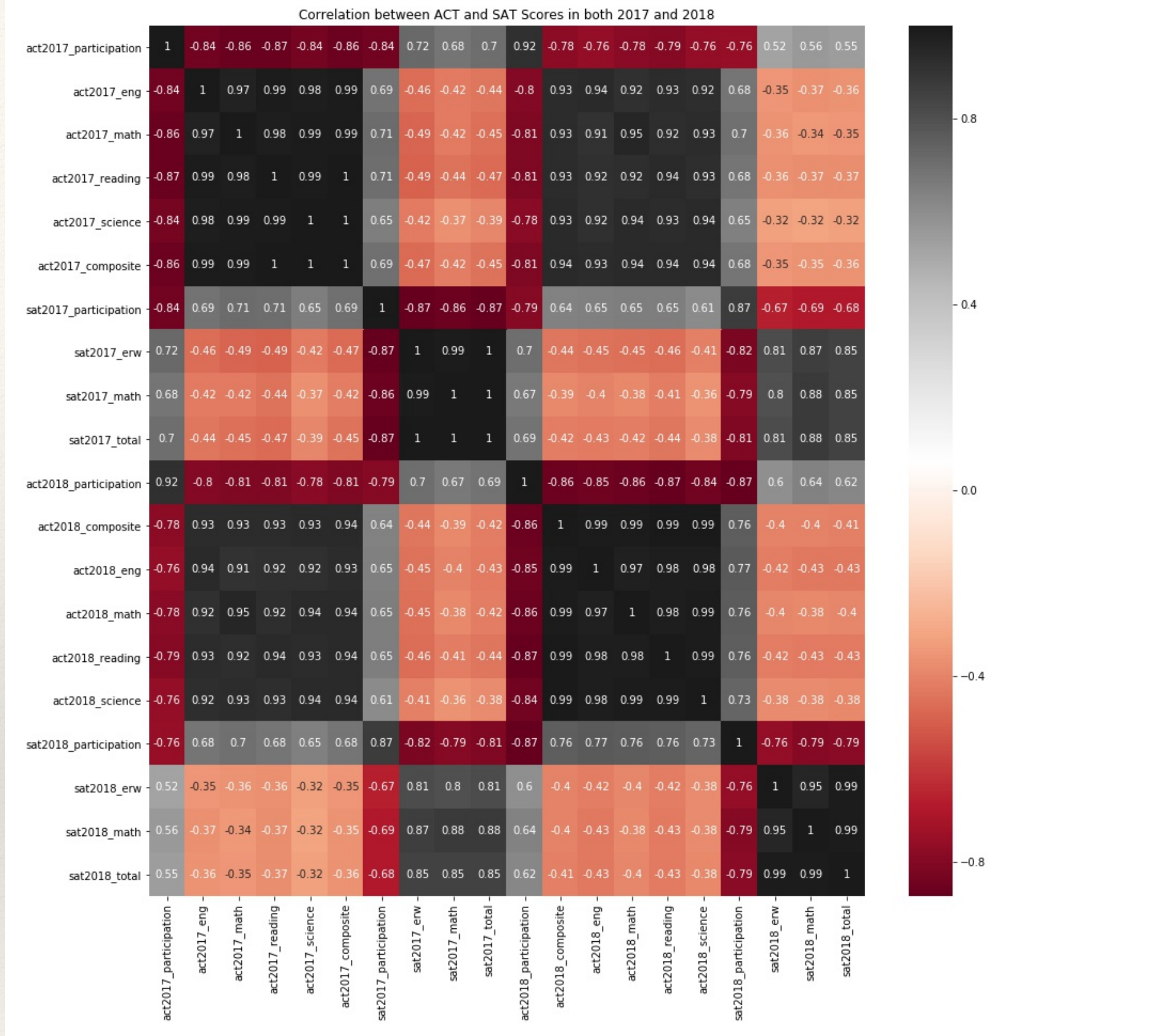


ACT Participation vs Composite in 2018



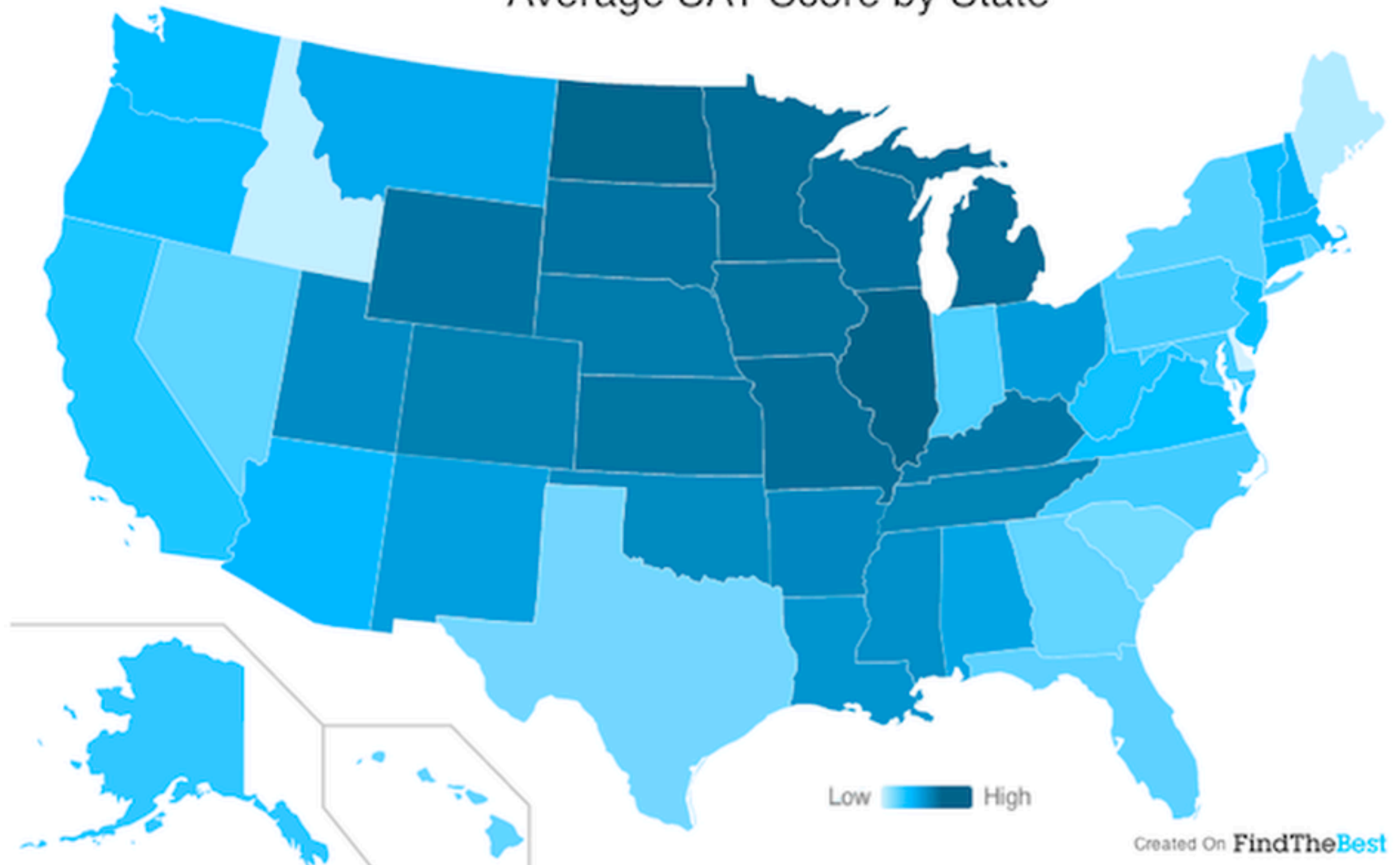
Participation & Scores

- Negative Correlation
- Highest Participation -> Lowest Scores
- Existence of Selection Bias



The correlation between the two tests are -.84, which is out of a scale -1 to 1. The extreme disparity between the highest peaks in the ACT and SAT participation rate histogram, top at 100-90% and bottom at 10-0% rates, highlights the divergence between the two test. Furthermore, SAT median participation rate is slightly above the lower limit of the ACT's first quantile. Since the category is rather an integral measure of how related the two populations of the tests are, it is maybe not enabling a cross-comparison.

Average SAT Score by State



Regional Concentration

strong regional association with preference between ACT and SAT

- Progressive states leans towards the SAT
- midwestern conservative states favours the ACT

reasonable to focus on states showing similar positions to 2018.

Analysis

- ❖ Florida, Georgia and Hawaii were the only states that has more than 50% participation on both tests in consecutive years. These states does not mandate students to sit for any one of the two tests. In both years, Hawaii scored best on the SAT and Georgia scored best on the ACT. Both North Carolina and South Carolina require ACT testing which also joined those three states in achieving a participation rate of above 50% SAT in 2018.

Recommendations

- ❖ West Virginia: opportunity for growth?
- ❖ Liaison with State of Education
- ❖ Fee waivers or Subsidies for certain demographical groups
- ❖ University admission criteria & mitigate the increasingly norm approach of test-optional
- ❖ Partnership with test centers