



# **The effect of Participation Rates in the SAT and ACT**

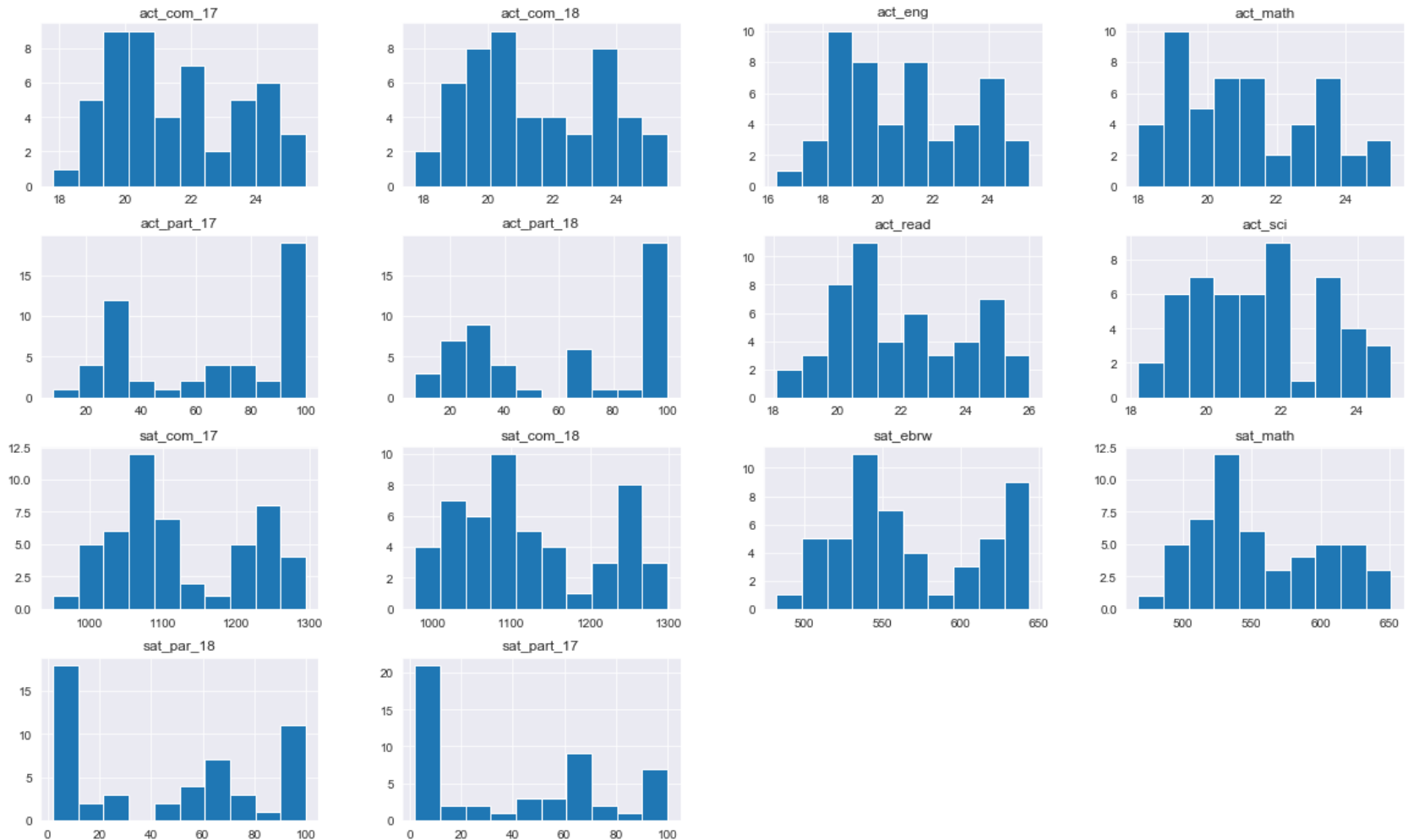
# Defining our Dataset

- Our data is aggregate SAT and ACT scores and participation rates by state for 2017 and 2018
- The 2017 data for both the SAT and the ACT is also broken out by section. The SAT sections are: Evidence Based Reading and Writing and Math. ACT sections are: English, Reading, Math, and Science.
- Our 2018 data only have participation rates and composite scores.
- The data is sorted by state with each states mean value for each of the items above.

# Exploring the Data

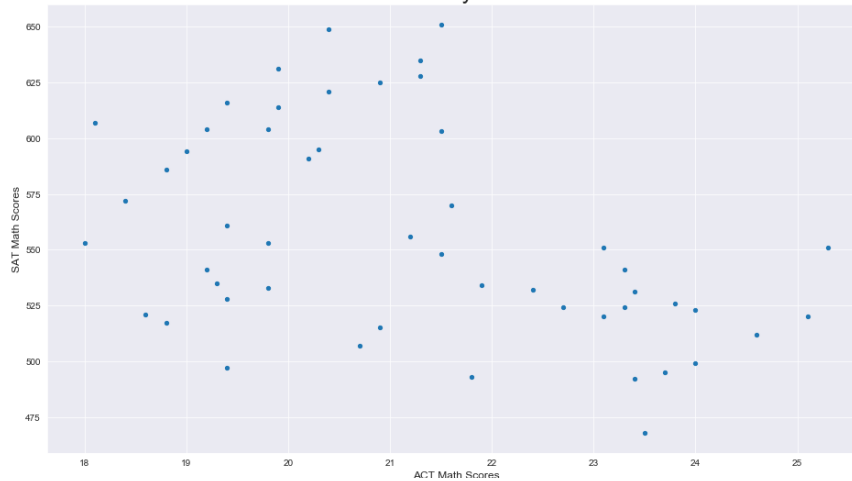
- **Problems:** Some potential issues with the data center around its representativeness.
  - States with large populations of people are represented at the same level as states with tiny populations
  - States with extremely low participation rates have the same explanatory power as states with full participation
  - Are sample is comprised of means. We have only 50 states so our sample size is actually quite small
  - We only have section data for 2017 so it is hard to compare that to anything in a robust and meaningful way
- **Takeaways:** Participation rates are driving our data

# Visualizing the Data: Distributions

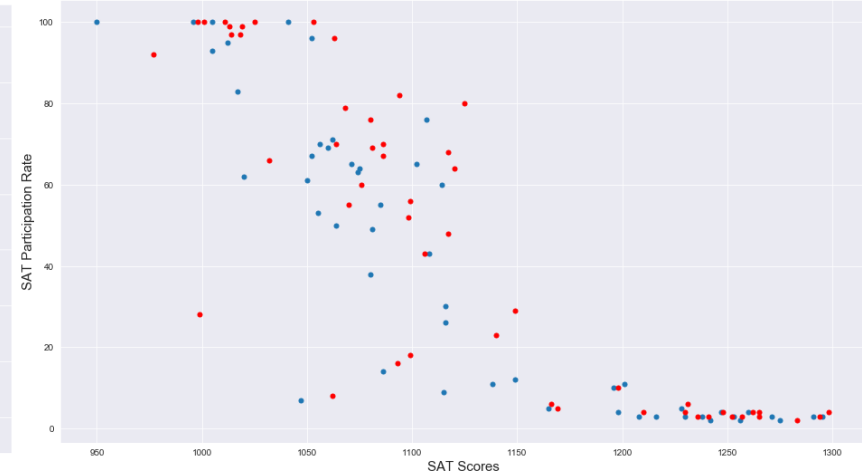


# Visualizing the Data: Relationships

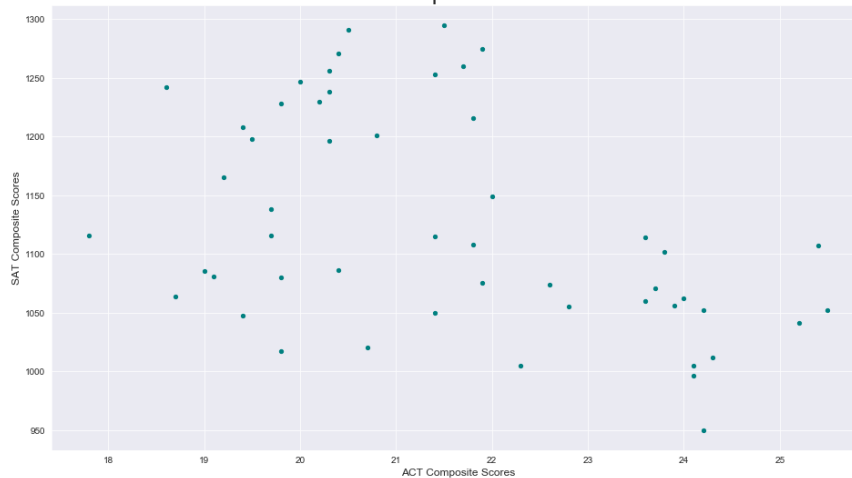
2017 SAT Math Scores were inversely correlated with ACT Math Scores



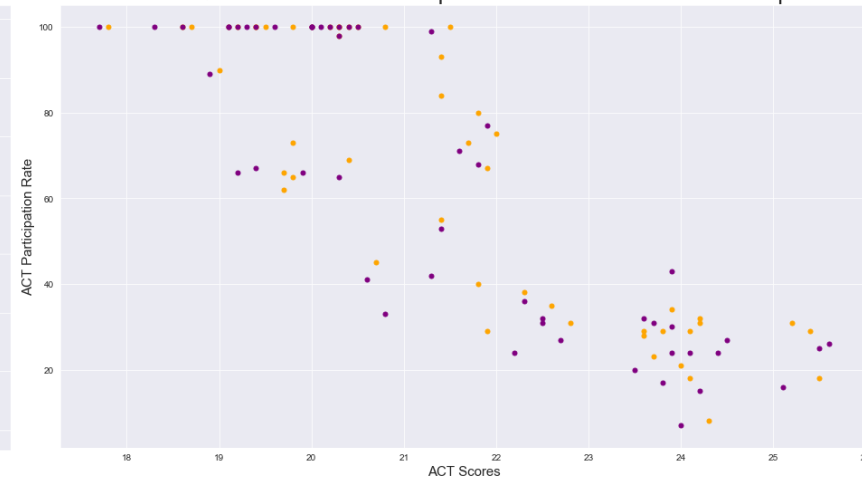
2017 & 2018 SAT :: As Participation Rate Increases Scores Drop



SAT v. ACT Composite Scores for 2017

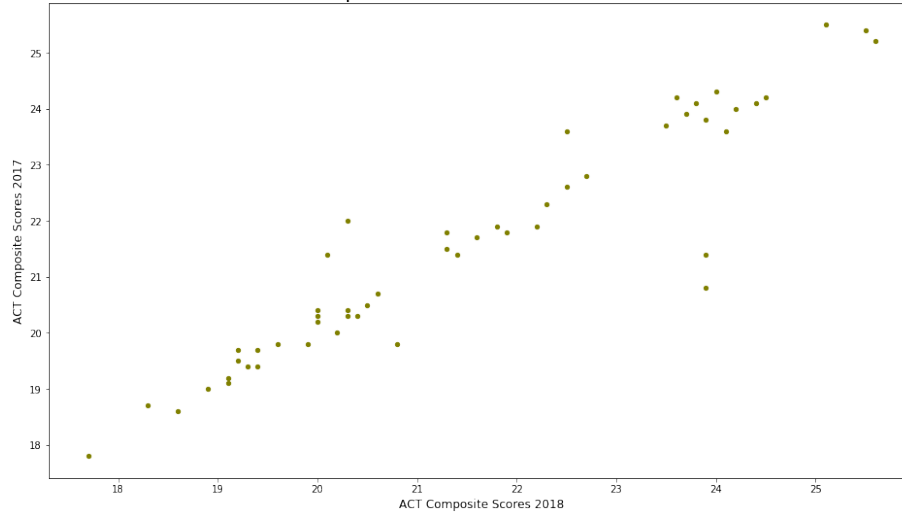


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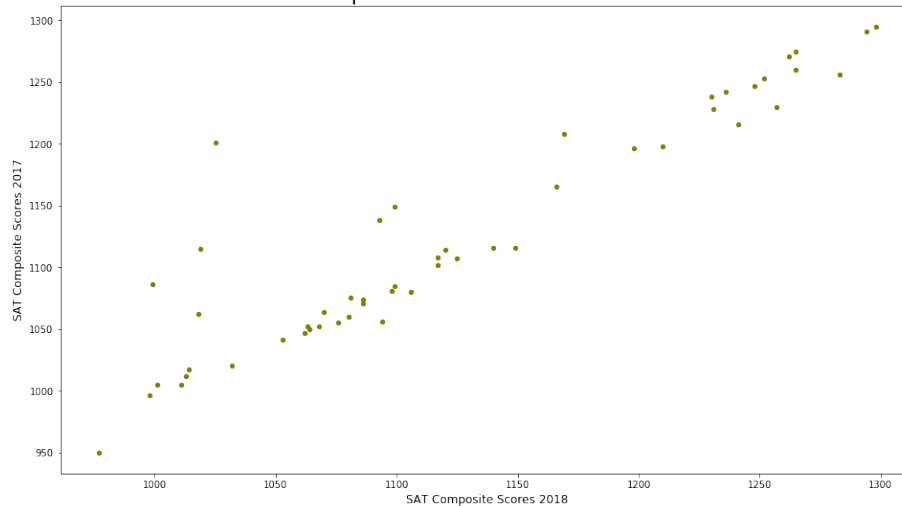
# Visualizing the Data: Distributions

ACT Composite Scores for 2017 vs. 2018

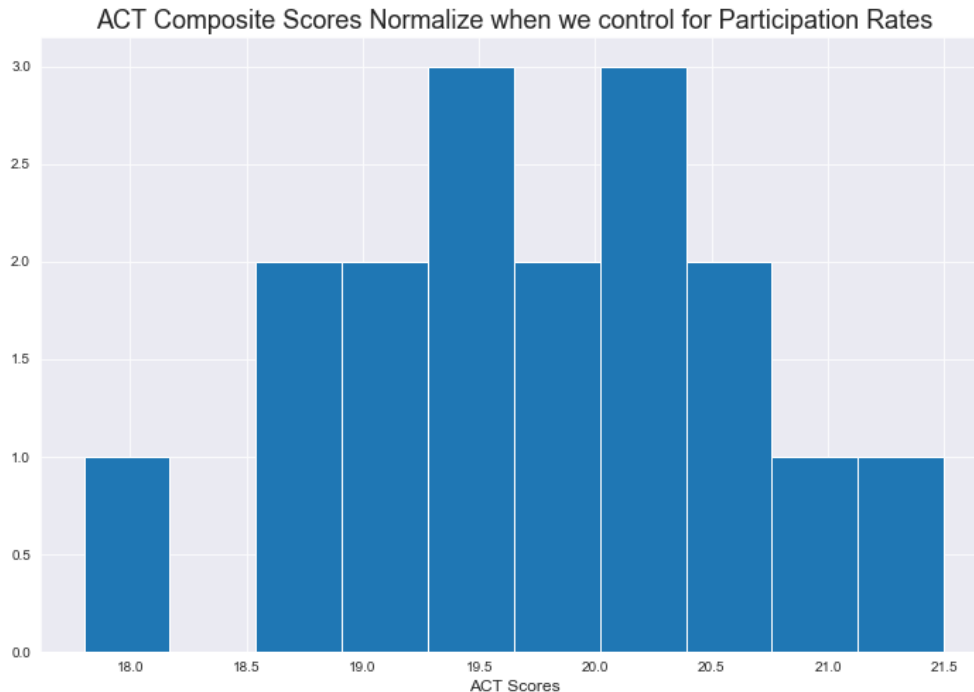


- Composite scores for the ACT and SAT have a strong positive relationship from 2017 to 2018.
- The correlation coefficient for ACT 2017 & 2018 is 0.94
- The correlation coefficient for SAT 2017 & 2018 is 0.92

SAT Composite Scores for 2017 vs. 2018



# Evaluations



- One curious finding was when we controlled for population our distribution of scores began to normalize
- Above is the distribution of ACT scores in 2017 for states that had 100% participation rate
- The sample size was small ( $n = 17$ ) but there is definitely a trend

# Further Research

- Colorado and Illinois:
- Both have made recent changes to their testing participation. Moving from the long favored ACT to the SAT.
- The moves seem to be very political with large contracts being handed out to the the College Board (the administrator and owner of the SAT)
- These contracts are working in conjunction with state legislation that requires all high schools to offer the test free of charge to juniors and require that they take it
- The SAT has been traditionally required by most colleges and universities on the coasts and this could potentially be a push to make students more competitive in those environments.

Additional Resources:

1. <https://www.chicagotribune.com/news/ct-illinois-chooses-sat-met-20160211-story.html>

2: <https://www.chalkbeat.org/posts/co/2015/12/23/goodbye-act-hello-sat-a-significant-change-for-colorado-high-schoolers/>



# Recommendations:

- It appears that the two main drivers of test participation are college requirements and state board of education decisionmakers
- It is surprising that a state like Vermont has such low rates of participation in both the SAT and the ACT.
- 2017 ACT - 29%; 2018 ACT - 24.0%
- 2018 SAT - 60%; 2018 SAT - 64%
- I would encourage the College Board or the ACT testing service to demonstrate the value of their test to legislators and the department of education in this state
- Invest more money in lobbying efforts with the state and local universities

PWD