



HOW TO IMPROVE THE PARTICIPATION RATE IN PENNSYLVANIA?

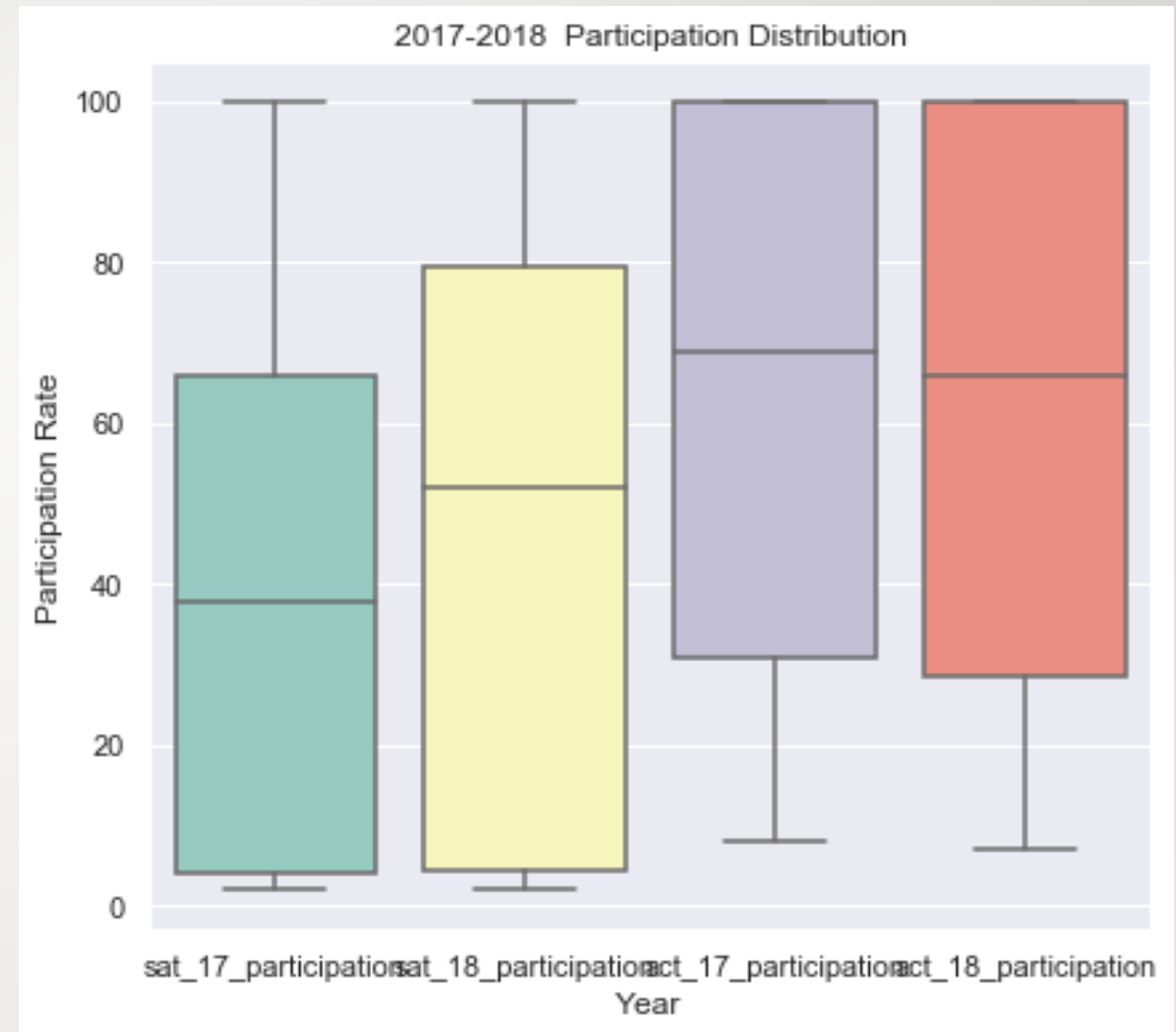
# US: Participation Rate

Average Participation Rate: SAT vs ACT

- 2017 : 39.80% vs 65.25%
- 2018 : 46.63% vs 61.69

Percentile :

- 2017 vs 2018
  1. 25% percentile is 4% vs 4.5%
  2. 50% percentile is 38% vs 52%
  3. 75% percentile is 66% vs 79.5%



# Pennsylvania Participation

- Not a big fan of ACT test
- Fall into 75% percentile
- It means Penn's participation rate has greater than average national participation rate.

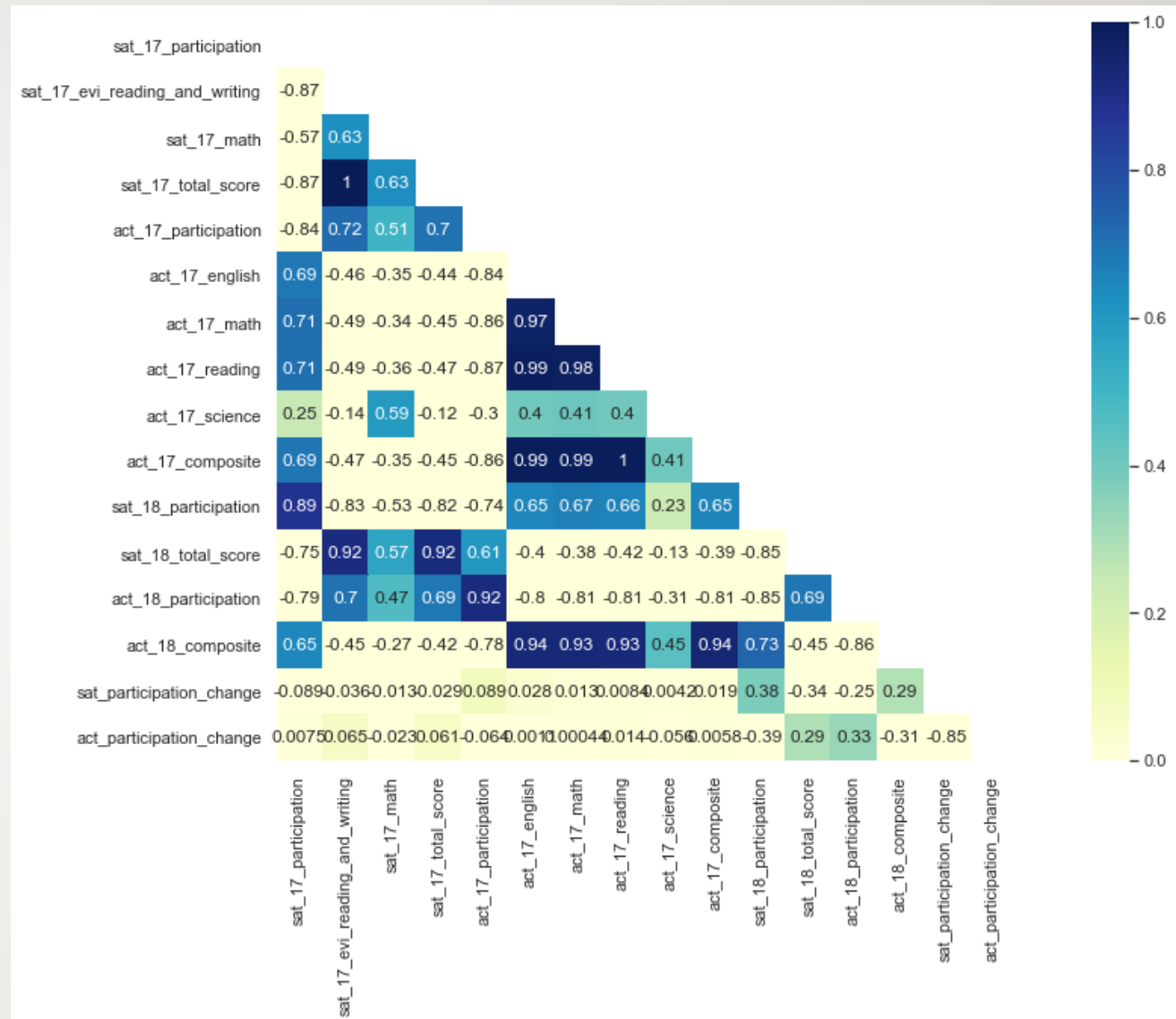
	state	sat_17_participation	sat_18_participation	sat_participation_change
38	Pennsylvania	65	70	5

	state	act_17_participation	act_18_participation	act_participation_change
38	Pennsylvania	23	20	-3

# Correlations on all variables

Interesting findings:

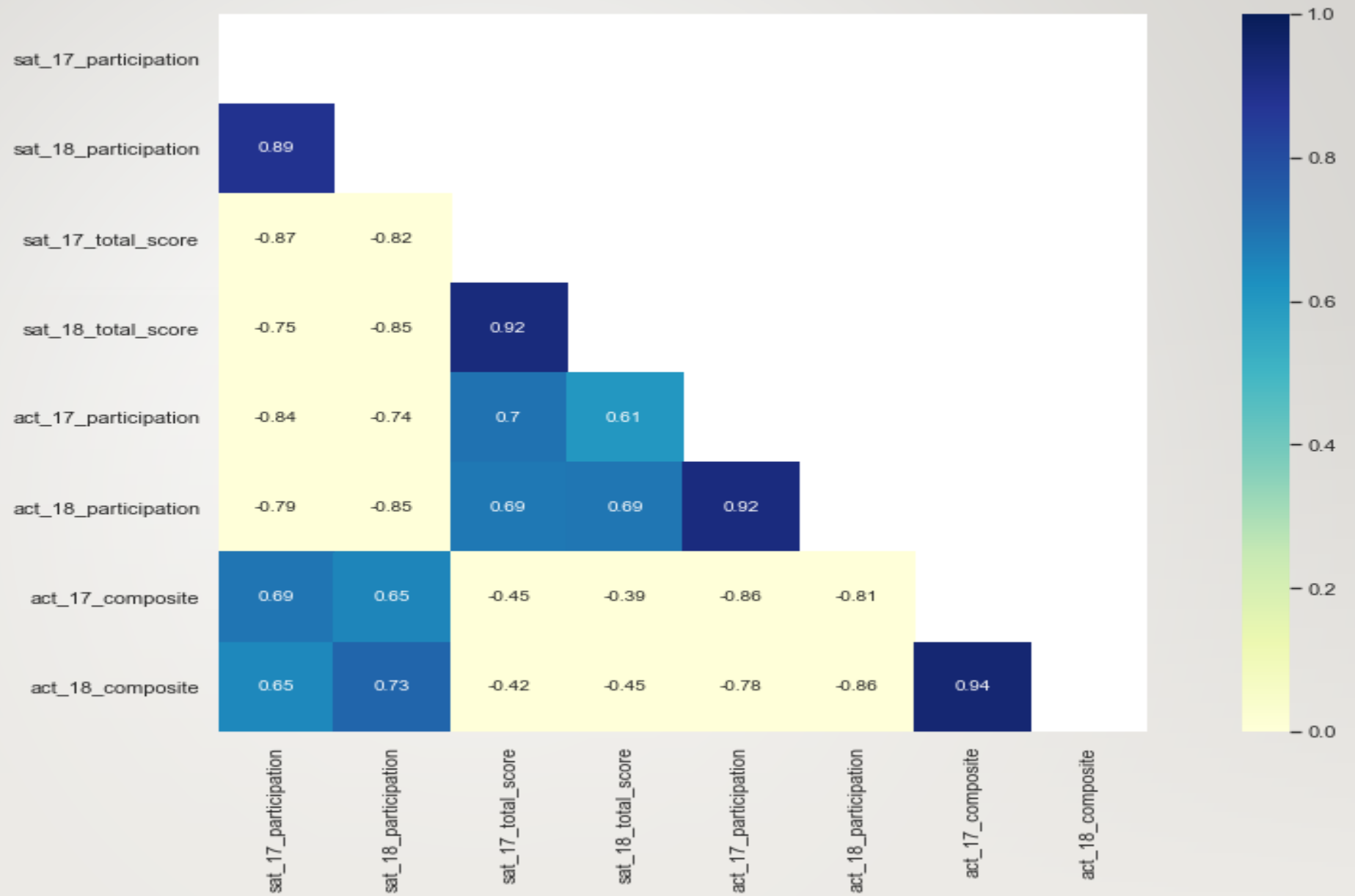
- Higher ACT Science score, higher SAT Math Score. These two variables have Positive Correlation
- Higher ACT Composite Score, the higher SAT participation Rate due to Positive Correlation



# Correlations

Total Score  
vs  
Participation

The highest Participation  
rate, the lower total  
scores

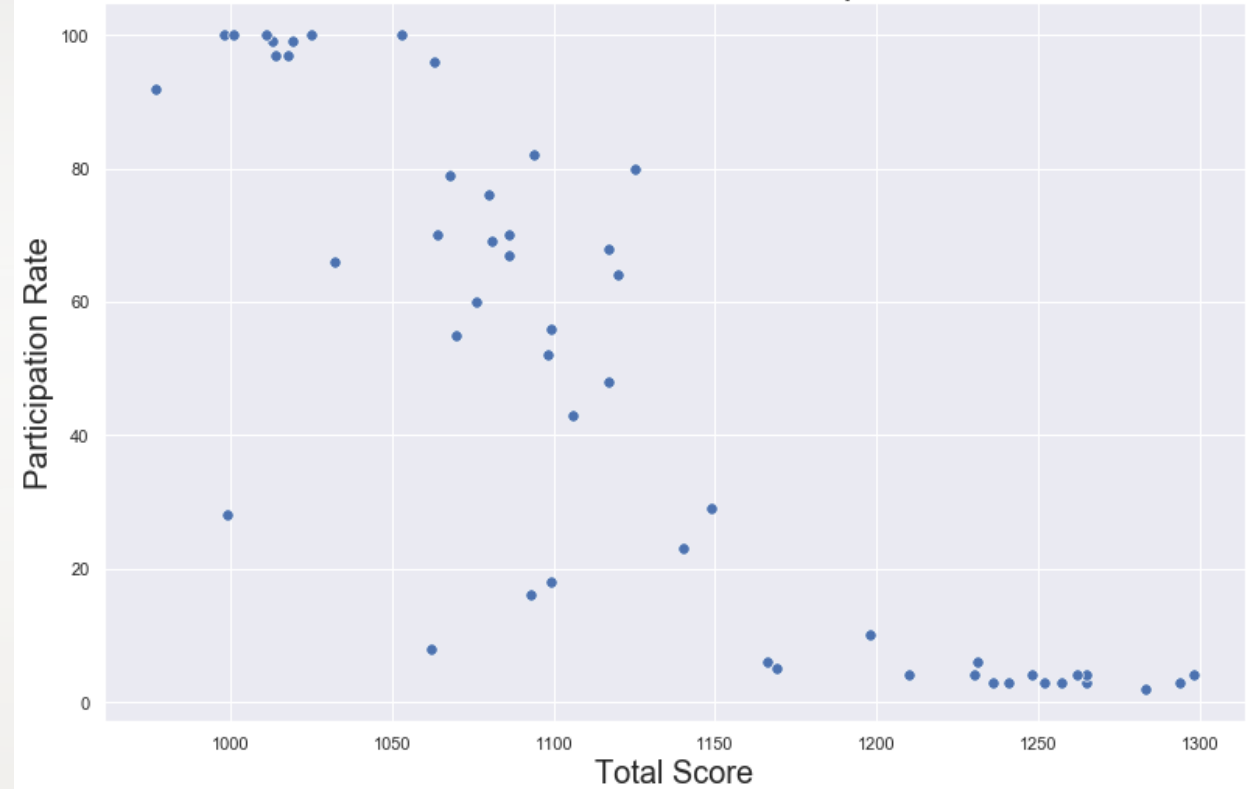




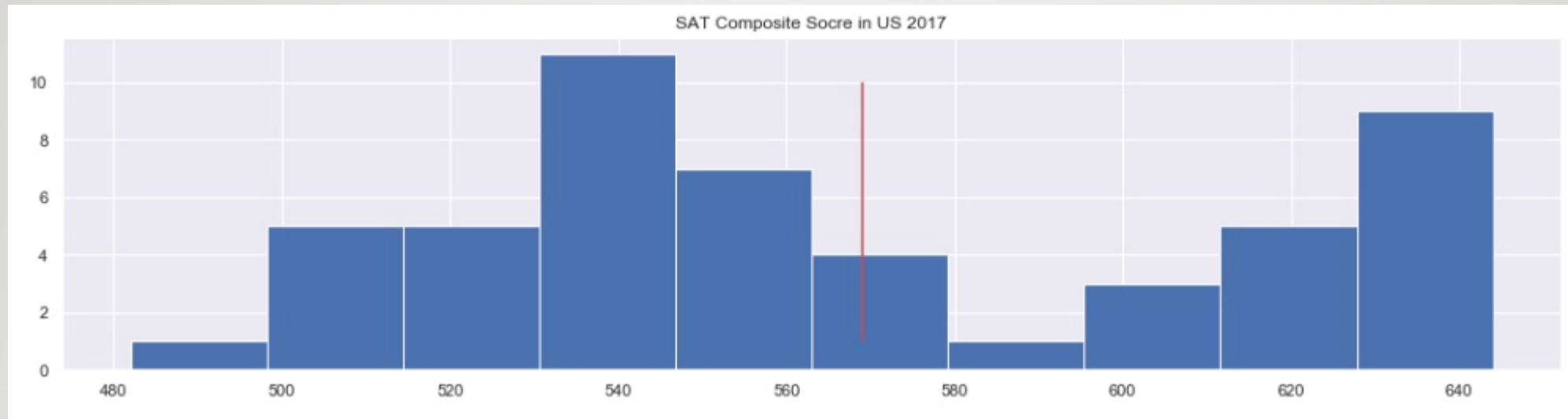
SAT Total Score vs SAT Participation 2017



SAT Total Score vs SAT Participation 2018

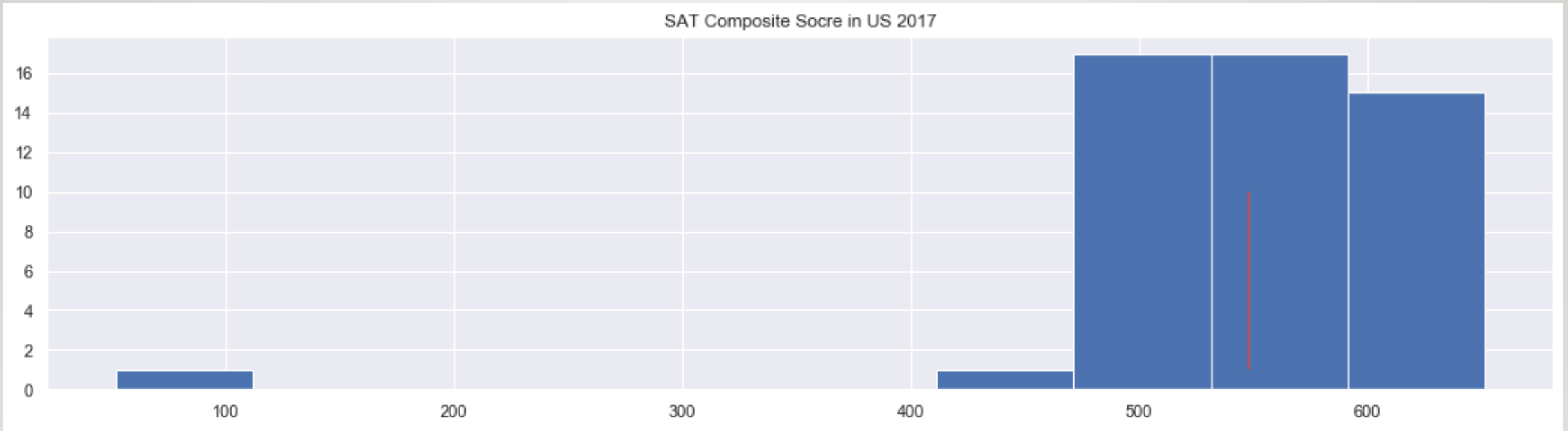


These two Scatterplots shows there are strong correlation between SAT Participation and Total Score  
More participation rate does not mean students perform well.



2017 SAT Composite score 's mean is around 559.117 vs Penn 510.55 (source: [www.education.pg.gov](http://www.education.pg.gov))

2018 SAT Composite score's means is around 528.81 (source: [www.education.pg.gov](http://www.education.pg.gov))



2017 SAT Math score 's mean is around 525 vs Penn 521.44 (source: [www.education.pg.gov](http://www.education.pg.gov))

2018 SAT Math score's means is around 518.11 (source: [www.education.pg.gov](http://www.education.pg.gov))



According to the most recent ACS, the racial composition of Pennsylvania was:

- White: 81.14%
- Black or African American: 11.08%
- Asian: 3.26%
- Two or more races: 2.32%
- Other race: 1.96%
- Native American: 0.20%
- Native Hawaiian or Pacific Islander: 0.03%

There are 502,020 high school graded in 2017, however, only 82,000 students took The SAT.

Reason: The lowest participation was among English learners (21 percent), American-Indian students (27 percent), and low-income, African-American and Latino students, which each had a participation rate of 34 percent.

- According to the Washington Post, the low participation rate on both SAT or ACT, it is Because many high schools offer career path program or career certification program
  - lack of motivation to take SAT or ACT
- Conclusion: Although the correlation between Total score vs SAT participation has strong negative relationship, the dataset also indication the higher score in ACT composite will also have a higher SAT participation which I don't think that will be the case unless the students took both tests. But Penn has low participation rate in ACT, so I think the College board should first increase the incentive of taking SAT in order to increase the rate of participation.
- Recommendation:
  - Partner with high school to structure out after-school SAT prep training course
  - Discount/fee waver/Scholarship for low-income households