

# Making SAT the preferred option

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FOR STATE EDUCATION ADMINISTRATORS



# Background for this study

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Participation in the college admission tests has increased, due to various factors, such as,

1. Mandatory requirements for admission to institutes of higher learning
2. Fee waivers offered by states
3. SAT is working to expand its market share in recent years by revising the test and entering into deals with numerous states and school systems to give students the exam.

Increase in number of students has impacted some state average scores

This study is also an opportunity to assess the performance of the 2017 and 2018 cohorts in the ACT and SAT tests

[https://en.wikipedia.org/wiki/List\\_of\\_standardized\\_tests\\_in\\_the\\_United\\_States#Admissions\\_tests](https://en.wikipedia.org/wiki/List_of_standardized_tests_in_the_United_States#Admissions_tests)

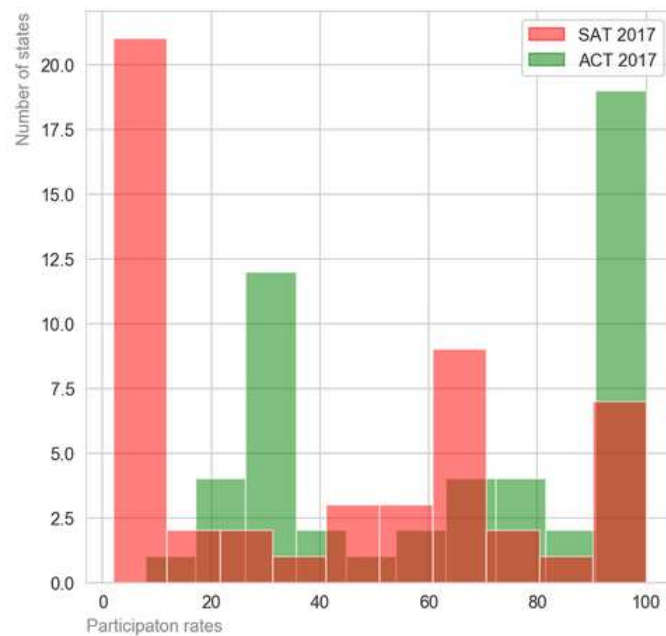
<https://www.usnews.com/education/best-colleges/articles/2018-01-23/how-to-take-the-sat-act-for-free>

<https://www.edweek.org/ew/articles/2017/09/07/us-students-scores-inch-up-on-latest.html>

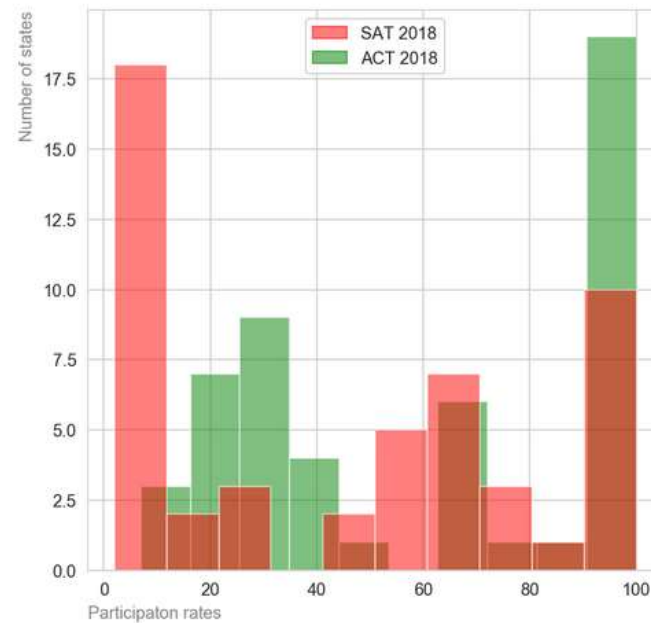
# SAT is increasingly the 'preferred' test

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ACT and SAT 2017



ACT and SAT 2018



# SAT 2018 participation rates

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state	sat2017_participation	sat2018_participation
Colorado	11.0	100.0
Connecticut	100.0	100.0
Delaware	100.0	100.0
Michigan	100.0	100.0
Idaho	93.0	100.0
Maine	95.0	99.0
Illinois	9.0	99.0
Rhode Island	71.0	97.0
New Hampshire	96.0	96.0
District of Columbia	100.0	92.0

Highest participation

state	sat2017_participation	sat2018_participation
Louisiana	4.0	4.0
Kentucky	4.0	4.0
Kansas	4.0	4.0
South Dakota	3.0	3.0
Nebraska	3.0	3.0
Mississippi	2.0	3.0
Iowa	2.0	3.0
Wisconsin	3.0	3.0
Wyoming	3.0	3.0
North Dakota	2.0	2.0

Lowest participation

# Details of the study

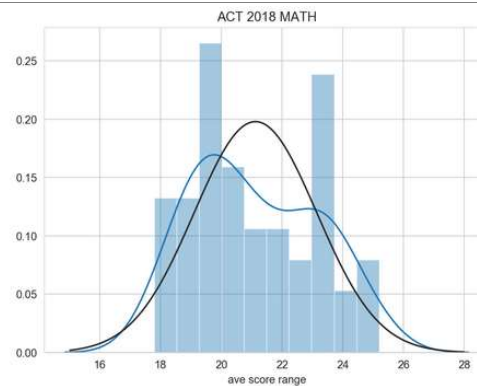
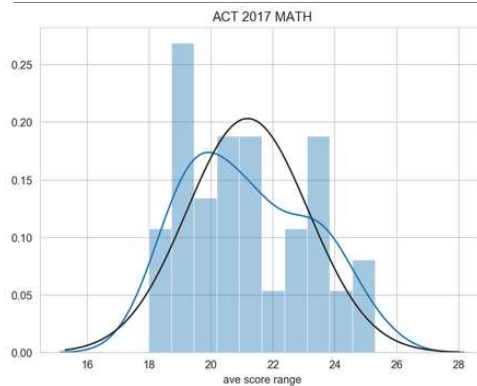
	count	mean	std	min	25%	50%	75%	max
act2017_participation	51.0	65.254902	32.140842	8.0	31.00	69.0	100.00	100.0
act2017_eng	51.0	20.931373	2.353677	16.3	19.00	20.7	23.30	25.5
act2017_math	51.0	21.182353	1.981989	18.0	19.40	20.9	23.10	25.3
act2017_reading	51.0	22.013725	2.067271	18.1	20.45	21.8	24.15	26.0
act2017_science	51.0	21.450980	1.739353	18.2	19.95	21.3	23.20	24.9
act2017_composite	51.0	21.519608	2.020695	17.8	19.80	21.4	23.60	25.5
sat2017_participation	51.0	39.803922	35.276632	2.0	4.00	38.0	66.00	100.0
sat2017_evi_based_read_write	51.0	569.117647	45.666901	482.0	533.50	559.0	613.00	644.0
sat2017_math	51.0	556.882353	47.121395	468.0	523.50	548.0	599.00	651.0
sat2017_total	51.0	1126.098039	92.494812	950.0	1055.50	1107.0	1212.00	1295.0
act2018_participation	51.0	61.647059	34.080976	7.0	28.50	66.0	100.00	100.0
act2018_composite	51.0	21.486275	2.106278	17.7	19.95	21.3	23.55	25.6
act2018_eng	51.0	20.988235	2.446356	16.6	19.10	20.2	23.70	26.0
act2018_math	51.0	21.125490	2.035765	17.8	19.40	20.7	23.15	25.2
act2018_reading	51.0	22.015686	2.167245	18.0	20.45	21.6	24.10	26.1
act2018_science	51.0	21.345098	1.870114	17.9	19.85	21.1	23.05	24.9
sat2018_participation	51.0	45.745098	37.314256	2.0	4.50	52.0	77.50	100.0
sat2018_evi_based_read_write	51.0	563.686275	47.502627	480.0	534.50	552.0	610.50	643.0
sat2018_math	51.0	556.235294	47.772623	480.0	522.50	544.0	593.50	655.0
sat2018_total	51.0	1120.019608	94.155083	977.0	1057.50	1098.0	1204.00	1298.0

State-wise scores for individual components of ACT and SAT (years 2017 and 2018) were collected and studied

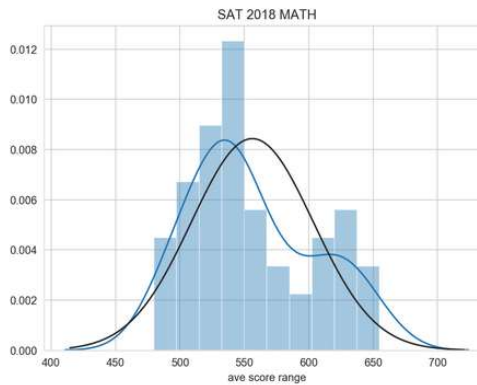
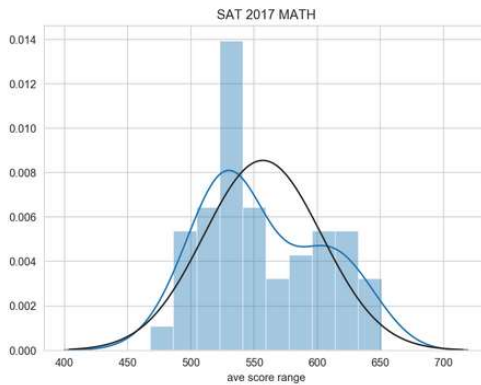
Means of analysis used

- Calculation of mean and std deviation
- Calculation of quantiles (25, 50 and 75 quantiles)
- Study of skewness and distributions of scores
- Hypothesis testing

# Comparison of average Math scores



ACT scores show 2 distinct parts



SAT scores show the tendency towards becoming Normal distribution

# Limitations of study

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1. Available data is for only 2 years, hence it is hard to predict trends.
2. Timing is critical as many states are relooking at the ACT and SAT and policy decisions are being made on whether these should be mandatory or optional. Also, the cost of these decisions is an important factor for the administration.
3. Colleges are questioning the holistic nature of tests and some are considering scrapping them totally. As of January 2018, over 1,000 colleges and universities have stopped requiring SAT or ACT scores for undergraduate applicants.

<https://www.huffpost.com/entry/abolish-standardized-testing-for-college-admissions>



# Studying trend of ACT and SAT composite scores

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- Hypothesis testing was done using T-test with 2 sets of data
- Null hypothesis: Test scores are similar for the years being tested
- Outcome: Insufficient data to accept or discard the null hypothesis

```
stats.ttest_ind(final['act2017_composite'],final['act2018_composite'], equal_var=False)
Ttest_indResult(statistic=0.08155560824978776, pvalue=0.9351633936862667)
```

```
stats.ttest_ind(final['sat2017_total'],final['sat2018_total'], equal_var=False)
Ttest_indResult(statistic=0.32888697491988567, pvalue=0.7429291116643162)
```

Null hypothesis: ACT and SAT average composite scores are similar for the years 2017 and 2018

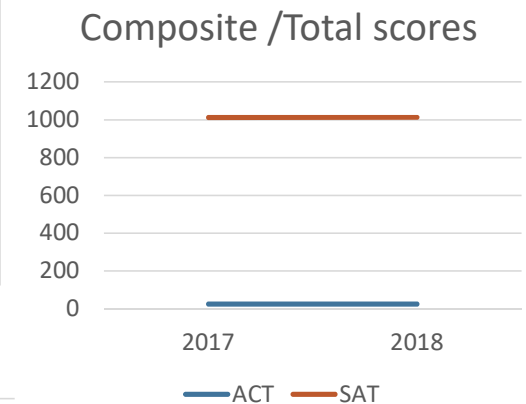
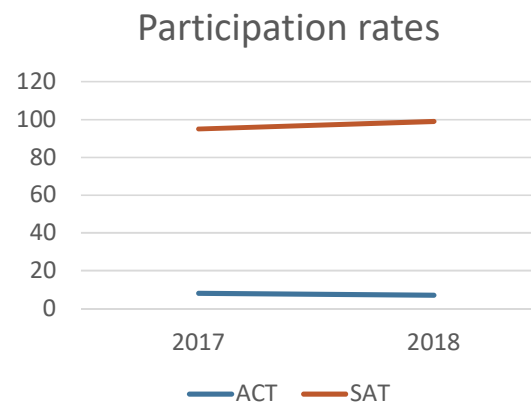
Since the pvalues are above alpha (0.05) there is insufficient data to accept or discard the Null Hypothesis. This supports the earlier comment that additional info is needed to assess the Null hypothesis.



# Maine

- Like all schools in the Northeast, is dominated by students who take the SAT instead of the ACT.
- Test is optional
- Most top colleges do not need test scores
- Record of good SAT scores over past 2 years along with increase in participation

	2017	2018
ACT Participation	8%	7%
SAT Participation	95%	99%
ACT Composite	24.3	24
SAT Total	1012	1013

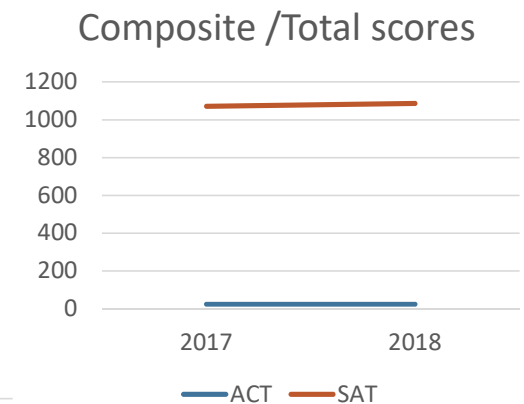
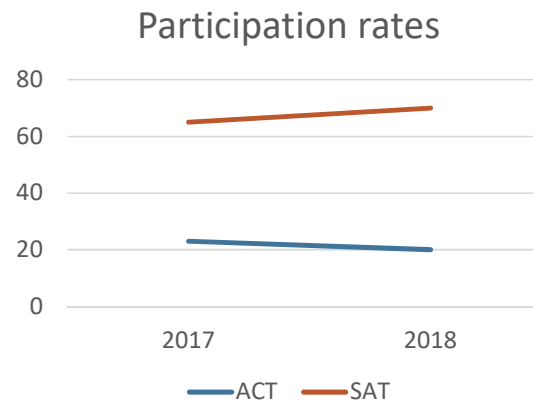


# Pennsylvania

Strategies to convince state officials that SAT should be their choice

- Share about past record of 2 years to show how the cohorts have done well in SAT
- Ave SAT scores have grown along with SAT participation rates
- Provide support to administrative faculty in organising for the test and students taking up the test
- Conduct test on weekday to ensure high participation
- Any other incentives for administrators (?)
- Feedback from colleges / institutes of higher learning on how SAT can be made more holistic

	2017	2018
ACT Participation	23	20
SAT Participation	65	70
ACT Composite	23.7	23.5
SAT Total	1071	1086



**Thank You!**

