

How do we increase SAT Participation?

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Bryan Chong for The College Board

Background

Context

Ever since the change to the SAT exam format in 2016, and developments concerning ESSA and the dropping of consortia high school testing by PARCC/Smarter Balanced, the SAT has a unique opportunity to improve its position as the leading college-readiness testing service in the USA.

Objective

Many states have already chosen the SAT as their high school exam.

The objective of this study is to find the next suitable state for the College Board's direct investment for the purpose of increasing SAT Participation, preferably to 100% each year.

Problem Statement

To meet the objective, we first must study:

Does

1. ACT participation,
2. SAT average scores, or
3. ACT average scores

For a given year affect SAT participation for that year, and

4. What other factors outside of the given data affect it?

Methodology

Use of Historical Data

Using 2017 and 2018 SAT and ACT aggregated data per state, relationships betw. aggregated SAT, aggregated ACT, and ACT participation and SAT participation was determined.

Other Data Brought In

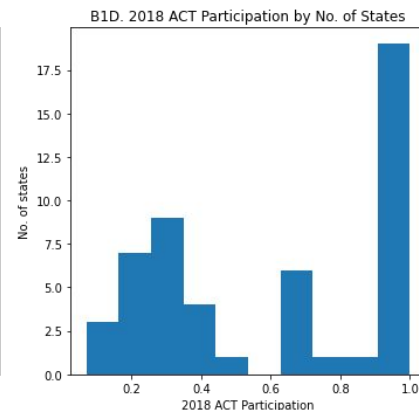
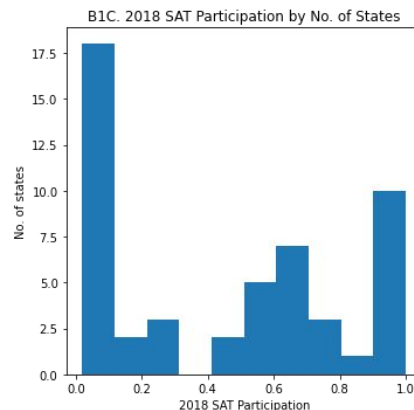
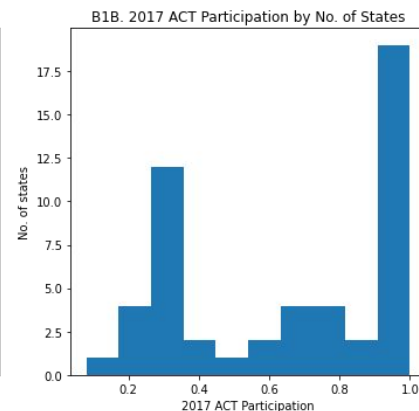
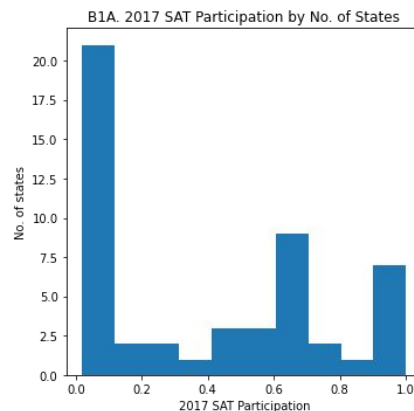
State-wise high school compulsory test and median household income data from census.gov was also used.

Recommendation Made

State which has a low SAT participation rate but has the best chance, based on this reports established relationships, to adopt the SAT as its high school test standard was chosen.

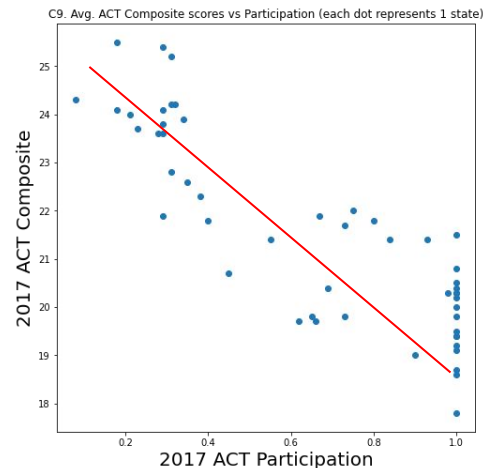
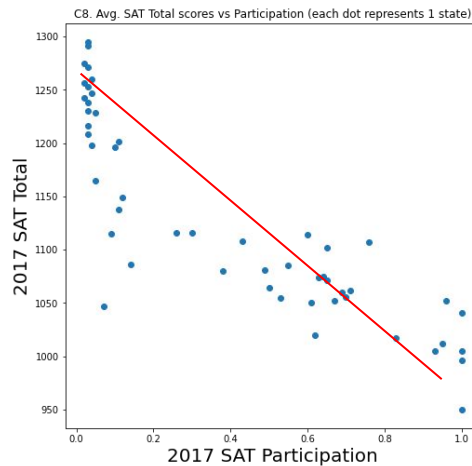
Finding 1: SAT and ACT participation rates have are inversely correlated

Students typically focus on one or the other if given the choice.



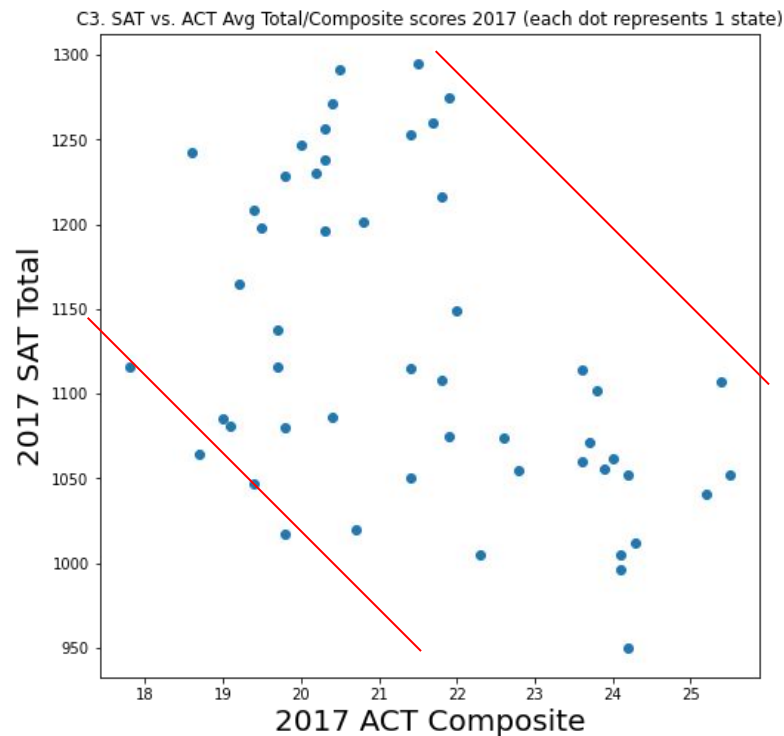
Finding 2: Participation had an inversely correlated relationship with aggregate exam scores.

Lower participation typically means only excellent students decided to attempt the paper, if the paper is optional.



Finding 3: A high average score in one exam is inversely correlated with the exam score in the other exam.

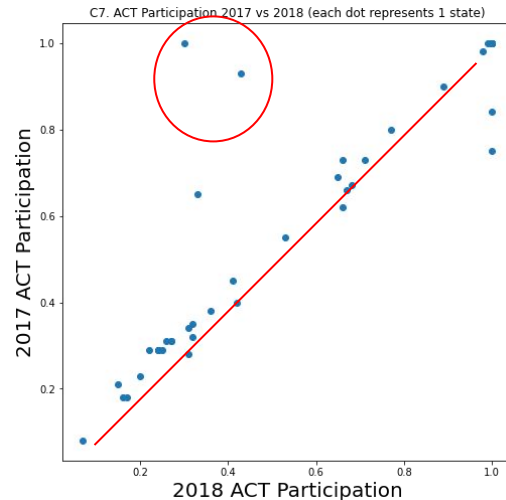
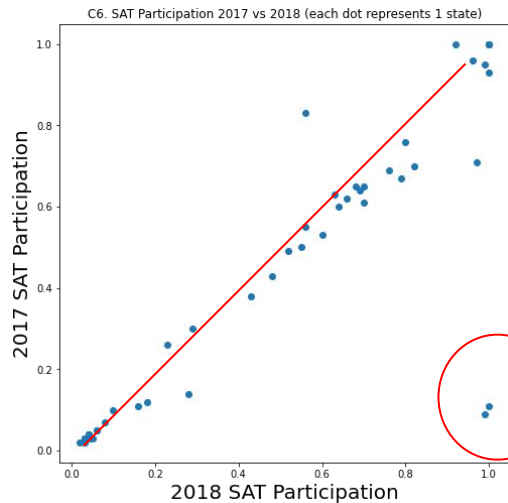
This is expected due to findings 1 and 2.



Finding 4: If the SAT or ACT was taken in 2017, it would continue to be taken in 2018.

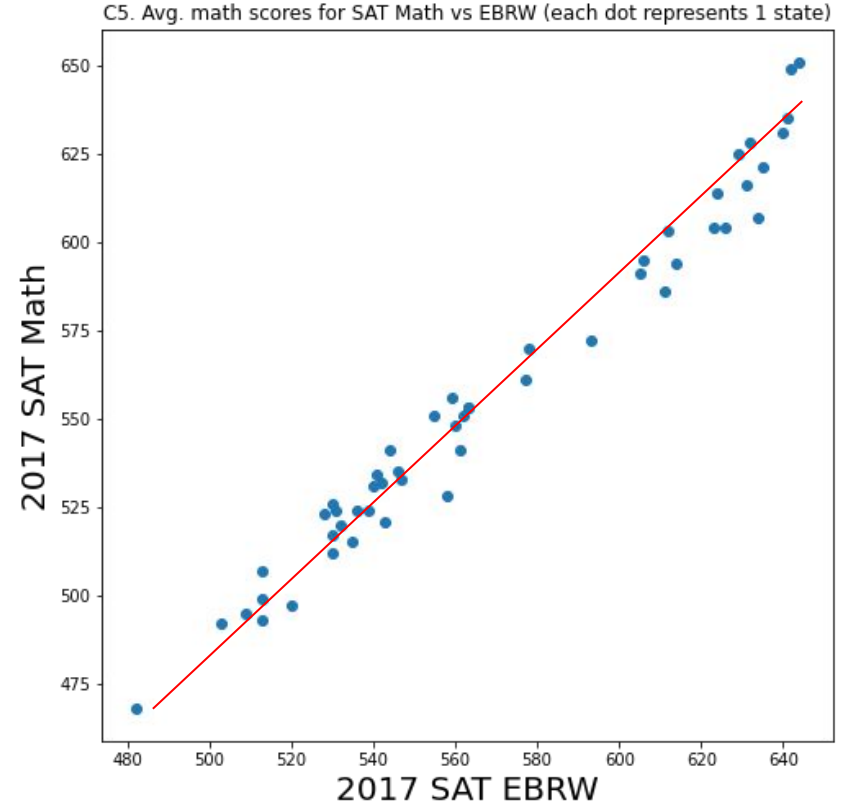
The state chosen should preferably not have a history of high ACT participation.

* That said, there were exceptions (circled)



Finding 5: Average SAT Total and ACT Composite are indicative of average performance in each of their respective component papers.

No insight could be gleaned from how paper structure affected participation.

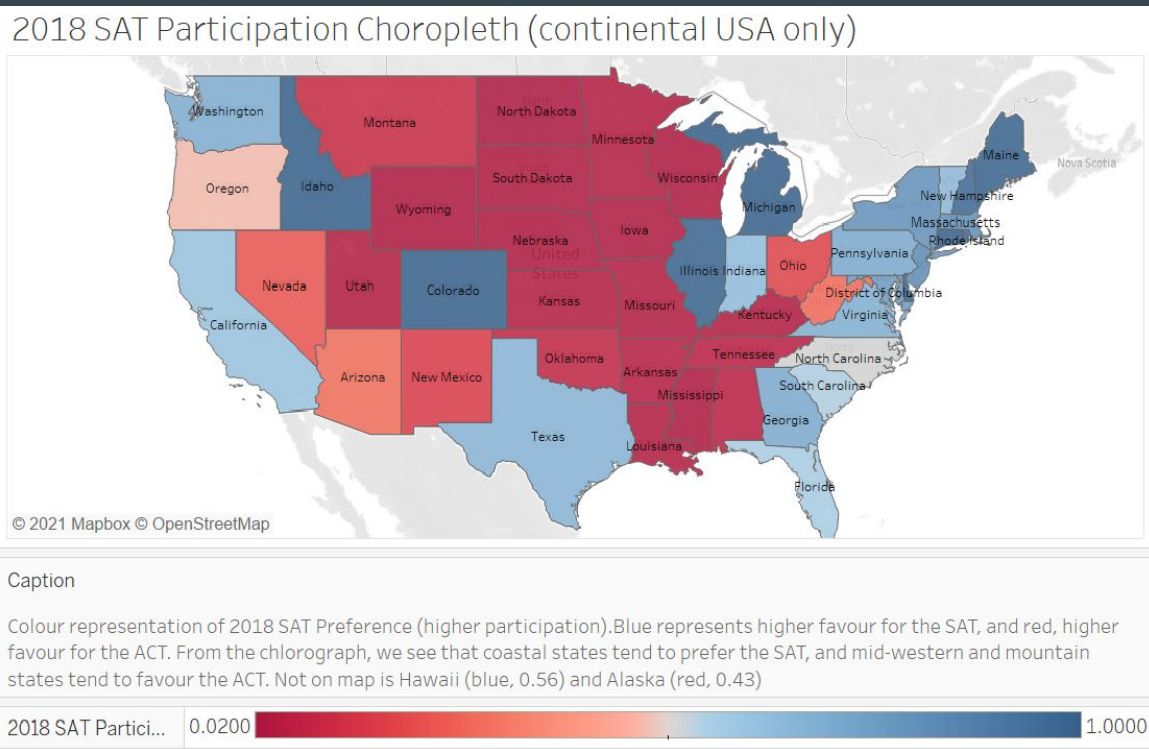


Limitations in Data

Unfortunately, the relationship between 2017 SAT Scores and 2018 SAT Participation (ie. to answer the question: will perceived difficulty of paper (difficult due to lower scoring) affect participation the next year?) This question could not be answered due to exam observation 2 -- that exam score is dependent upon participation due to selection bias.

Individual student performance data samples will be required to answer this question as this data can be adjusted to be independent of participation rates.

Finding 6: States which favoured SAT tended to be on the East and West coast, while Mountain and Mid-western states tend to favour ACT.



Case of Colorado and Illinois: Outliers due to having switched from ACT to SAT despite history of strong ACT participation

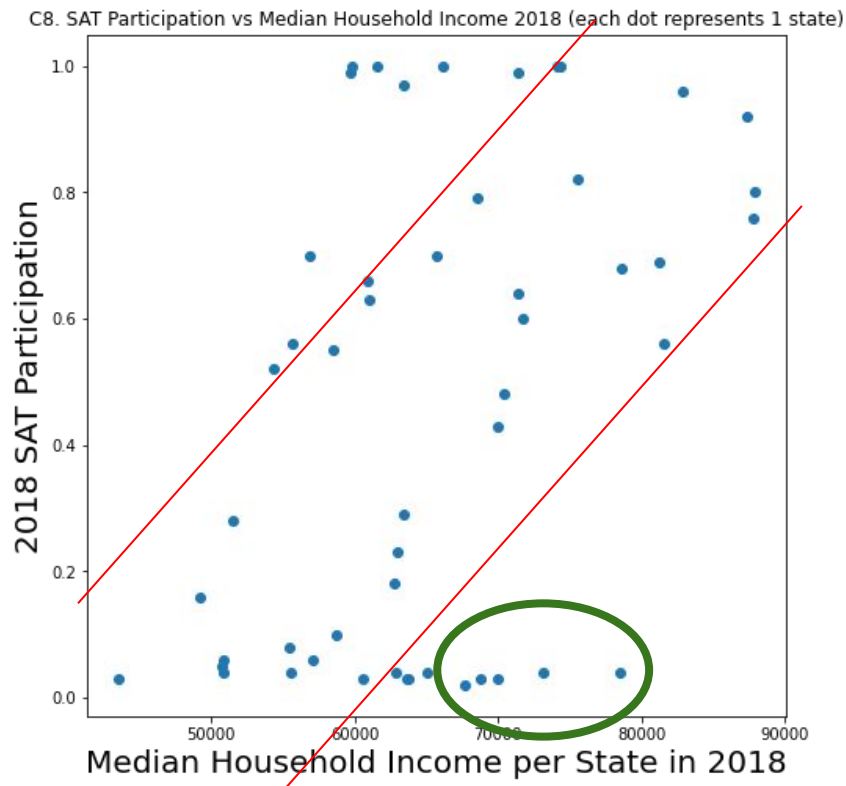


- The College Board won bid to provide states compulsory high school exams.
 - States stated the quality of reporting and promptness of results delivered as factors
 - 1 free test day during a school day provided -- popular perk
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Finding 7: SAT participation was positively correlated with Median Household Income*.

States with higher median household incomes tend to favour SAT over ACT.

* Source of Median Household Income data: census.gov



Our candidate would be found in the green circle above

Recommended State



Oregon

Highly Favourable Factors

Pop: 4.218 million (2019) (compared to Colorado 5.759 million (2019))

Median Household Income: USD 70,400 (compare Colorado USD 74,400, Illinois USD 71,400)

SAT 2018 Participation: 48%

ACT 2018 Participation: 42% (no preference yet)

Current Compulsory Test: Still using Smarter Balanced high school tests rapidly being phased out nation-wide.

Region: East Coast and next to other SAT preferring states: Washington, Idaho and California

Further Study

1. Effect of trend of colleges going test-optional.
2. Effect of perception of test difficulty on participation (with individual score data).
