



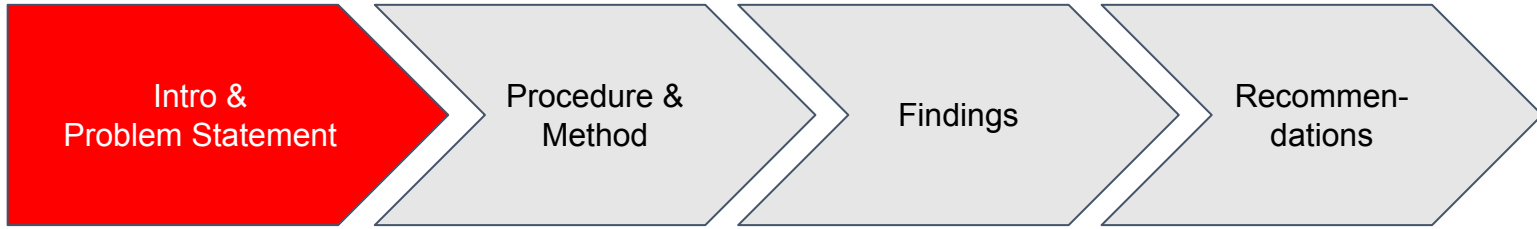
**GENERAL  
ASSEMBLY**



## **GA-DSIF2: Group 1 – Project 1**

### **Standardized Test Analysis**

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# While the SAT has been tremendously successful in the past, strategic challenges require immediate intervention

## Challenges

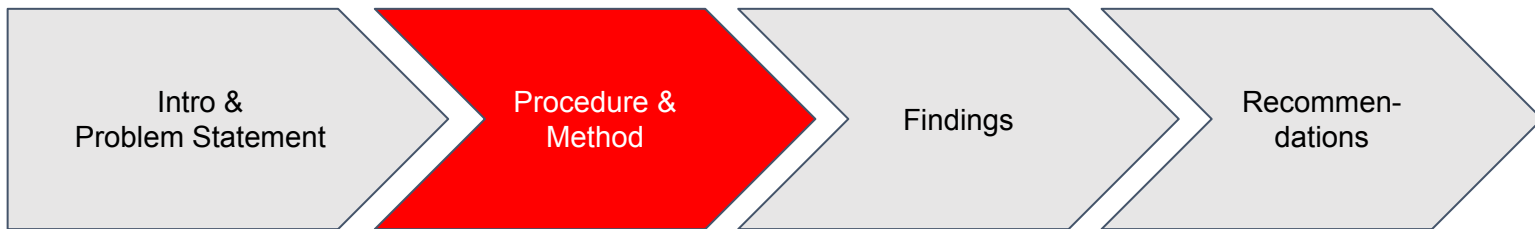
- While College Board has been very successful in the past (\$140 million profits in 2017), it has since been experiencing **rapidly declining financials** (-59% in 2019)
- Despite clear statistical evidence that SAT scores contribute enormously to predicting student success, vocal critics of SATs negative impact on **social inequality**
- College Board needs to drive this discussion proactively and take steps to analyze concerns about societal inequalities to find tangible solutions on how to raise participation rates



## Key priorities

- **Ensure license-to-operate:** Do we see any factors (e.g. grade inflation, perceptions) that endanger the long-term viability of SAT acceptance?
- **Strengthen SAT acceptance:** Which states should be focused on for higher test adoption?
- **Drive auxiliary revenue:** Where to allocate resources to explore additional income sources with our partner ecosystem (e.g. tuition centres & collaborations)





# Data sources

## Scope

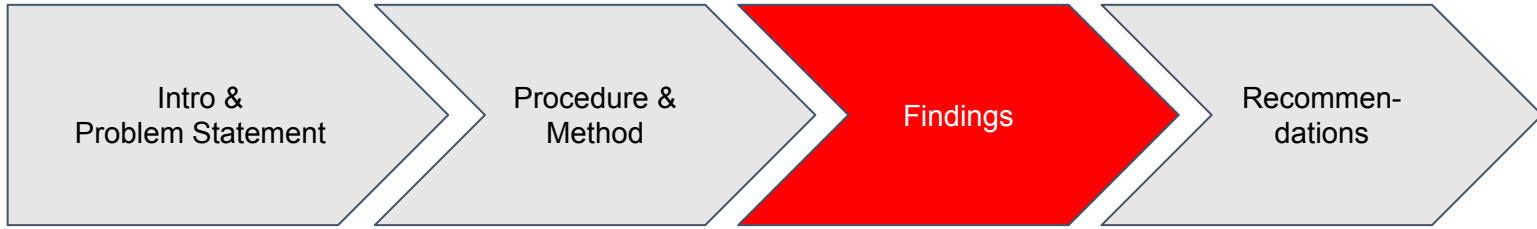
- Period of study - 2017-2019
- US States excluding Puerto Rico and Virgin Islands

## Included Variables

- Participation rate of SAT 2017-2019
- SAT / ACT scores 2017-2019

## External Data

- Number of SAT takers 2017-2019
- Number of High School Graduates 2017-2019
- Regions and Divisions of each state (as defined by US census)
- Median household income for each state 2017-2019
- Standard deviation of test results 2017-2019



# While there is limit evidence of grade inflation, analysis of test score developments indicates strong need for proactive interventions

## Objective

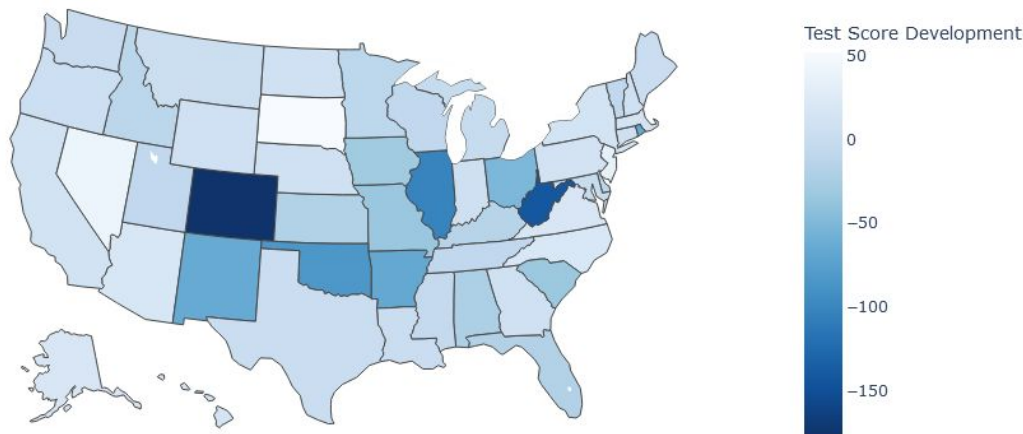
Identify measure to shape discussion around SAT's

**license-to-operate:**

- What are the test score development trends and is there any danger of SAT's approval erosion?
- Which interventions should the College Board drive to support SAT acceptance?

## Analysis & Findings

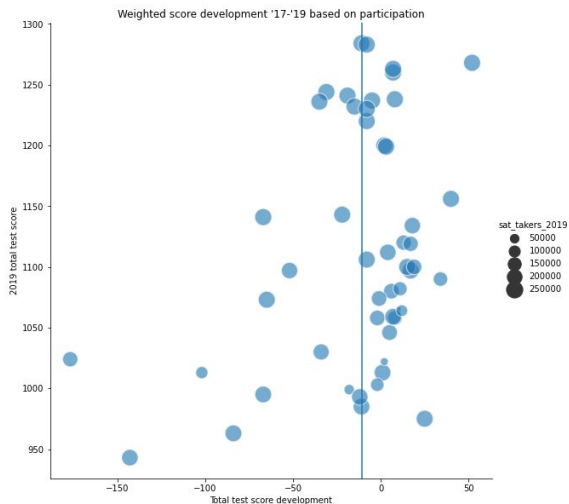
Total test score development by state '17-'19



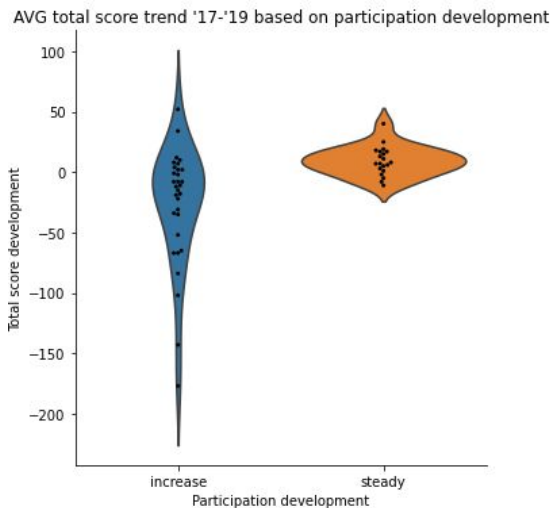
- Average total SAT scores across majority of states are **relatively stable**, with a slight decline (-13 pts) over the '17 - '19 period
- Outliers with more significant score declines seem to be focussed mostly in flyover states, in particular Colorado (-177 pts) - no immediately visible reason, requires deep-dive
- Further analysis needed to factor in respective number of students to make overall assessment

# While there is limit evidence of grade inflation, analysis of test score developments indicates strong need for proactive interventions

## Analysis & Findings



- Accounting for absolute participation numbers, weighted '17 - '19 test score development remains **generally stable** (-11 pts)



- States with **strong participation increase** (> 10% compared to 2017 baseline) show stronger tendency of **score declines (-27 pts)**
- States with **stable participation** show **slight increase** for average test scores (+9 pts)

## Implications

- SAT test scores **overall stable** and do not suggest any dangerous trends requiring immediate intervention
- Risk of SAT acceptance** causing it to become "victim of its own success"
  - increased **adoption driving down average scores** by more test-takers who would otherwise not have taken the test (e.g. caused by e.g. sponsored tests)
  - Danger of strengthening **socio-economic imbalances** by further advantaging students as score averaging pushes their scores up
- Need to **plan interventions** with state and colleges providing accompanying resources  
→ set-up **SAT adoption support task force**



# Analysis shows that the SAT is much less susceptible to benefiting wealthy students compared to the ACT

## Objective

Identify measure to shape discussion around SAT's **license-to-operate**:

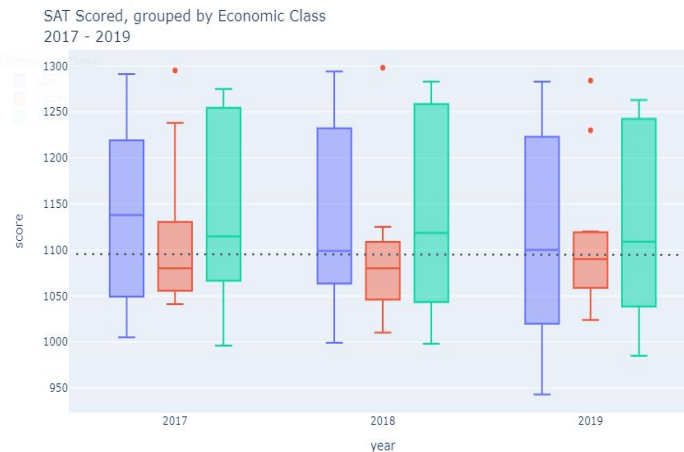
- Is there a relationship between SAT/ACT scores and socioeconomic status?

## Analysis & Findings

Correlation	Act_2017	Act_2018	Act_2019	Sat_2017	Sat_2018	Sat_2019
2017 (USD)	0.566	0.560	0.546	-0.234	-0.266	-0.094
2018 (USD)	0.561	0.574	0.557	-0.123	-0.194	-0.026
2019 (USD)	0.533	0.572	0.551	-0.176	-0.245	-0.097

## Implications

- Initial analysis highlights a very interesting research area for further exploration, as the effect of household income seems to be more significant in the ACT vs SAT
- Findings may be used in stakeholder engagement with policymakers and educational institutions



Economic Class

- Low
- Upper
- Middle

Low Income- <USD 64,586  
Upper Income- >USD 72,017  
Middle Income- USD 64,586 > x > USD 72,017

# The push for strengthening SAT acceptance needs to focus on selected ‘battleground states’

General Observation -There are several states with SAT participation rate of close to 0% or 100%. Additional research shows that there are states (in **red**) mandating SAT or ACT tests for high school students .

The SAT or ACT mandated states are identified and removed from further analysis as there is little or no room to grow SAT participation in these states

Alaska	Arizona	California	Florida	Oregon	Pennsylvania
Indiana	Iowa	Georgia	Washington	Texas	South Dakota
Maryland	Massachusetts	Missouri	New Jersey	New Mexico	New York
Vermont	Virginia				
<b>Alabama</b>	<b>Delaware</b>	<b>District of Columbia</b>	<b>Arkansas</b>	<b>Kansas</b>	<b>Colorado</b>
<b>Connecticut</b>	<b>Illinois</b>	<b>Oklahoma</b>	<b>Nebraska</b>	<b>Michigan</b>	<b>Hawaii</b>
<b>Idaho</b>	<b>Maine</b>	<b>Tennessee</b>	<b>North Carolina</b>	<b>Nevada</b>	<b>Kentucky</b>
<b>Louisiana</b>	<b>Wyoming</b>	<b>West Virginia</b>	<b>Rhode Island</b>	<b>North Dakota</b>	<b>Minnesota</b>
<b>Mississippi</b>	<b>Utah</b>	<b>Montana</b>	<b>Wisconsin</b>	<b>South Carolina</b>	<b>New Hampshire</b>
<b>Ohio</b>					

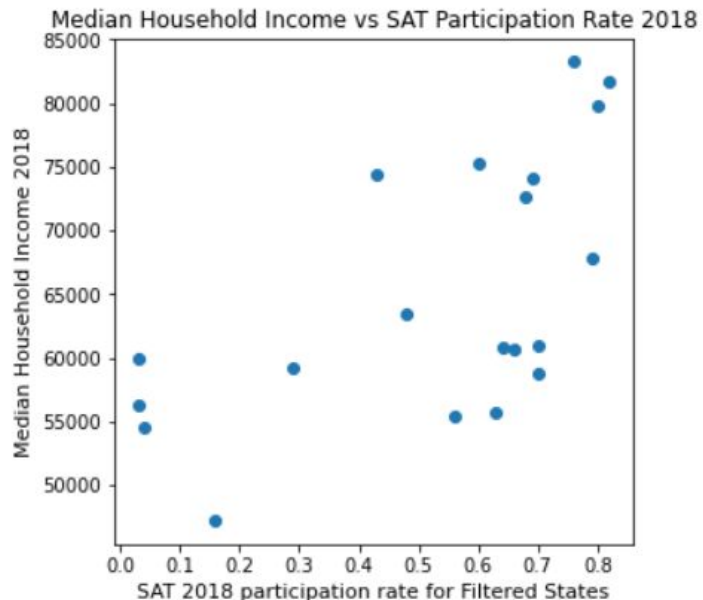
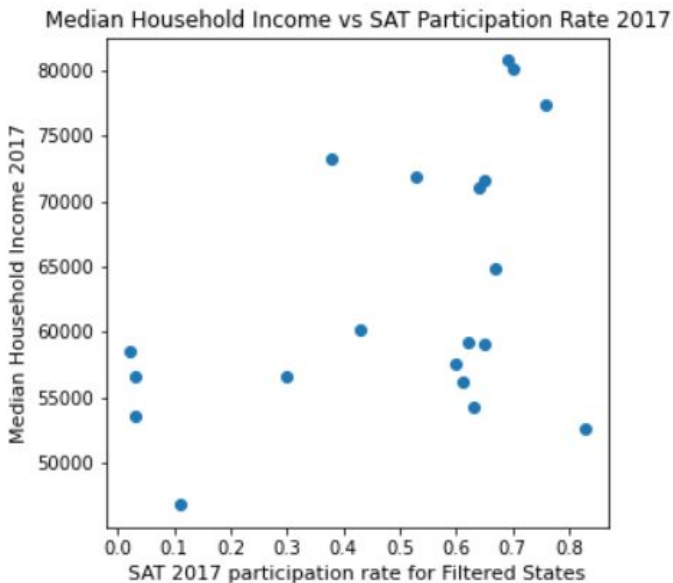
# Correlation btw SAT Participation Rate vs. Median Household Income 2017 - 2018 for Filtered States

## Objective

**Strengthen SAT acceptance:** Which states should be focused on for higher test adoption?

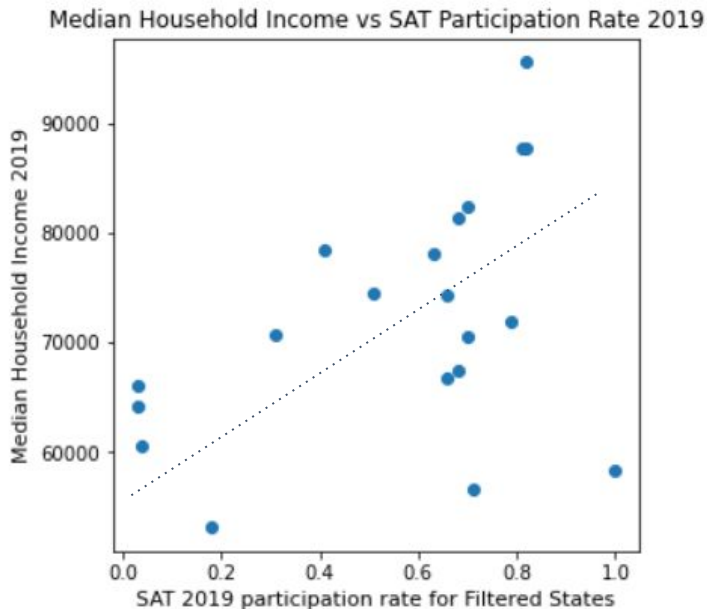
- How and where can College Board grow SAT participation with limited resource?

## Analysis & Findings



# Correlation btw SAT Participation Rate vs. Median Household Income 2019 for Filtered States

## Analysis & Findings



### General Observation across 2017 - 2019

- Moderate positive correlation between the household income and SAT participation rate for 2017 - 2019.
- With higher household income, SAT participation rate increase

## Implications

- Identify several states or division to set up regional centre to grow SAT participation
- Varying subsidized fees of regional centers (educational institutes) according to the median household income of the state/division

# The push for strengthening SAT acceptance needs to focus on selected 'battleground states'

The SAT or ACT mandated states are identified and removed from further analysis as there is little or no room to grow SAT participation in these states

- I further filter out the remaining 20 states not highlighted in red using a filtering criteria. Reject states with SAT participation > 0.70 and ACT participation > 0.50.

Arizona	Florida	Pennsylvania	Iowa	Georgia	Virginia
Washington	Texas	South Dakota	Maryland	Massachusetts	Missouri
New Jersey	New Mexico	New York			
Vermont	Alaska	Indiana	California	Oregon	
<b>Alabama</b>	<b>Delaware</b>	<b>District of Columbia</b>	<b>Arkansas</b>	<b>Kansas</b>	<b>Colorado</b>
<b>Connecticut</b>	<b>Illinois</b>	<b>Oklahoma</b>	<b>Nebraska</b>	<b>Michigan</b>	<b>Hawaii</b>
<b>Idaho</b>	<b>Maine</b>	<b>Tennessee</b>	<b>North Carolina</b>	<b>Nevada</b>	<b>Kentucky</b>
<b>Louisiana</b>	<b>Wyoming</b>	<b>West Virginia</b>	<b>Rhode Island</b>	<b>North Dakota</b>	<b>Minnesota</b>
<b>Mississippi</b>	<b>Utah</b>	<b>Montana</b>	<b>Wisconsin</b>	<b>South Carolina</b>	<b>New Hampshire</b>
<b>Ohio</b>					

Upon conducting exploratory analysis of states which administer exit exams we can see there is only a weak relationship on those states overall total SAT scores.

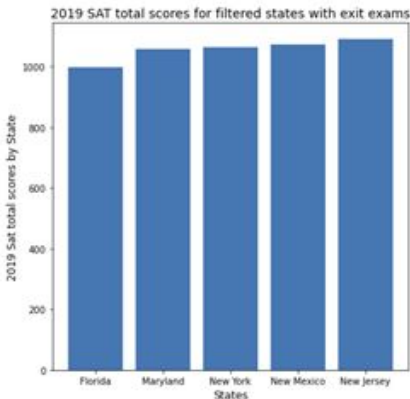
## Objective

**Strengthen SAT acceptance:** Which states should be focused on for higher test adoption?

- Explore if there is a correlation between the states which conduct High School high stakes exams vs the ones who do not
- Compare five of these states with the five filtered states which we identified in our earlier exploratory data analysis.

## Analysis & Findings

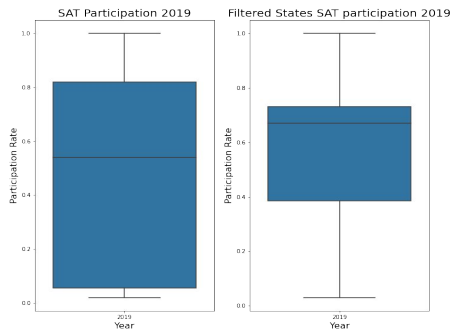
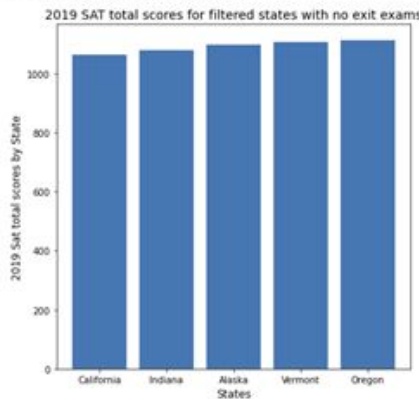
Exit exam states SAT score rates



Un-filtered states SAT participation rate vs filtered states participation rate.

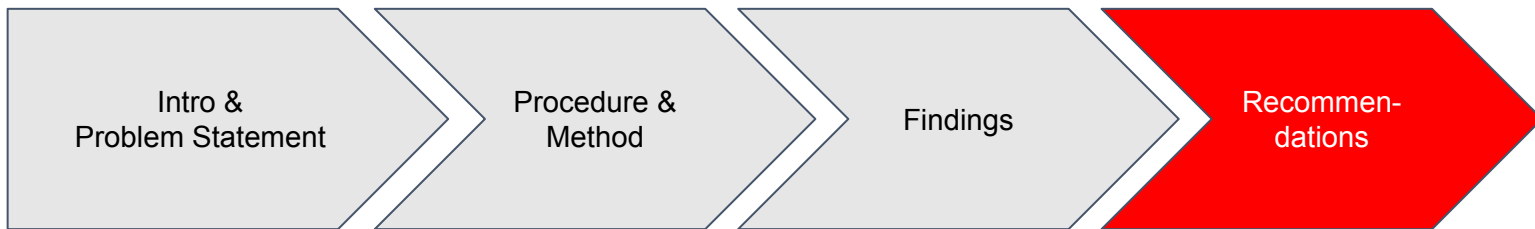
After filtering out SAT and ACT compulsory states, the remaining 20 states will give a more meaningful overview of SAT participation rates.

States with no exit exams



## Recommendations

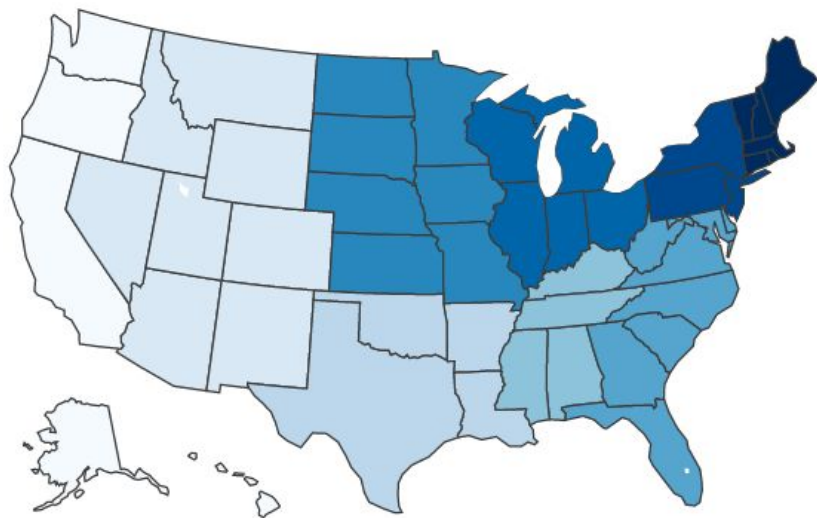
- Work with State Authorities and High Schools to **do away with "High Stakes - Exit Exams"** as there is little difference between the scores of exit exam states vs non-exit exam states.



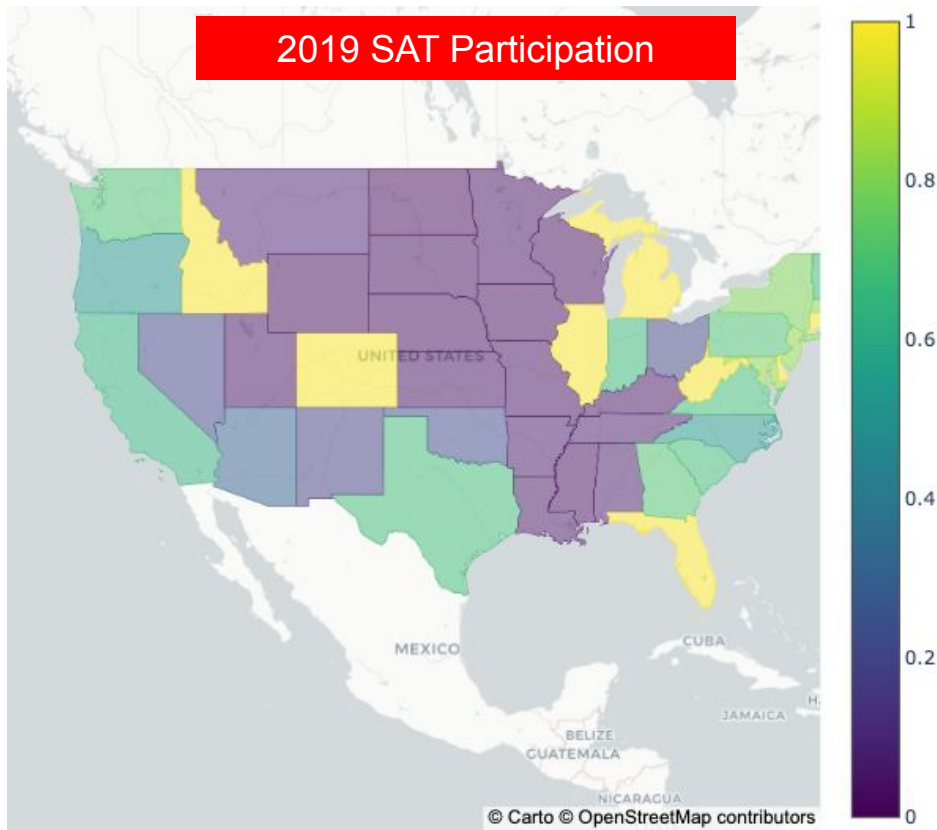
What are the options for College Board to increase SAT participation?

# Where and how can College Board increase SAT Participation Rates?

US Census divisions



2019 SAT Participation





# Where and how can College Board increase SAT Participation Rates?

## Recommended strategy

Target STATES with non-mandatory testing

Division 1 - Vermont

Division 2 - NY, NJ, PA

Division 3 - Indiana

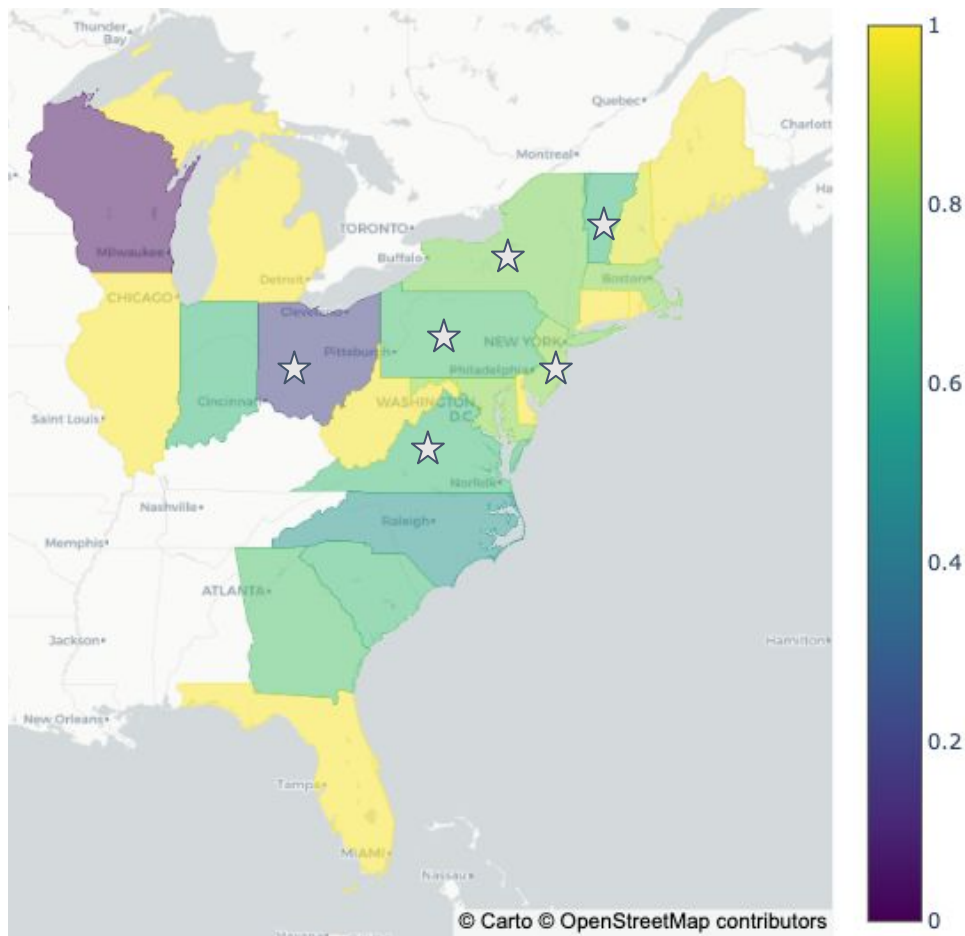
Division 5 - Virginia

Most are in the North-East

Consolidate sign up and exam processes in the region

Build SAT regional training and teaching institutes for teachers and students

Campaign to High Schools / Colleges / State school boards for benefits of adopting SAT as a standard



# Conclusion



## College Board / SAT ecosystem

- **Ensure license-to-operate:**  
Do we see any factors (e.g. grade inflation, perceptions) that endanger the long-term viability of SAT acceptance?
- **Strengthen SAT acceptance:**  
Which states should be pushed for higher test adoption?
- **Drive auxiliary revenue:**  
Where to allocate resources to explore additional income sources with our partner ecosystem (e.g. tuition centres & collaborations)

Problem Statement	Owner	Result
Is the long-term acceptance of SAT results in danger due to grade inflation or other trends?	Simon	While there is no evidence of dramatic score developments causing concern, <u>state test adoption</u> should be <u>carefully supported</u> by close collaboration with state and institutional stakeholders
Is there a relationship between SAT/ACT scores and socioeconomic status?	Veevian	<u>Strengthen messaging</u> that household income effect is more significant in the ACT vs SAT
How and where can College Board grow SAT participation with limited resources?	Dillon	Propose varying <u>subsidized fees</u> of regional centers according to the median household income of the states/division
Is there a relationship between SAT scores of exit exam states vs non exit exam states?	Rohit	Weak link. Therefore, recommend States and High Schools to <u>drop exit exams</u> .
Where and how can College Board increase SAT Participation Rates?	Julian	There are 3 Strategies developed with varied scope and resources to increase SAT participation. <u>Focus on states</u> identified in strategy 2

## Sources

### **Slide 5 -**

Regions and Divisions of each state (as defined by US census) - Wikipedia

### **Slide 9 - Median Household Income 2017-2019**

<https://www2.census.gov/programs-surveys/cps/tables/time-series/historical-income-households>

### **Slide 10 - table**

SAT Mandated States - <https://blog.prepscholar.com/which-states-require-the-sat>

ACT Mandated States -

<https://blog.prepscholar.com/which-states-require-the-act-full-list-and-advice>