
SAT analysis

— DSIF-3 Group 3 —

U.S. Federal Board of Education

welcome!



A Meeting of the School Trustees by Robert Harris - National Gallery of Canada

“

”

13 years of school is **no** longer enough

- The White House Press Statement

The U.S. Department of Education wants to promote preparation for global competitiveness and intends to announce a new grant program.

problem statement

Hypothesis

- **additional funding** to the states will **increase** the states' **SAT participation and SAT scores**.

Analysis

- **relationship** between per pupil funding, the SAT participation rates and SAT scores for the **years 2018 and 2019**

Recommendation

- how to **best distribute** the additional funding.

Data Sci
the cavalry
is here!



Vive L'Empereur by Edouard Detaille - Art Gallery of New South Wales

our team



Yuan Shuyi



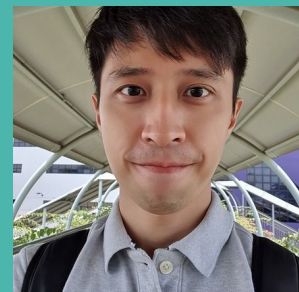
Raymond Lim



Xavier Soon



Erh Yu Kiat

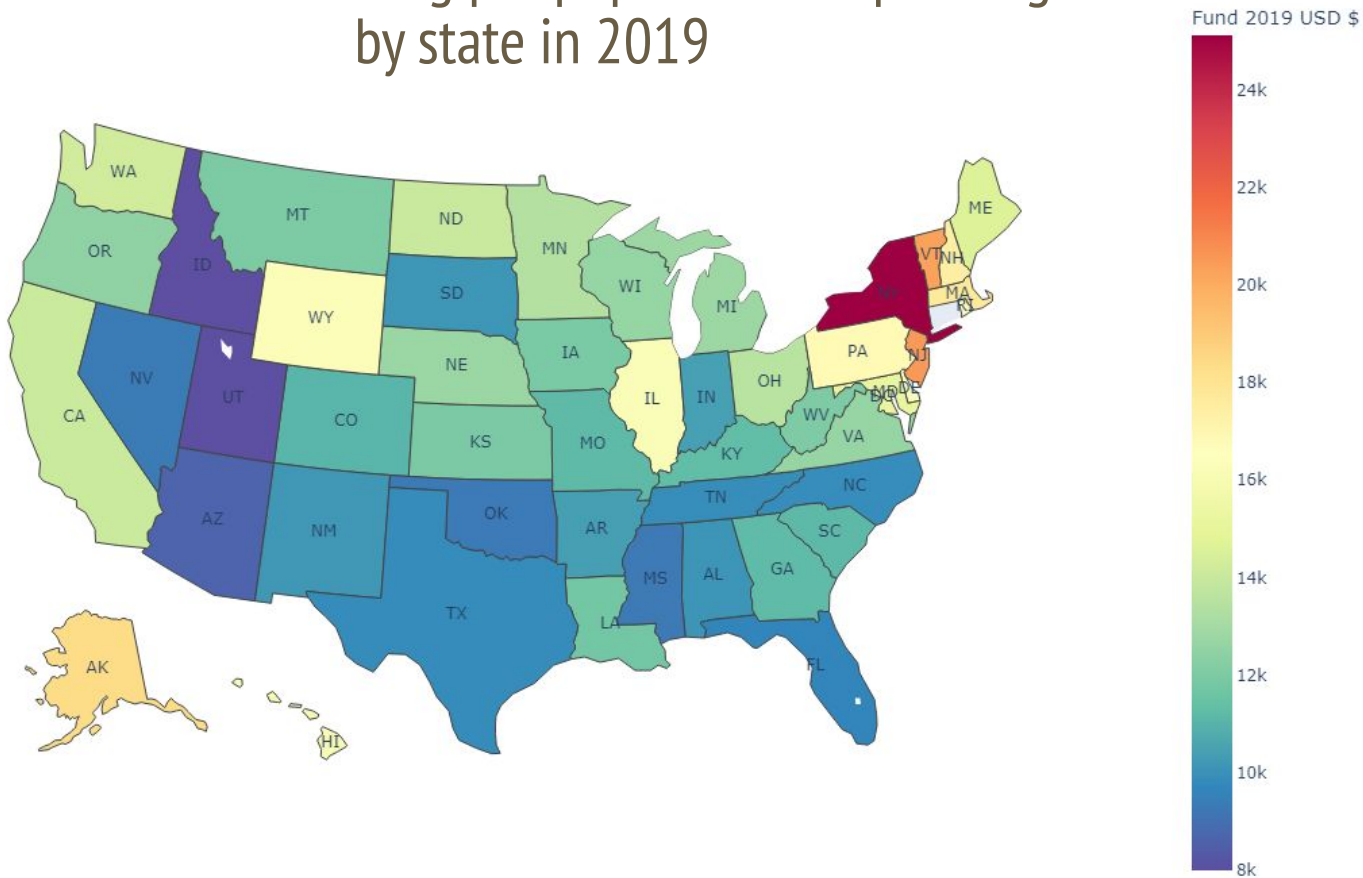


Darien Ang

funding in 2019

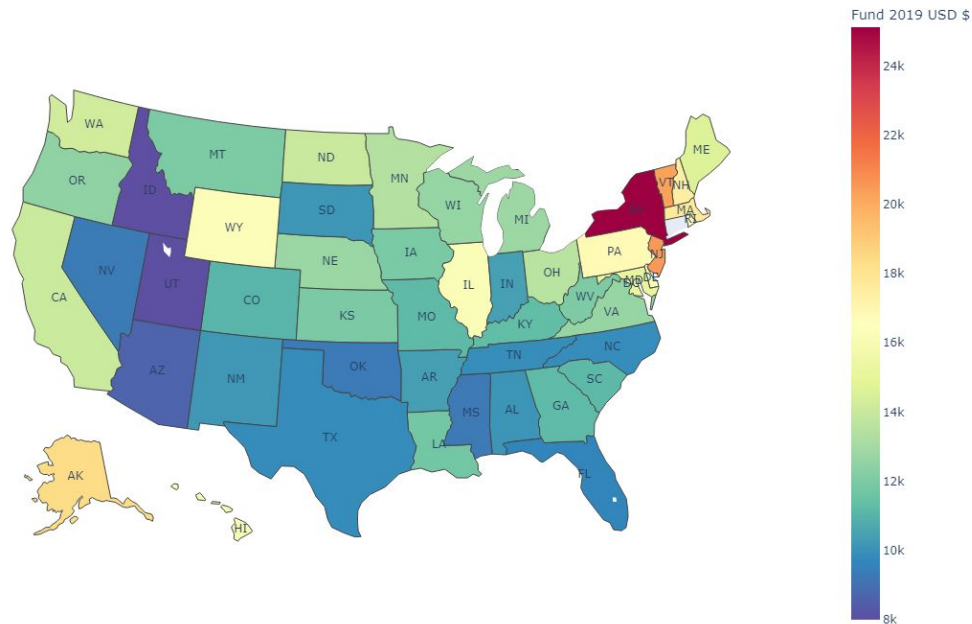
per pupil amount

Educational funding per pupil current spending by state in 2019



Educational funding per pupil current spending by state in 2019

States	Edu Funding (\$)	Populations	Cost Of Living Index
New York	24,000 (+214%)	19 m (+475%)	139.1 (+50.7%)
Utah	7,627	3.3 m	92.3
Idaho	7,770	1.8 m	98.4

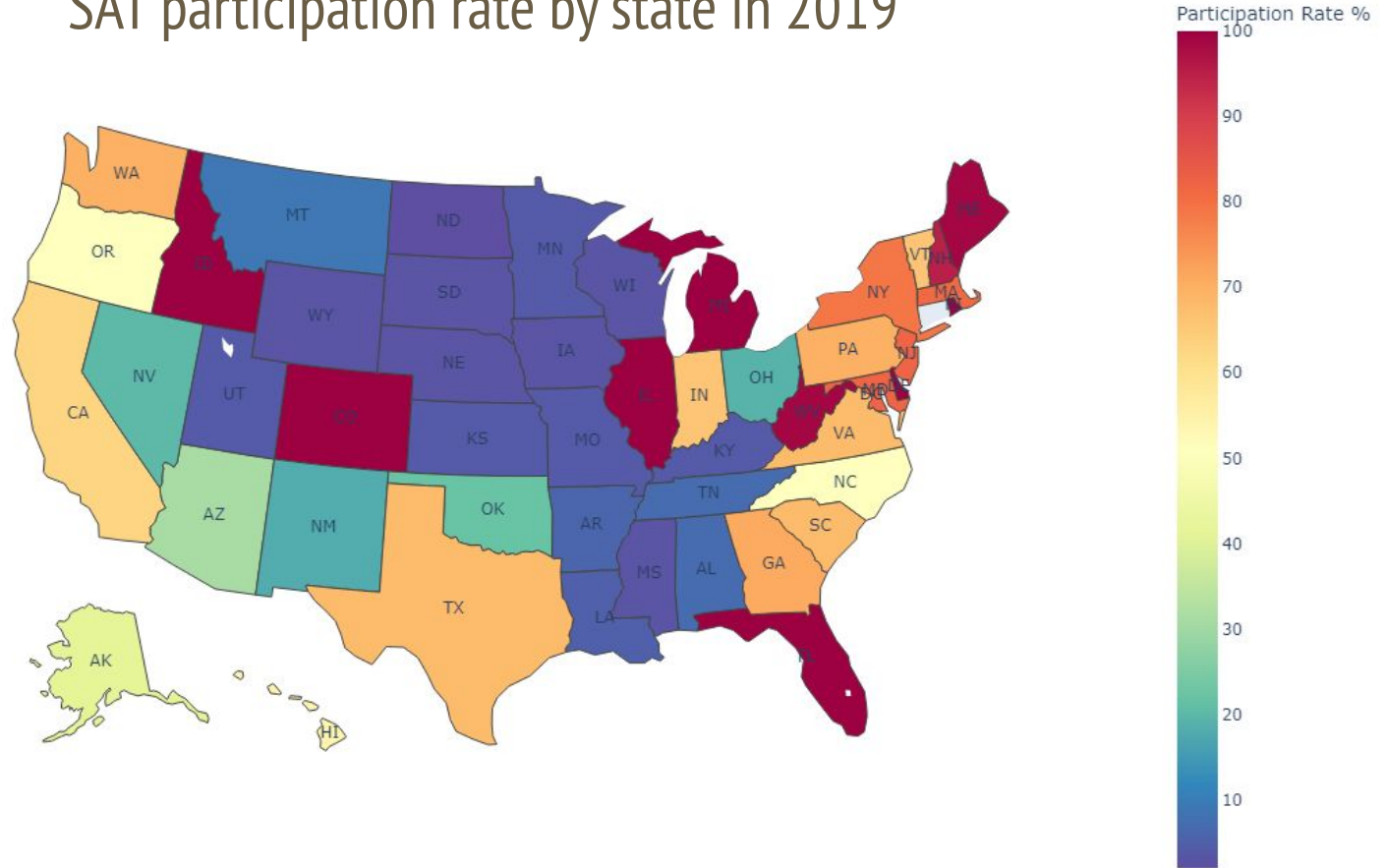


participation rate

in 2018 & 2019

in relation to funding

SAT participation rate by state in 2019



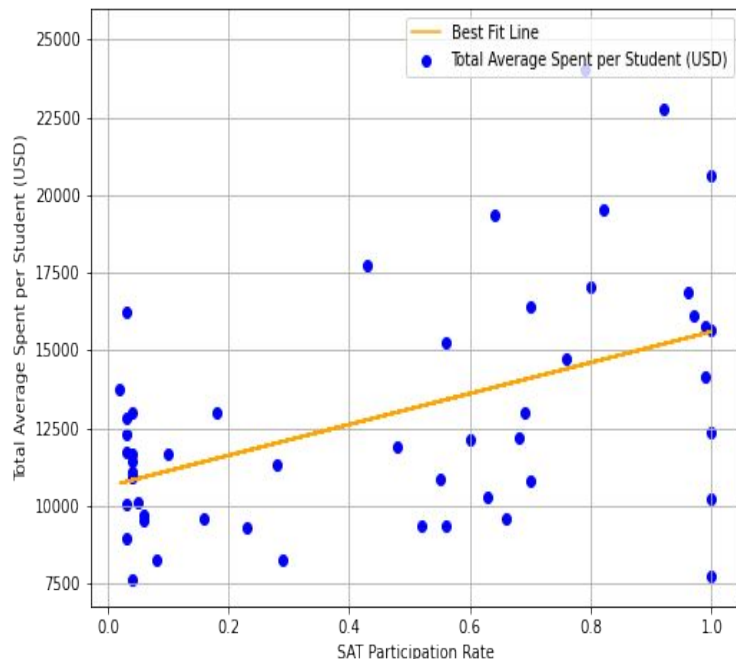
Participation rate in 2018 and 2019

Metrics	2018 Participation Rate	2019 Participation Rate
Average Participation Rate	46%	49%
Highest Participation Rate	100% (Colorado, Connecticut, Delaware, Michigan, Idaho)	100% (Rhode Island, Illinois, Florida , Colorado, Connecticut, Delaware, Michigan, Idaho)
Lowest Participation Rate	2% (North Dakota)	2% (North Dakota)

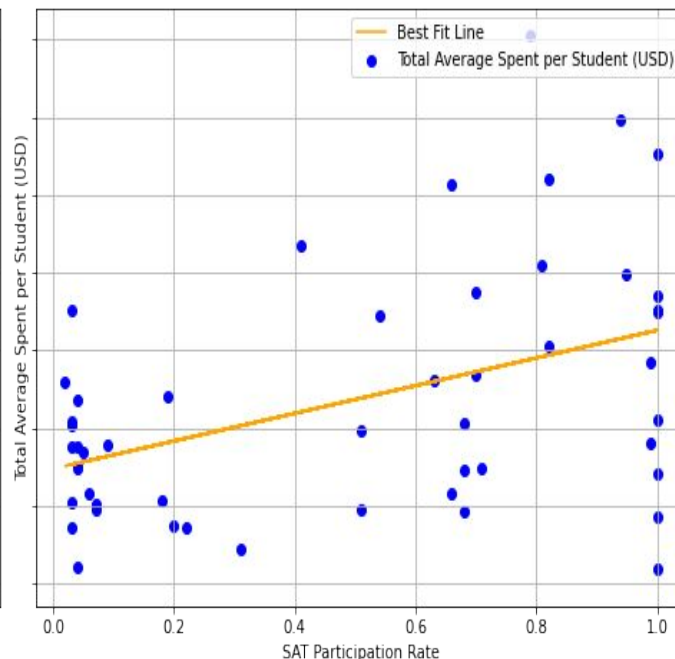
Nearly 960,000 students in the class of 2019 took the SAT on a school day, up from nearly 780,000 in the class of 2018

Relationship between funding and SAT participation rate

2018 Total Average Spend per Student (USD) vs SAT Participation Rate



2019 Total Average Spend per Student (USD) vs SAT Participation Rate



10%↑

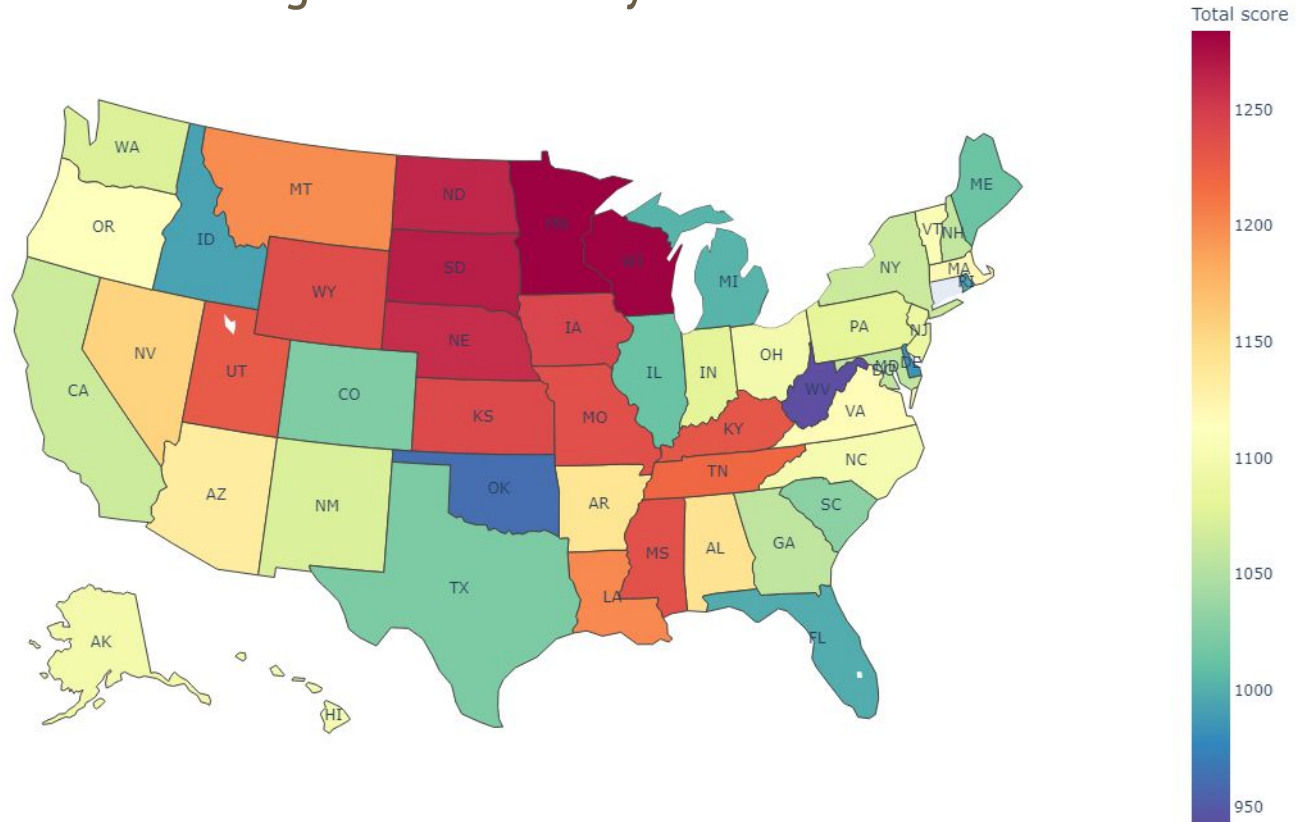
For every \$450-\$500 dollar increase in total spend per student
there is a 10% increase in SAT participation rate.

score

in 2018 & 2019

in relation to funding

SAT average total score by state in 2019

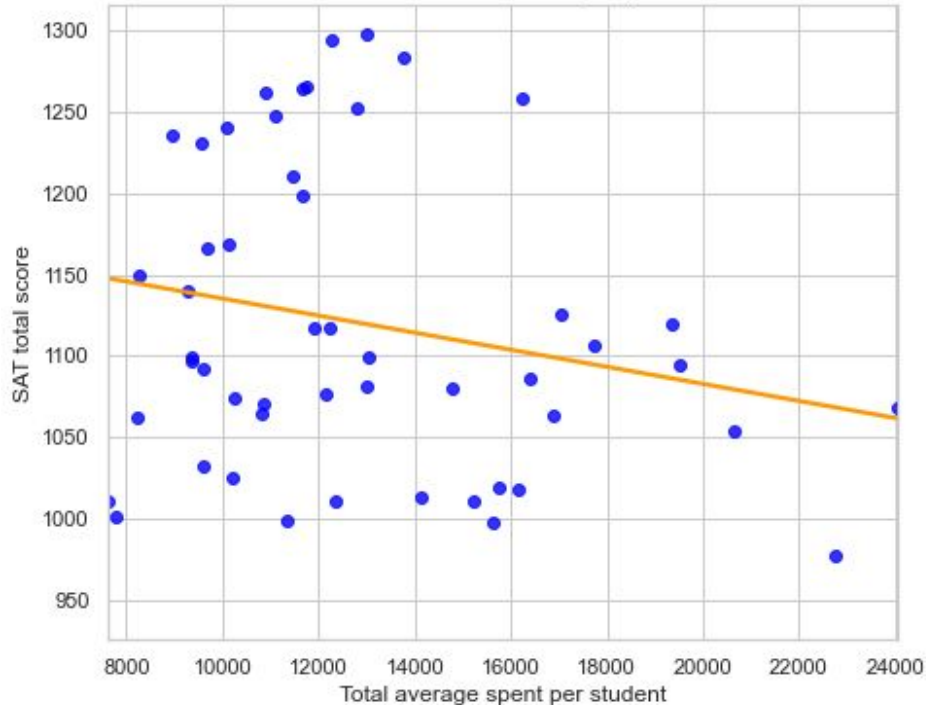


SAT scores in 2018 and 2019

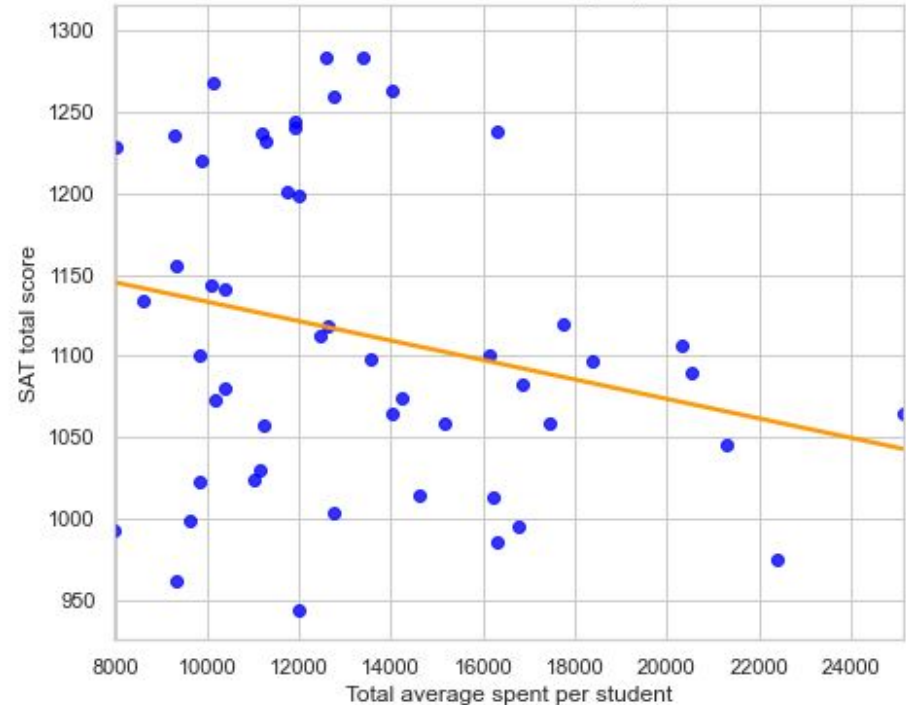
Metrics	2018 SAT Score	2019 SAT Score
Average SAT Score	1120	1113
Highest SAT Score	1298 (Minnesota)	1284 (Minnesota)
Lowest SAT Score	977 (District of Columbia)	943 (West Virginia)

Relationship between funding and SAT scores

SAT Total Score 2018 vs Total Average Spent Per Student



SAT Total Score 2019 vs Total Average Spent Per Student



↓ 5-6

For every \$1000 spent, SAT score decreases by 5-6 marks.

score

in 2018 & 2019

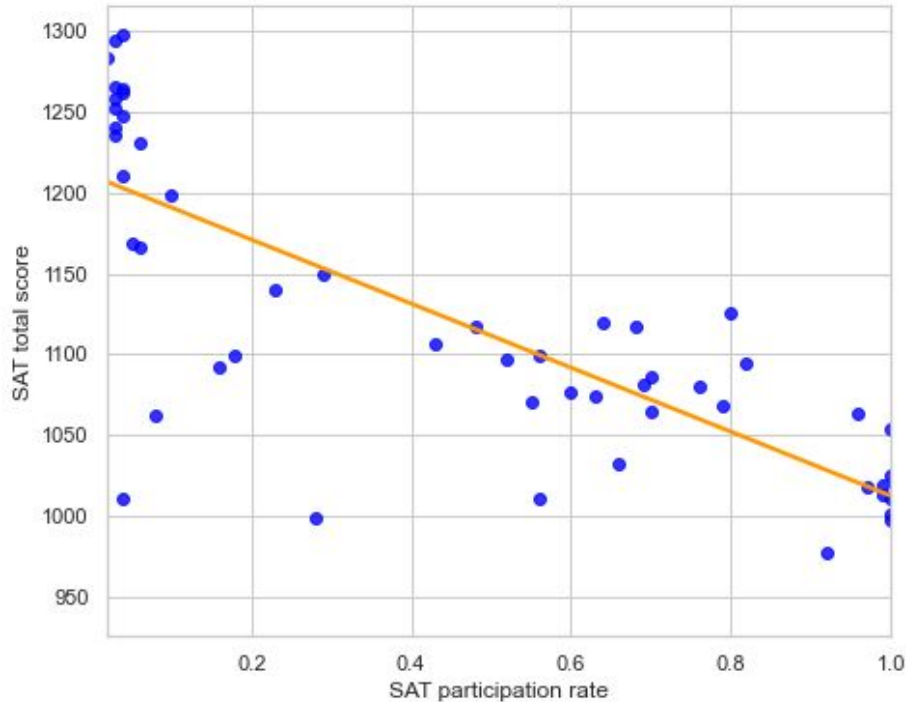
in relation to participation rate

5 states with highest increase in participation rate

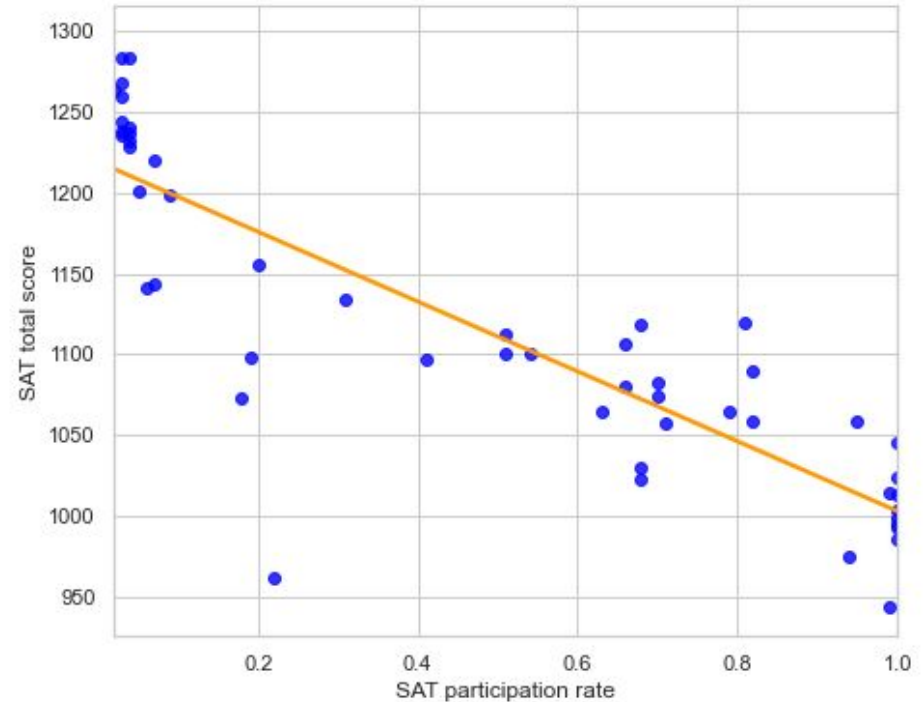
State	Change in Participation Rate	2018 SAT Score	2019 SAT Score	Score Difference
West Virginia	+71%	999	943	-56
Florida	+44%	1099	999	-100
Oklahoma	+14%	1062	962	-100
South Carolina	+13%	1070	1030	-40
Maryland	+6%	1080	1058	-22

Relationship between participation rate and SAT score

SAT Total Score vs SAT Participation Rate 2018



SAT Total Score vs SAT Participation Rate 2019



↓ 18-20

For every 10% increase in participation rate, SAT score decreases by 18-20 marks.

year-on-year

in relation to funding, score
& participation rate

5 states with the highest increase in funding...

State	2018 Funding (\$'000)	2019 Funding (\$'000)	Increase (\$'000)
California	12.1	14.0	+1.9
Washington	13.0	14.2	+1.2
New York	24.0	25.1	+1.1
Oklahoma	8.2	9.3	+1.1
New Jersey	19.5	20.5	+1.0

1120

The average SAT score in 2018.

1113

The average SAT score in 2019.

... and respective y-o-y change in participation & SAT score

State	2018 Participation rate	2019 Participation rate	2018 SAT Score	2019 SAT Score	Improve Margin
California	60%	63%	1076	1065	-11 (-1%)
Washington	69%	70%	1081	1074	-7 (-0.6%)
New York	79%	79%	1068	1064	-4 (-0.4%)
Oklahoma	8%	22%	1062	962	-100 (-9.4%)
New Jersey	82%	82%	1094	1089	-5 (0.5%)

Total funding increased, however, lower scores obtained

5 states with highest improvement in scores

State	2018 SAT Score	2019 SAT Score	Improve Margin
Utah	1010	1229	219 (21.7%)
Hawaii	1010	1100	90 (8.9%)
South Dakota	1240	1268	28 (2.3%)
Nevada	1140	1156	16 (1.4%)
Nebraska	1252	1259	7 (0.6%)

Utah improved the most, from below average in 2018 to above average in 2019

... and respective y-o-y changes in participation & funding

State	2018 Participation rate	2019 Participation rate	2018 Funding (\$'000)	2019 Funding (\$'000)	Funding Margin (\$'000)
Utah	4%	4%	7.6	8.0	+0.4 (5.3%)
Hawaii	56%	54%	15.2	16.1	+0.9 (5.9%)
South Dakota	3%	3%	10.1	10.1	-
Nevada	23%	20%	9.3	9.3	-
Nebraska	3%	3%	12.8	12.7	-0.1 (-0.8%)

Participation rate and funding lower than average, except Hawaii

conclusion



1927 poster by J.M. Flagg - Public Domain

proposal

Targeted funding

- To incentivize states with **improved SAT scores** to **increase SAT participation rate**

Proposed recipients

- Utah
- Hawaii
- South Dakota
- Nevada
- Nebraska

There is a moderate positive correlation between funding & higher participation in SAT.

There is no correlation between average SAT score & funding, due to different participation rates between each state.

thank you