

Standardized Test Analysis

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Problem Statement

- School legislators in certain states have made SAT participation mandatory since the change of the SAT format. This presentation aims to show the relationship between participation rate and the average total scores of the SAT within the United States.

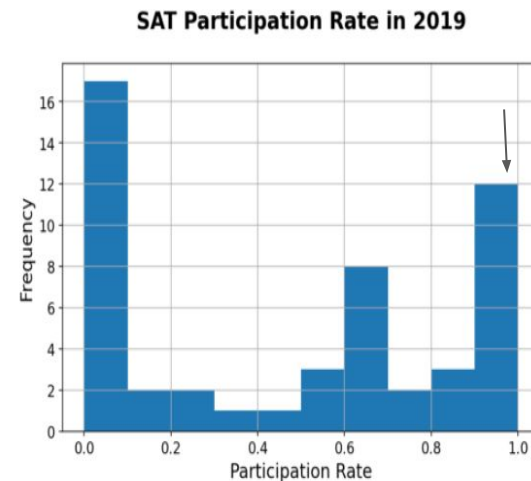
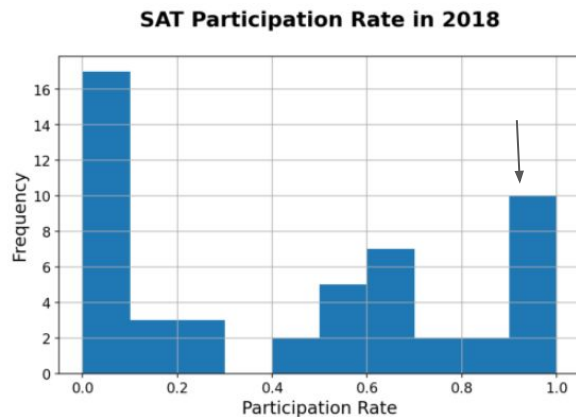
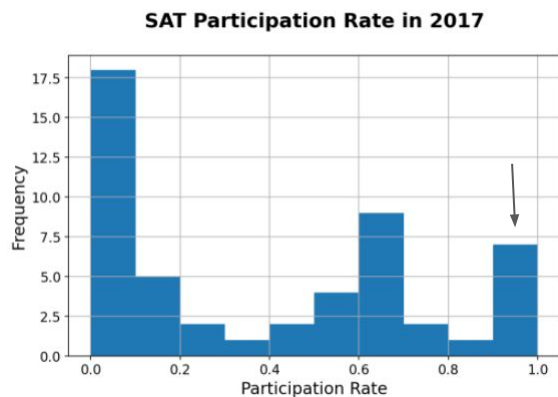
Data Used

- SAT 17, SAT 18, SAT 19 from SAT Suite of Assessments Annual Report.
- The SAT changed its testing format in 2016 along with new laws introduced in the following years.

Data Summary

- No. of states with mandatory participation have increased over the years
- Table to the right shows states with 100% participation in their respective years
- Table does not include all states with mandatory participation

SAT Participation 2017	SAT Participation 2018	SAT Participation 2019
Connecticut	Connecticut	Connecticut
Delaware	Delaware	Delaware
District of Columbia	Michigan	Michigan
Michigan	Colorado	Colorado
	Idaho	Idaho
		Florida
		Illinois
		Rhode Island

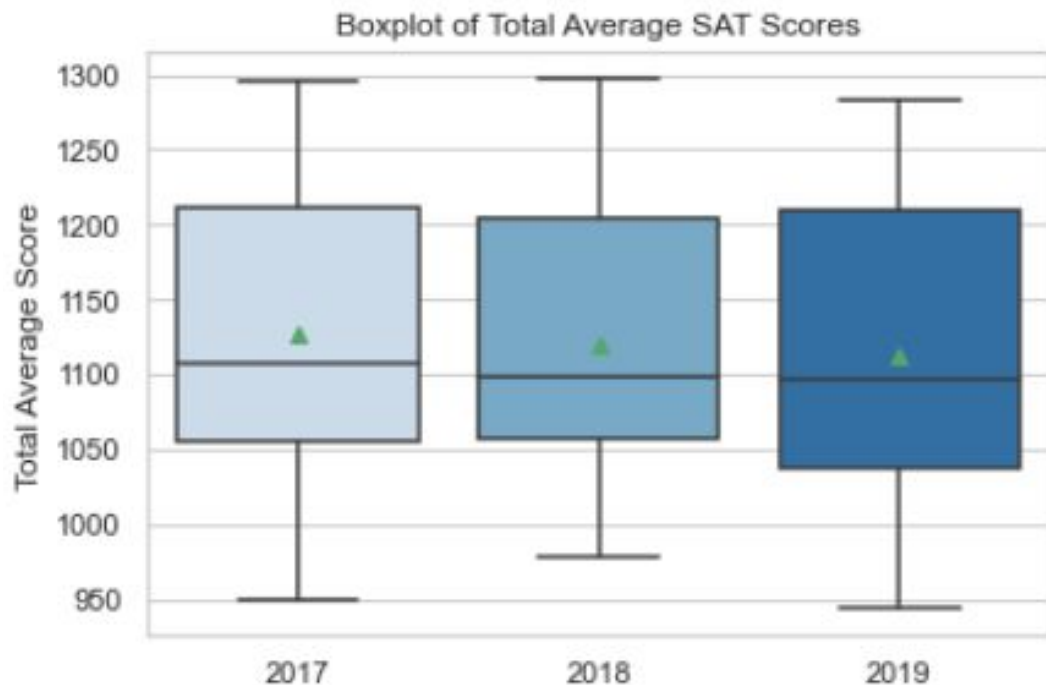


Highest Decrease in Average Total Score

	2017	2019	Change 2017-2019
Colorado	1201	1024	-177
West Virginia	1086	943	-143
Illinois	1115	1013	-102
Oklahoma	1047	963	-84
Arkansas	1208	1141	-67

- New laws were introduced between 2016-2019 in Colorado, West Virginia, and Illinois to make the SAT participation mandatory

Exploratory



	Mean	SD
Total Score 2017	1126	91.58
Total Score 2018	1120	93.23
Total Score 2019	1113	96.24

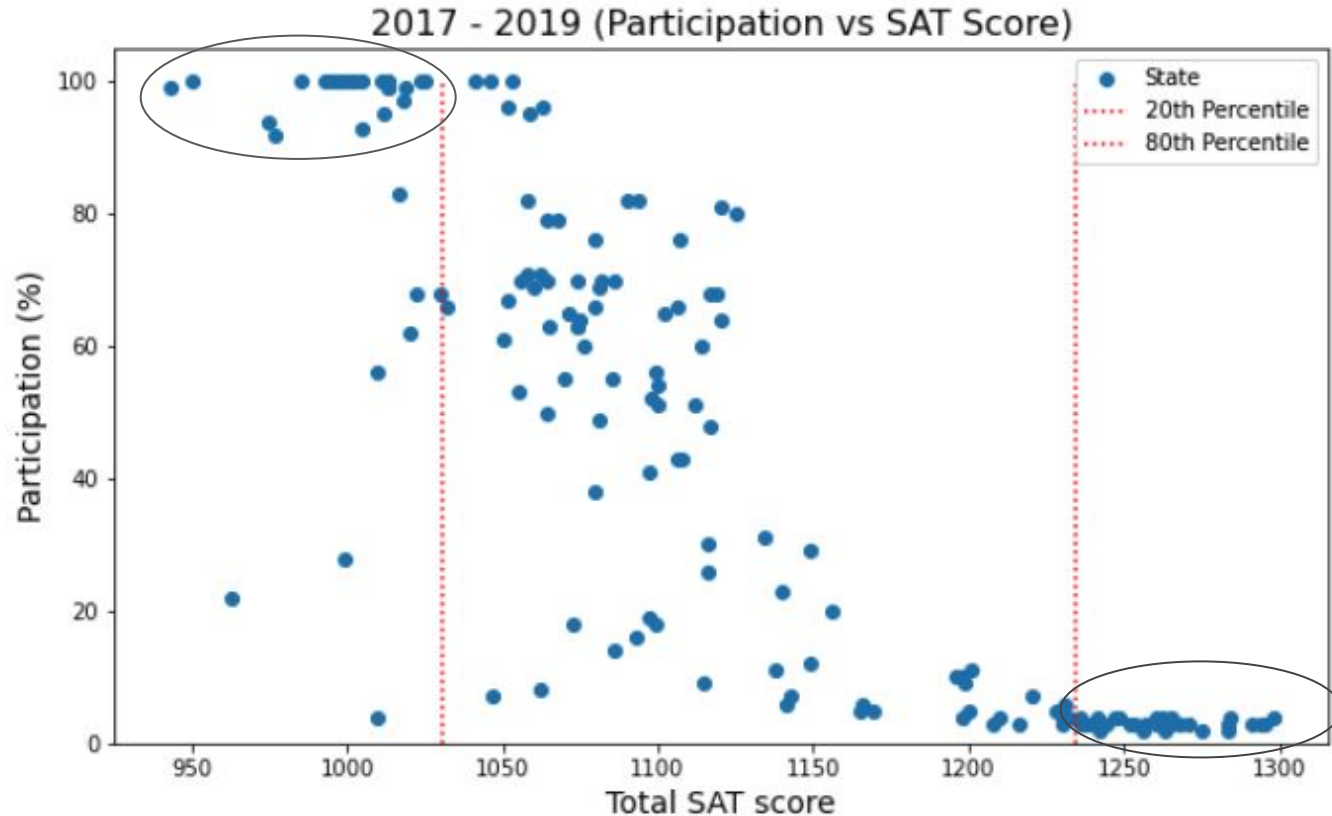
- Non-symmetrical distribution
- Majority of test scores are below the mean in all years
- Average total test score gradually decreases from 2017 to 2019

Top 5 SAT Average Total Score by Year

	2017	2018	2019
1st	Minnesota, 1295	Minnesota, 1298	Minnesota, 1284
2nd	Wisconsin, 1291	Wisconsin, 1294	Wisconsin, 1283
3rd	Iowa, 1275	N. Dakota, 1283	S. Dakota, 1268
4th	Missouri, 1271	Iowa, 1265	N. Dakota, 1263
5th	Kansas, 1260	Kansas, 1265	Nebraska, 1260

	Mean	SD
Total Score 2017	1126	91.58
Total Score 2018	1120	93.23
Total Score 2019	1113	96.24

- Lowest score for 2017,2018 by District of Columbia with a score of 950 and 977
- Lowest score for 2019 by West Virginia, 943
- Highest scores are almost 2 standard deviations above the mean



Participation and Total Score Correlation Coefficient

2017	-0.87
2018	-0.79
2019	-0.86

- Top 20% performing States cluster around low participation rate.
- Bottom 20% performing States cluster around high participation rate.

Conclusion and Recommendation

Conclusion

- Participation rate and average total scores have a negative correlation.
- Mandatory participation would negatively impacts and skews the average total scores
- This may result from a larger pool of students taking the test and lowering the average.
- High total average score are found in low participation rate states, possibly due to the SATs only being taken by students voluntarily.

Recommendation

- Make SAT participation non-mandatory and accessible.