SAT PARTICIPATION

2017-2018

KEY STATS FOR 2017:

Participation rate across the country: 39.8%

States with full participation:

- 1. District of Columbia
- 2. Michigan
- 3. Conneticut
- 4. Delaware

KEY STATS FOR 2018:

Participation rate across the country: 45.75%



States with full participation:

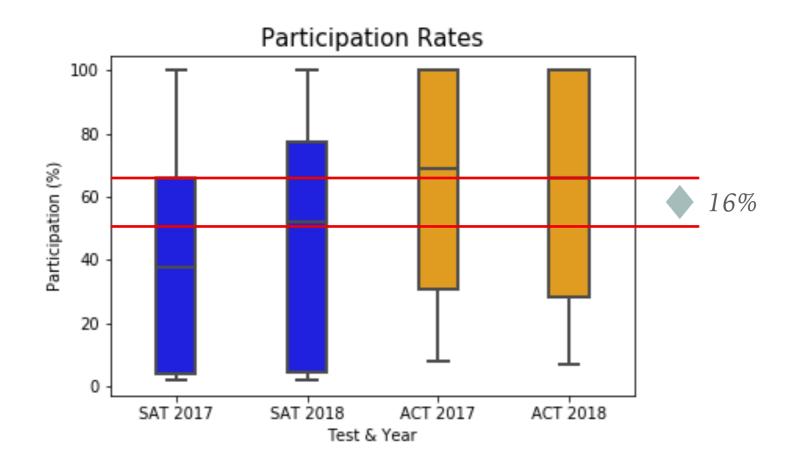
- 1. Colorado
- 2. Idaho
- 3. Michigan
- 4. Conneticut
- 5. Delaware

MEASURING AGAINST THE COMPETITION: ACT

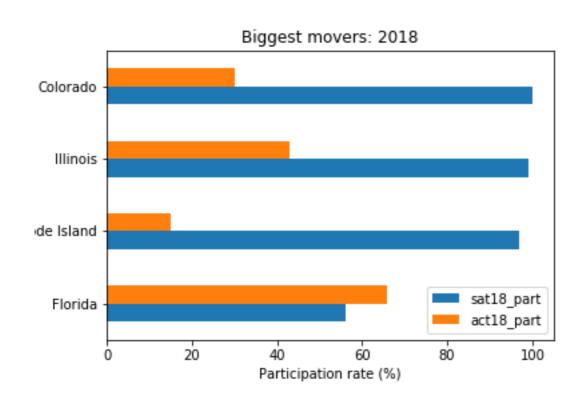
SAT Participation 2017 SAT Participation 2018 16 16 14 14 12 12 10 10 39.8% 45.75% SAT 8 8 6 6 4 4 2 -2 0 -100 100 Participation Percentage ACT Participation 2017 Participation Percentage ACT Participation 2018 17.5 17.5 15.0 15.0 12.5 **ACT** 12.5 65.25% 61.75% 10.0 10.0 7.5 7.5 5.0 5.0 2.5 2.5 0.0 0.0 80 100 20 100 60 Participation Percentage Participation Percentage

MEASURING AGAINST THE COMPETITION: ACT

➤ The gap between SAT and ACT has decreased from 25.45% to 16%.

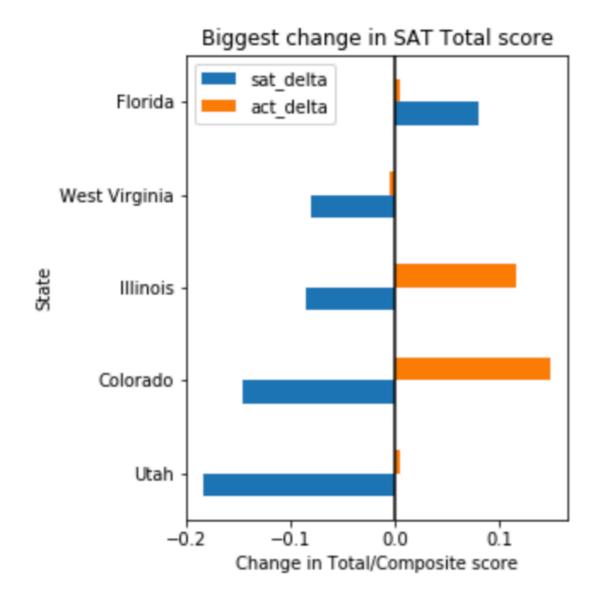


Colorado Illinois sat17_part act17_part de Island Florida Participation rate (%)



BIGGEST CHANGES IN 2018

- ➤ Illinois and Colorado both had around 90% gain in participation rate in SAT, with a major decrease in ACT participation rate.
- ➤ The next big mover is Rhode Island, which gained 26% more participation in SAT for 2018.
- ➤ On the other end, Florida was the loser, where SAT participation rate decreased by <u>-27%</u>.



BIGGEST CHANGES IN 2018

- ➤ For scores, the most of the major changes in scores were in the negative, with the biggest being Utah where the overall dropped nearly <u>-20%</u>.
- ➤ Colorado is a close second, losing about <u>-14%</u>. It is then followed by West Virginia and Illinois at <u>-8%</u> each
- ➤ Florida is the only major gainer, with a <u>8%</u> improvement in score

Heatmap for the scores and participation rate for ACT and SAT, 2017 & 2018

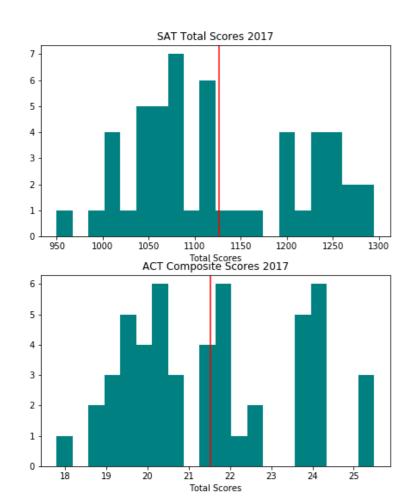
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act17_part -	- 1	-0.84	-0.86	-0.87	-0.84	-0.86	-0.84	0.72	0.68	0.7	0.92	-0.78	-0.76	-0.78	-0.79	-0.76	-0.76	0.52	0.56	0.55
act17_eng -	-0.84	1	0.97	0.99	0.98	0.99	0.69	-0.46	-0.42	-0.44	-0.8	0.93	0.94	0.92	0.93	0.92	0.68	-0.35	-0.37	-0.36
act17_math -	-0.86	0.97	1	0.98	0.99	0.99	0.71	-0.49	-0.42	-0.45	-0.81	0.93	0.91	0.95	0.92	0.93	0.7	-0.36	-0.34	-0.35
act17_read -	-0.87	0.99	0.98	1	0.99	1	0.71	-0.49	-0.44	-0.47	-0.81	0.93	0.92	0.92	0.94	0.93	0.68	-0.36	-0.37	-0.37
act17_sci -	-0.84	0.98	0.99	0.99	1	1	0.65	-0.42	-0.37	-0.39	-0.78	0.93	0.92	0.94	0.93	0.94	0.65	-0.32	-0.32	-0.32
act17_comp -	-0.86	0.99	0.99	1	1	1	0.69	-0.47	-0.42	-0.45	-0.81	0.94	0.93	0.94	0.94	0.94	0.68	-0.35	-0.35	-0.36
sat17_part -	-0.84	0.69	0.71	0.71	0.65	0.69	1	-0.87	-0.86	-0.87	-0.79	0.64	0.65	0.65	0.65	0.61	0.87	-0.67	-0.69	-0.68
sat17_read -	0.72	-0.46	-0.49	-0.49	-0.42	-0.47	-0.87	1	0.99	1	0.7	-0.44	-0.45	-0.45	-0.46	-0.41	-0.82	0.81	0.87	0.85
sat17_math -	0.68	-0.42	-0.42	-0.44	-0.37	-0.42	-0.86	0.99	1	1	0.67	-0.39	-0.4	-0.38	-0.41	-0.36	-0.79	0.8	0.88	0.85
sat17_total -	0.7	-0.44	-0.45	-0.47	-0.39	-0.45	-0.87	1	1	1	0.69	-0.42	-0.43	-0.42	-0.44	-0.38	-0.81	0.81	0.88	0.85
act18_part -	0.92	-0.8	-0.81	-0.81	-0.78	-0.81	-0.79	0.7	0.67	0.69	1	-0.86	-0.85	-0.86	-0.87	-0.84	-0.87	0.6	0.64	0.62
act18_comp -	-0.78	0.93	0.93	0.93	0.93	0.94	0.64	-0.44	-0.39	-0.42	-0.86	1	0.99	0.99	0.99	0.99	0.76	-0.4	-0.4	-0.41
act18_eng -	-0.76	0.94	0.91	0.92	0.92	0.93	0.65	-0.45	-0.4	-0.43	-0.85	0.99	1	0.97	0.98	0.98	0.77	-0.42	-0.43	-0.43
act18_math -	-0.78	0.92	0.95	0.92	0.94	0.94	0.65	-0.45	-0.38	-0.42	-0.86	0.99	0.97	1	0.98	0.99	0.76	-0.4	-0.38	-0.4
act18_read -	-0.79	0.93	0.92	0.94	0.93	0.94	0.65	-0.46	-0.41	-0.44	-0.87	0.99	0.98	0.98	1	0.99	0.76	-0.42	-0.43	-0.43
act18 sci -	-0.76	0.92	0.93	0.93	0.94	0.94	0.61	-0.41	-0.36	-0.38	-0.84	0.99	0.98	0.99	0.99	1	0.73	-0.38	-0.38	-0.38
sat18_part -	-0.76	0.68	0.7	0.68	0.65	0.68	0.87	-0.82	-0.79	-0.81	-0.87	0.76	0.77	0.76	0.76	0.73	1	-0.76	-0.79	-0.79
sat18_read -			-0.36						0.8	0.81	0.6		-0.42	-0.4	-0.42	-0.38	-0.76	1	0.95	
sat18_math -	0.56										0.64		-0.43						1	0.99
sat18_total -	0.55	-0.36	-0.35	-0.37	-0.32	-0.36	-0.68	0.85	0.85	0.85	0.62	-0.41	-0.43	-0.4	-0.43	-0.38	-0.79	0.99	0.99	1
	part -	eng -	nath -	read -	- sci -	- dwo	part -	read -	nath -	total -	part -	- dwo	eng -	nath -	read -	sci -	part -	read -	nath -	total -
	act17_part	act17_eng	act17_math	act17_read	act17_sci	act17_comp	sat17_part	sat17_read	sat17_math	sat17_total	act18_part	act18_comp	act18_eng	act18_math	act18_read	act18_sci	sat18_part	sat18_read	sat18_math	sat18_total
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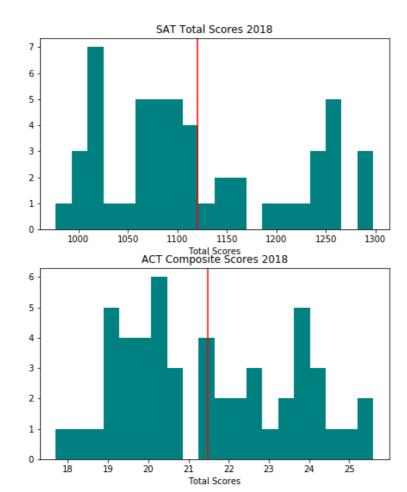
OBSERVATION 1: INVERSE CORRELATION

With a heat map showing the correlation between each variable, it is seen that the participation rate has a negative correlation against the score of their test.

Negative correlation is shown by the black squares -0.9

OBSERVATION 2: INVERSE CORRELATION



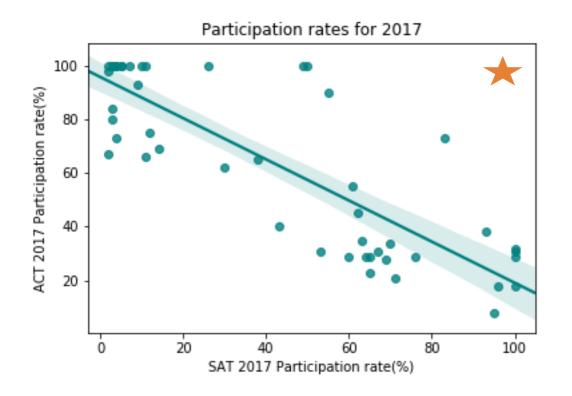


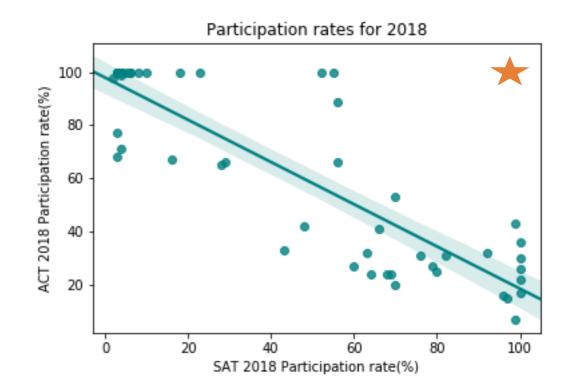
Histogram of the scores show that there is no bell curve, instead there are 'twin peaks' or multiple peaks.

This suggests that there are different groups within the population of students which are able to achieve certain grades.

FIRST INFERENCE

Most students are taking only either test, not both.

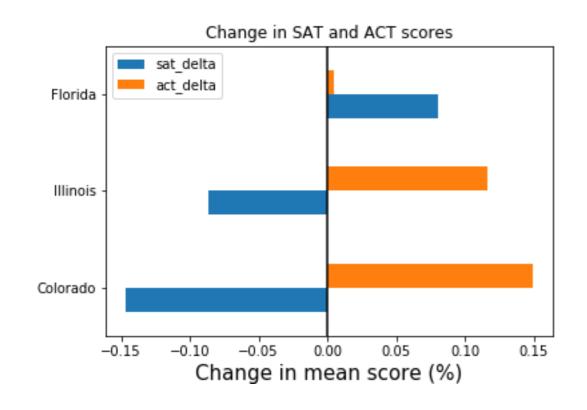


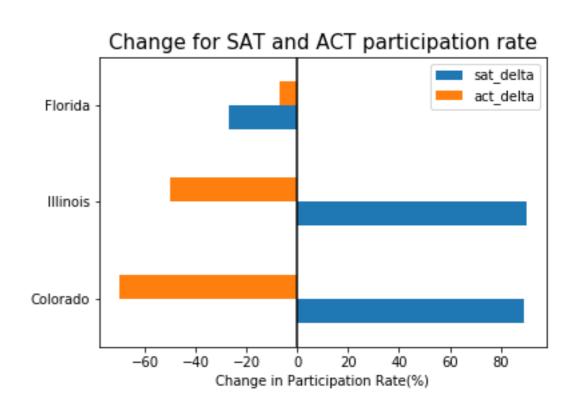


With the graphs above, it is shown that most participation rate is high for either tests (at the bottom right or top left corner) and none is high for both (at the star on the top right).

SECOND INFERENCE

➤ When analysing the biggest changers for scores and participation rate, it is observed that the **change in the participation rate** will change the mean score in the opposite direction, as shown by the changes over the 2017 and 2018 information for Colorado, Illinois and Florida





CONCLUSION - FINDINGS

- ➤ The negative correlation between the participation rate and score could be explained by the split in the population.
- ➤ When <u>participation is low</u>, it could mostly consists of high achieving students whom require SAT to enter their institution of choice, so they are willing to bear the costs.
- ➤ When <u>participation</u> is high, it could be due to some state intervention, whether it is subsidising the fees, making the test more convenient for students or even making it compulsory. When it is more convenient or compulsory for students, the rest of the non-high achievers enter the participating population and brings the average down.

RECOMMENDATIONS TO THE SAT BOARD

Based on this research, it is clear that the best way to increase participation rate is to work with directly with the state's education boards either through.

- ➤ Making it more <u>accessible</u> for students to take the exam, whether it be subsidising the costs or to change the sitting of the test in school during school days.
- ➤ Making <u>compulsory</u> in the state's curriculum which will bring in the entire student population. The downside to that would be that the mean score will be affected as it introduces the nonperformers into the equation.

RECOMMENDATIONS TO THE SAT BOARD

- ➤ For states that could be targetted immediately, would be for <u>Iowa</u> and <u>Kansas</u>. SAT participation has been always low while there is only a 70% participation in ACT. C
- ➤ Currently, neither state has a requirement for students to take either tests, so it would be easier to enter negotiations to establish SAT participation in the state.

In order to go into more detail:

- ➤ Results on individual student's performance in the test will be required, rather than a summary statistic of the state.
- ➤ The reason for the student undertaking the test (eg. If it is compulsory in the state or if it is required for their college)
- ➤ Whether there is any state subsidy or assistance (eg. moving the test to a more convenient location and time)
- ➤ For the non-participating students, the reason for not taking the test (eg. Financial reasons or they were not planning to pursue further studies?)