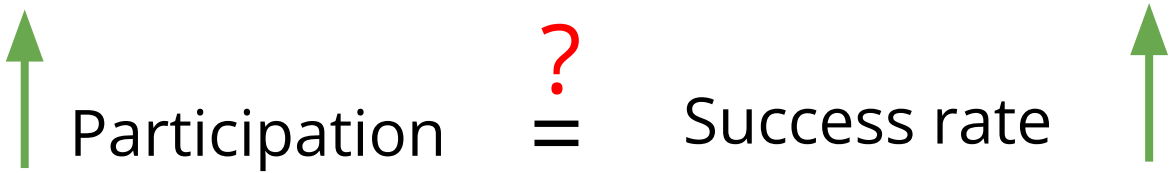
ACT ANALYSIS PROJECT

Problem statement

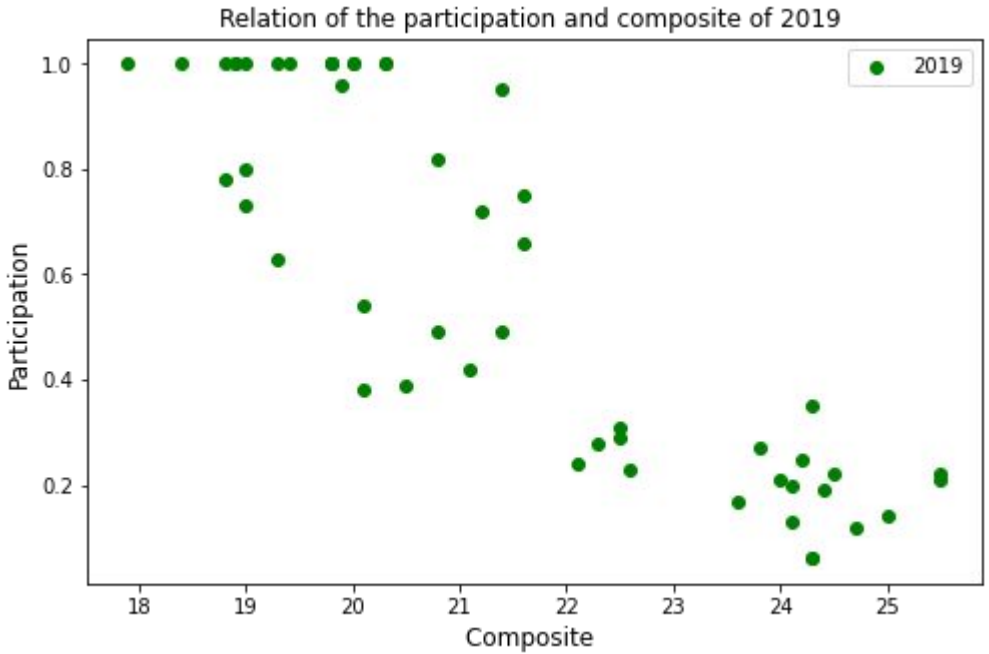
* As an employee of the ACT - the organization that administers the ACT - I am a part of a team that tracks statewide participation and success rate and recommends where money is best spent to improve ACT success rates. This project aims to explore trends in ACT participation for the years 2017-2019 and seeks to identify states that have increased the level of participation and to see if the level of success also improved or if there is a need to improve their composite.

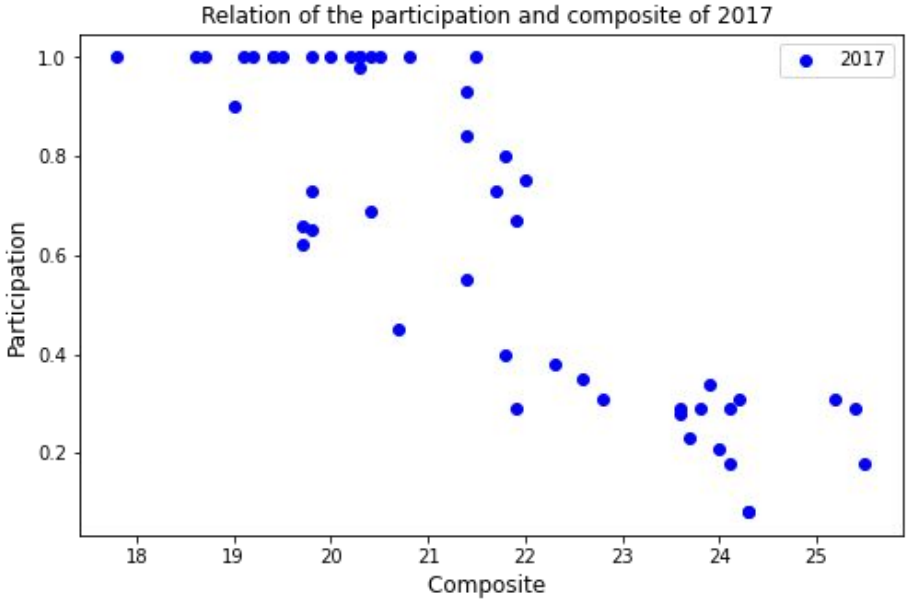
Problem statement cont ...

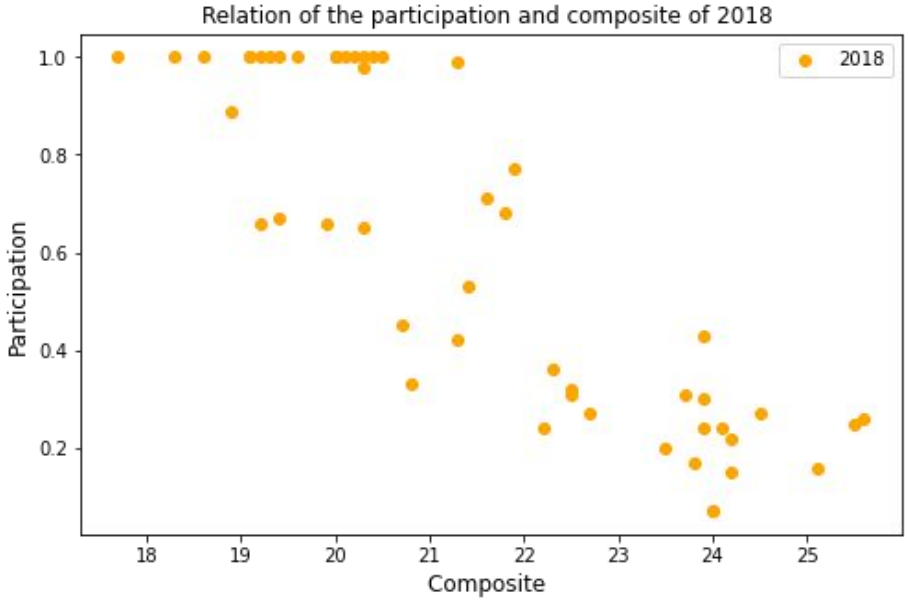
The question is can increasing the participation also increase the success rate ?



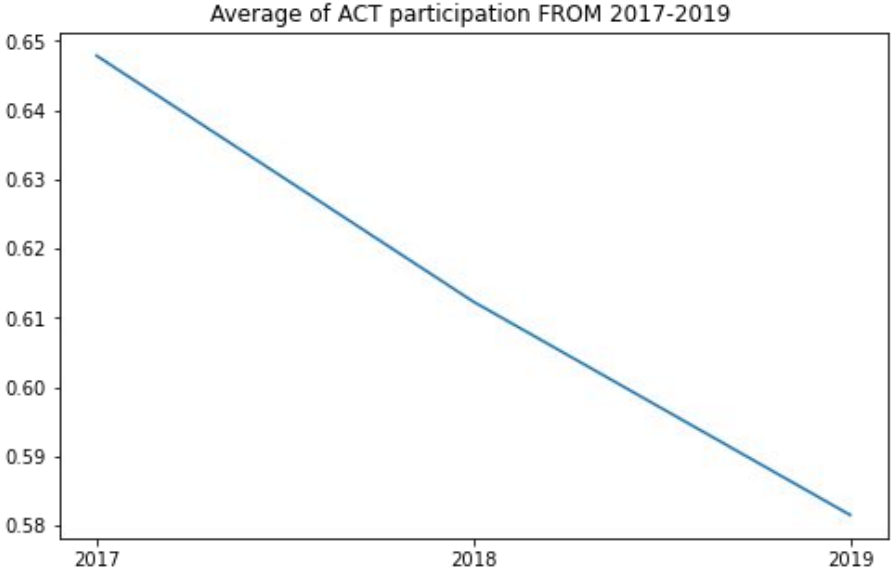
We can see that as high , the composite score are low.

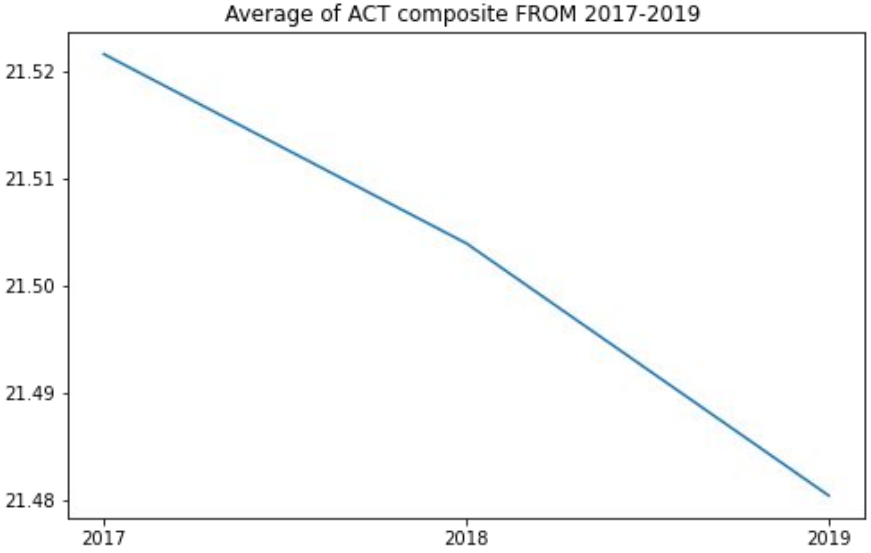


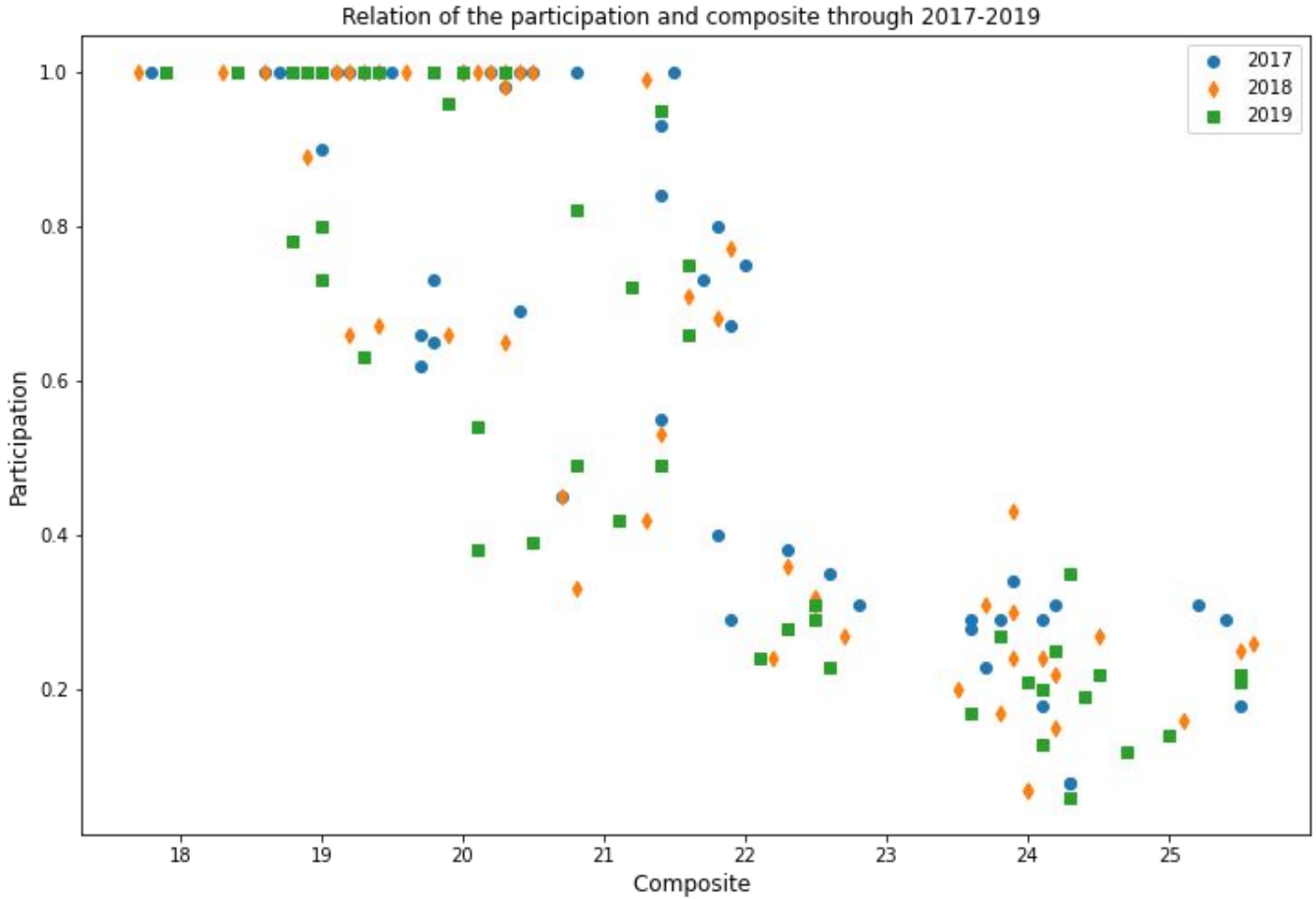

Relation of the participation and composite of 2017
2017
Participation
Composite
1.0
0.8
0.6
0.4
0.2
18
19
20
21
22
23
24
25


Relation of the participation and composite of 2018
2018
Participation
Composite
1.0
0.8
0.6
0.4
0.2
18
19
20
21
22
23
24
25

Overview


Average of ACT participation FROM 2017-2019
0.65
0.64
0.63
0.62
0.61
0.60
0.59
0.58
2017
2018
2019

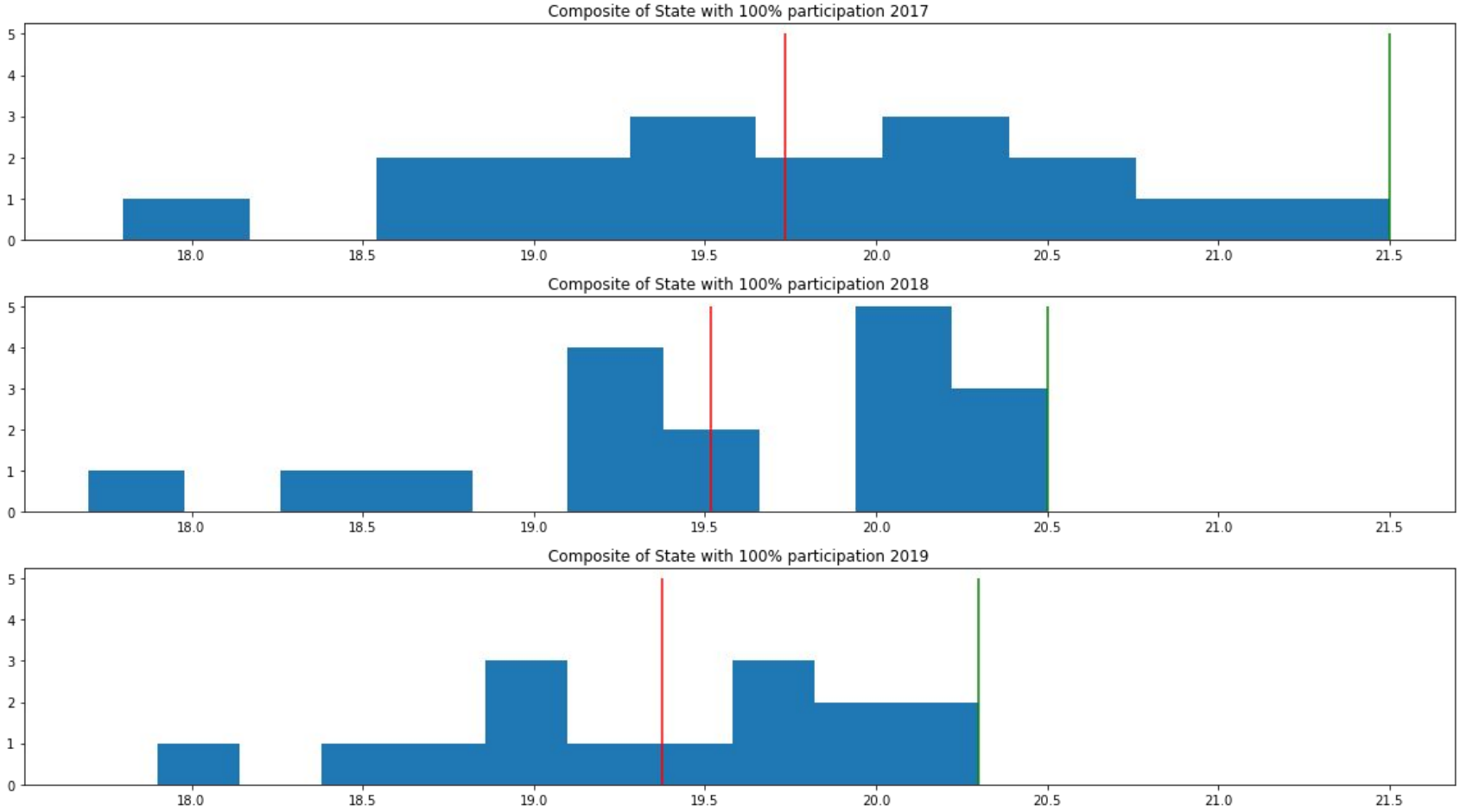

Average of ACT composite FROM 2017-2019
21.52
21.51
21.50
21.49
21.48
2017
2018
2019


Relation of the participation and composite through 2017-2019
2017
2018
2019
Participation
Composite
1.0
0.8
0.6
0.4
0.2
18
19
20
21
22
23
24
25

- Some States had the same level of participation in 2018 and 2019

- The composite score was higher in 2018

participation_18	composite_18	participation_19	composite_19
0.24	22.2	0.24	22.1
0.42	21.3	0.42	21.1
1.00	20.5	1.00	20.3
1.00	20.4	1.00	20.3
1.00	20.1	1.00	20.0
1.00	20.3	1.00	20.0
1.00	20.0	1.00	19.8
1.00	20.2	1.00	19.8
1.00	20.0	1.00	19.8
1.00	19.6	1.00	19.4
1.00	19.4	1.00	19.3
1.00	19.1	1.00	19.0
1.00	19.3	1.00	18.9
1.00	19.1	1.00	18.9
1.00	19.2	1.00	18.8
1.00	18.6	1.00	18.4
1.00	17.7	1.00	17.9


Composite of State with 100% participation 2017
Composite of State with 100% participation 2018
Composite of State with 100% participation 2019
0
1
2
3
4
5
18.0
18.5
19.0
19.5
20.0
20.5
21.0
21.5

Using the graph we can see that the mean of the composite shifted to left which means that mean is getting smaller as well as the highest score also where the participation is 100 % is also getting smaller from 2017 to 2019.

Conclusion

According to the exploration of data , we see that in general the states with a lower participation rate have the highest composite score.As increasing the number of participant also decrease the composite score.

But by analysing the state with the same participating rate , first where the participation was the same for consecutive years 2018 and 2019 we found that the composite of 2019 were lower than 2018.

Secondly, by comparing the state where the participation is mandatory meaning that it is 100%, we can see that the maximum score is getting lower even thought the distribution is almost the same.

As conclusion,even if increasing the participation can be perceived as one of the cause of lower composite score on State level , with this data we can see that even if the participation level is the same the composite score is getting lower as the year come.

Problem statement cont ...

- Composite of state = $\frac{\text{Sum of average score for every subject}}{\text{Number of subject}}$
- Average score for every subject = $\frac{\text{Sum of score for the subject}}{\text{Number of participant}}$

Recommendation

- My recommendation is to improve the composite on an individual level.

The composite score have a correlation with the individual score, and according to this if the sum of score of every graduate in the subject is increased there is a chance to increase the composite of state.

- One way to get involved in plan changes and improvement in the curriculum of high schools.