
US States Educational Performance

Based on SAT & ACT
Standardized Tests 2017-2019

Problem Statement

Education is one of the most important factor for every country in the world. To develop human well-being, well educated citizen can provide security of society, also sustainable economic.

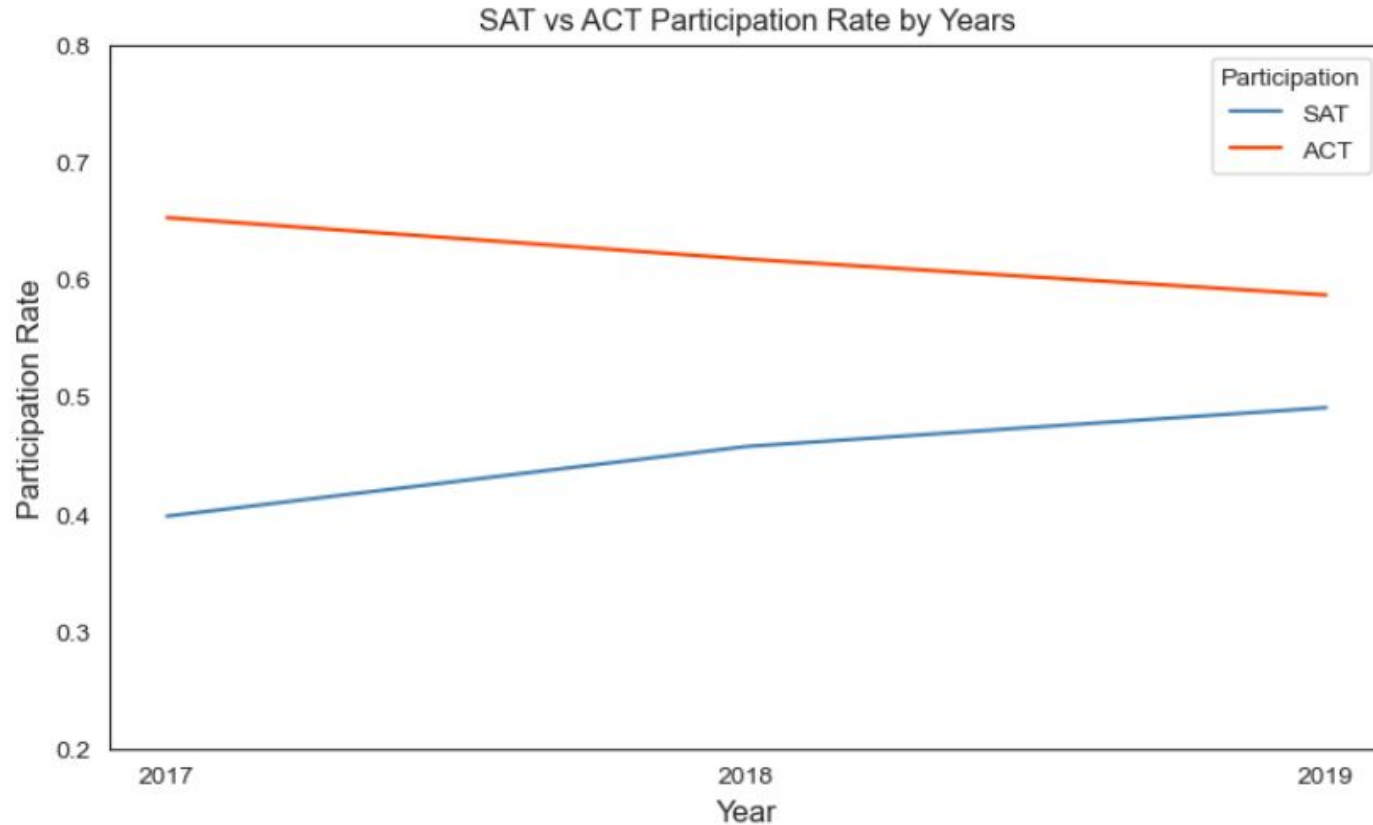
US spends a lot of money for primary and secondary schools but how can the investment of education be measured over the country.

Therefore, the project aims to measure educational performance and public spending on education by using standardized tests, SAT and ACT, over US states.

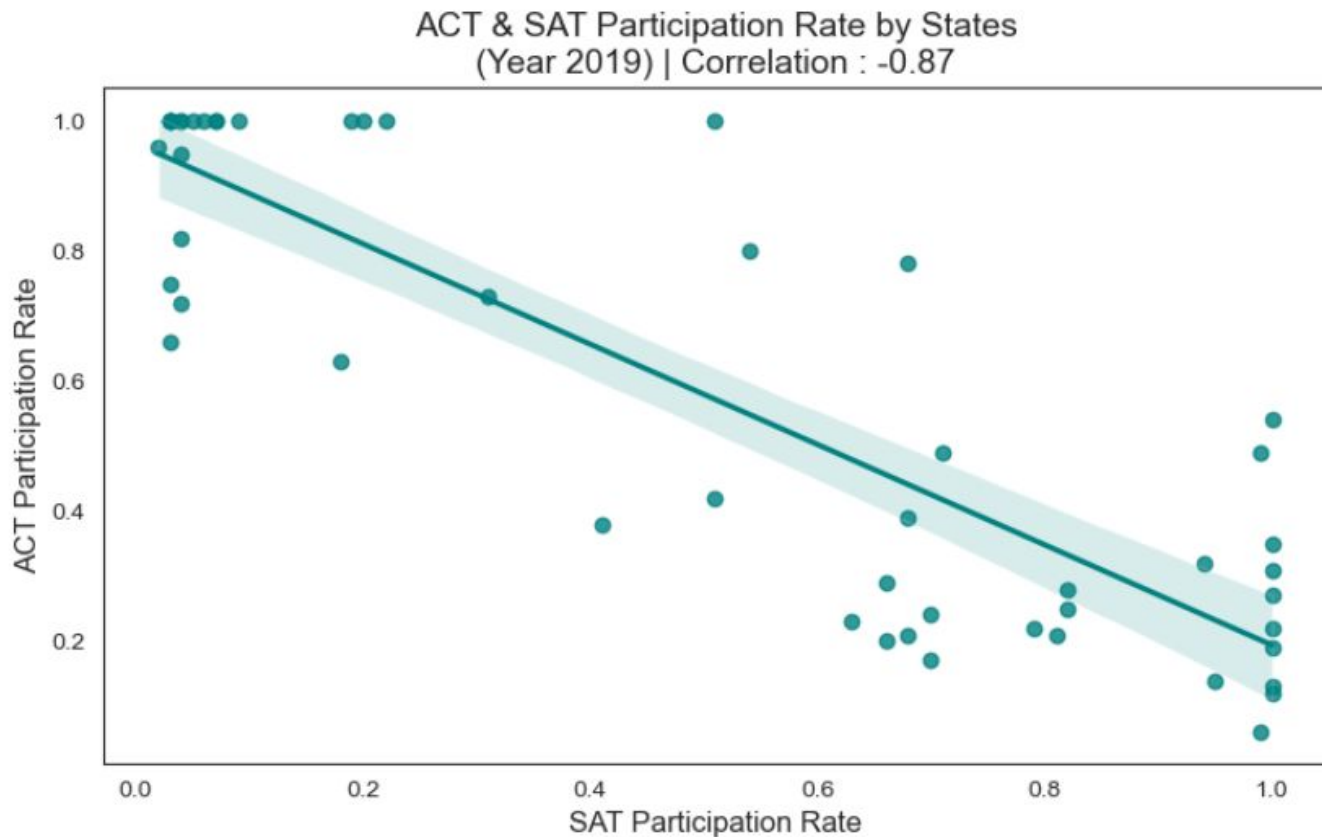
Topics

- Understand SAT and ACT standardized tests
 - Popularity of SAT and ACT
 - Relationship between SAT and ACT
- Measure educational performance by using standardized tests
 - States ranking
 - Public spending for education

ACT is More Popular but SAT is Regaining

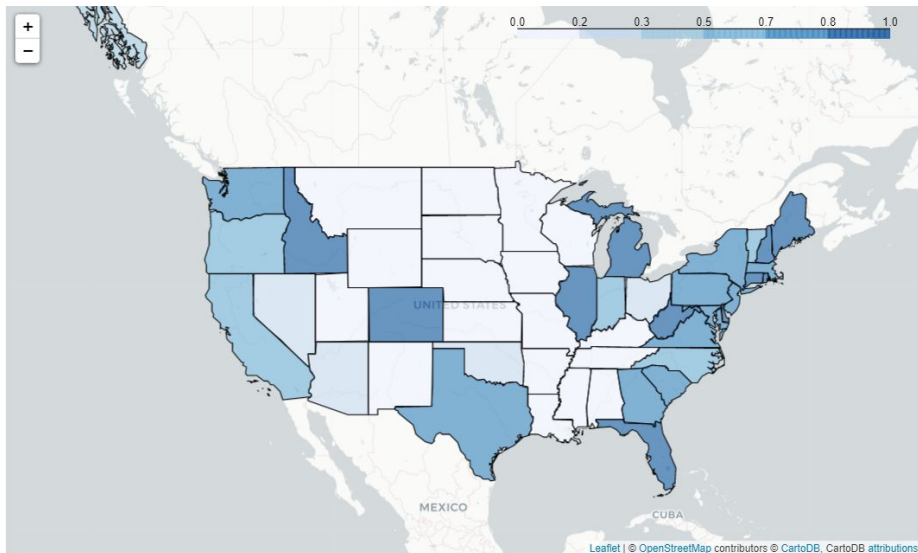


States that Takes SAT are More Likely to Not Take ACT

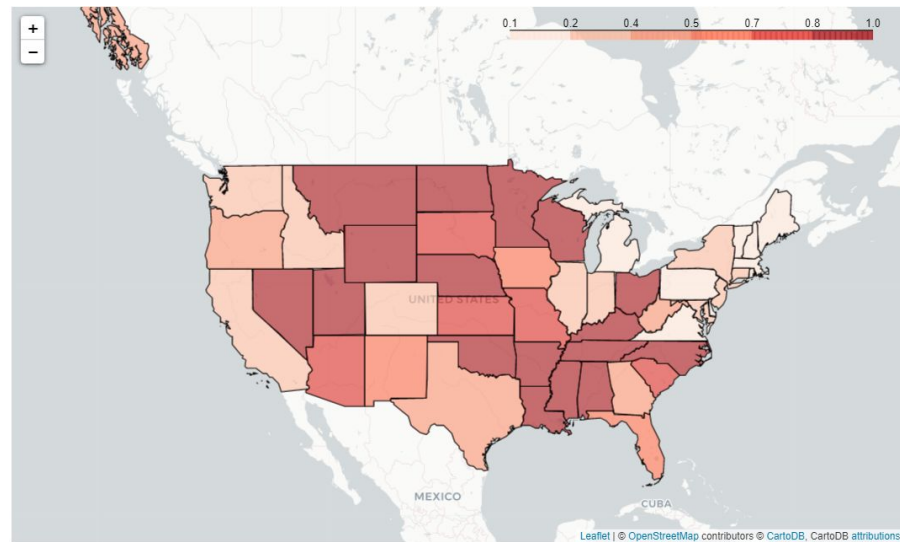


SAT & ACT Dominate Different Area

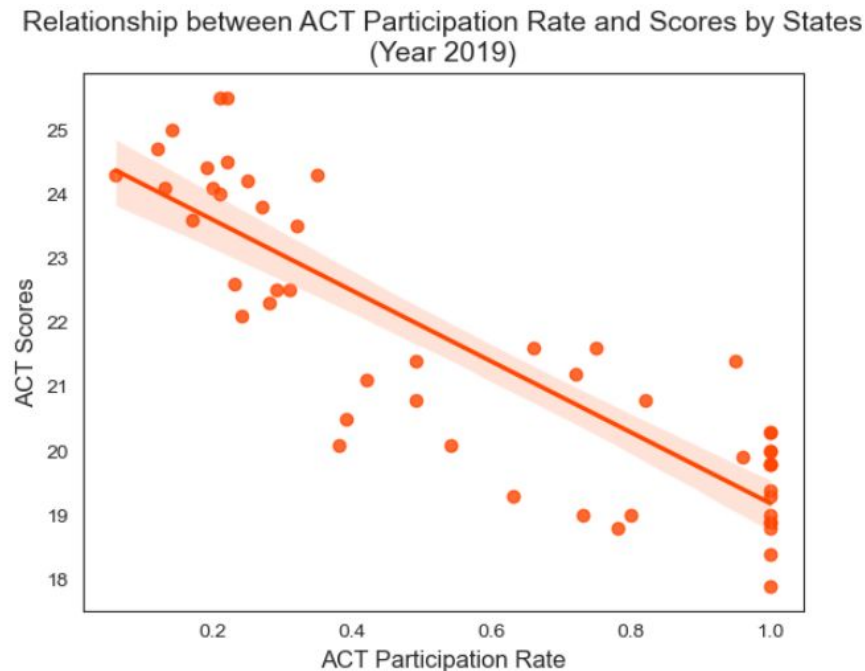
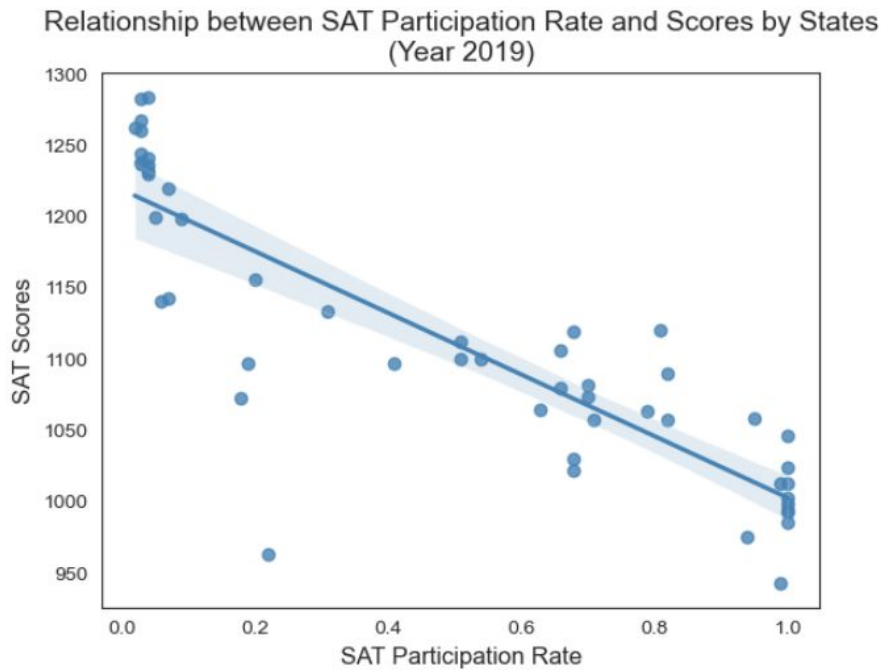
SAT



ACT



Both SAT and ACT Scores vs. Participation Rate are Negative Relationship



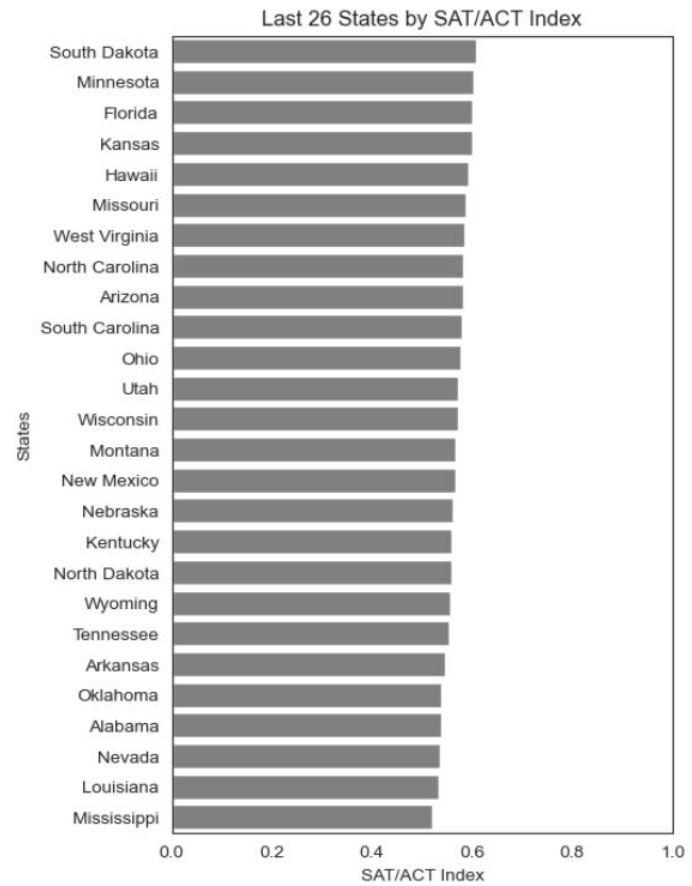
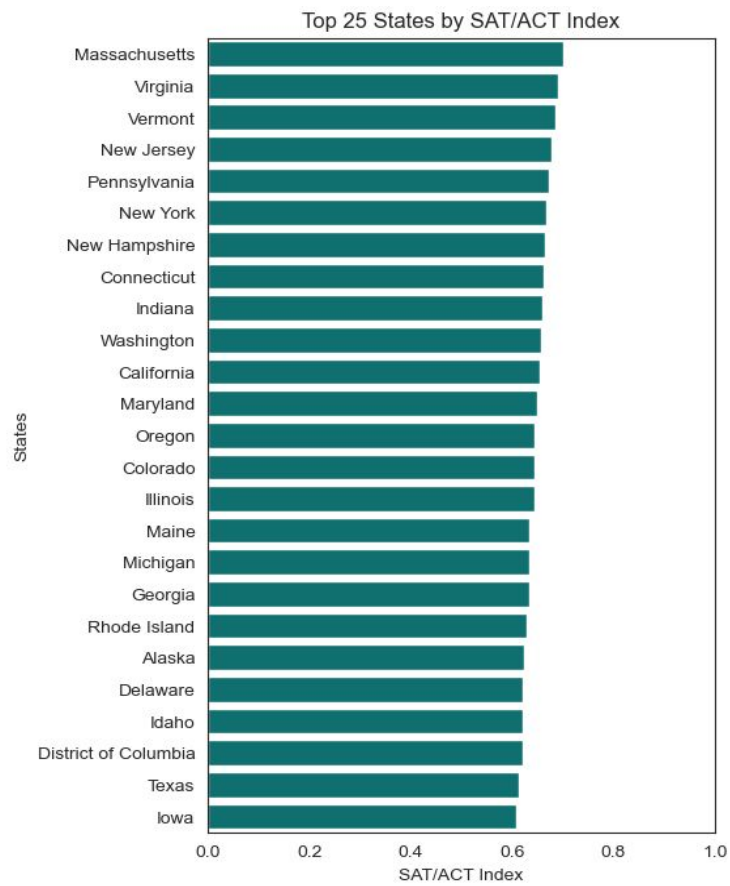
Recap for SAT/ACT Standardized Test Behavior

- On average, Students are likely to **take only one test** depends on state.
- **High participation rate** shows **true average scores** of each state, but **low participation rate** shows only for well-prepared students, which **could lead to bias** for benchmark.

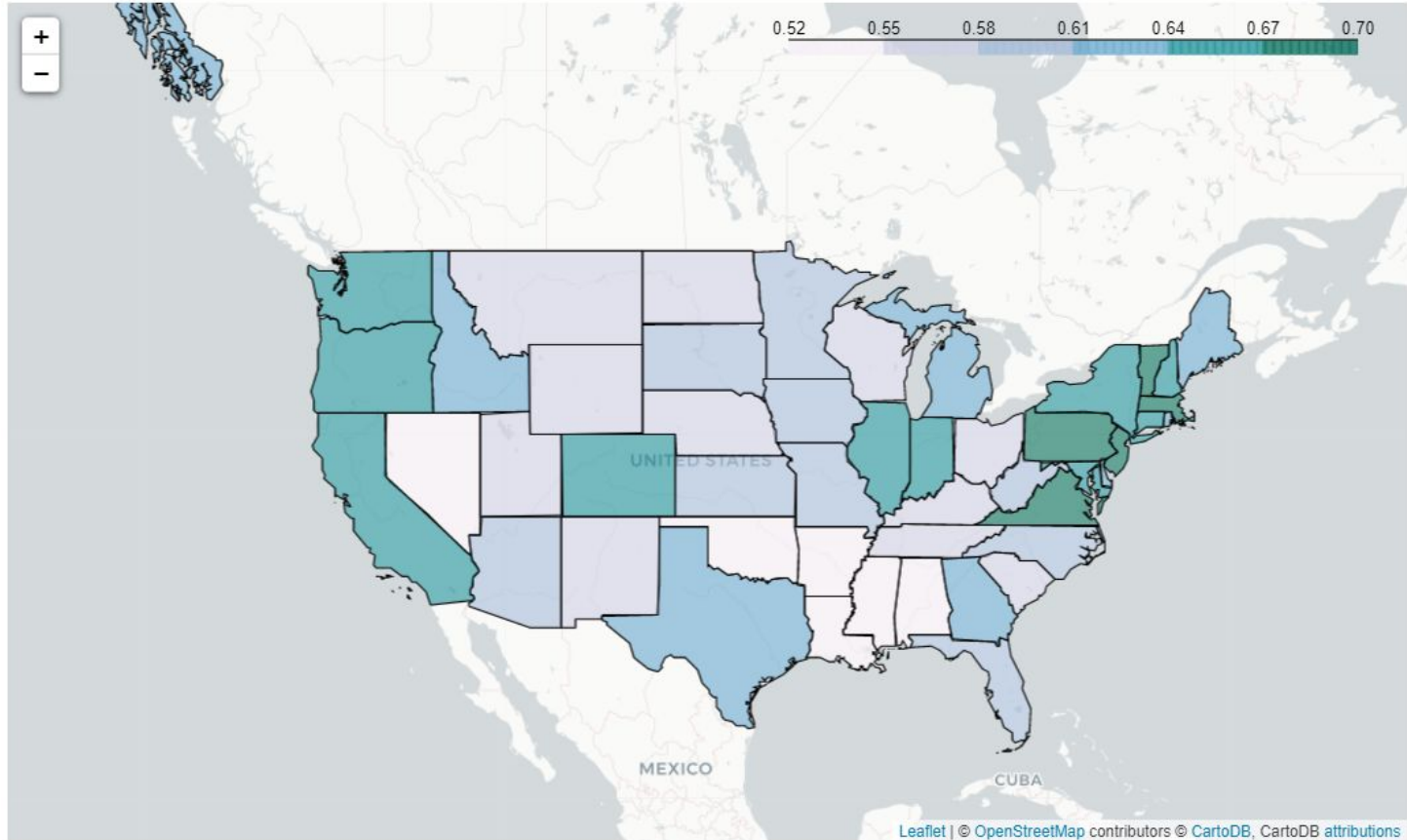
Calculate SAT/ACT Index

1. Using participation rate to be weight of its scores.
2. Normalized each test to be percentage form.
3. Calculate weighted average from 2 tests.

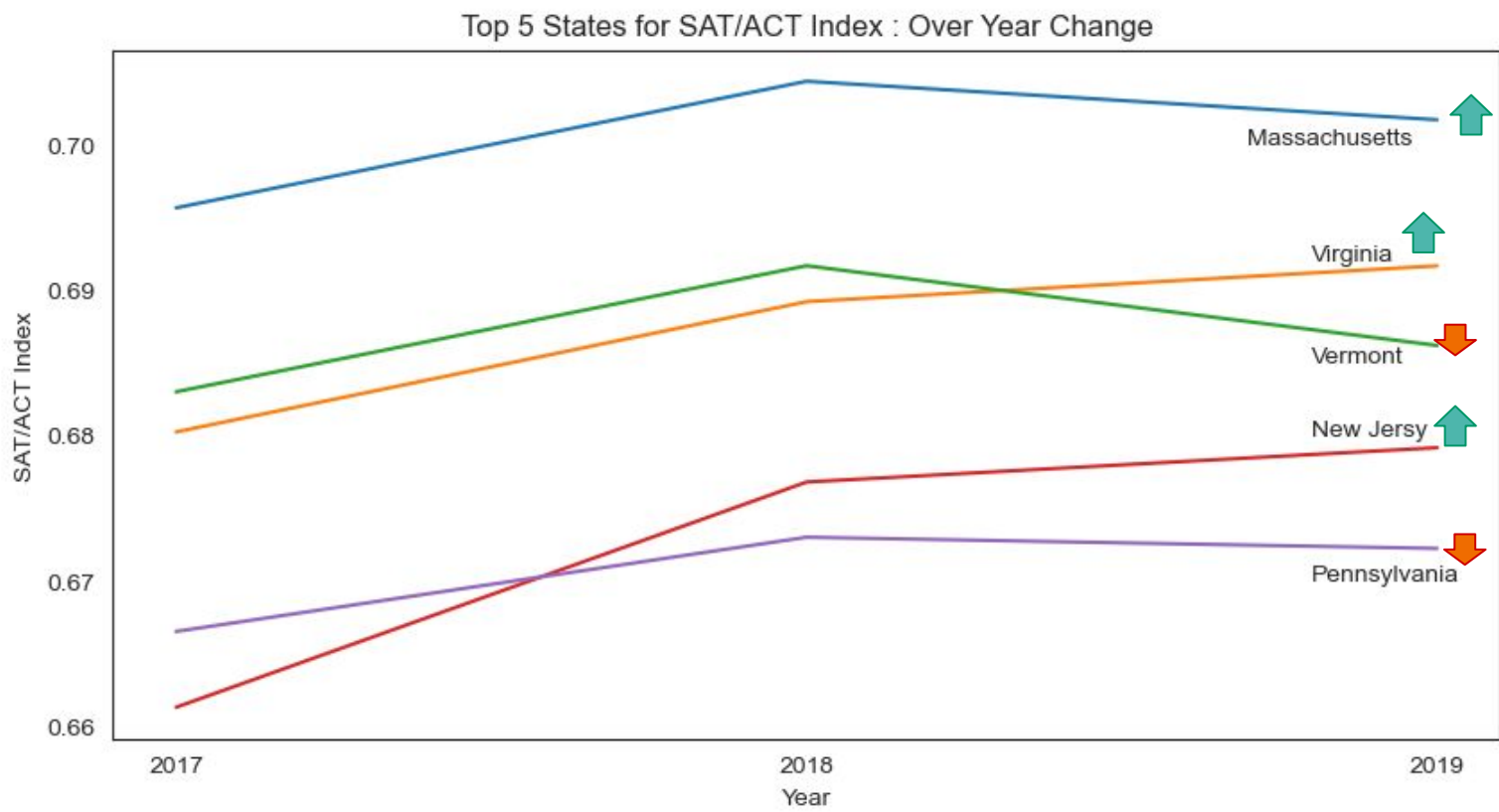
States Ranking by SAT/ACT Index



SAT/ACT Index in Geolocation Map

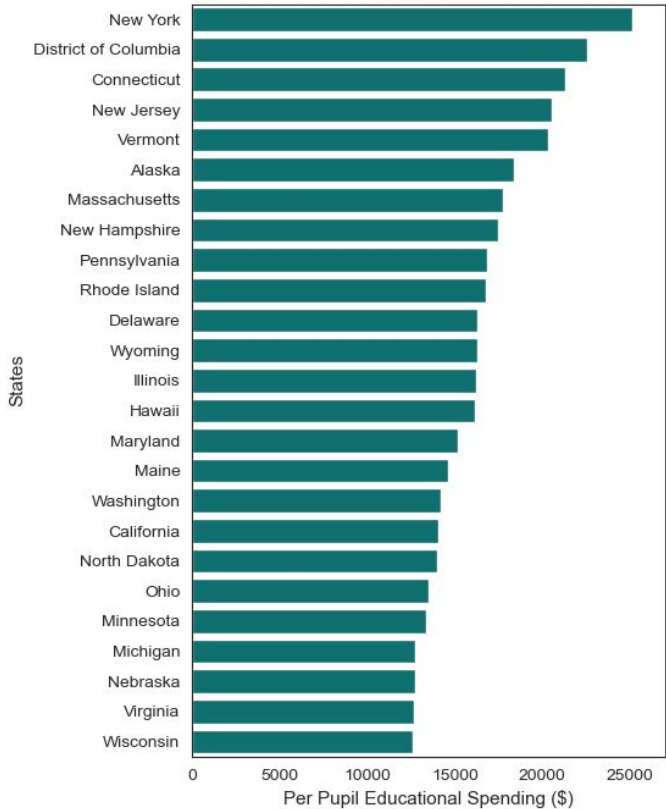


States Ranking Change Year on Year

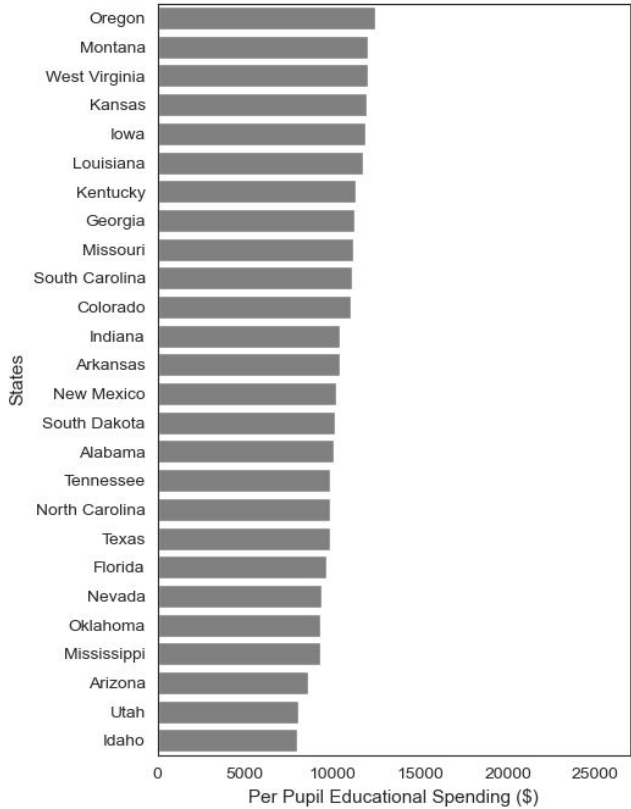


Public Educational Spending

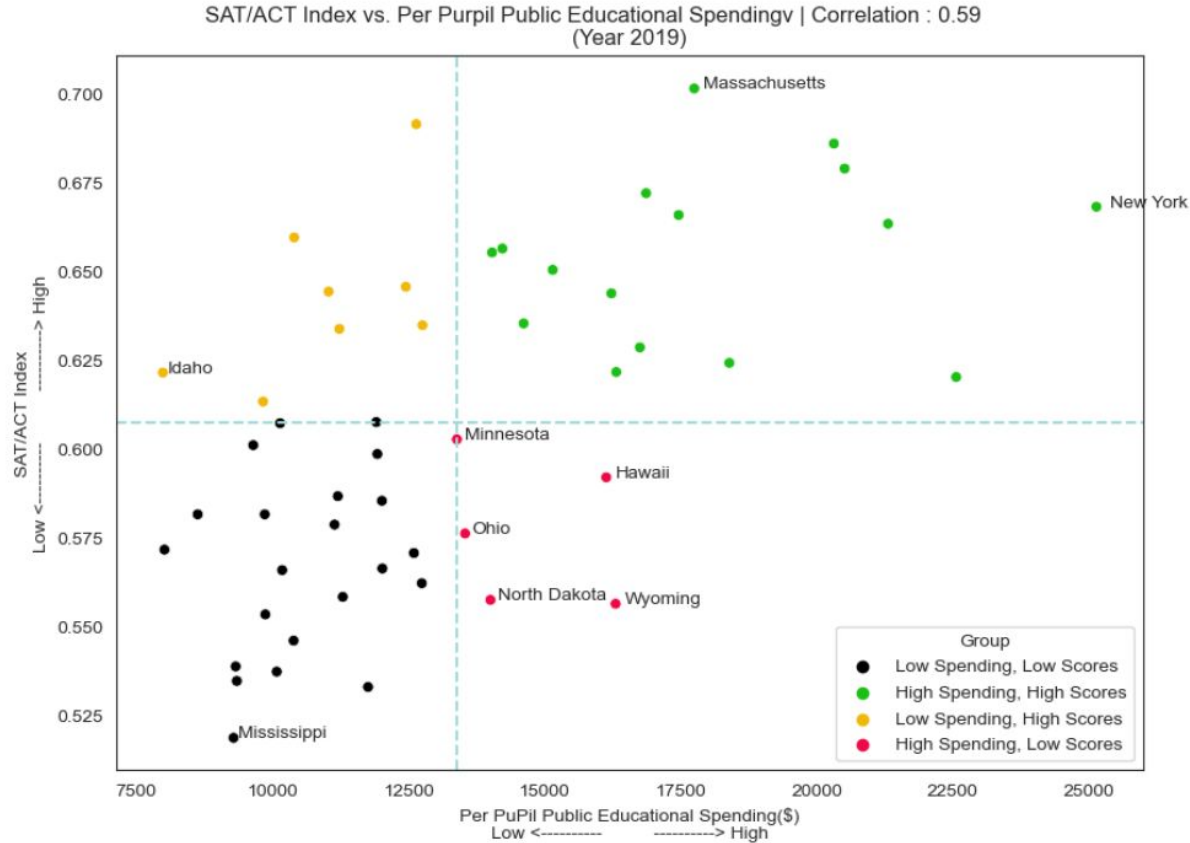
Top 25 Per Pupil Educational Spending States
(Year 2019)



Last 26 Per Pupil Educational Spending States
(Year 2019)



SAT/ACT Index & Public Education Spending



Conclusions and Recommendations

According to the project results, public educational spending related to education level (SAT/ACT index).

But some states are found to spend large money with lower education level achieved that are Minnesota, Hawaii, Ohio, North Dakota, and Wyoming.

These states should be investigated to find reasons that prevent the states perform well after spend a large money.

Thank you