



PROJECT 1

TESTS IN THE TIME OF PANDEMIC

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Stakeholders:

State government policy makers and university admission officers

We are:

Research institution hired to help stakeholders understand the impacts of pandemic on tests



PROBLEM STATEMENT

Pandemic has caused unprecedented turns in many aspects of life.

Comparing ACT and SAT data from years before and after Covid-19, **what can we learn about the impacts of pandemic on test scores and participation rates, both on a high level as well as through a more focused geopolitical lens?**



What do we already know?

Correlations between SAT scores and:

- household incomes (Alvero et.al., 2021, Benner & Everson, 2009)
- ethnic race (Dixon-Roman, 2013)
- parents' education

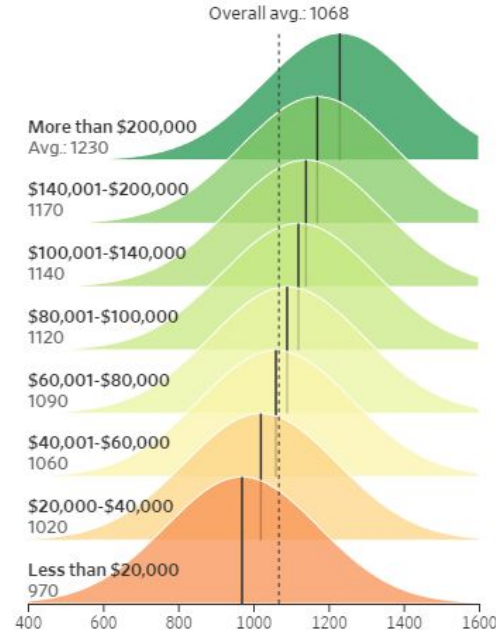
The Score Gap

Average SAT scores, broken down by income, race and parents' education levels, show disparities.

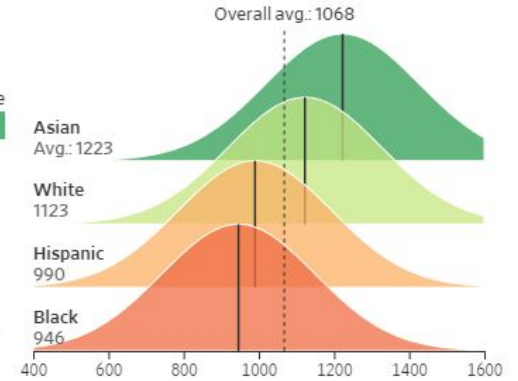
SAT score distributions

Below average Above average

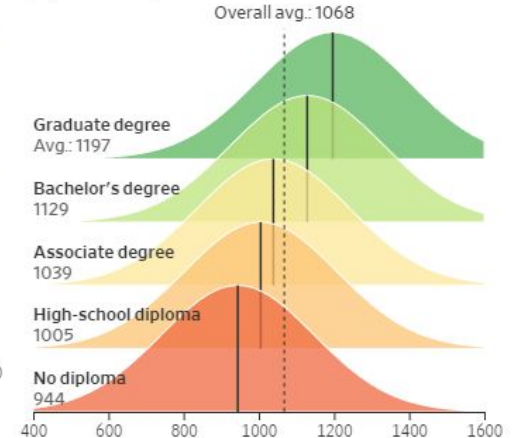
By household income



By race



By parents' highest education level



Note: Income data are estimates based on conversions from 2016 scores. The rest is from 2018.

Source: College Board

WHAT WE WANT TO KNOW:

- 2018-2021: How have test scores and participation rates changed in the past four years? What does this data tell us about the impact of pandemic on tests? – **Fung Xue Feng**
- 2019-2020: geographical perspective – **Meriky L. Alexander**
- 2019-2021: political perspective – **Mark Yung**

CONCLUSION AND RECOMMENDATION – **Jonathan Soon**



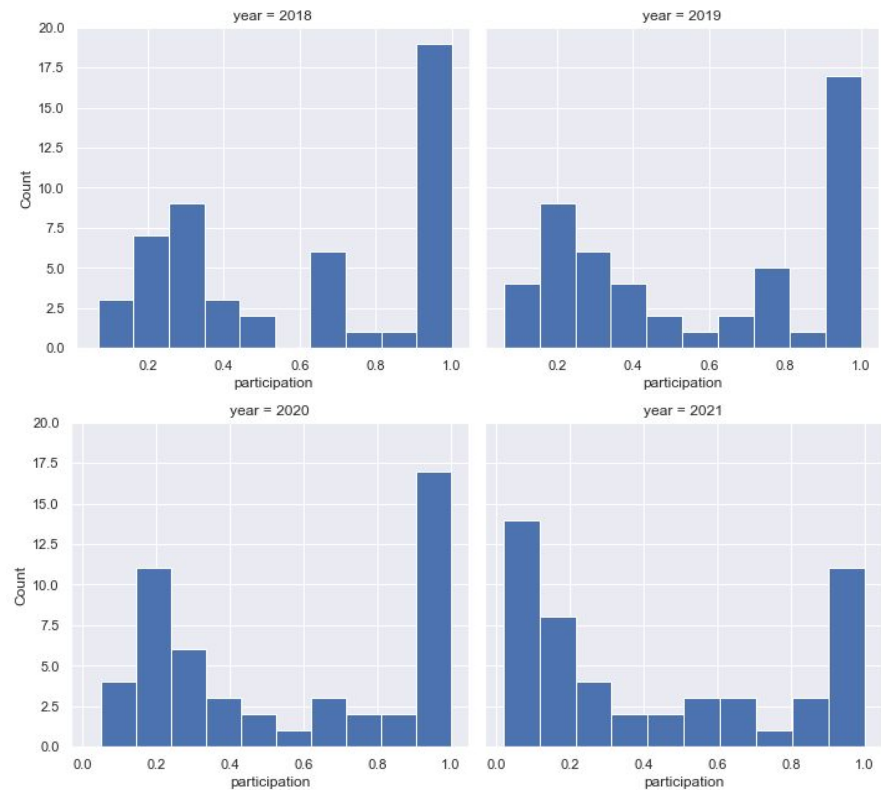
Datasets used:

- ACT 2017
- ACT 2018
- ACT 2019
- ACT 2020 (additional)
- ACT 2021 (additional)
- SAT 2017
- SAT 2018
- SAT 2019
- SAT 2020 (additional)
- SAT 2021 (additional)

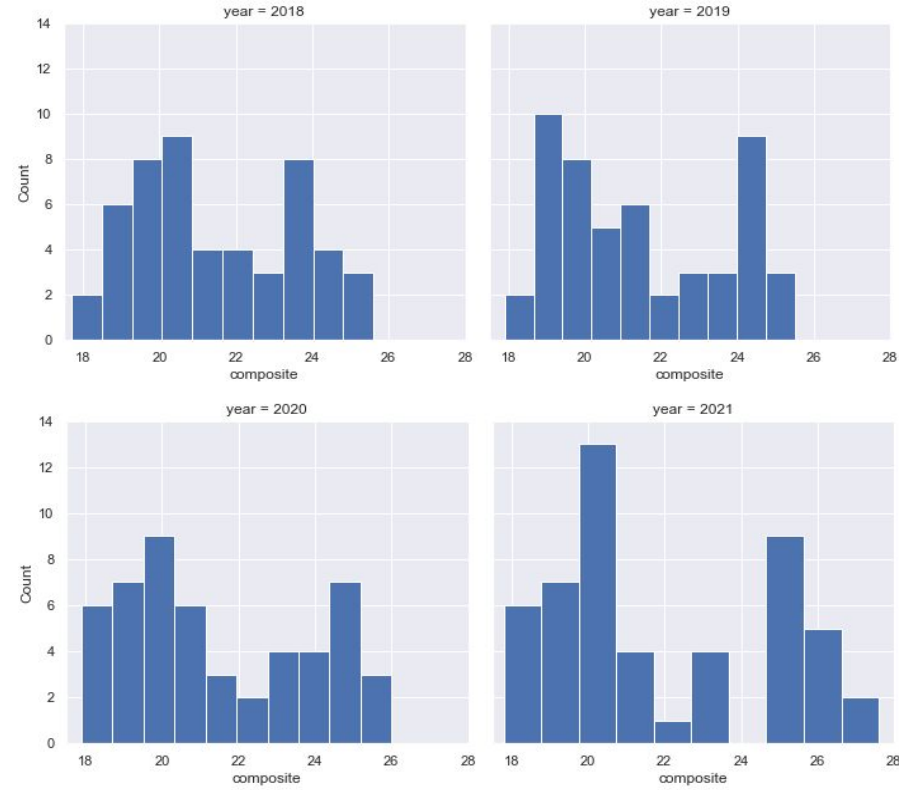


ACT Participation Levels and Composite Scores between 2018 - 2021 by State

ACT Participation Levels between 2018-2021 by State

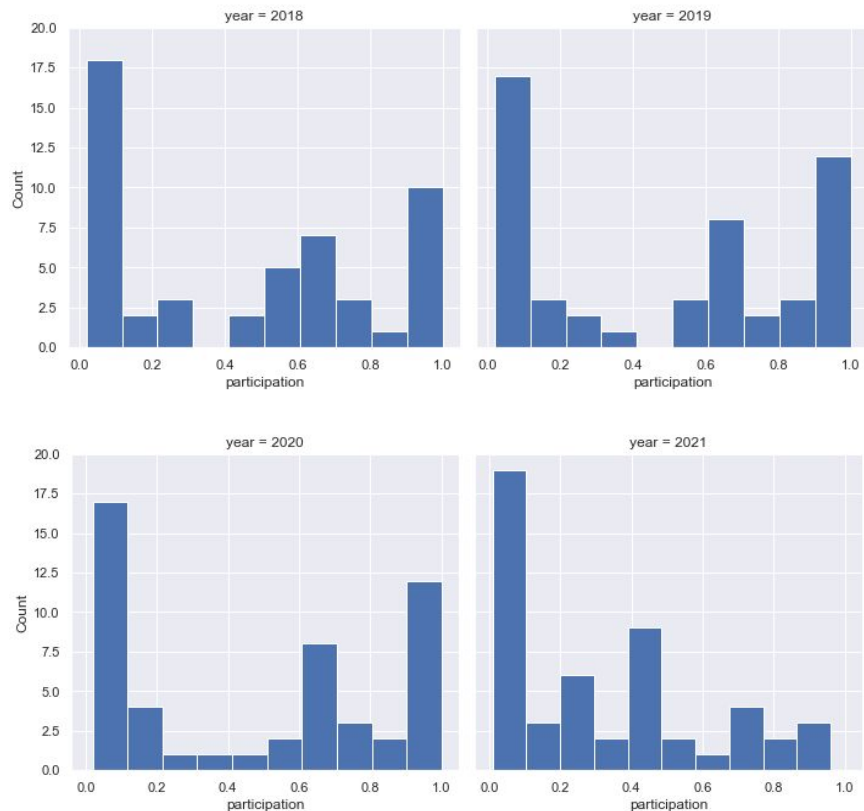


ACT Composite Scores between 2018-2021 by State

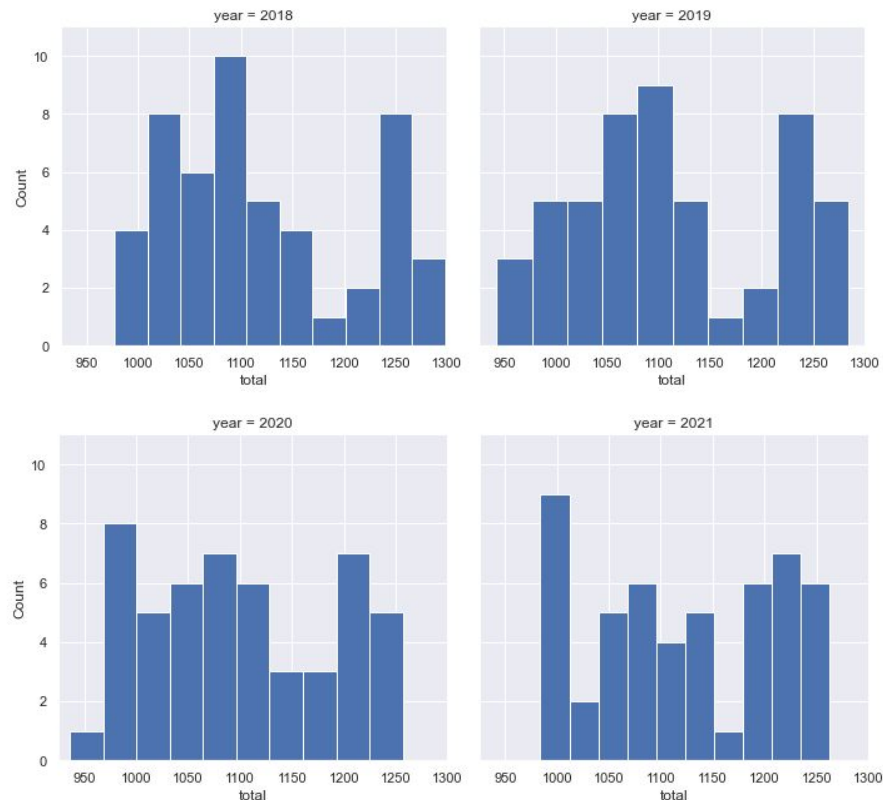


SAT Participation Levels and Total Scores between 2018 - 2021 by State

SAT Participation Levels between 2018-2021 by State



SAT Total Scores between 2018-2021 by State



Geographical correlations:

Which group of states (east coast, west coast, inner states) score higher in which tests?

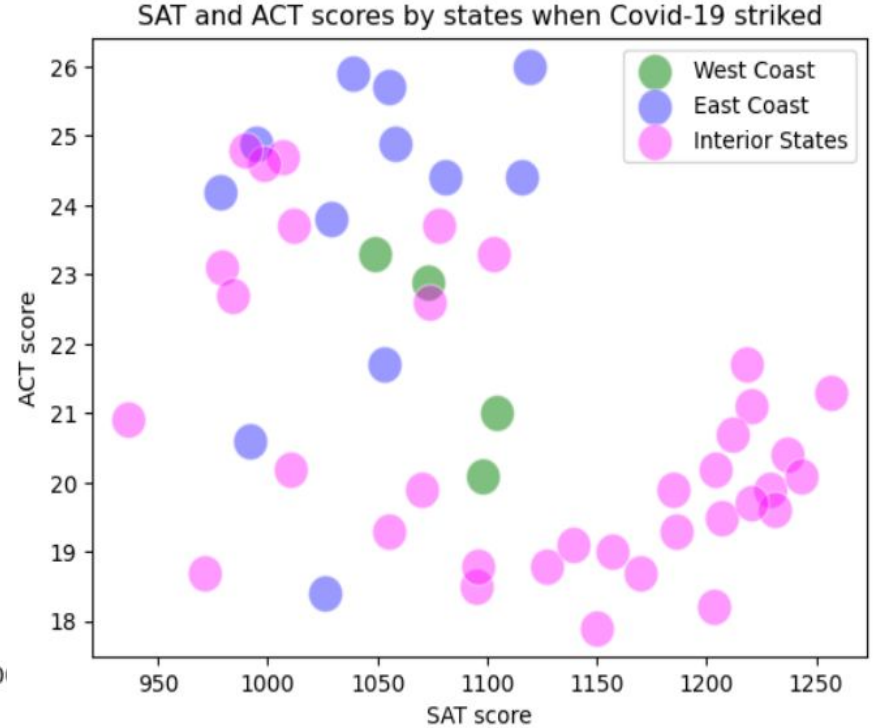
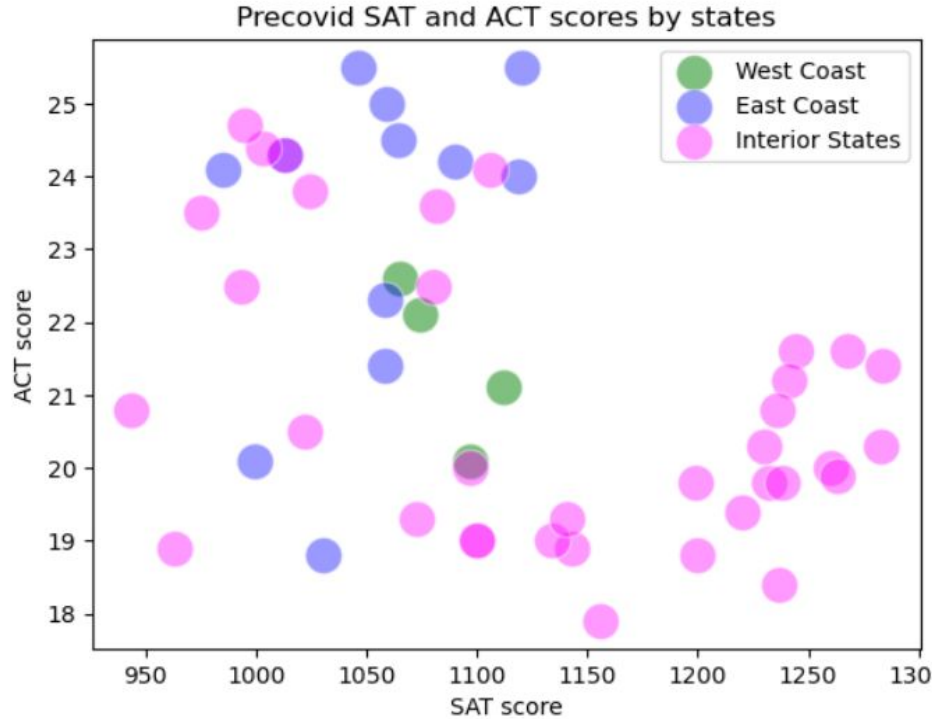
Which of them participate higher in which tests?

How had the onset of Covid-19 in 2020 impacted these correlations?

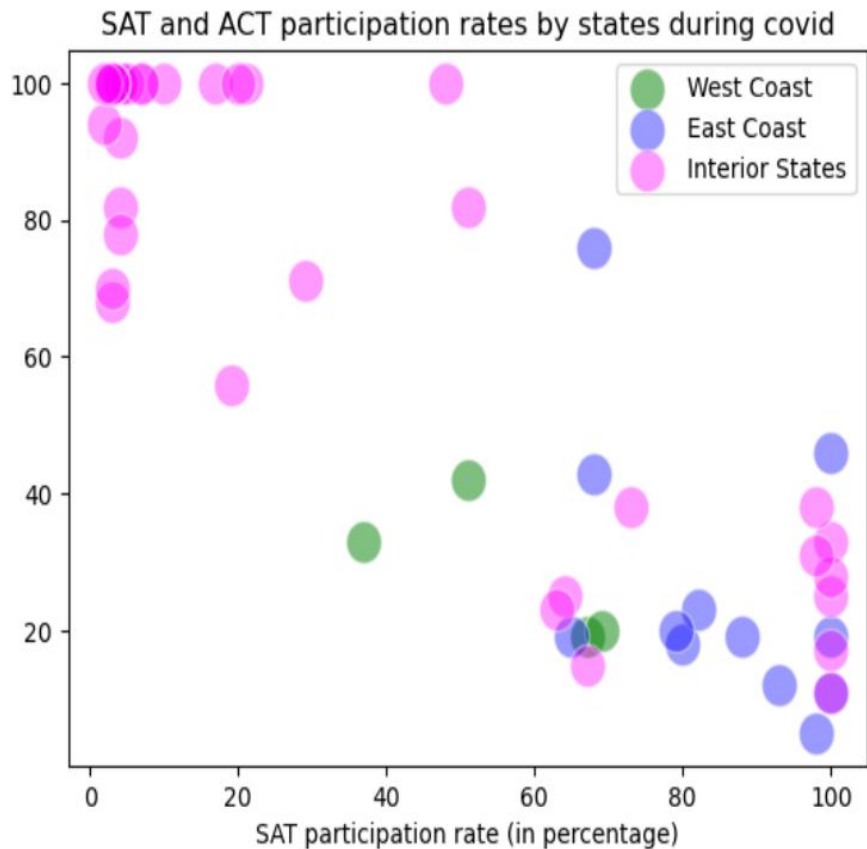
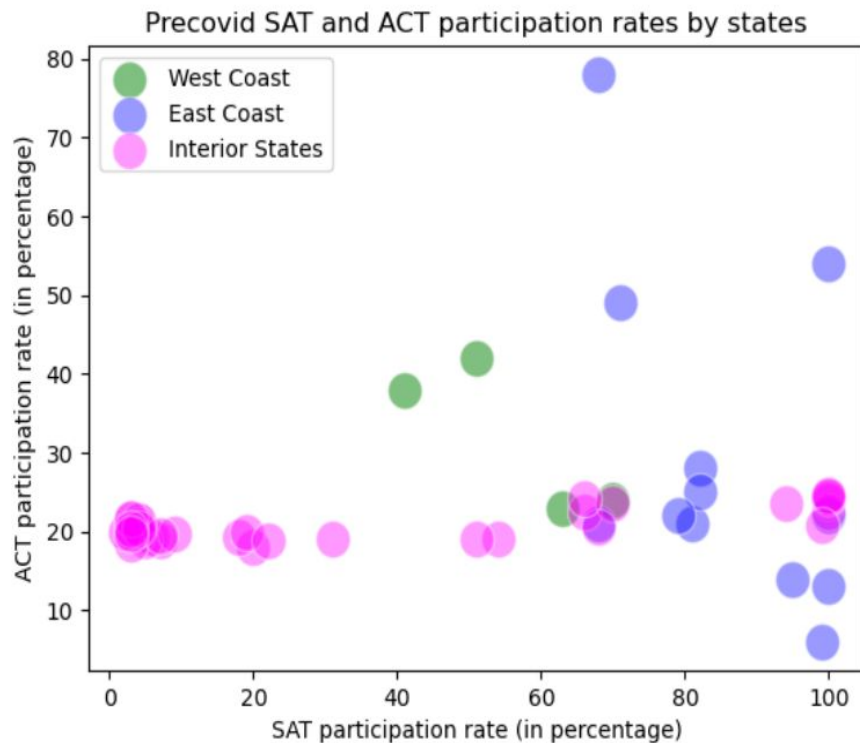
Data: ACT and SAT 2019 and 2020



Geographical state groups and their ACT/SAT scores



Geographical clustering of test participation rates



TAKEAWAYS:

West Coast:

- Prefers SAT
- Moderate well in ACT and SAT

East Coast:

- Prefers SAT
- Good in ACT

Interior states:

High SAT, low ACT

SCORE

High ACT, low SAT

2019: ACT 20%, SAT 0 for many

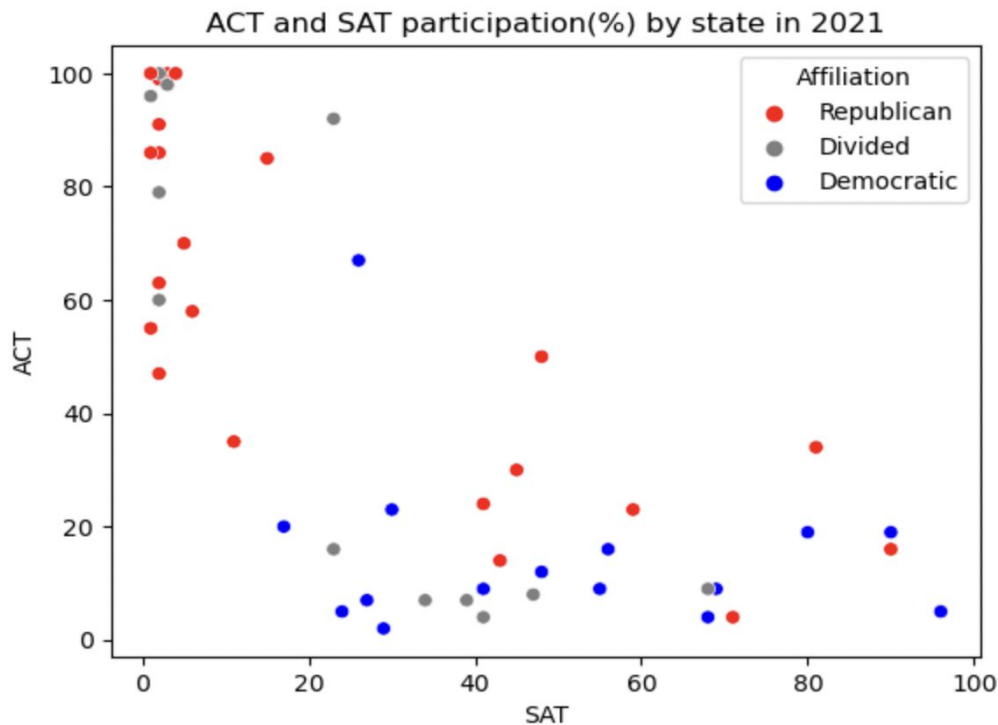
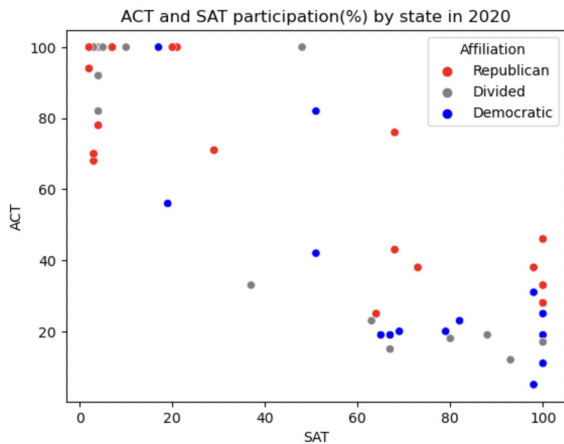
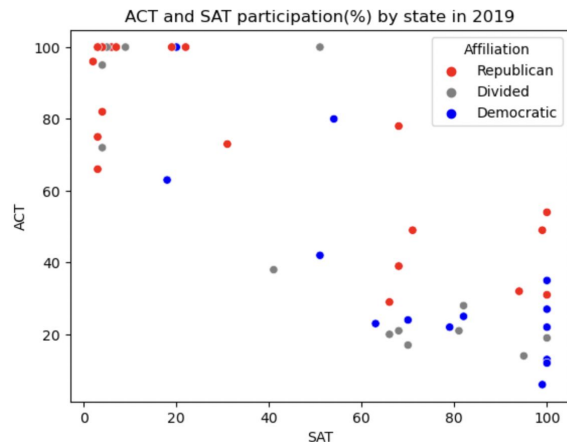
PARTICIPATION

2020: Either ACT or SAT

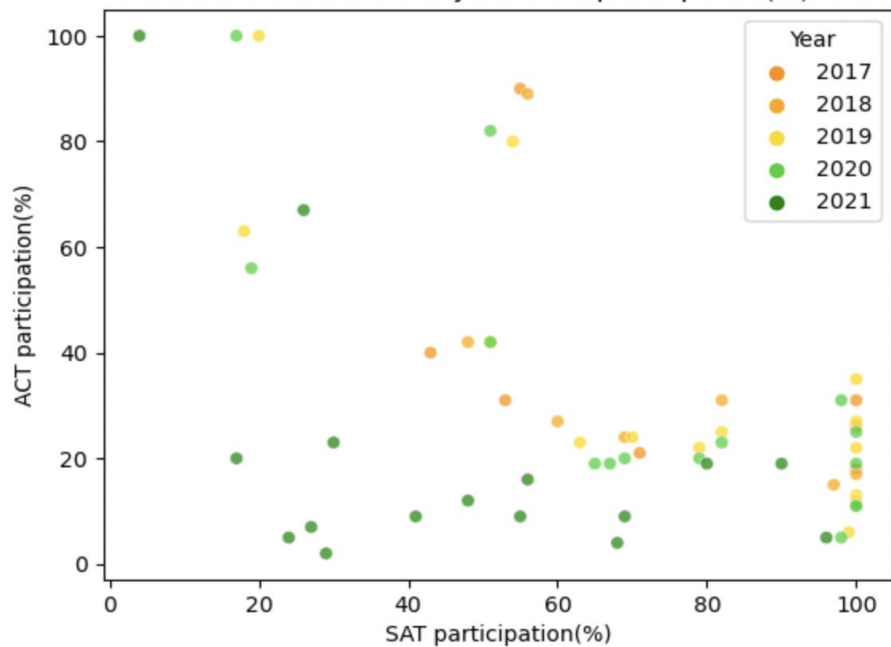
Correlations between political affiliations with tests



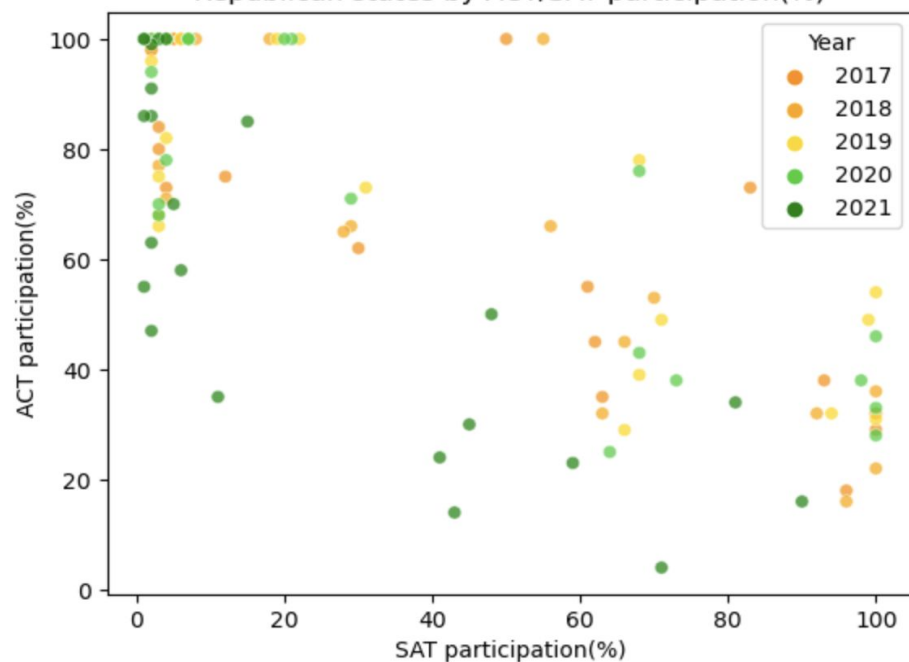
Looking into ACT/SAT Participation by State Government Affiliation



Democratic states by ACT/SAT participation(%)

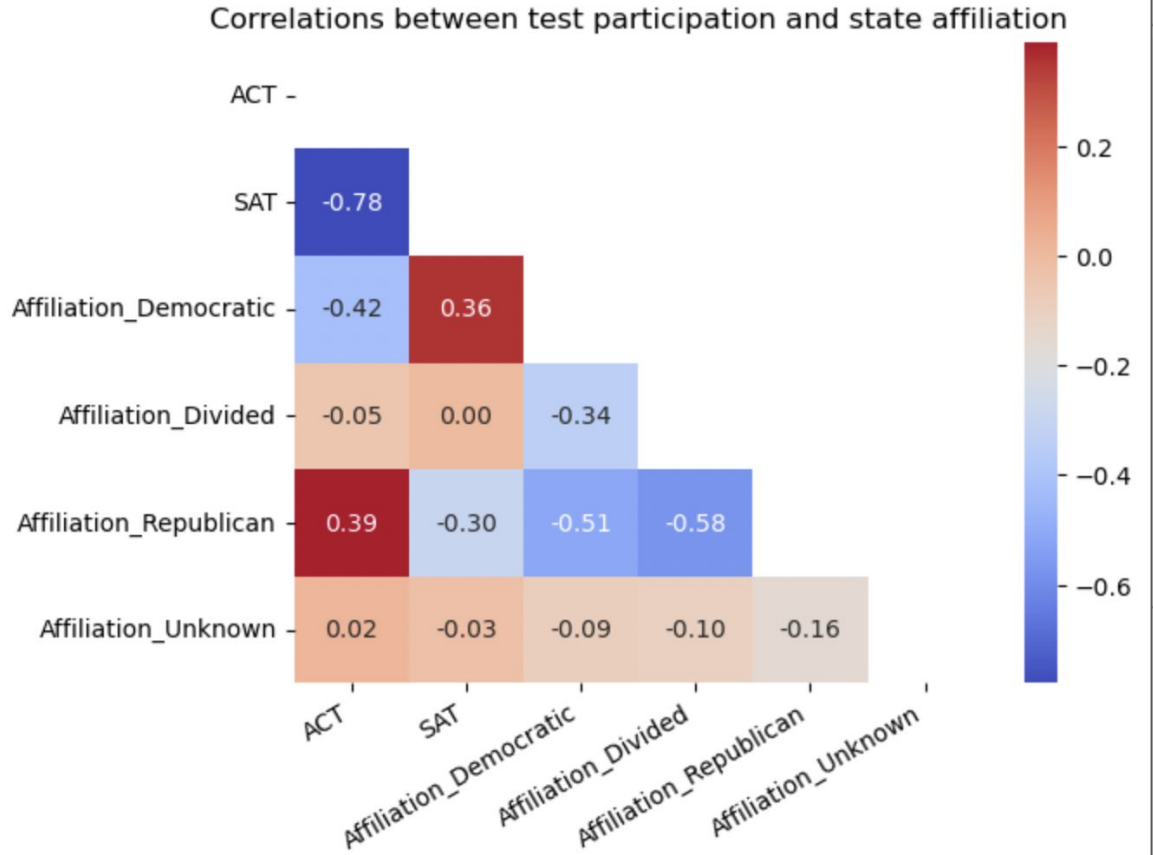


Republican states by ACT/SAT participation(%)



The correlation numbers support our conjectures - political affiliation to either of the parties seems to be somewhat correlated to which test has high participation.

Expectedly, participation in either test is heavily correlated with not taking the other.



CONCLUSION

- The participation level has dropped from pre-covid to Covid years.
- There is a more prominent divide in the state score of ACT than SAT from pre-covid to Covid.
- The onset of Covid in 2020 had more impacts on the patterns of participation among interior states compared to east and west coast states.
- Political alignment does have some correlation to which test is taken.



RECOMMENDATION

- Insights from our project can be useful for future policy making decisions for states and school. that takes into account different geopolitical characters.
- Further research can be done to include data such as covid impacts on different states, or to scale down the unit of analysis from state level to county level.



THANK YOU!

TESTS IN THE TIME OF PANDEMIC

