

Improvement plans for California's education system

Role: An advisor to the State of California with the task of improving education levels.

Objective: To explore and analyse relationships between demographic keys and performance of standardized tests, and to identify key areas of improvements in different counties across California.

Problem Statement

California has more billionaires than any other state and yet education system is ranked lowly at 41 out of 51 states.

This project aims to analyse relationships between key demographic indicators and performance of standardized tests, and to identify areas of improvements in different counties across California.



Ranking: 1 / 51 states



Ranking: 41 / 51 states

Racial Segregation



50% African-Americans
(second highest state)



58% Hispanics
(highest state)

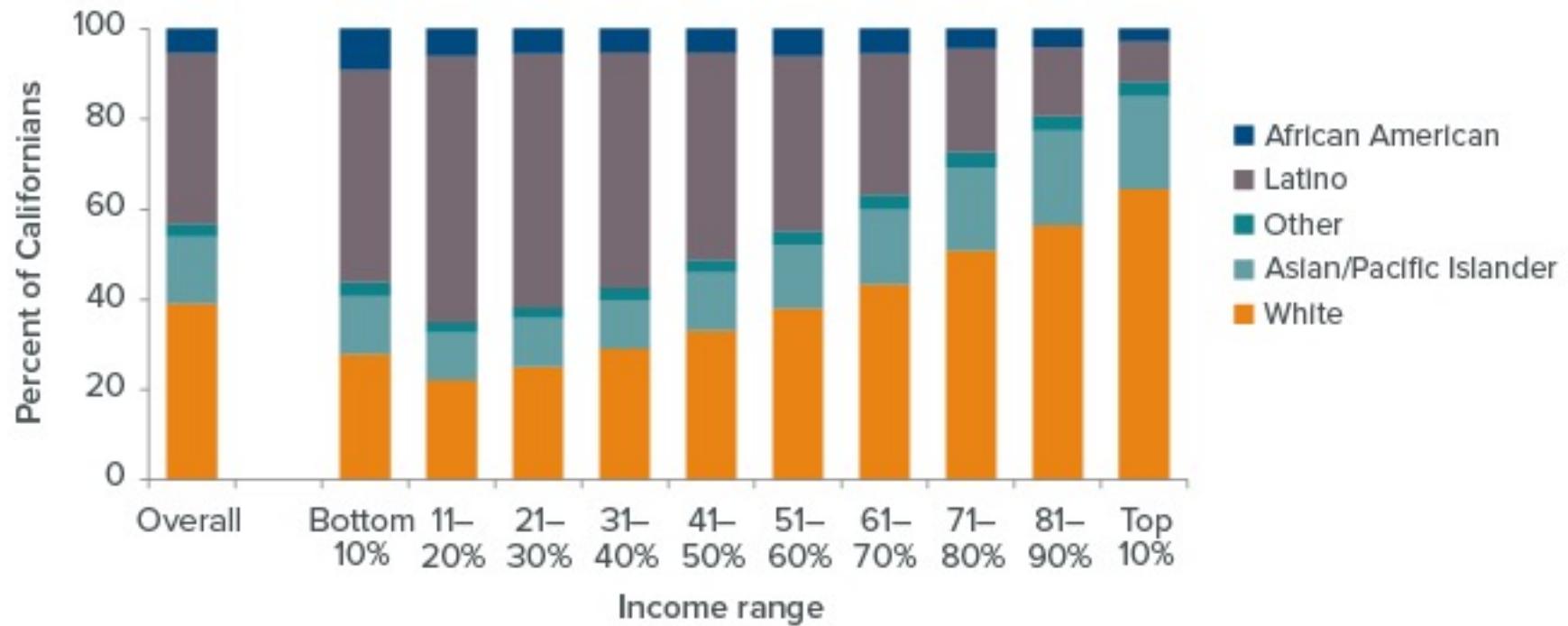


Intensely Segregated Schools



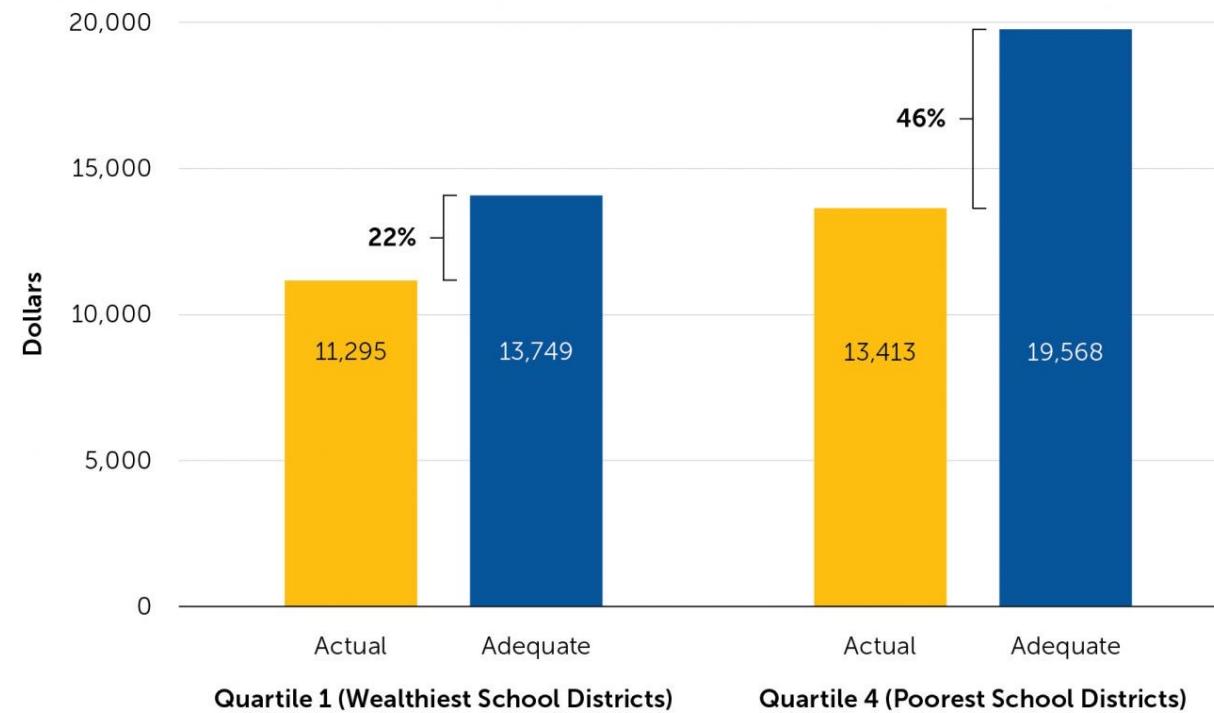
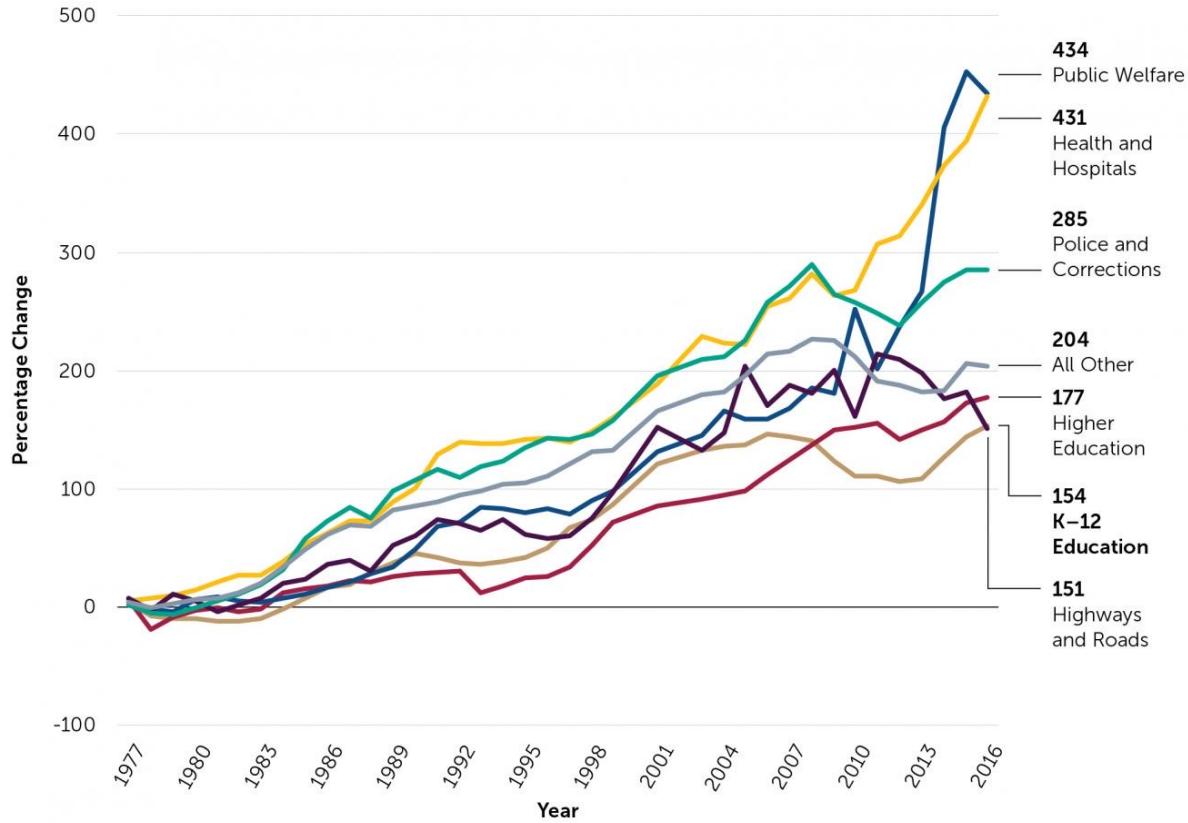
< 10% whites

Income Distribution

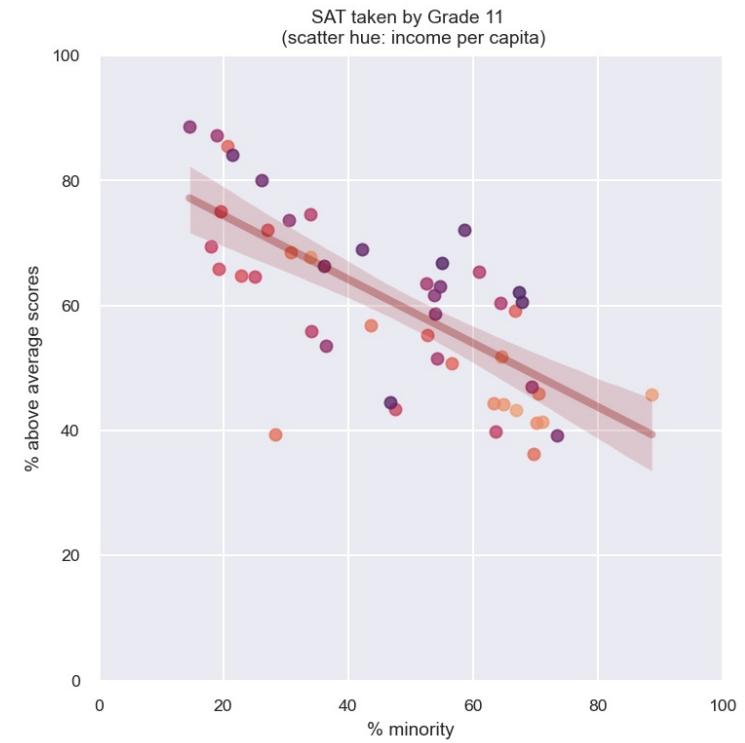
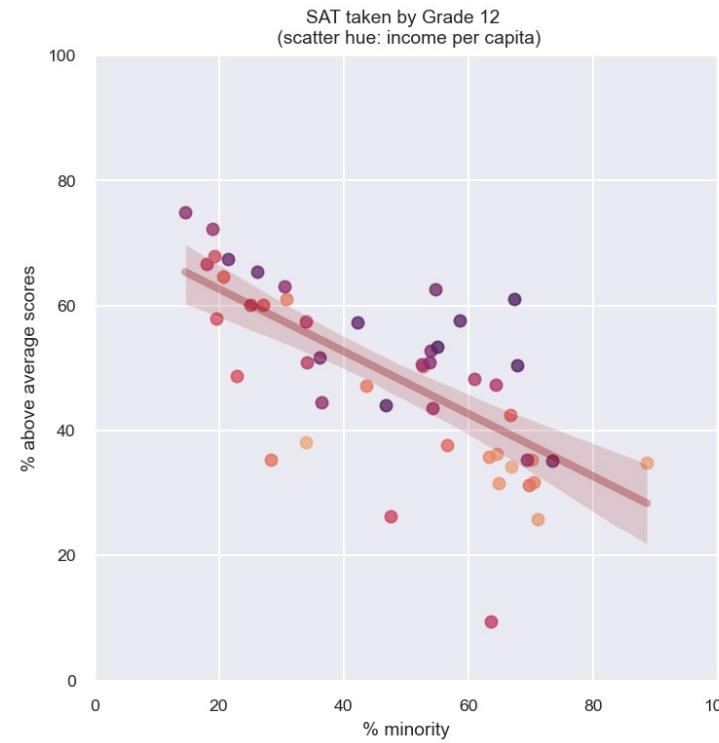
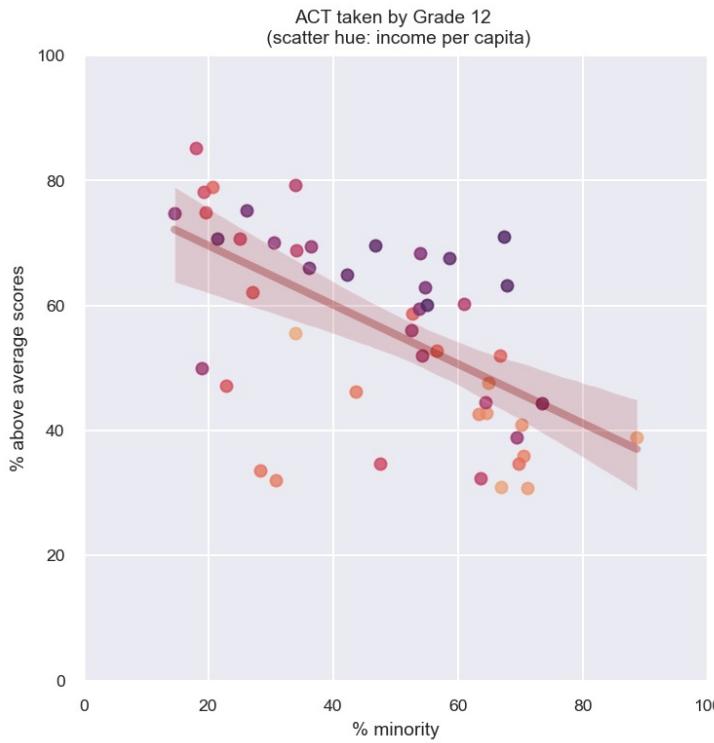


- The average white student attends a school where 40% of students are low-income
- The average African-American or Latino student attends a school that is 70% low-income

Education Expenditure



Test Results vs Minority %



Primary finding:

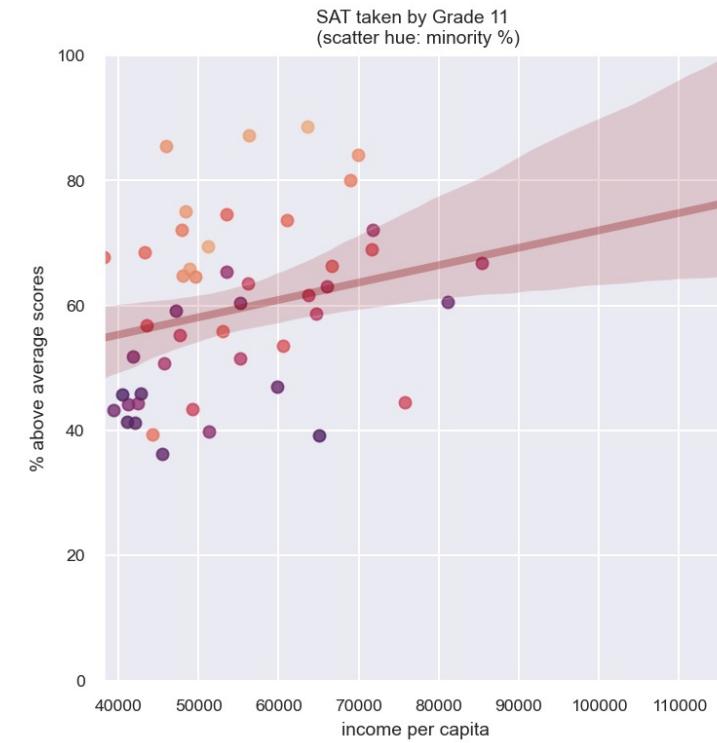
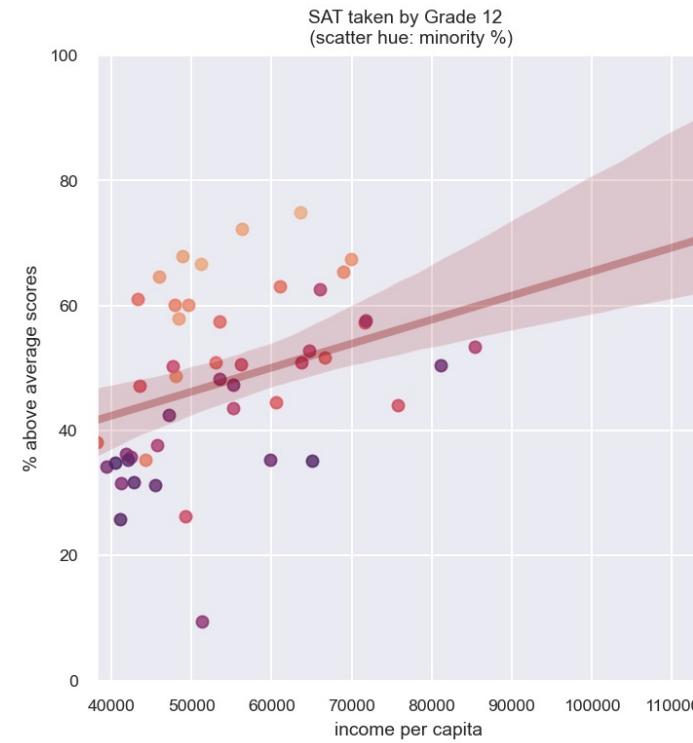
- Counties with higher minority % → lower test results
- Hue: Datapoints with darker shades represent higher income per capita

Worst performing counties

County	SAT Grade 12 (%)	SAT Grade 11 (%)	ACT Grade 12 (%)	Minority (%)	Difference of minority against mean (%)
Colusa	9.50	39.87	32.37	63.70	18.46
Merced	25.84	41.37	30.82	71.20	25.96
Glenn	26.33	43.41	34.66	47.50	2.26
Fresno	31.19	36.23	34.74	69.80	24.56
Kings	34.21	43.26	30.92	66.90	21.66

- 5 worst performing counties have minority % higher than mean.
 - Consistently found in bottom 10 in SAT Grade 12, SAT Grade 11, ACT Grade 12 tests.
- 4 of 5 counties have very large difference from mean.
 - Colusa, Merced, Fresno, Kings

Test Results vs Income per capita



Primary finding:

- Counties with higher income per capita → higher test results

Conclusion

- Negative correlation between percentage of minority and test performance
 - Counties with higher percentage of minority have inferior SAT/ACT results
- Weak positive correlation between percentage of minority and test performance
 - Counties with higher income per capita may fare better SAT/ACT results
- Research shows high levels of racial segregation in schools leads to poorer education levels and job opportunities.
- California is one of the most segregated states, particularly in schools.

Recommendation

- Introduce racial quota in schools.
- De-segregate 5 counties identified as the worst performing counties:
 - Colusa, Merced, Glenn, Fresno, Kings.
 - Push for higher participation of Magnet Schools Assistance Program (MSAP) in these counties.
- Improve funding towards de-segregation plans.
- Improve funding in states with lower income per capita.

Future Improvements

- Income inequality between counties/districts
- Racial proportions within each school
- School fundings in each county