Educational Inequality in California

Group 4 Presentation

Agenda

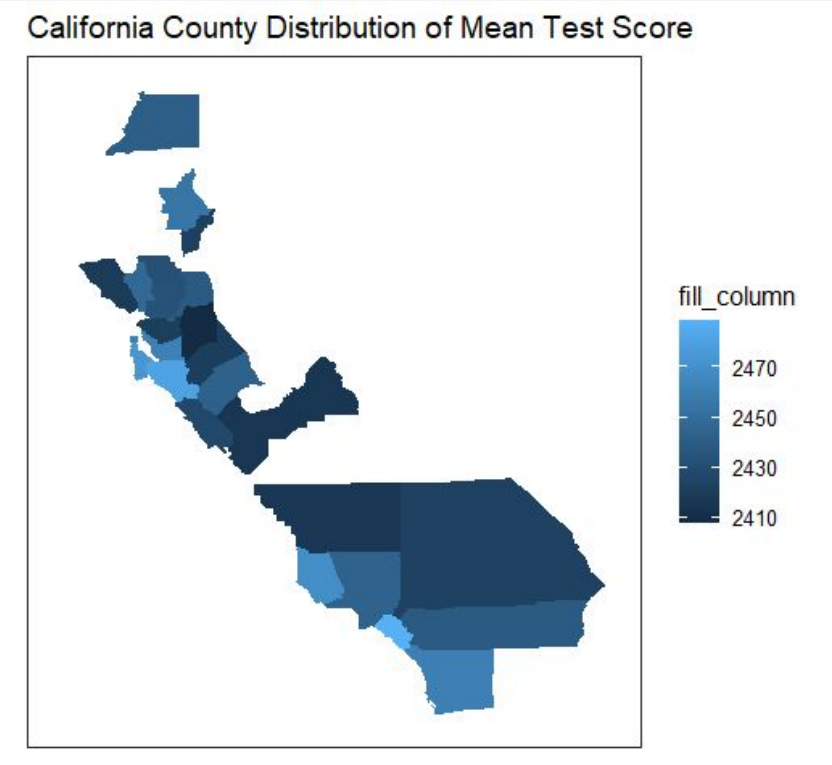
01 Background

02 Analysis

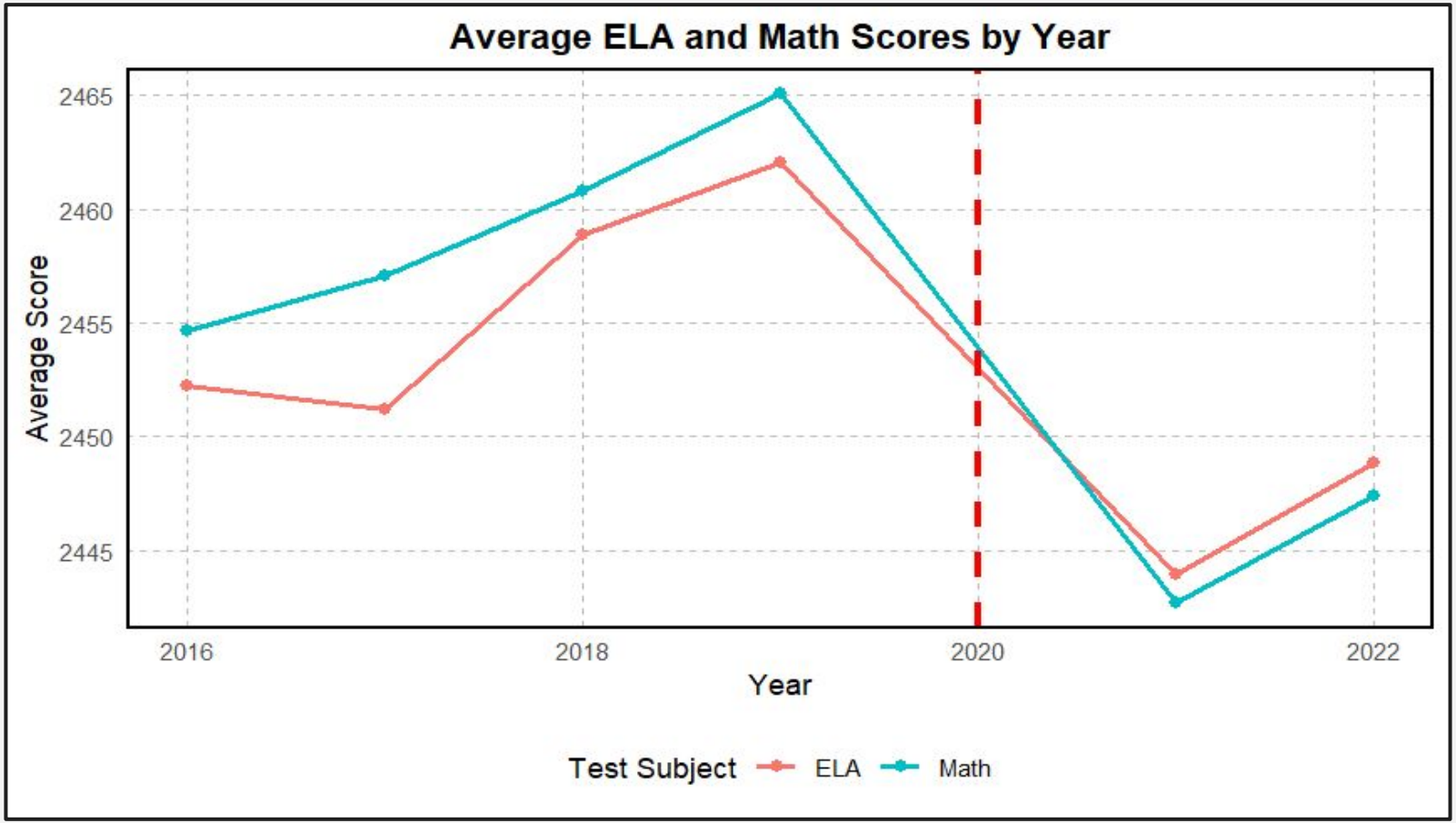
03 Recommendations

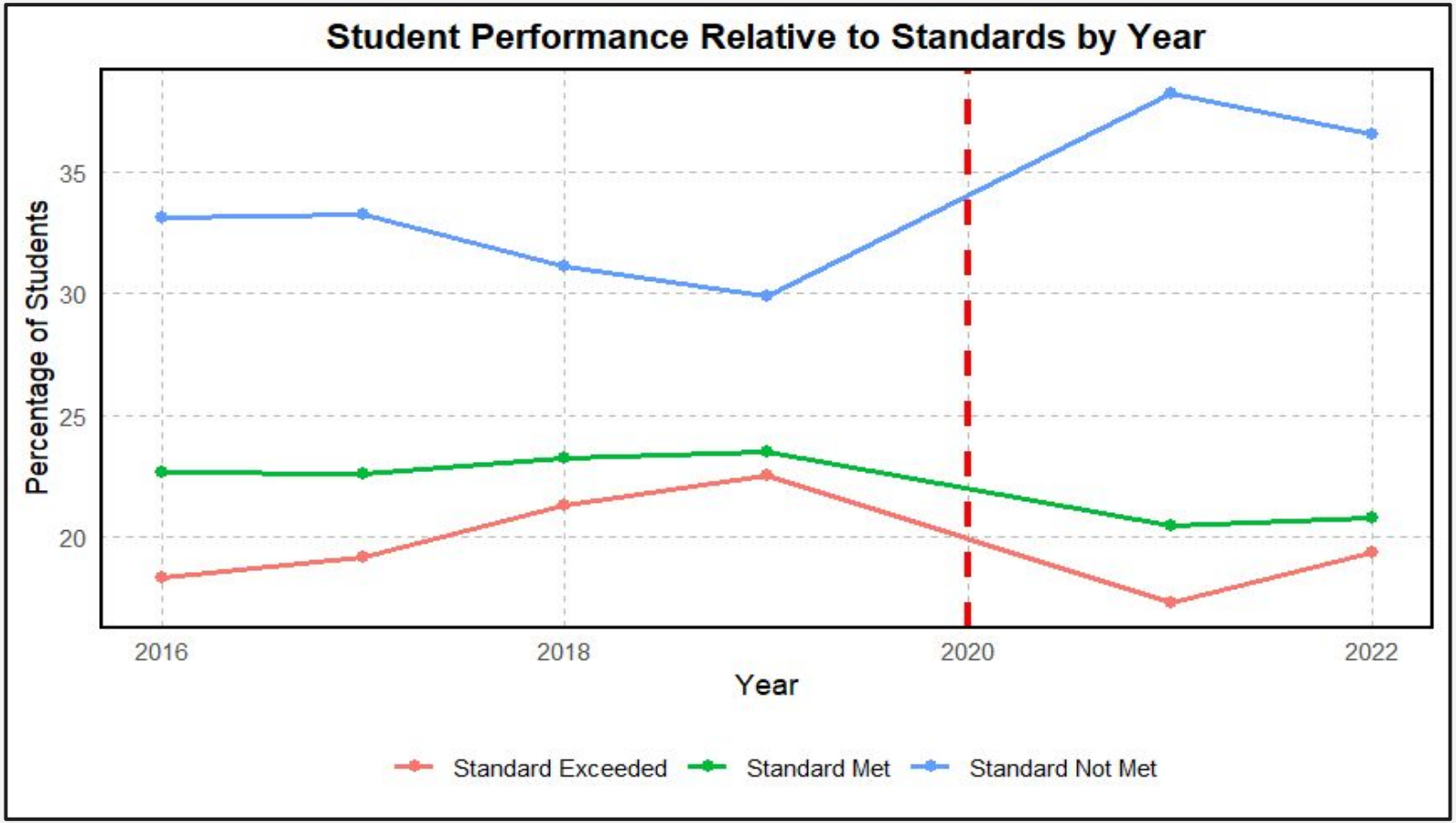
01 Background

Background



- High variation along California in terms of average test score
- We saw a significant drop in test scores for students grades 3 - 5.


Average ELA and Math Scores by Year
2465
2460
2455
2450
2445
Average Score
2016
2018
2020
2022
Year
Test Subject
ELA
Math


Student Performance Relative to Standards by Year
Percentage of Students
35
30
25
20
2016
2018
2020
2022
Year
Standard Exceeded
Standard Met
Standard Not Met

Introducing our Data

CAASPP

- California Assessment of Student Performance and Progress
- Grades 3 - 5
- 2016~2022 (excluding 2020)

Variables:

- School District
- County
- Average Test Scores for Math and ELA

ACS

- American Community Survey
- Elementary & Unified School Districts
- 2016~2022

Variables:

- Race
- Race Median Income
- Family Structure (U18)
- Gini Coefficient

Data Cleaning

- Join by CDS Code and NCES District from California Department of Education key for 159,405 observations
    - Combined district-level population data to each testing observation
- Addition of FBI crime data by County
- Combined non-white statistic and weighted average for non-white median income

Further Data Limitations

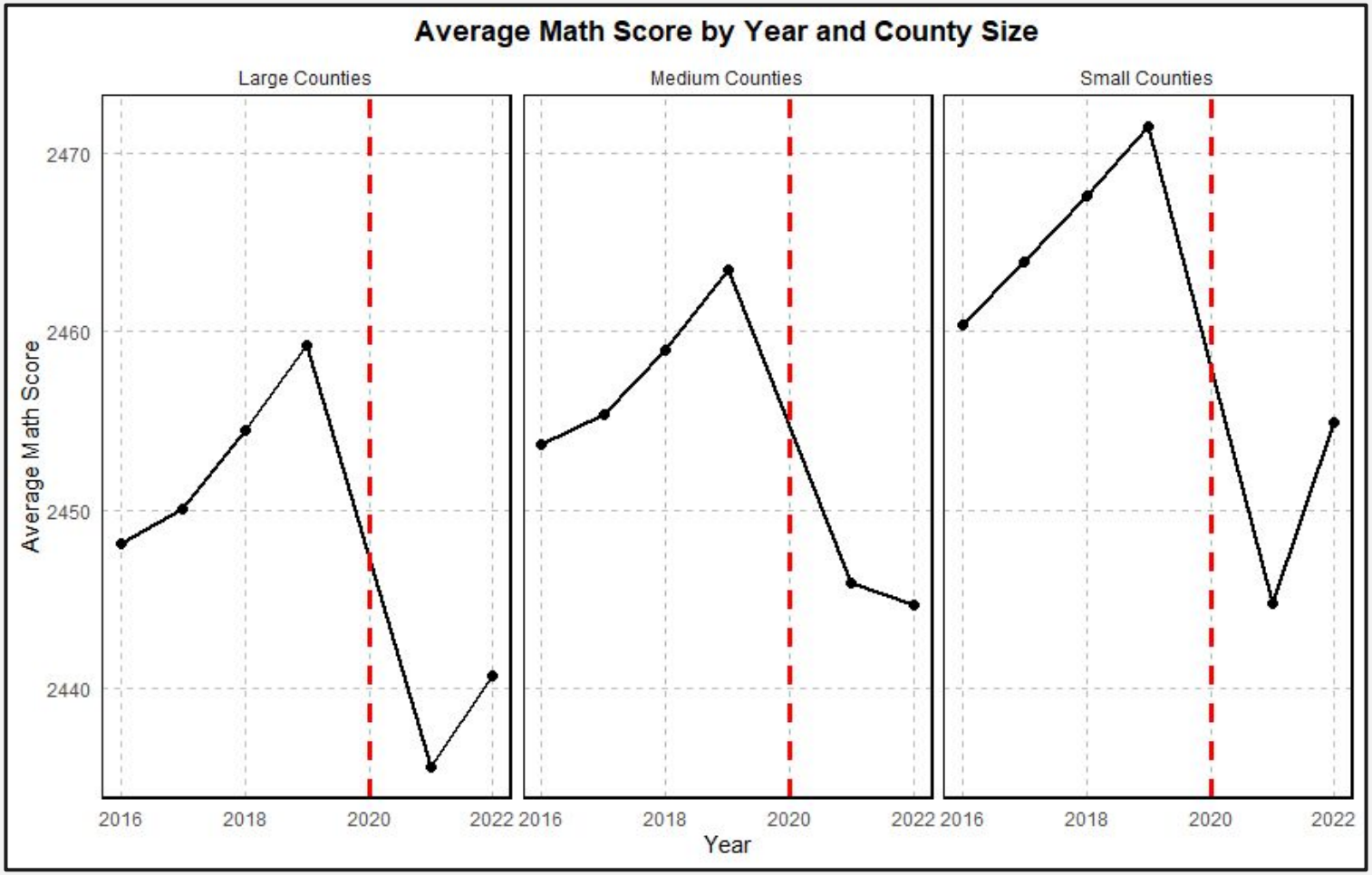
- Lack of data of certain districts in ACS
- Year restriction
- NA values only present in race-specific median incomes

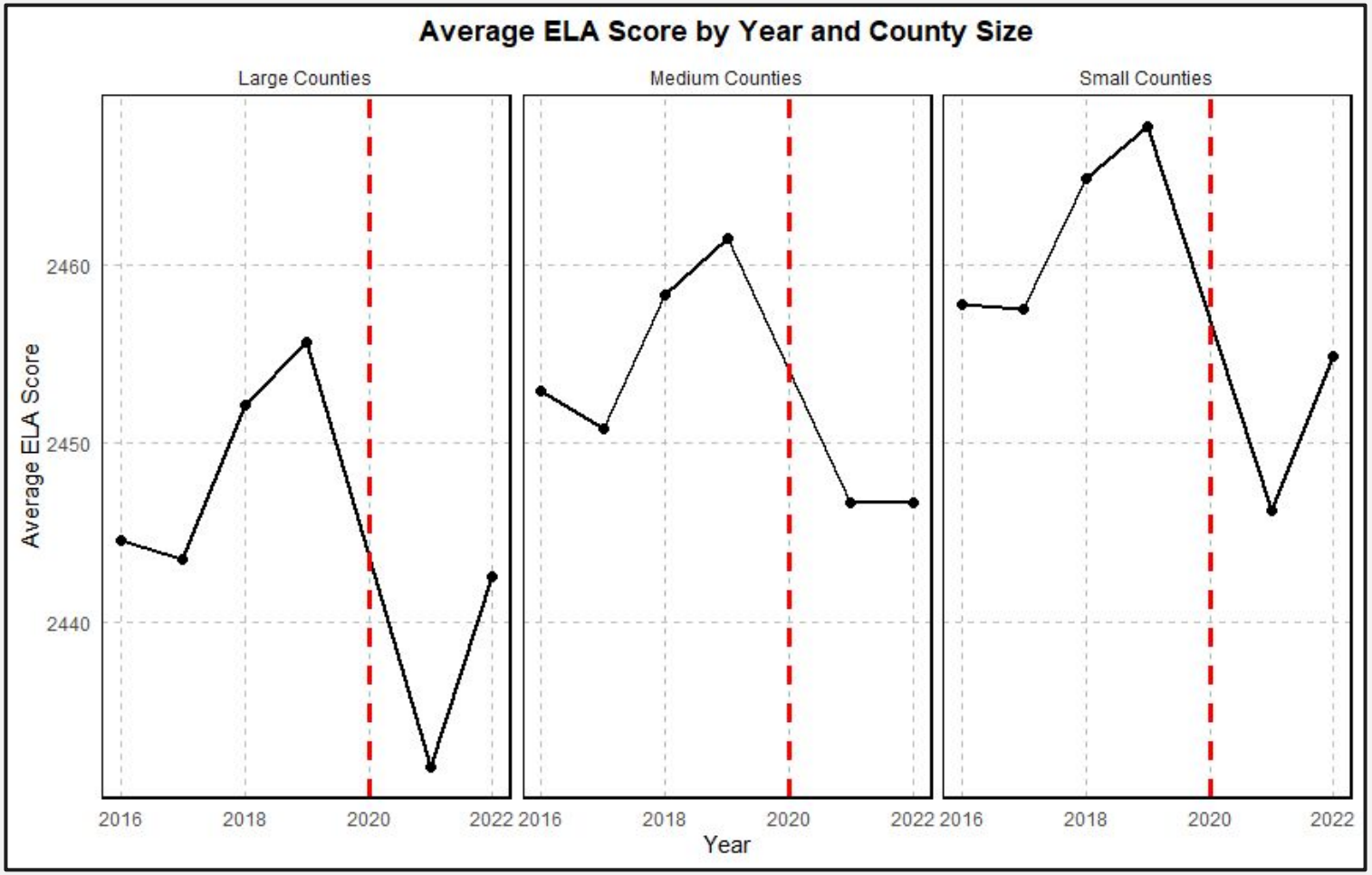
02 Analysis

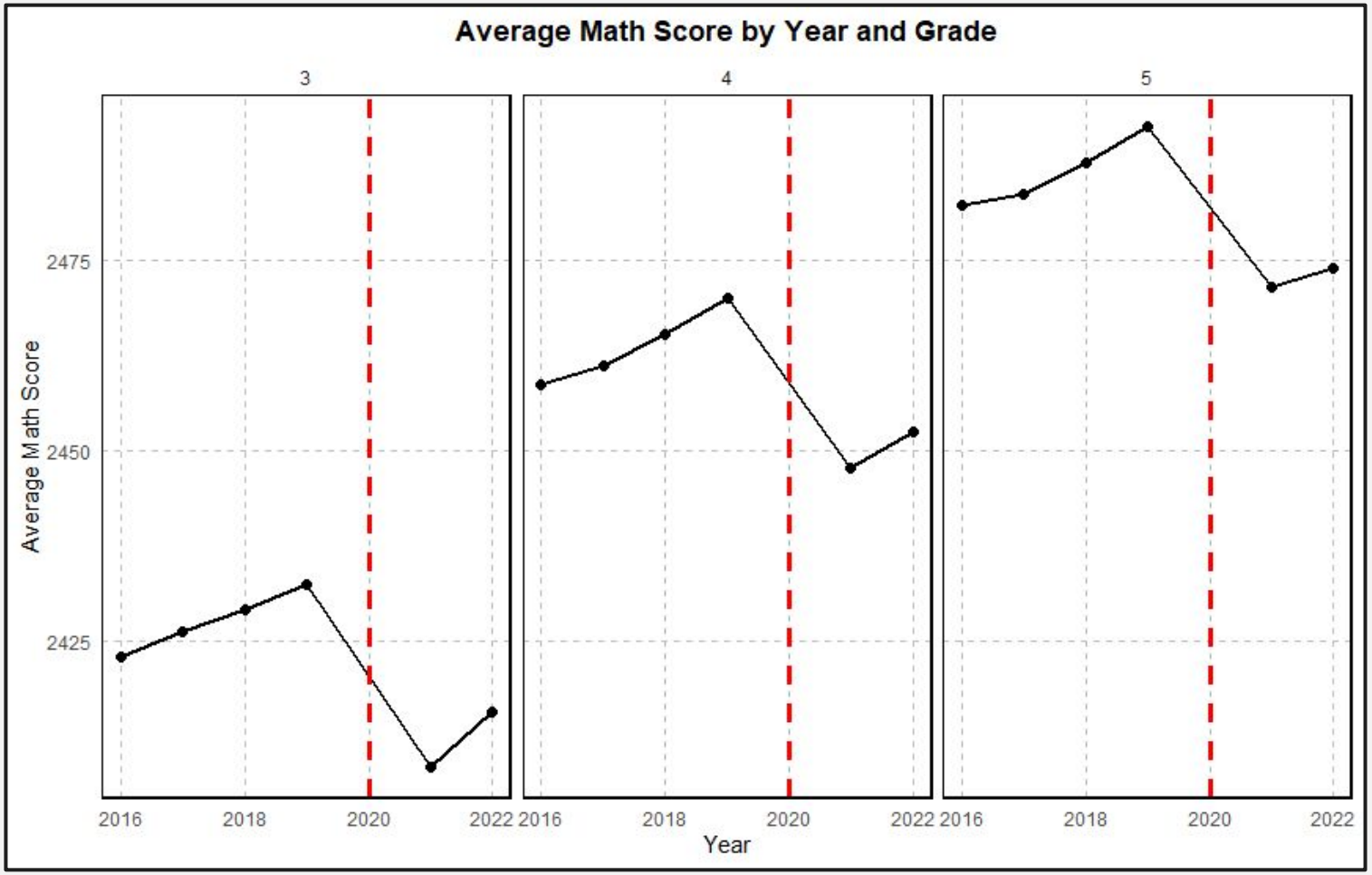
Score Breakdown by County and Grade

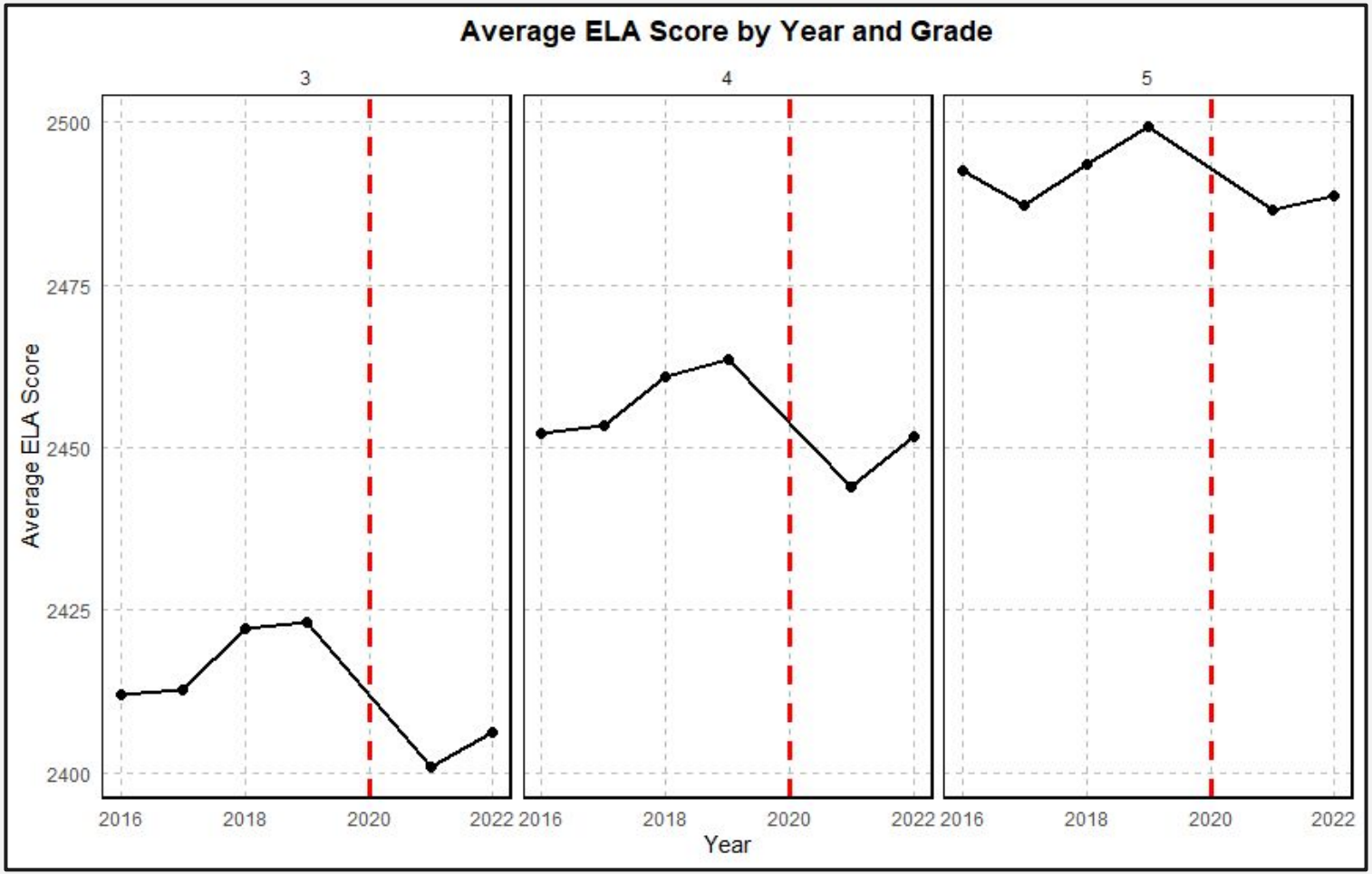
- Wanted to see if score trends were consistent across grades and county sizes

- State allocates funds based on size of county
  - Simulated county sizes based on students tested to identify trends based on funding allocation
- County findings
  - Small counties performed 10 points better on average than larger counties
  - Suggests that *allocation* of funding and non-education factors have a larger role
- Grade findings
  - Higher grade levels performed better on average
  - Drop in scores due to COVID — less for ELA than Math
  - Suggests that students get more accustomed to testing over time, especially ELA


Average Math Score by Year and County Size
Large Counties
Medium Counties
Small Counties
Average Math Score
2470
2460
2450
2440
2016
2018
2020
2022
Year


Average ELA Score by Year and County Size
Large Counties
Medium Counties
Small Counties
Average ELA Score
2460
2450
2440
2016
2018
2020
2022
Year

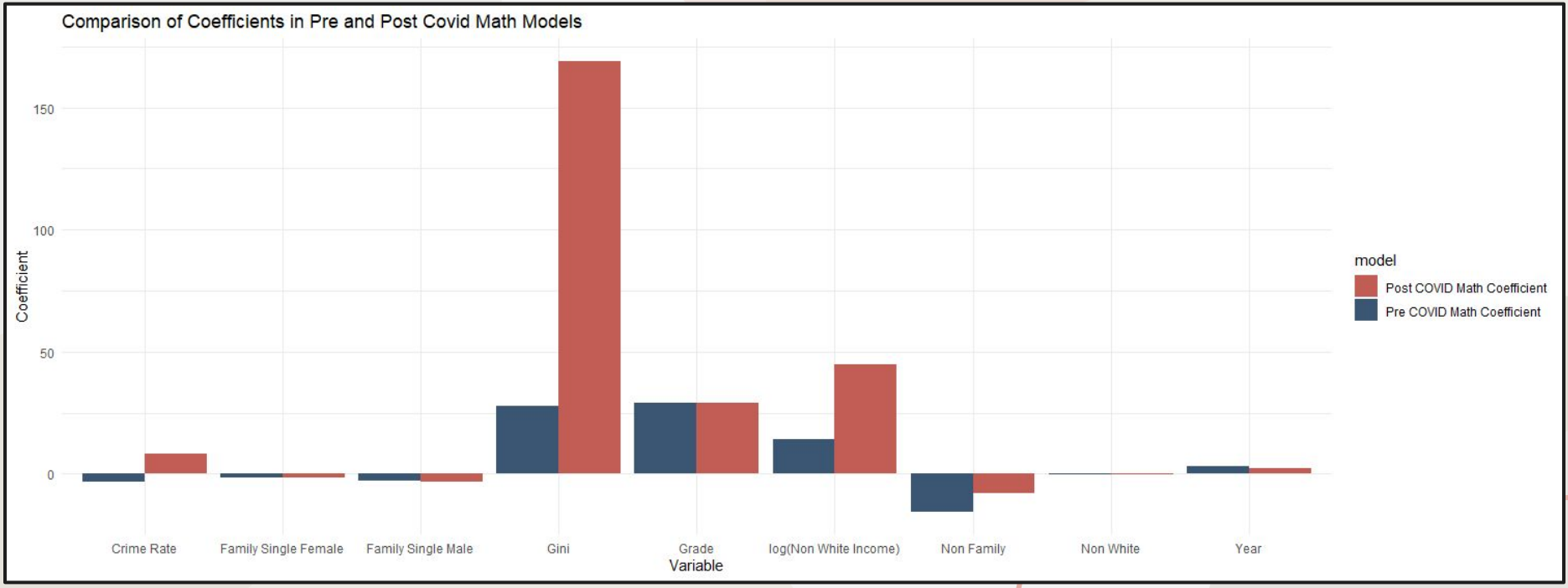

Average Math Score by Year and Grade
3
4
5
2475
2450
2425
Average Math Score
2016
2018
2020
2022
Year


Average ELA Score by Year and Grade
3
4
5
2500
2475
2450
2425
2400
Average ELA Score
2016
2018
2020
2022
Year

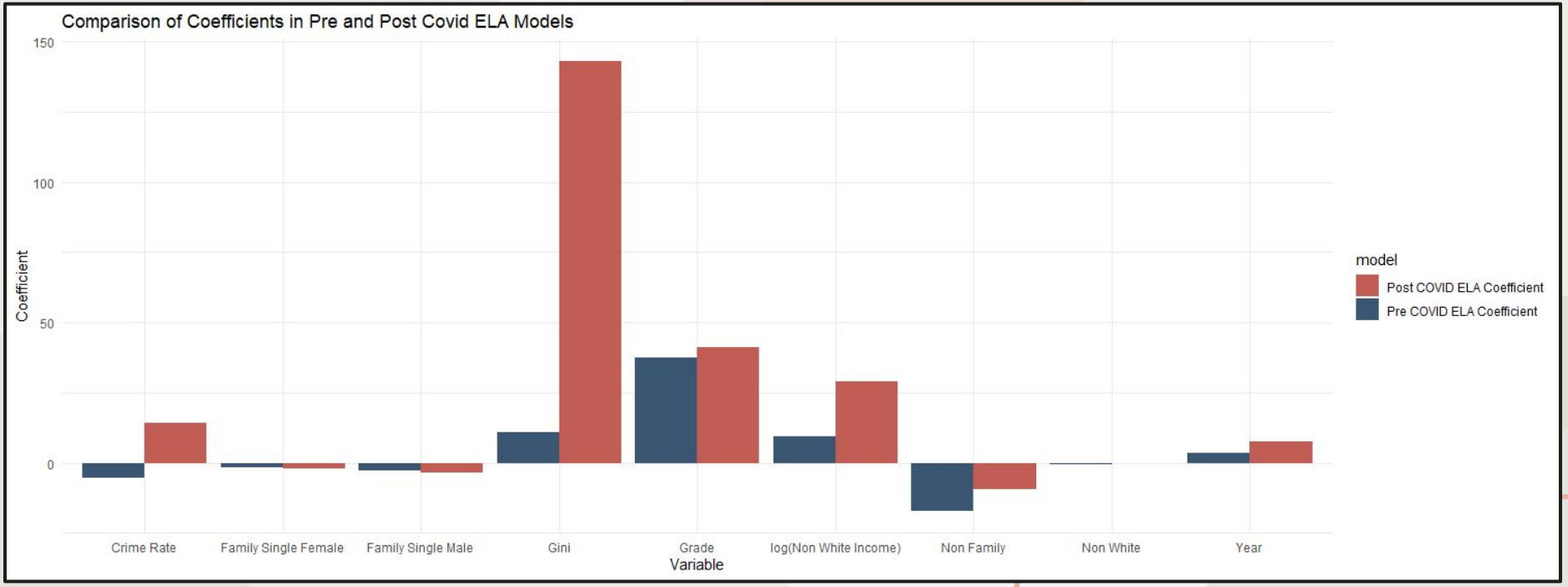
Regression Findings

- Ran Regressions: Pre-Covid Math, Post-Covid Math, Pre-Covid ELA, Post-Covid ELA
- Increase in Gini coefficient magnitude post-COVID vs pre-COVID
  - Signals increase in (+) correlation with mean test scores
  - (+) correlation implies that an increase in income inequality correlates with an increase in total mean score
  - This may be due to the difference in access to educational resources in different income brackets
  - Pandemic = Layoffs = Greater Financial Inequality = Greater Educational Resource Inequality
- Increase in Non-White Income's (+) correlation post-COVID vs pre-COVID
  - Non-White communities are traditionally marginalized and lack access to educational resource exacerbated by the pandemic

Math Regression



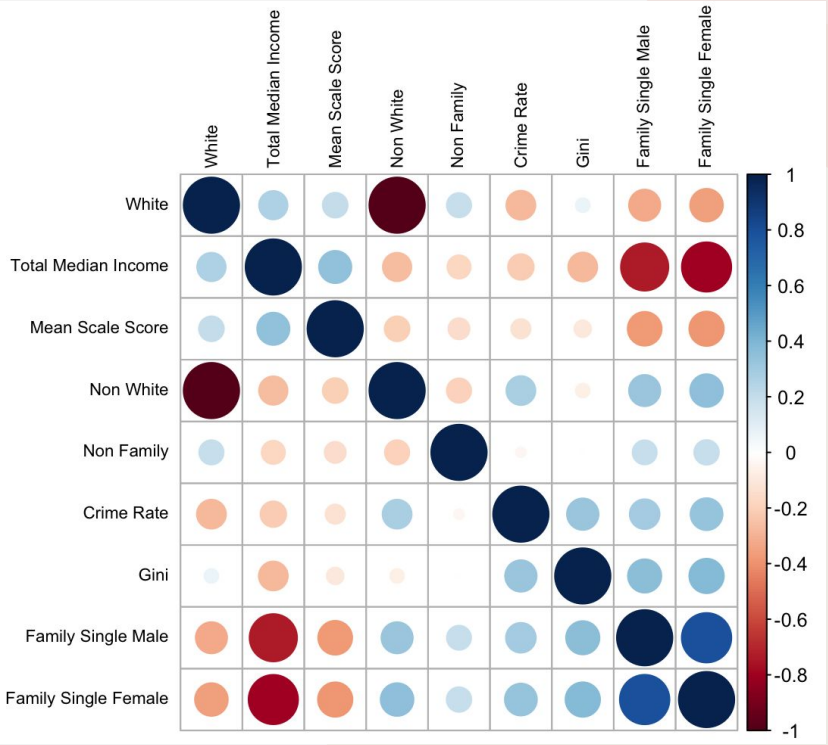
ELA Regression



Heatmap

- (+) correlation between Mean Scale Scores and Income
- (-) correlation between Mean Scale Score and crime rate
- (-) correlation between Mean Scale Score and Household Type

- (-) correlation between Non White and Income
- (+) correlation between Non White, Household Type, and Crime



03 Recommendations

Policy Recommendations

- Certain counties as a whole need more financial support compared to others.
- Solution: targeting funding system
  - Lower test scores
  - Community characteristics
- Recent settlement alleviates financial burden, but places stress on faculty.

The New York Times

California Aims $2 Billion to Help Students Catch Up From the Pandemic

A lawsuit accused the state of failing to provide an equal education to lower-income, Black and Hispanic students during the pandemic.

- Currently funding is based on:
  - Enrollment
  - Student characteristics
  - Community wealth
  - + Community characteristics
  - + Academic performance

- Previous weighted student funding system had concerns with resources and capacity
  - Invest in private resources
- Slow improvement points to need for proactive action.

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Thank you