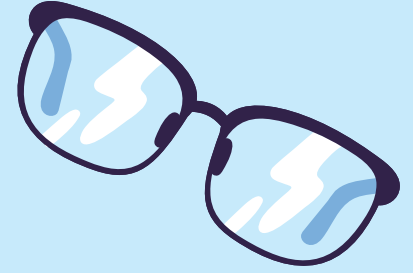


# Team 5 Presentation

Talia West, Julia Young, Harmony  
McMullen, Carmen Hall

$$\sqrt{\frac{3}{4}} = (a^2)$$



**How does average household income affect US students' development in each school subject between the years of 2005 and 2015?**

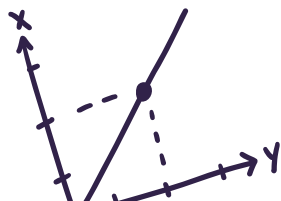




# Dataset

Department of Education's primary database on public elementary and secondary education in the US

over 575 students' average GPA per subject, SAT and subject test scores, state of residency, and family income, per year



Austin Cory Bart  
October 24, 2016



# Hypothesis

The hypothesis is that students with a household income below the median of 60k will have lower math and verbal scores on average than their counterparts with family incomes higher than 60k.

$$\sqrt{\frac{3}{4}}$$



# Literature Review

*The New York Times*

## *Education Gap Grows Between Rich and Poor, Studies Say*

 Share full article   543

By Sabrina Tavernise  
Feb. 9, 2012

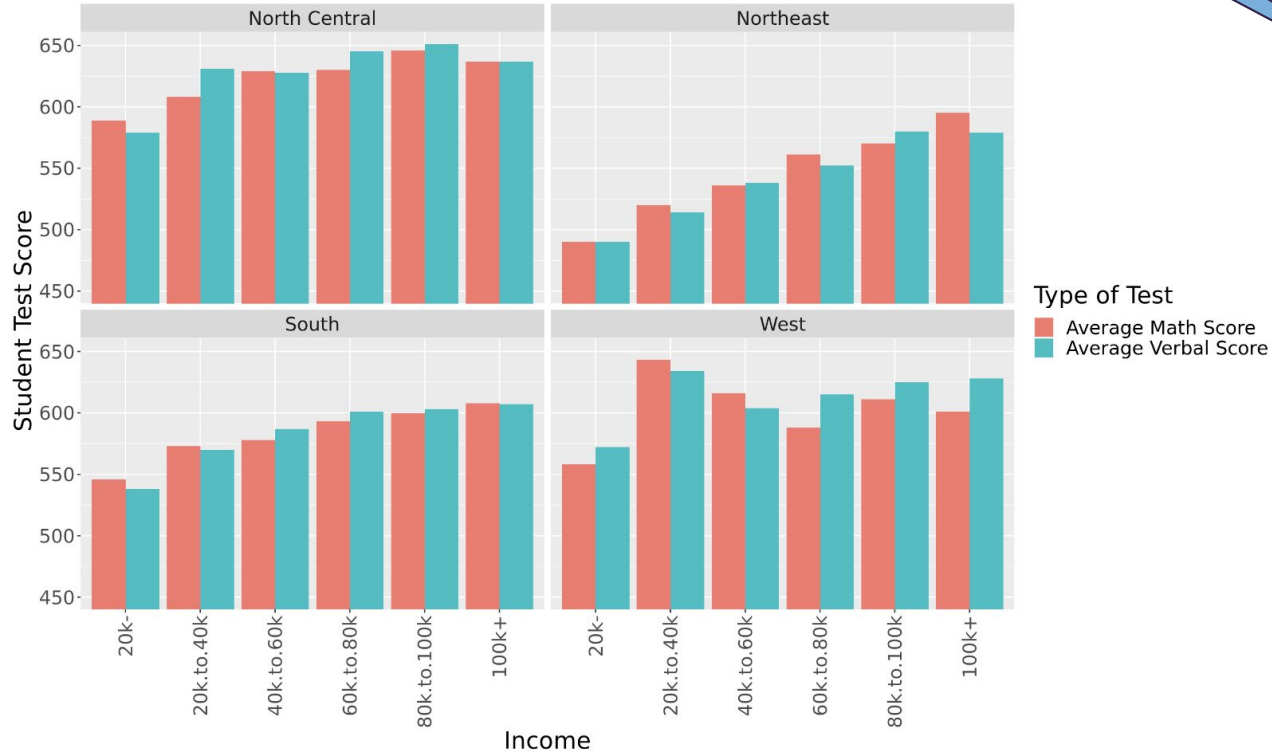
- Despite education being viewed as an equalizer in society, many studies in recent years have highlighted a widening education gap depending on affluence and household income
- While the educational gap based on race has shrunk since the 60s, imbalance in college completion and test scores has grown by 40% since the 60s



# Methodology



Scores per Test and Region  
Based on National Verbal and Math Scores  
of Elementary and Secondary Students



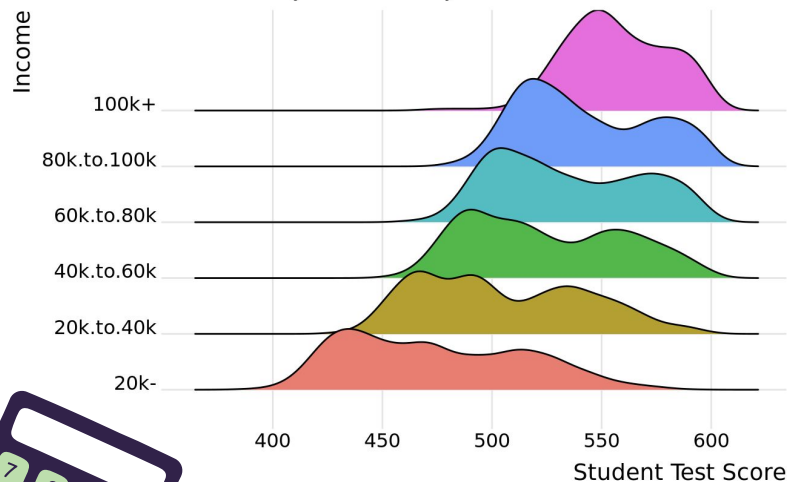


# Methodology (cont.)



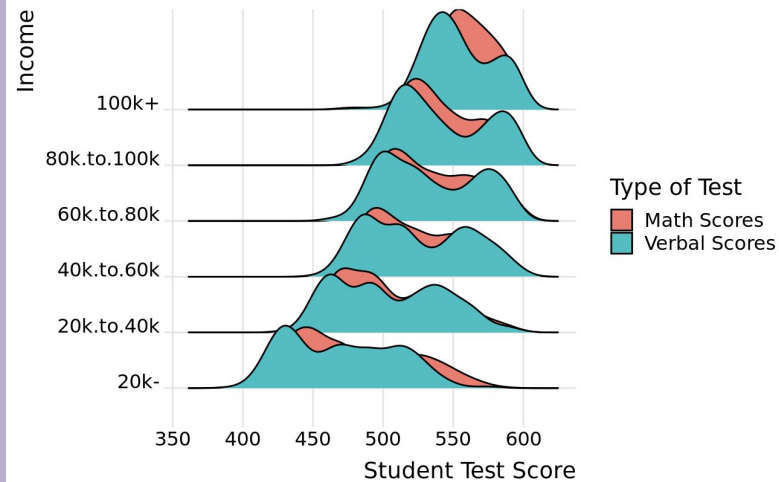
## Score vs Income

Based on National Verbal and Math Scores of Elementary and Secondary Students



## Score vs Income

Based on National Verbal and Math Scores of Elementary and Secondary Students



# Methodology (cont.)

$$\begin{aligned}\widehat{score} = & 497.91 + 41.4 * Income.20k.to.40k + 63.22 * Income.40k.to.60k \\ & + 73.72 * Income.60k.to.80k + 84.77 * Income.80k.to.100k \\ & + 102.21 * Income.+100k - 57.33 * Northeast \\ & - 42.3 * South - 37.86 * West\end{aligned}$$





A decorative illustration on the left side of the slide features a yellow notepad with blue horizontal lines and a blue spiral binding, a yellow pencil with a blue eraser and a blue band, and a pair of blue-rimmed glasses with white lightning bolt patterns on the lenses. The background is a solid light blue.

# Results

We chose to compute the AIC of our model to determine the fit of our model: 67262.4.

To conclude: higher average household income correlates positively with higher test scores - region has an impact on this correlation. North Central has the highest scores in our visualization along with the highest scores, on average, in the linear regression model.