

Analysis of Texas Public High School Rankings and Standardized Exam Scores for 2011



RICE

Nivriti Chowdhry, Matt Delhey, Jiandi Mo

Introduction

Data Deluge: Recent efforts to increase both the quality and accountability of our nation's public high schools has resulted in a massive influx of standardized exams and data collection within the education sector, allowing for more data analysis than ever before.

Motivation: Analyze this data to better understand these standardized exams and metrics in order to provide insights for the improvement of public education.

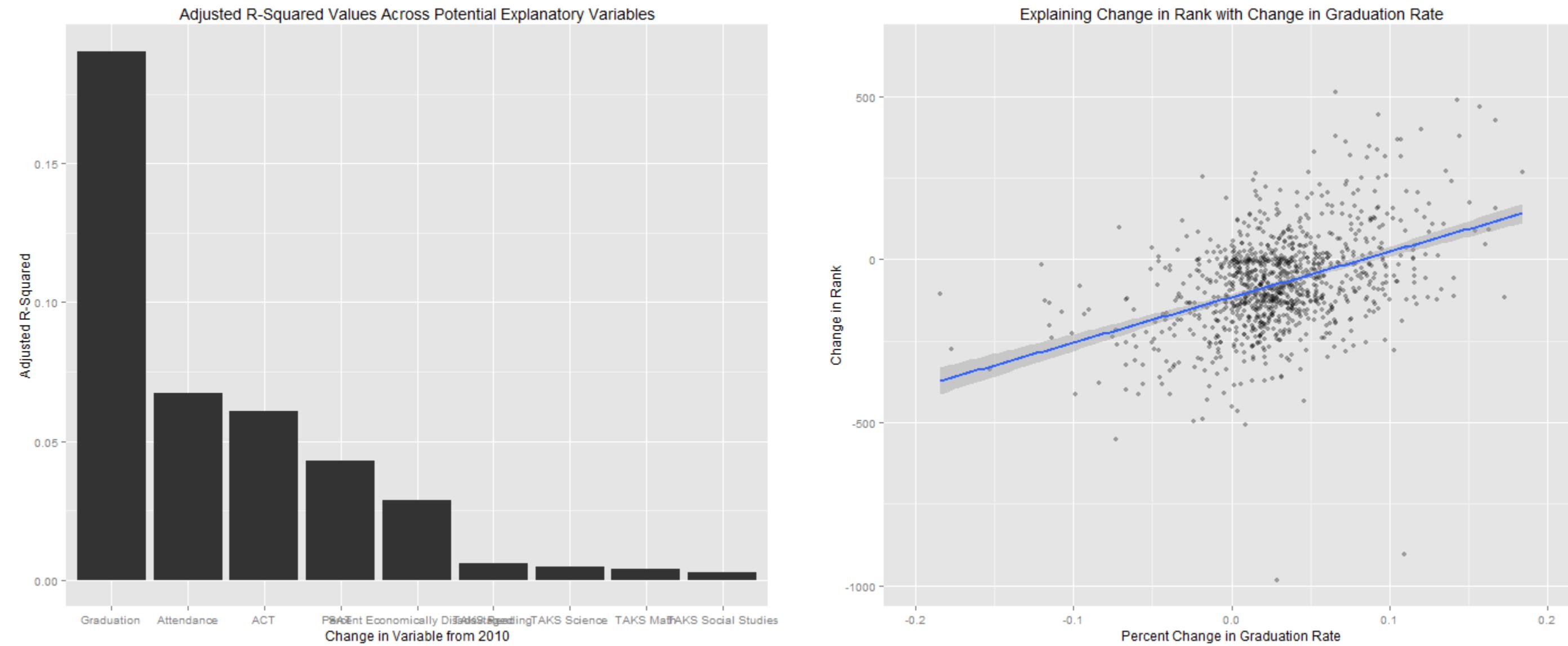
Why it matters: Public education today is dominated by quantitative metrics. A clear understanding of these metrics is required for their effective usage. Our findings support the conclusion that blind dependency on these metrics might lead to an inaccurate depiction of a high school's actual educational environment.

Data

- Data was acquired from a statewide study of Texas schools that the nonprofit research group Children at Risk conducted. The study was based on Texas Education Agency (TEA) records and ranked schools based on academic performance.
- The 2011 ranks were the most recent and contained data on school location, student body demographics, standardized test scores, average expenditure per student, retention rates, and graduation rates; data for 2010 was also used.
- The original database contained 6,384 public schools across 1,134 districts and three school levels - elementary, middle, and high.

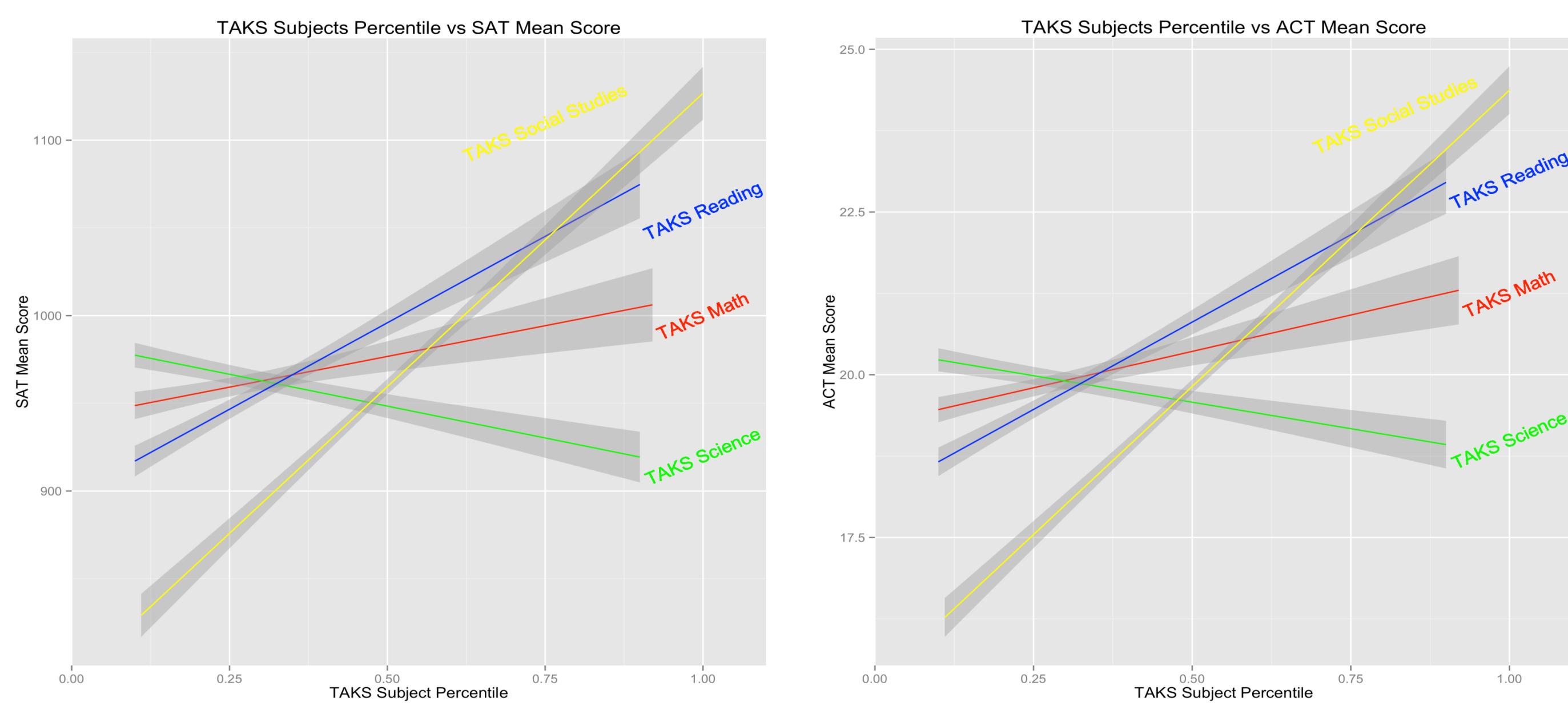
Explaining Changes in Rank from 2010

- The biggest influence on a school's rank change is graduation rate
- Change in rank is not highly correlated to any one variable
- Most changes in rank occur in the mid-tier schools; the best and worst schools stay about the same
- This is evidence in favor of holistic improvement: schools that rise in rank do so by improving across several metrics**



TAKS as an Indicator of SAT/ACT Scores

- TAKS Social Studies is most directly correlated to SAT and ACT
- TAKS Social Studies may better assess problem solving skills required for high performance on the SAT and ACT

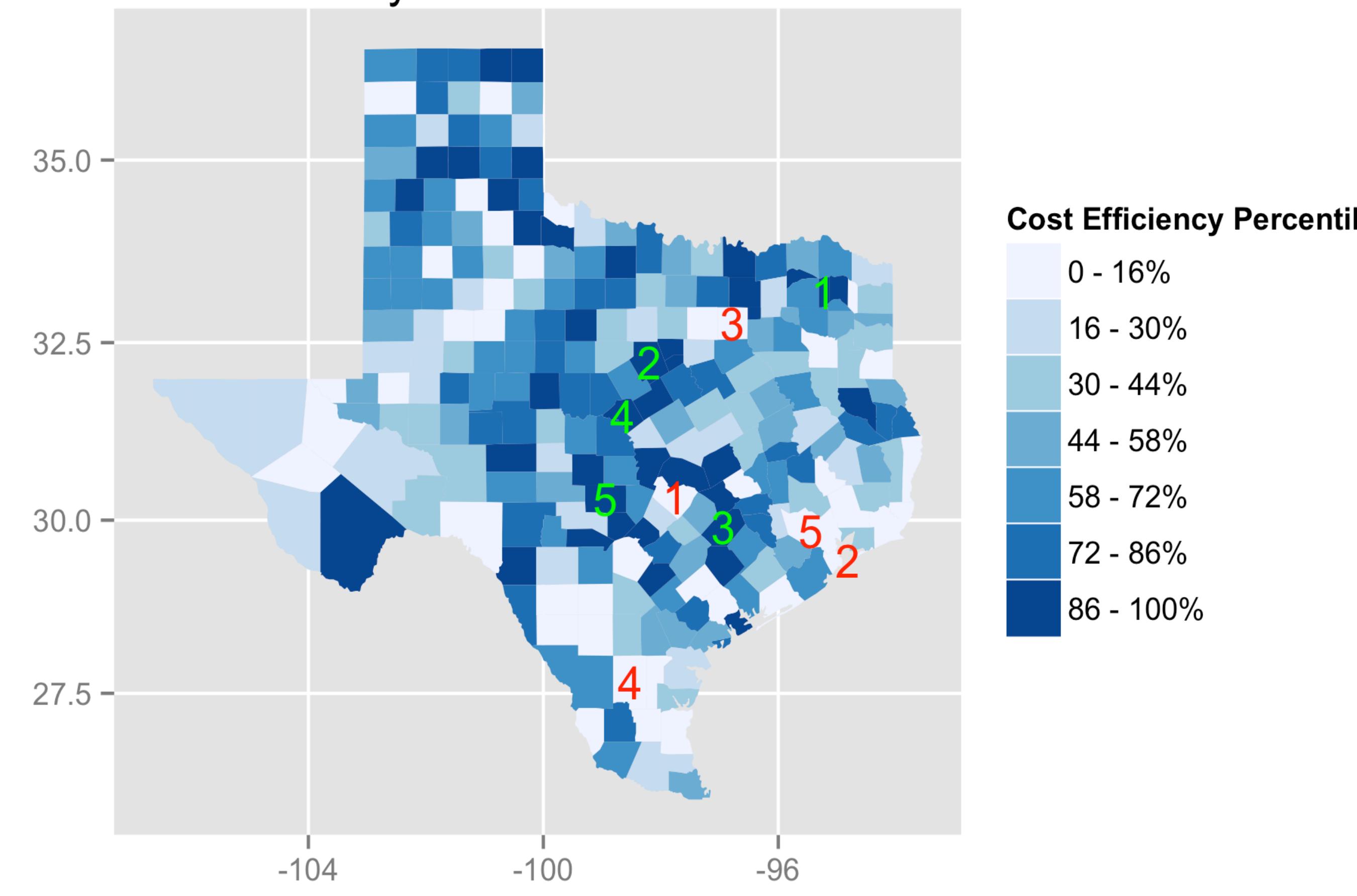


Cost Efficiency Across Counties

- A school's **cost efficiency** is calculated by dividing the average expenditure per pupil by its ranking percentile. The lower the better
- Harris County ranked 5th worst across all counties in Texas
- Counties with big cities or large populations tend to be less efficient

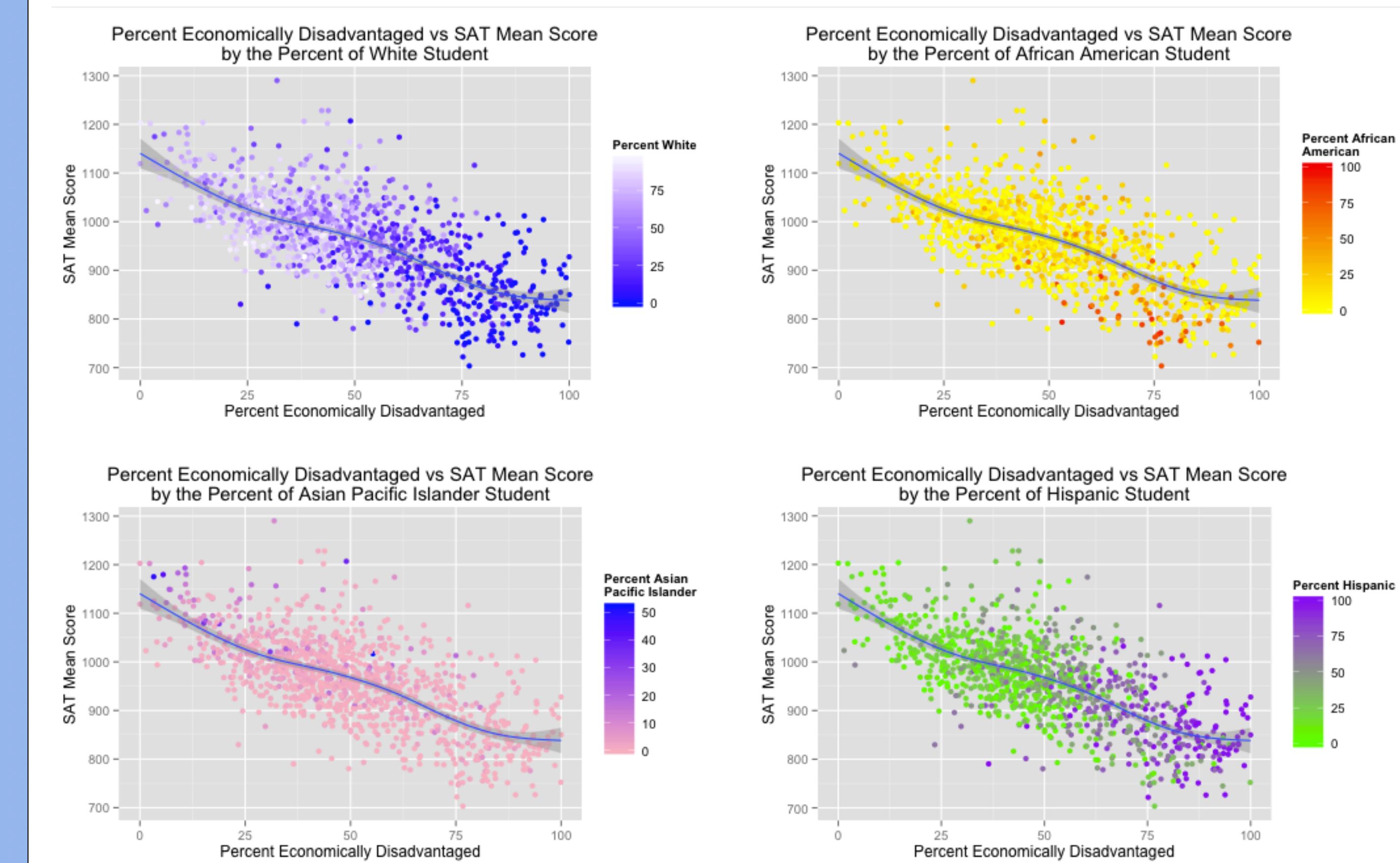
Top 5 Best & Worst Cost Efficient Counties		
	County	Cost Efficiency (average expenditure per pupil / rank percentile * 100)
1	Franklin	86.142
2	Erath	86.471
3	Fayette	90.353
4	Mills	91.175
5	Gillespie	91.656
1	Travis	10,159.353
2	Galveston	1,919.705
3	Dallas	1,754.283
4	Duval	1,544.538
5	Harris	1,475.371

School Cost Efficiency Distribution across Counties in Texas



SAT Scores By Race

- SAT scores are negatively correlated with the percentage of a school's student body that is economically disadvantaged
- Schools with more White or Asian students are less economically disadvantaged and have higher SAT scores (left column)
- Schools with more African American or Hispanic students are more economically disadvantaged and typically have lower SAT scores (right column)



Summary

Rank Changes from 2010 to 2011

- Changes in graduation rates are the most significant factor in changing a school's overall ranking
- Improving in rank requires holistic improvement; improvement in just one metric will not significantly change rank

TAKS and SAT/ACT Scores

- The social studies component of the statewide standardized test TAKS is the best indicator of performance on SAT and ACT tests

Cost Efficiency Across Counties

- Counties with high populations or big cities tend to be less cost efficient

SAT Scores By Race

- SAT scores are correlated with the percentage of a school's student body that is economically disadvantaged
- Race concentration in schools have different effects on the school's average SAT score

For Additional Information, Contact:

Nivriti Chowdhry, nc9@rice.edu
Matt Delhey, mjd2@rice.edu
Jiandi Mo, jm39@rice.edu