Education and Opportunity:
Policies to Overcome Inequality

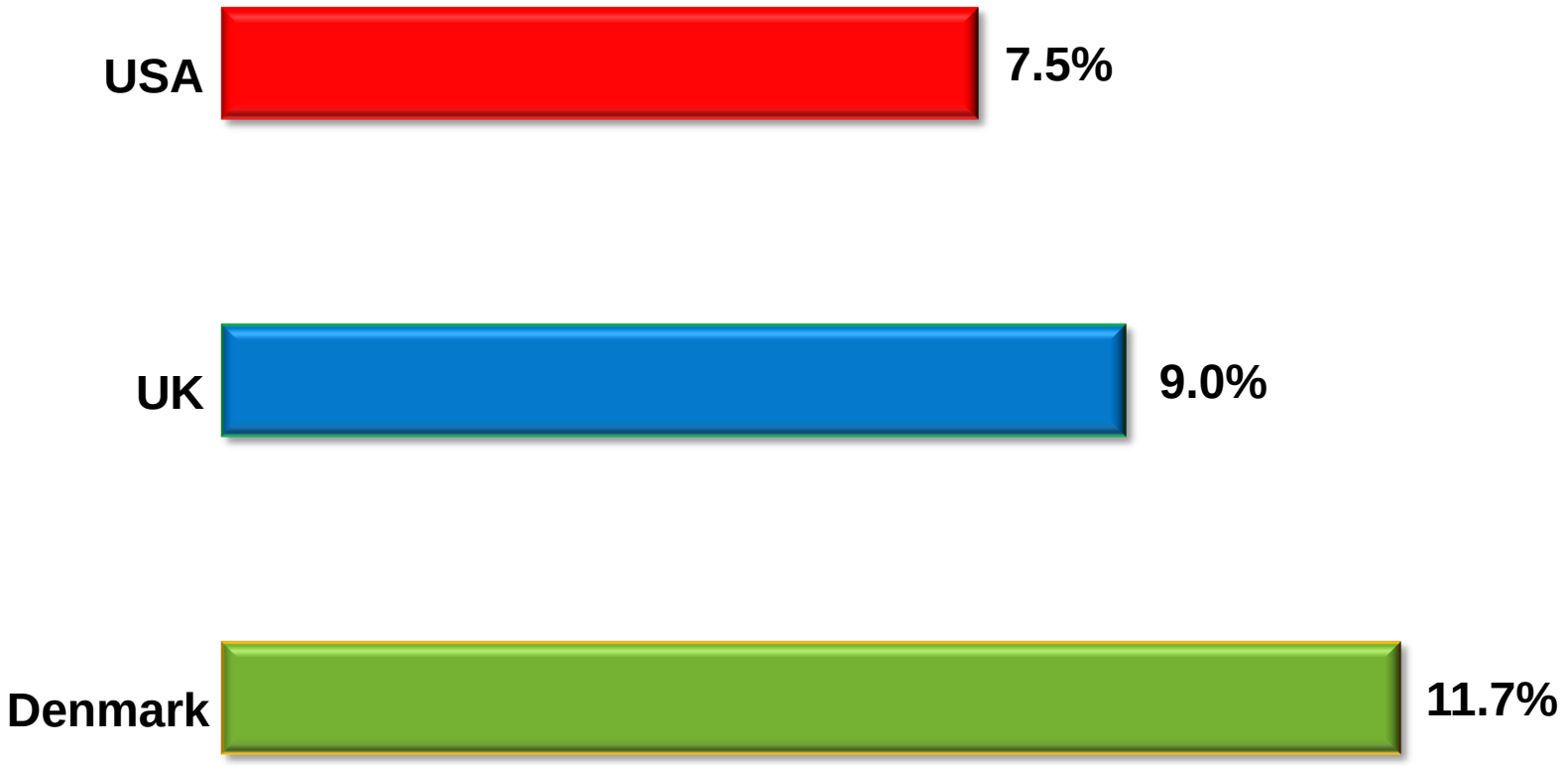
John N. Friedman

Brown University



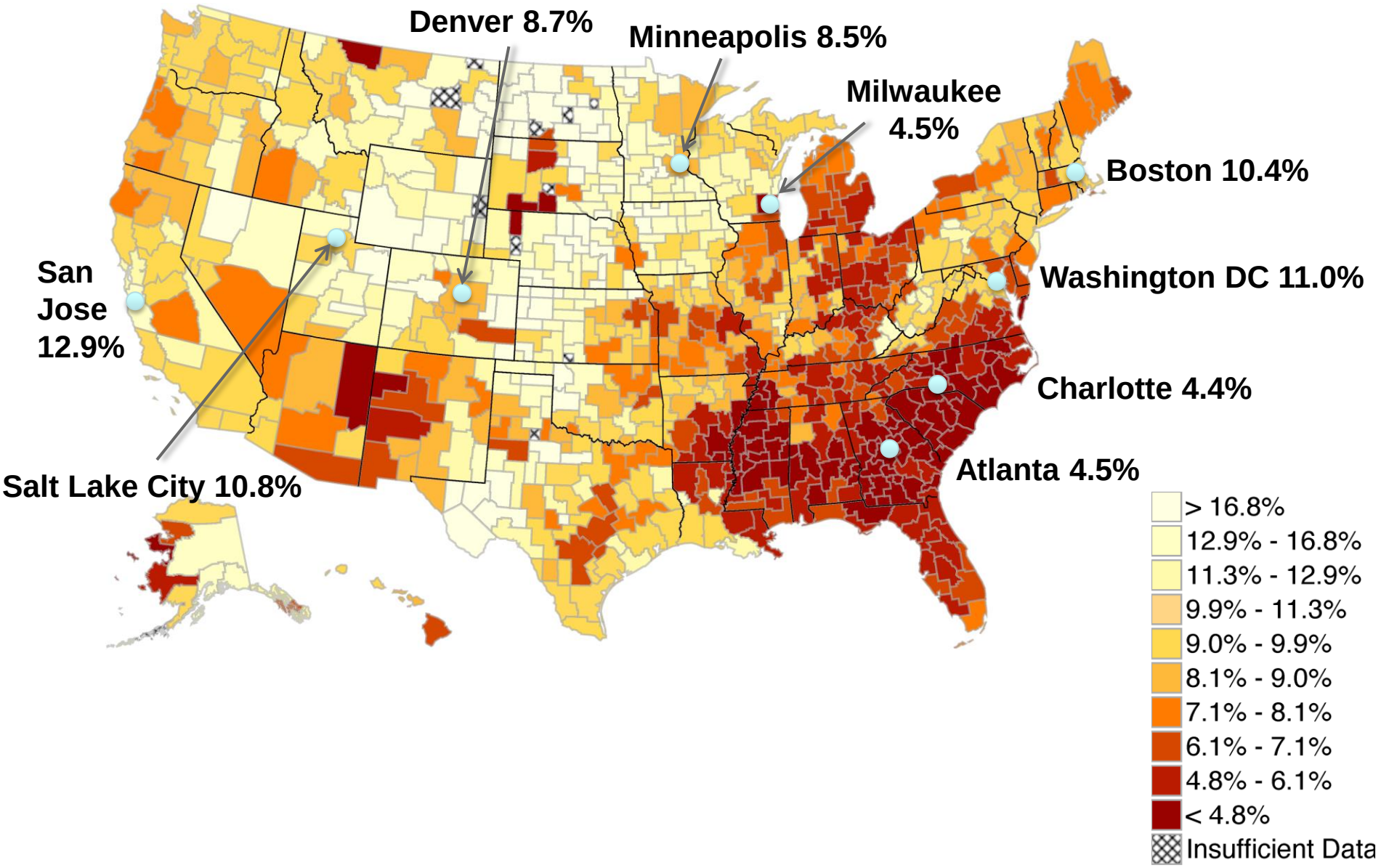
The American Dream?

- Probability that a child born to parents in the bottom fifth of the income distribution reaches the top fifth:



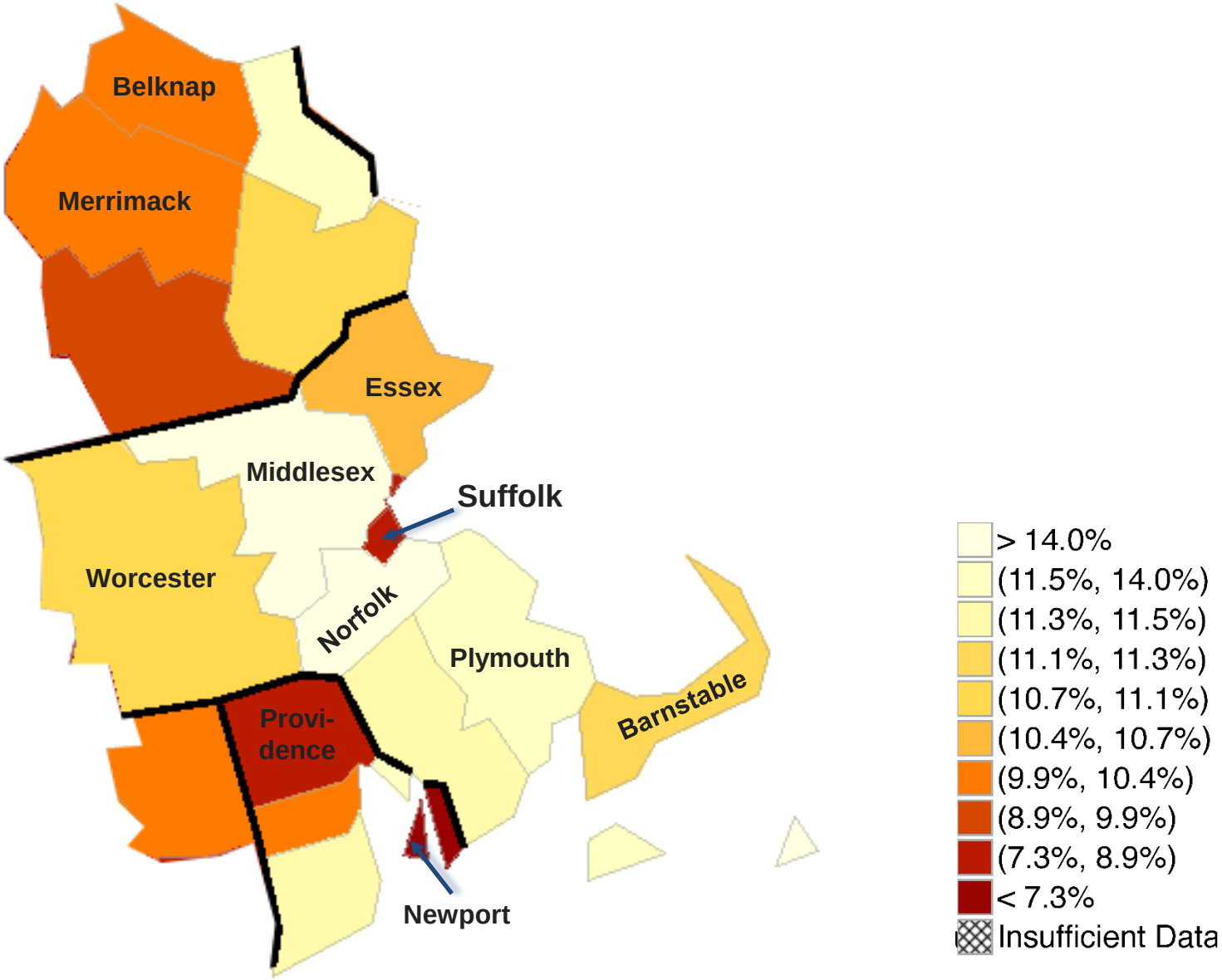
The Geography of Upward Mobility in the United States

Chances of Reaching the Top Fifth Starting from the Bottom Fifth by Metro Area



The Geography of Upward Mobility in the Boston Area

Odds of Reaching the Top Fifth Starting from the Bottom Fifth by County

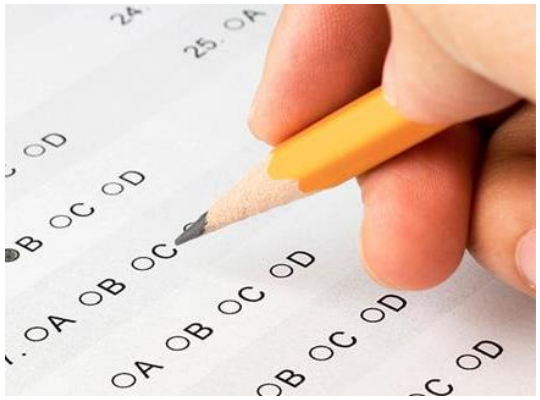


Using Big Data to Study Teachers' Impacts

School district records

2.5 million children

18 million test scores



Tax records

Earnings, College Attendance, Teen Birth



A Kindergarten Test

- I'll say a word to you. Listen for the *ending* sound.
- You circle the picture that *starts* with the same sound

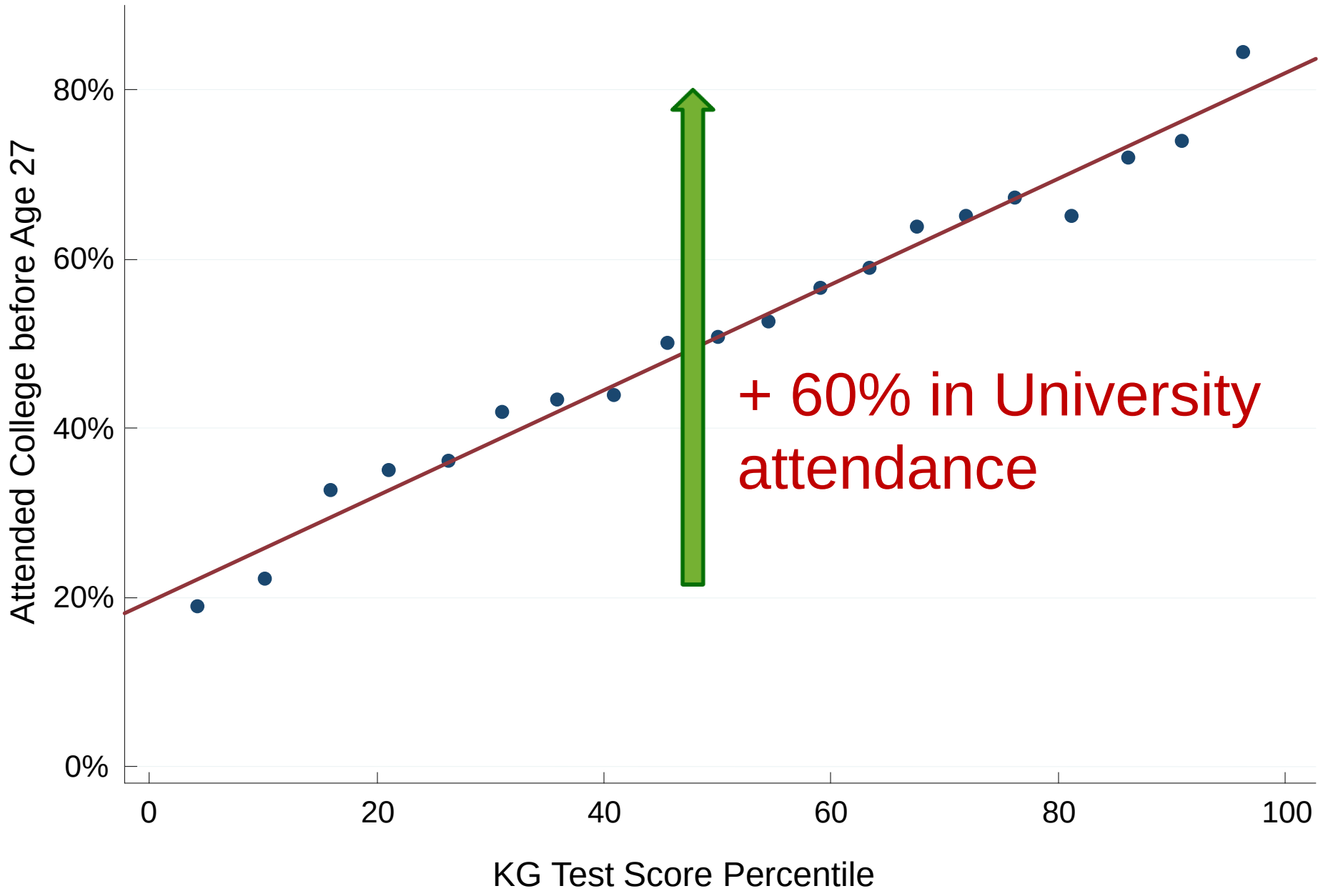
"cup"

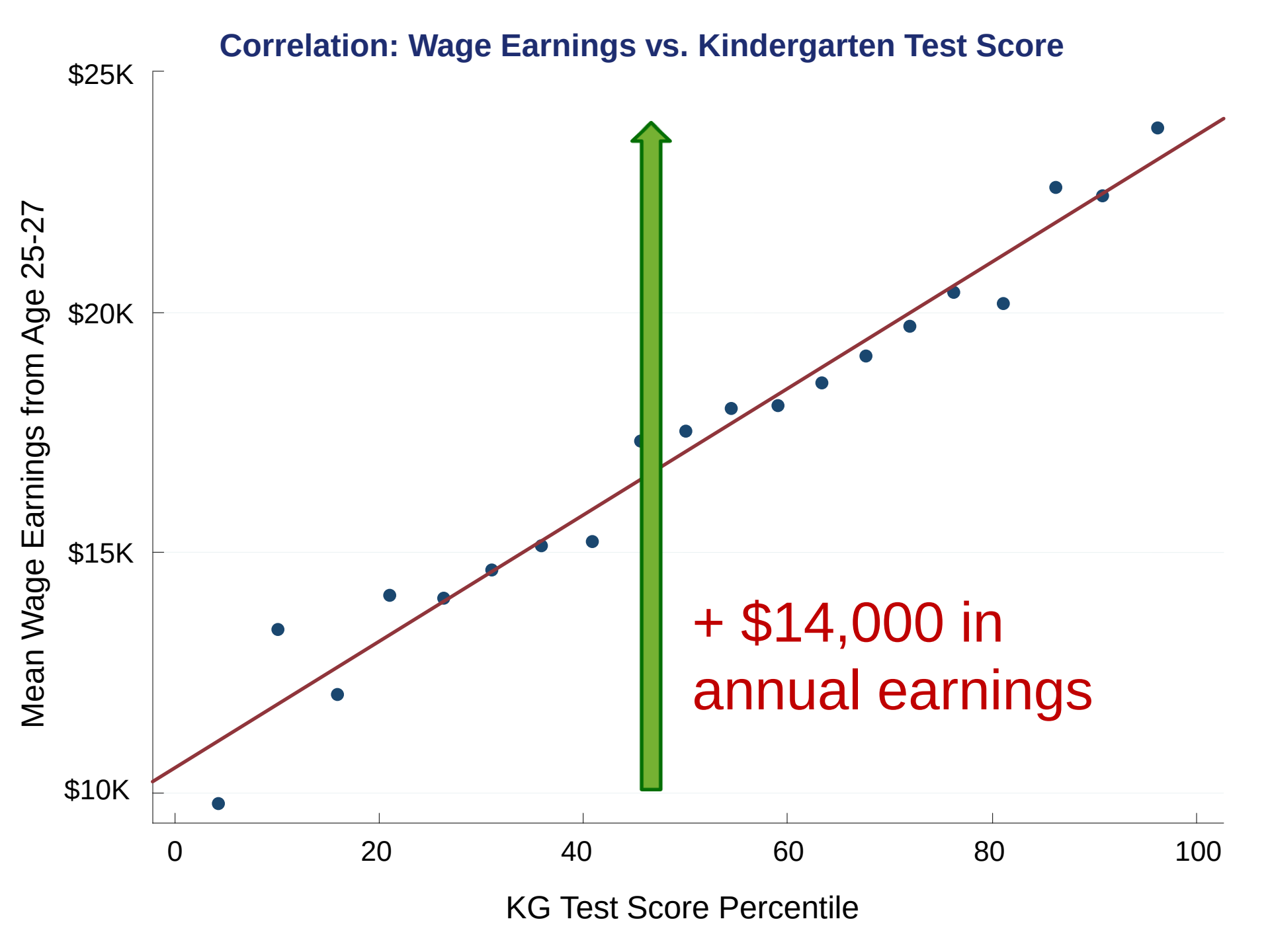






Figure 1b: College Attendance Rates vs. KG Test Score

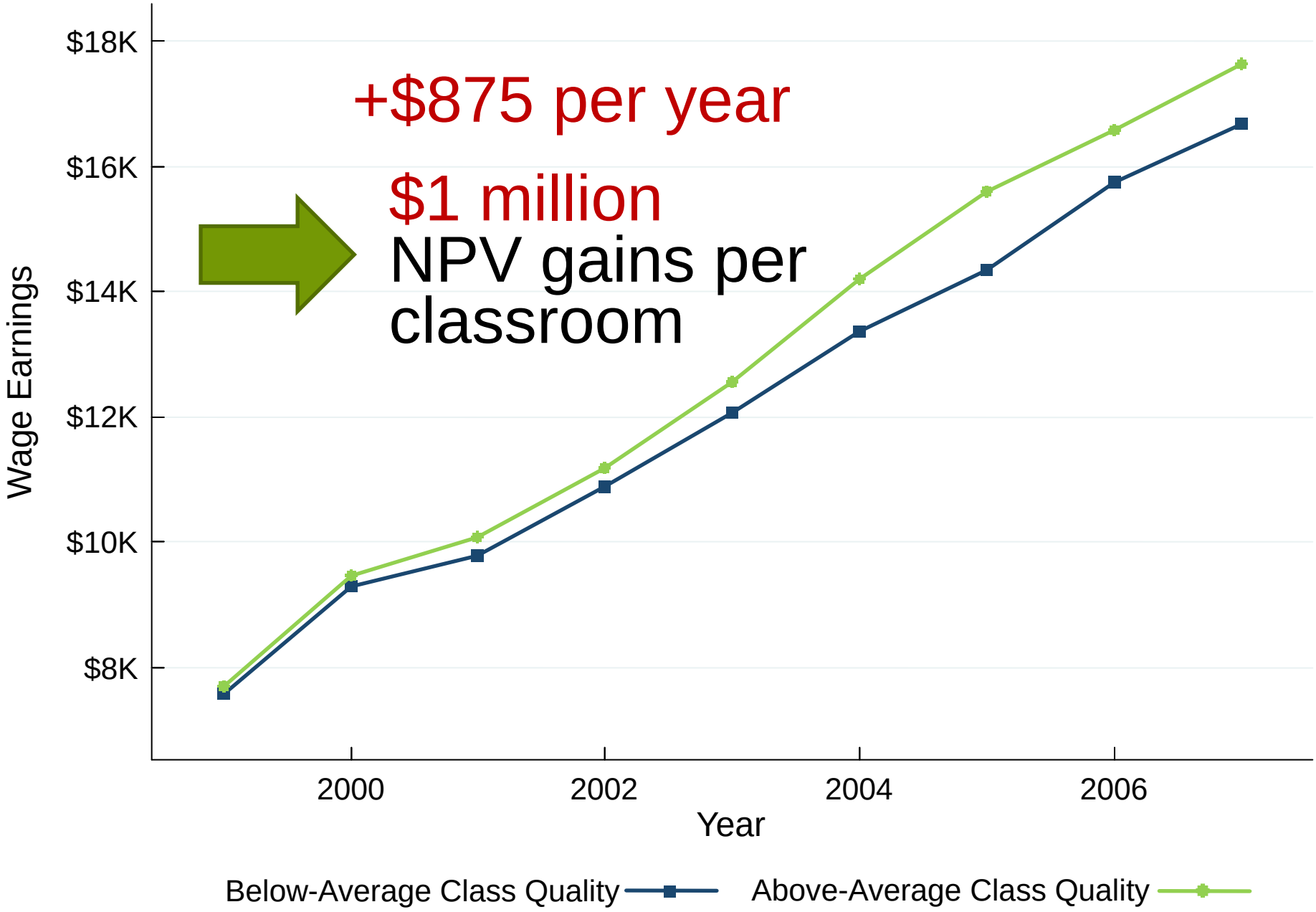


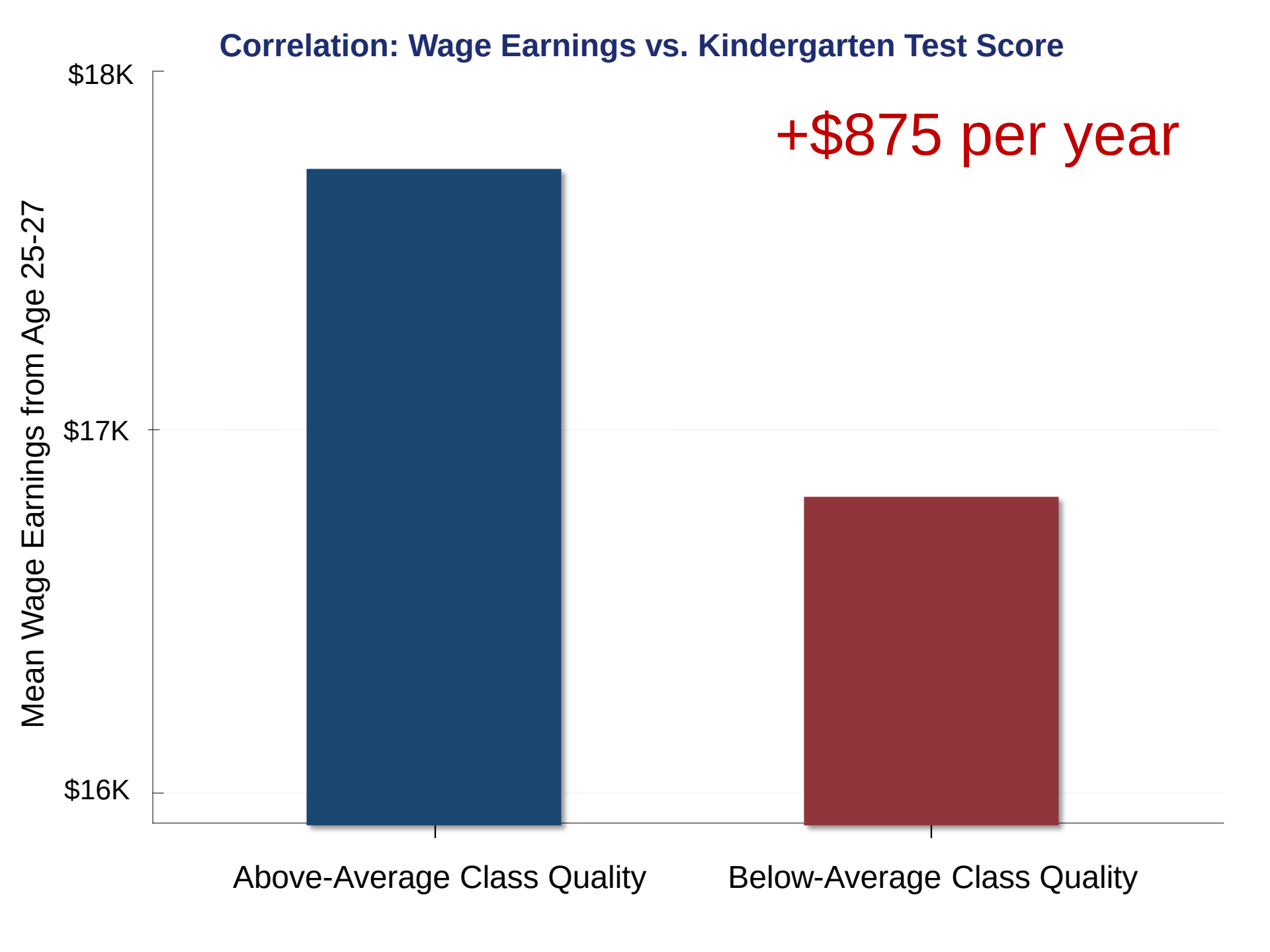

Correlation: Wage Earnings vs. Kindergarten Test Score
$25K
$20K
$15K
$10K
Mean Wage Earnings from Age 25-27
0
20
40
60
80
100
KG Test Score Percentile
+ $14,000 in
annual earnings

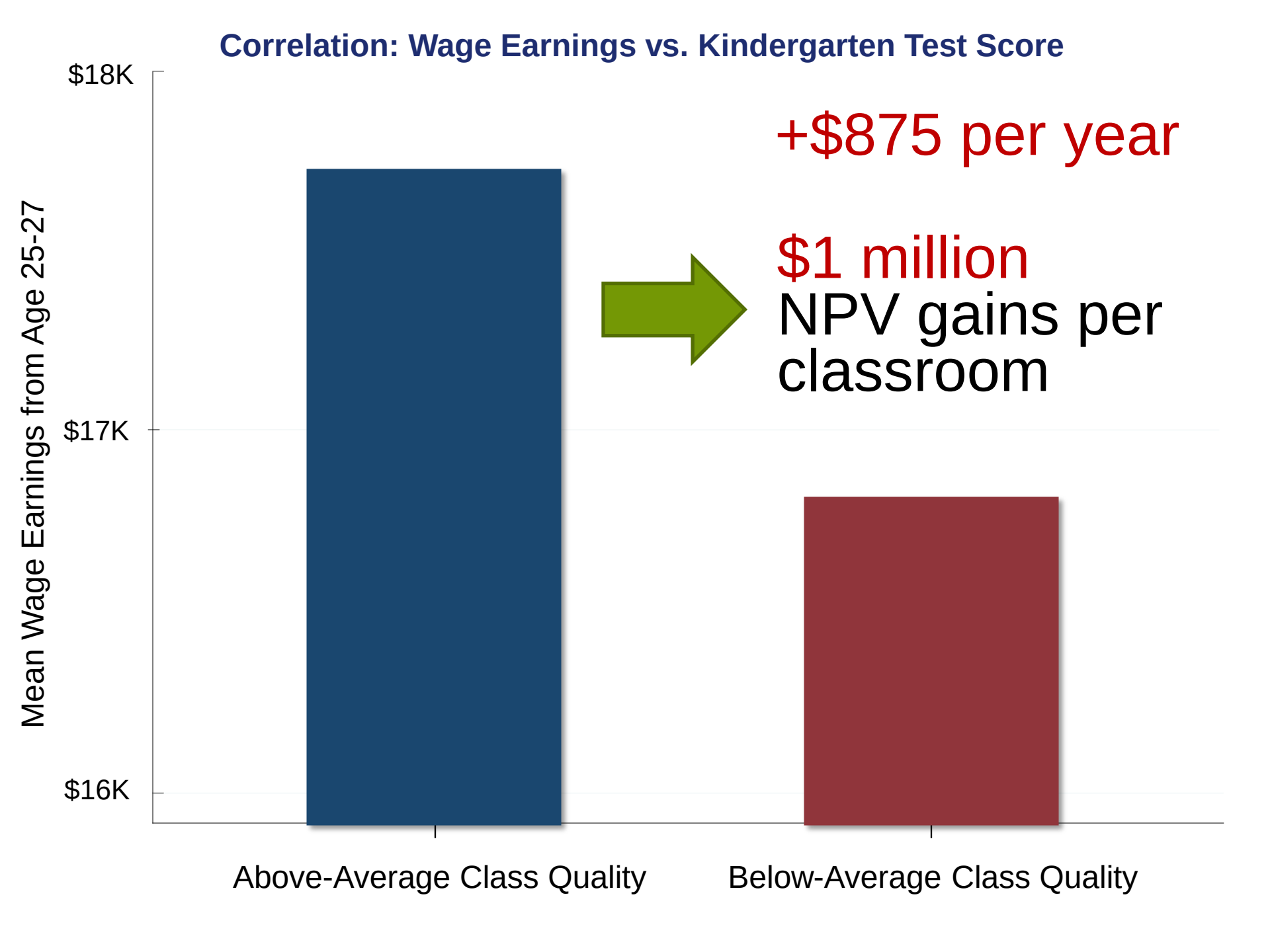
Study #1: Tennessee Star



Figure 5a: Effect of Class Quality on Earnings by Year



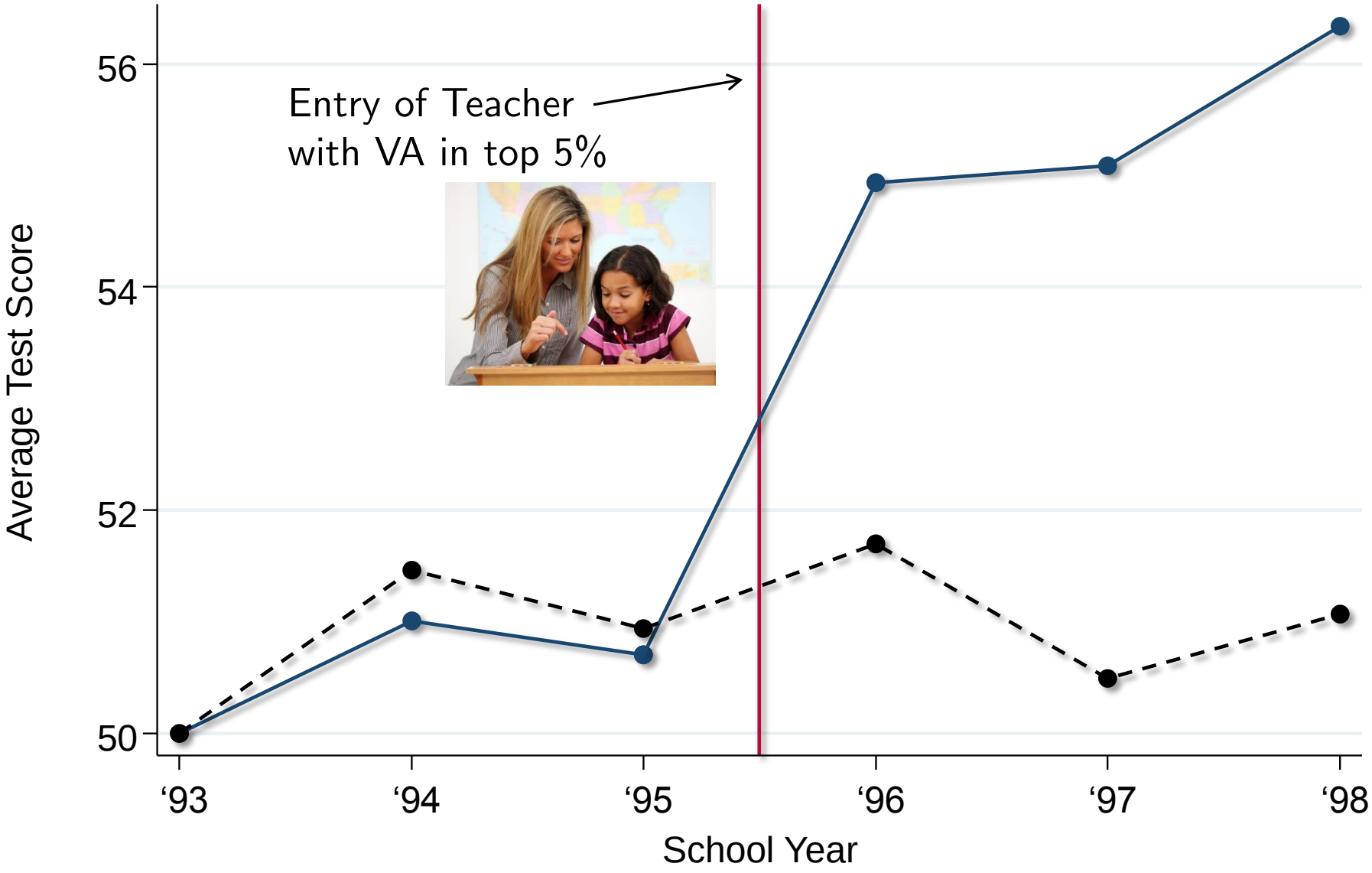

Correlation: Wage Earnings vs. Kindergarten Test Score
+$875 per year
$18K
$17K
$16K
Mean Wage Earnings from Age 25-27
Above-Average Class Quality
Below-Average Class Quality


Correlation: Wage Earnings vs. Kindergarten Test Score
$18K
$17K
$16K
Mean Wage Earnings from Age 25-27
+$875 per year
$1 million
NPV gains per classroom
Above-Average Class Quality
Below-Average Class Quality

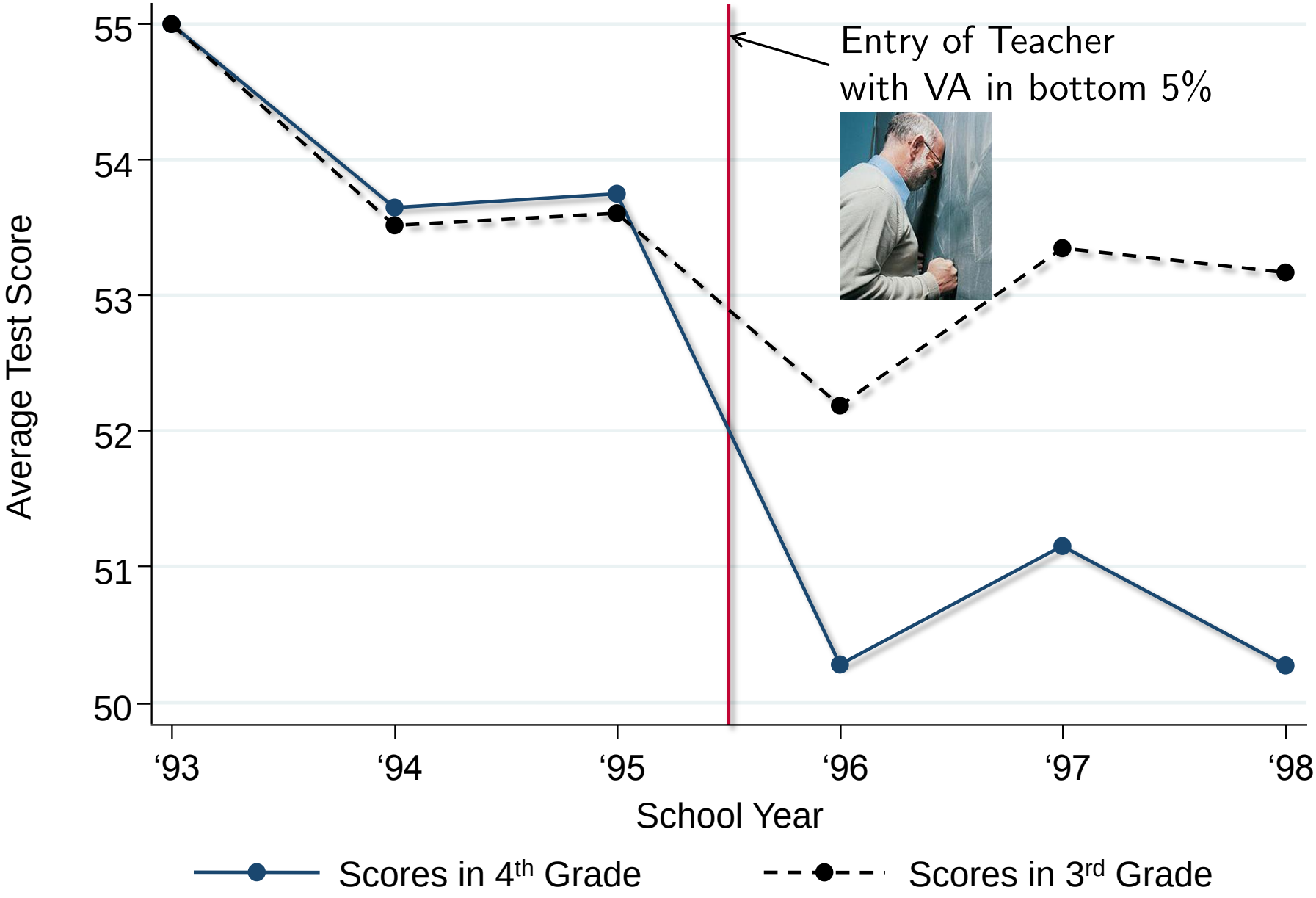
Study #2: New York City



A Quasi-Experiment: Entry of High Value-Added Teacher



A Quasi-Experiment: Entry of Low Value-Added Teacher



Impact of Teacher Value-Added on Earnings



$22.0K
$21.5K
$21.0K
$20.5K

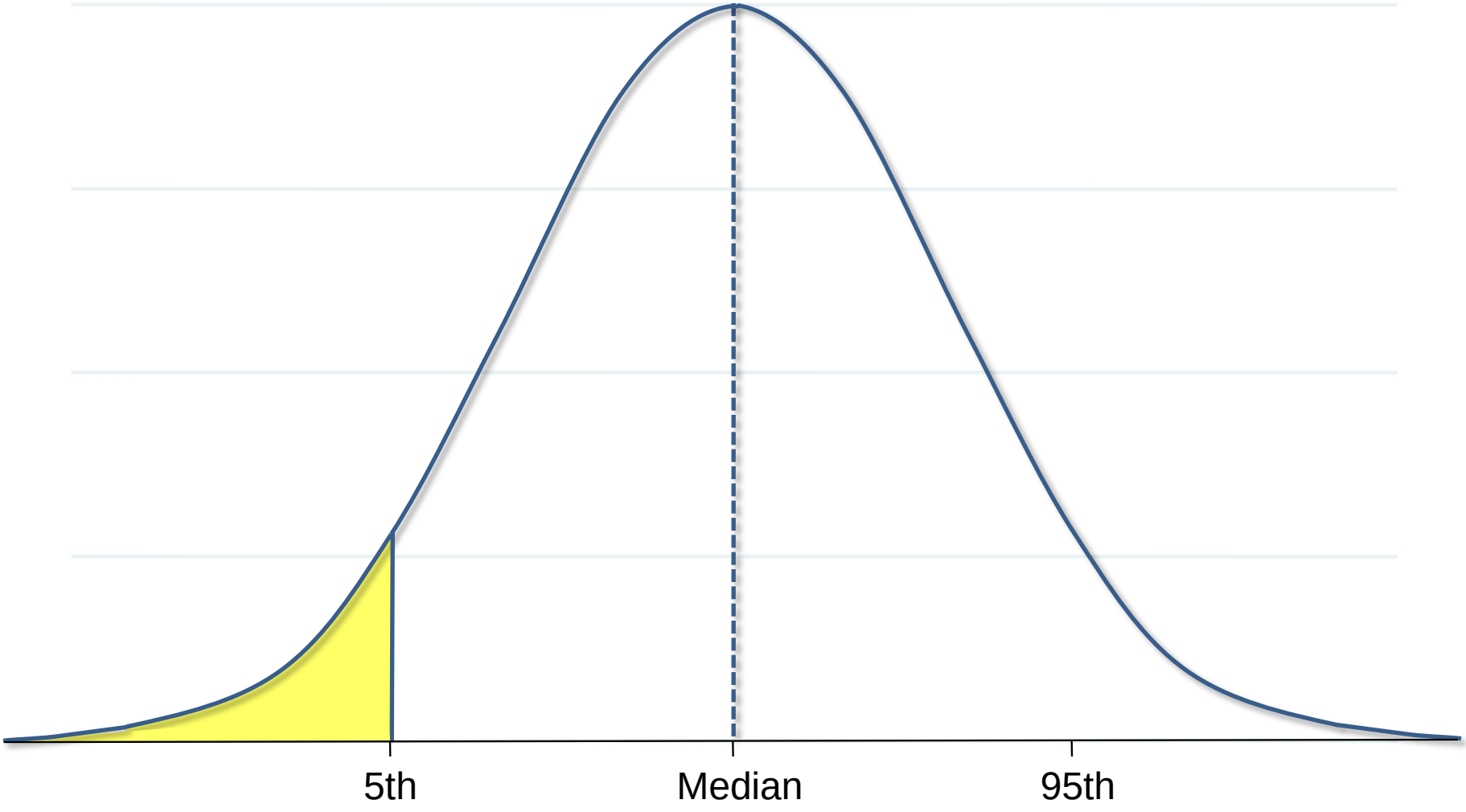
Earnings at Age 28

1 SD increase in VA → $350 increase in earnings

5th
Median
95th

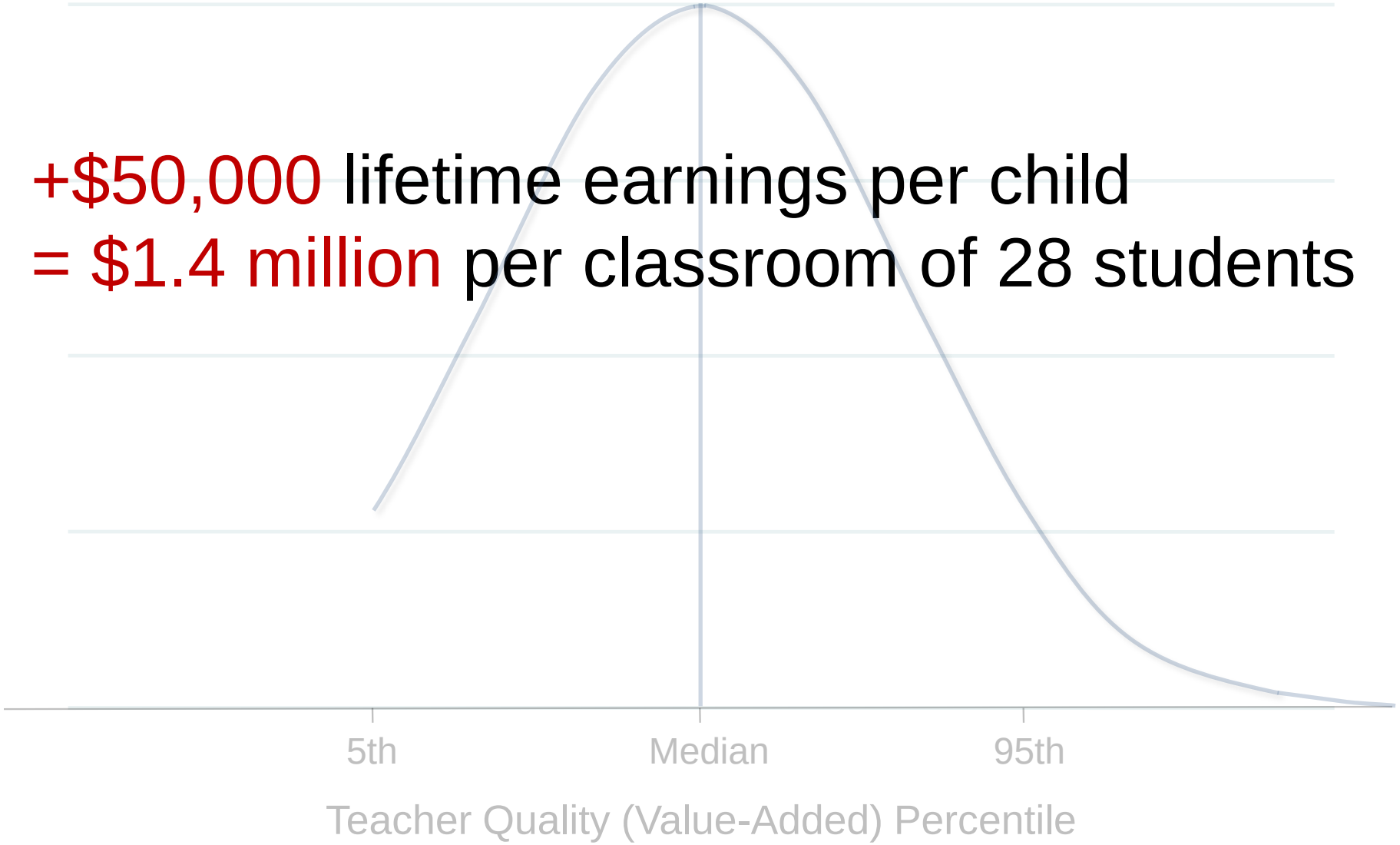
Teacher Value-Added

The Value of Improving Teacher Quality



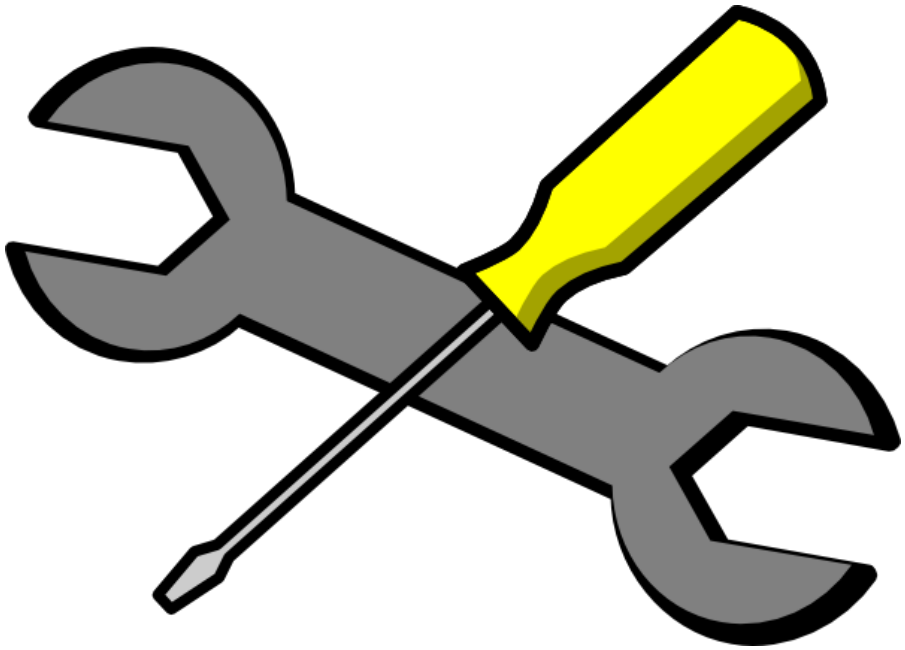
The Value of Improving Teacher Quality

+$50,000 lifetime earnings per child
= $1.4 million per classroom of 28 students

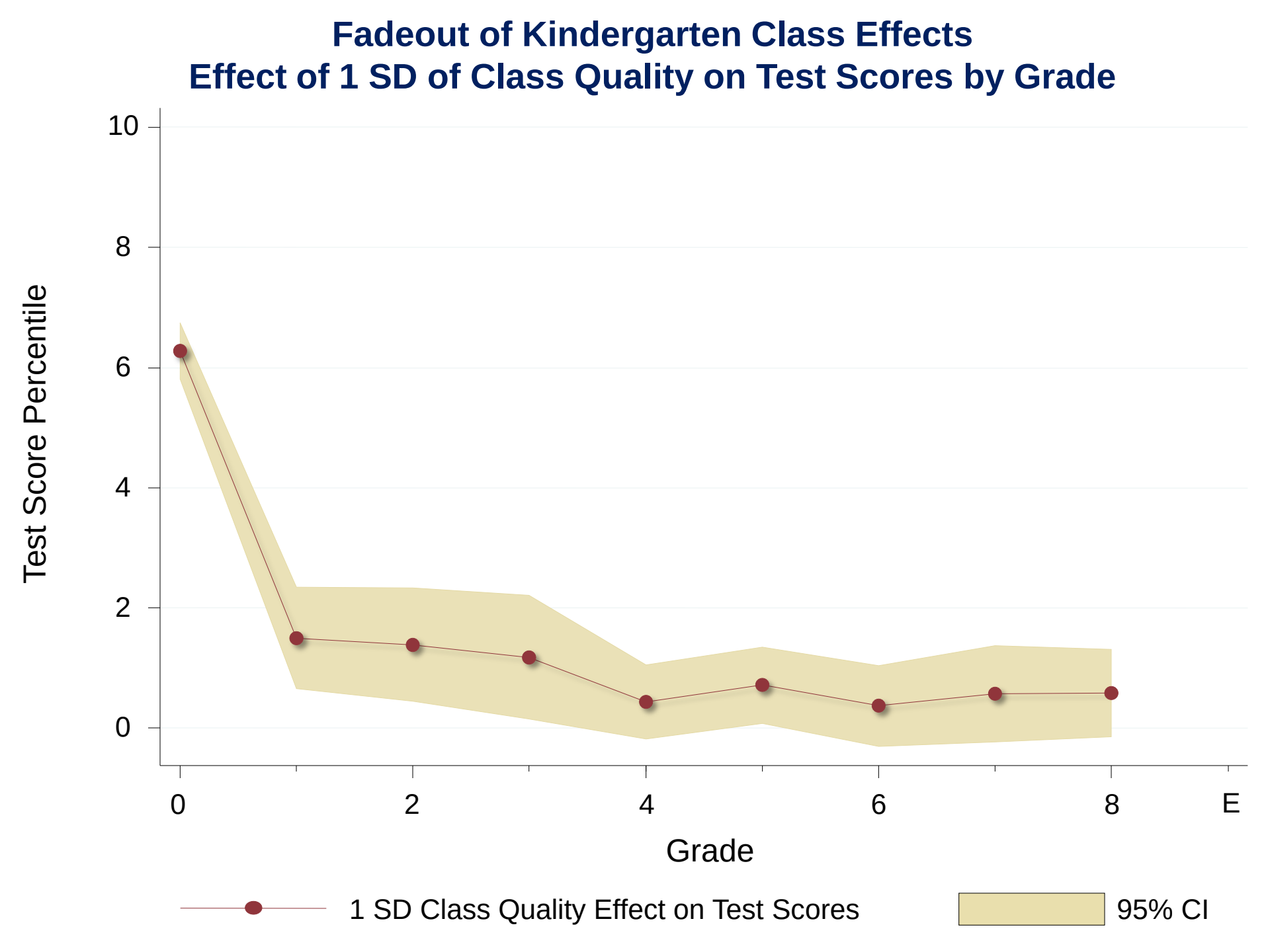


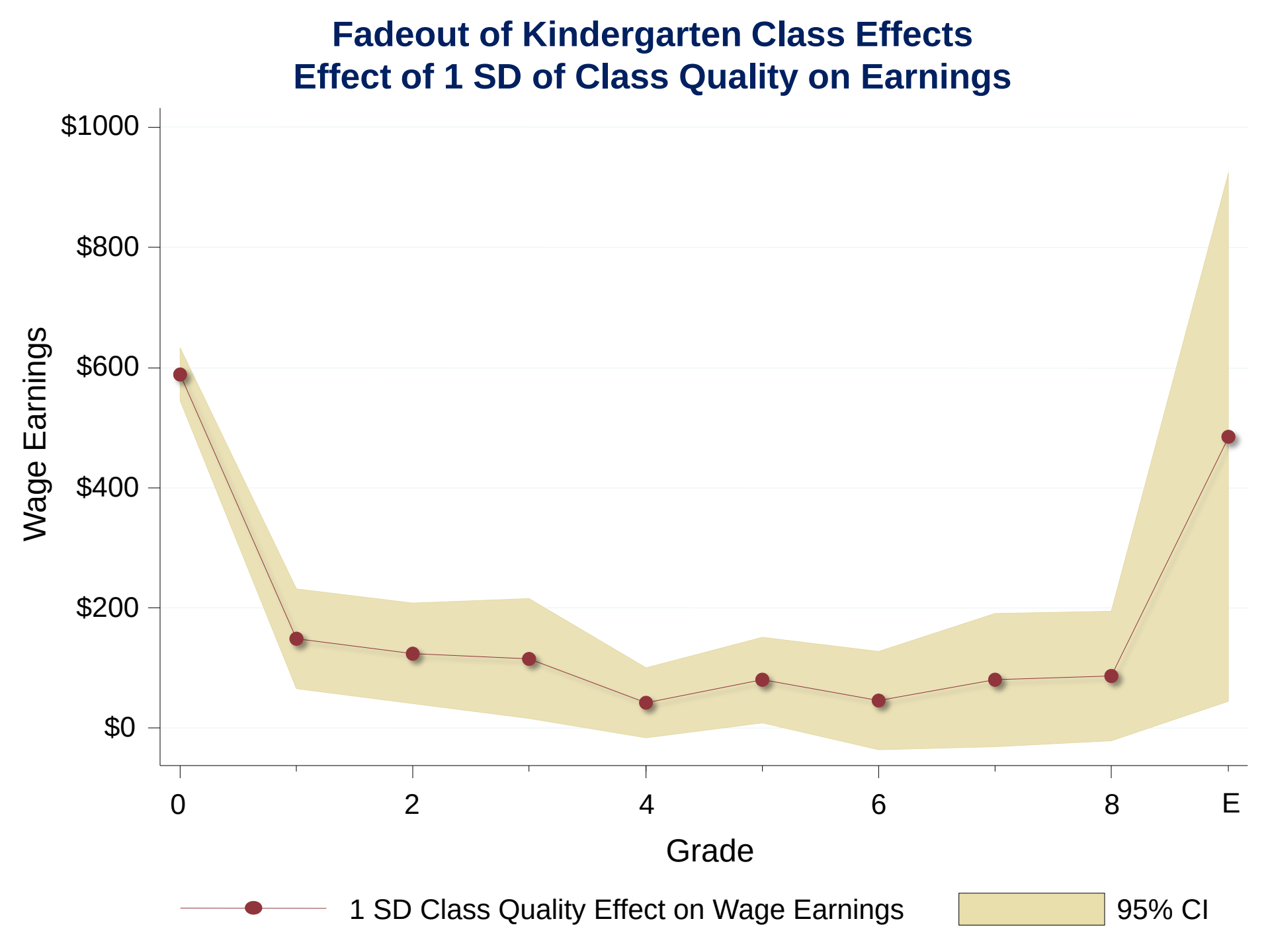
Mechanisms:

Why These Large Effects?






Fadeout of Kindergarten Class Effects
Effect of 1 SD of Class Quality on Test Scores by Grade
Test Score Percentile
10
8
6
4
2
0
0
2
4
6
8
E
Grade
1 SD Class Quality Effect on Test Scores
95% CI


Fadeout of Kindergarten Class Effects
Effect of 1 SD of Class Quality on Earnings
$1000
$800
$600
$400
$200
$0
Wage Earnings
0
2
4
6
8
E
Grade
1 SD Class Quality Effect on Wage Earnings
95% CI

Policy Lessons:



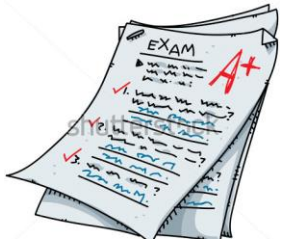
1. Large Gains to Improved Education

Policy Lessons:

1. Large Gains to Improved Education



2. Test Scores Are Very Useful Measures

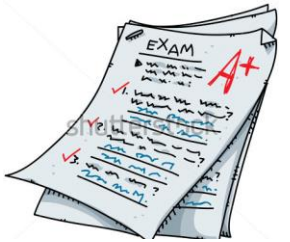


Policy Lessons:

1. Large Gains to Improved Education



2. Test Scores Are Very Useful Measures



3. Harness the Power of Big Data

