

# K-12 In Alaska Investing in Effective Measures to Ensure Student Success in Life

Prepared by Mark A Foster (MAFA)

Prepared for House/Senate Education Committee Joint Meeting

April 24, 2019

# Overview

- How are Alaskan Students Doing on Standardized Tests?
  - NAEP & PEAKS, 4<sup>th</sup> & 8<sup>th</sup> Grade Reading/ELA & Math
- What drives the variation in standardized test scores?
  - Poverty & Standardized Test Scores
- How do we measure effective teaching?
  - Growth & Proficiency
- Which schools have students who are performing well above expectations?
- What do local superintendents report as the key factors driving student assessments?
- What does the national/international research say?
- Recommendations for Alaska

# Disclosures, Caveats & Limitations

## Disclosures

1. Mark A Foster & Associates (MAFA) has been retained by Senator Von Imhof to assist in the compilation and analysis of what drives student success and what education initiatives look most promising to deliver effective, efficient and affordable education services for all Alaskan students
2. Mark Foster was appointed to fill a short term vacancy on the Anchorage School Board, Seat A (October 2018-April 2019).
3. Mark Foster served as the Director, Office of Management & Budget, and CFO for the Anchorage School District from 2012-2016. Mr. Foster was the project manager on the Evidence Based Model for ASD (April 4, 2016).
4. MAFA has consulted for a wide range of private and public sector clients across multiple sectors in Alaska, U.S. and Internationally since 1994.
5. Mark Foster graduated from Lathrop High School in Fairbanks in 1979.

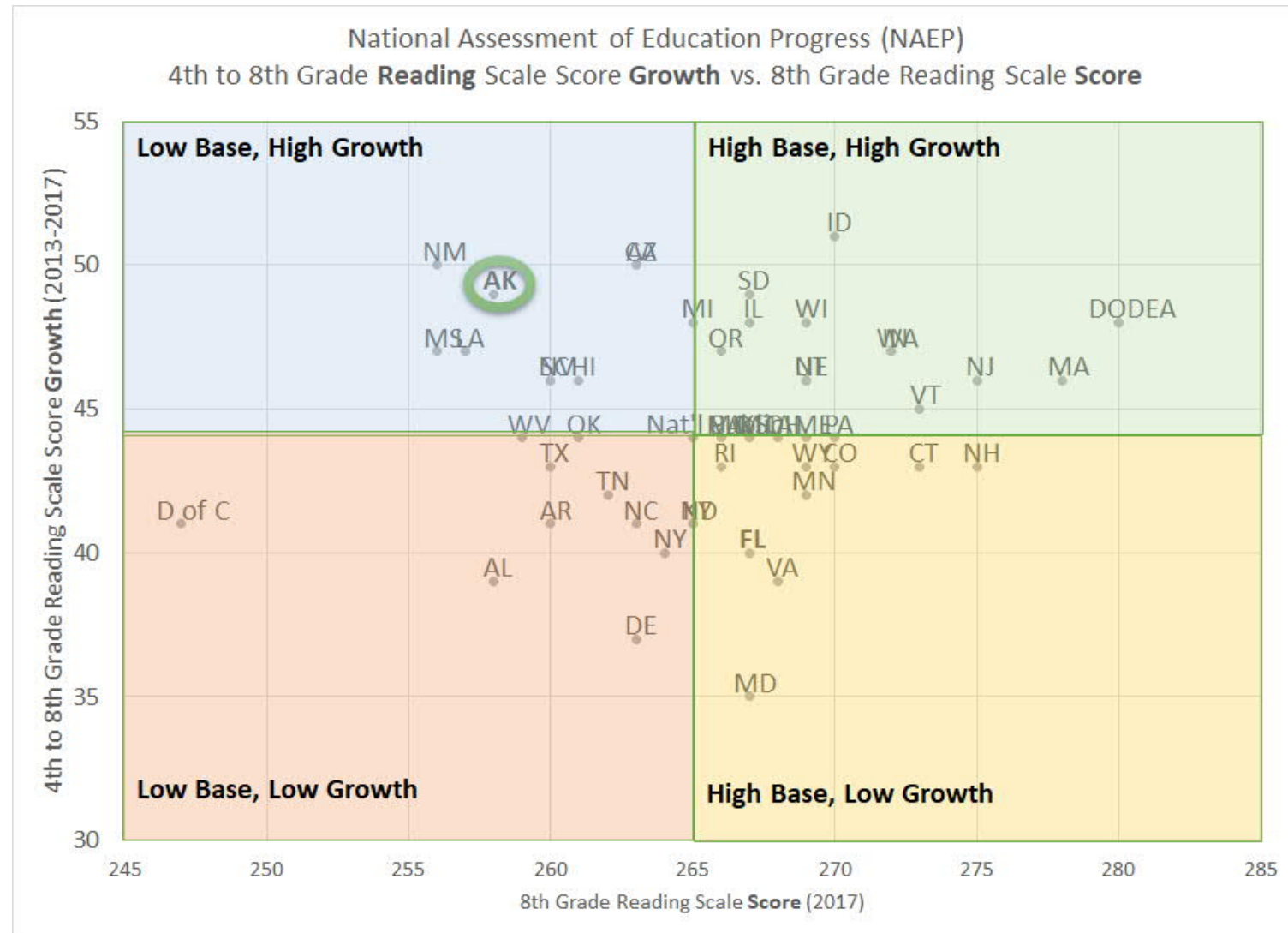
## Caveats & Limitations

1. NAEP and PEAKS Standards Based Tests provide one summative approach to assessing student academic performance. Variation in student test scores are frequently correlated with poverty and related factors. The Gates Foundation Measuring Effective Teaching Project and subsequent research supports the use of student growth and proficiency as one domain to assess the value that teachers and schools contribute toward student academic success.
2. Standards Based Tests are only modestly correlated with success in life (Raj Chetty)
3. Social skills tend to be better predictors of success in life (Kirabo Jackson, Raj Chetty)

# How are Alaskan Students Doing on Student Standards Based Assessments?

|                                                    | 4 <sup>th</sup> Grade                                                                           | 8 <sup>th</sup> Grade |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------|
| National Assessment of Educational Progress (NAEP) |                                                                                                 |                       |
| Reading                                            | 4 <sup>th</sup> to 8 <sup>th</sup> Grade Scale Score Growth & 8 <sup>th</sup> Grade Scale Score |                       |
| Math                                               | 4 <sup>th</sup> to 8 <sup>th</sup> Grade Scale Score Growth & 8 <sup>th</sup> Grade Scale Score |                       |
| Performance Evaluation for Alaska Schools (PEAKS)  |                                                                                                 |                       |
| English Language Learners                          | Percentage Proficient                                                                           | Percentage Proficient |
| Math                                               | Percentage Proficient                                                                           | Percentage Proficient |

# K-12 Progress to Date AK Student Growth & Achievement: NAEP Reading

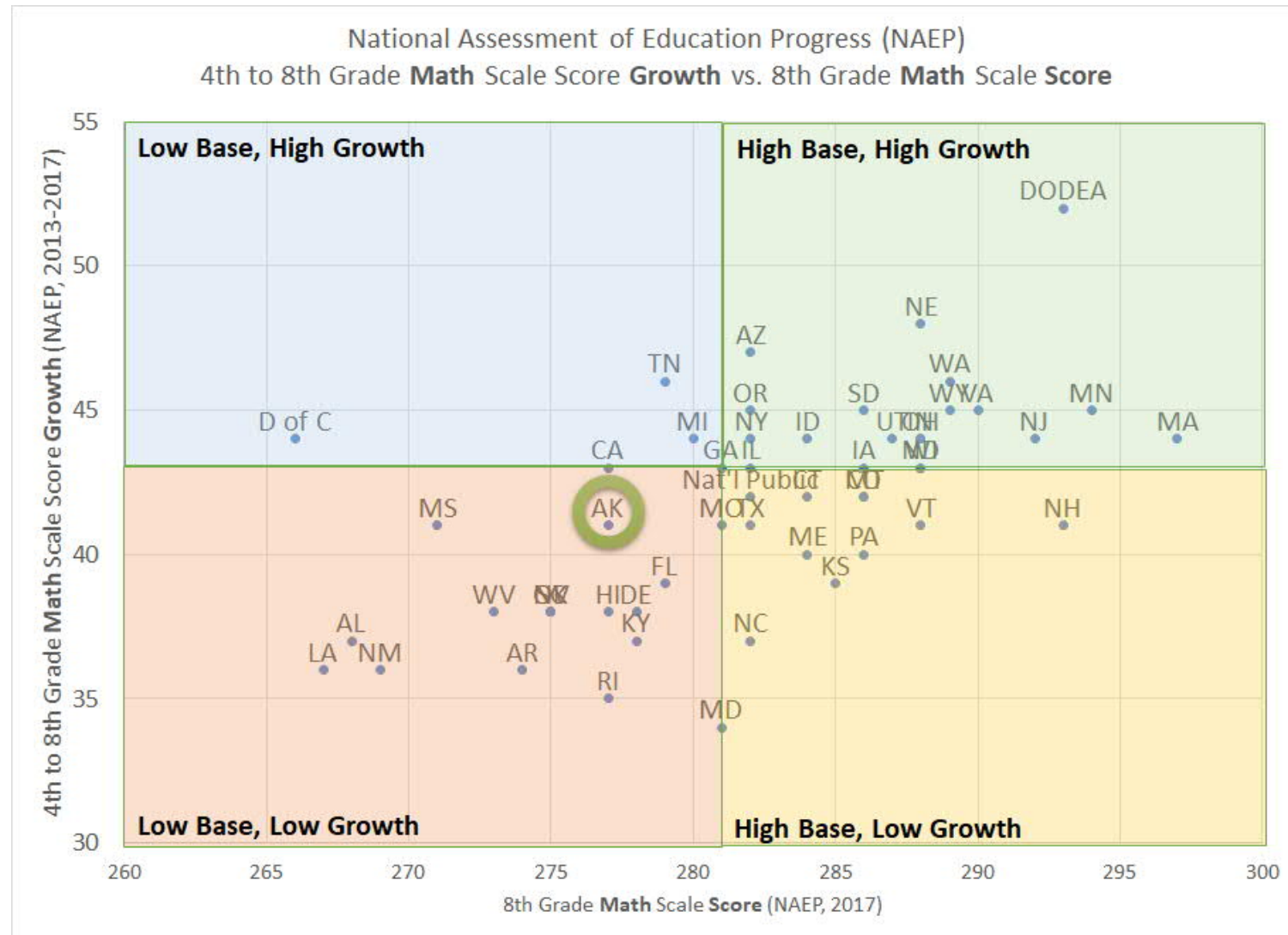


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# K-12 Progress to Date AK Student Growth & Achievement: NAEP Math



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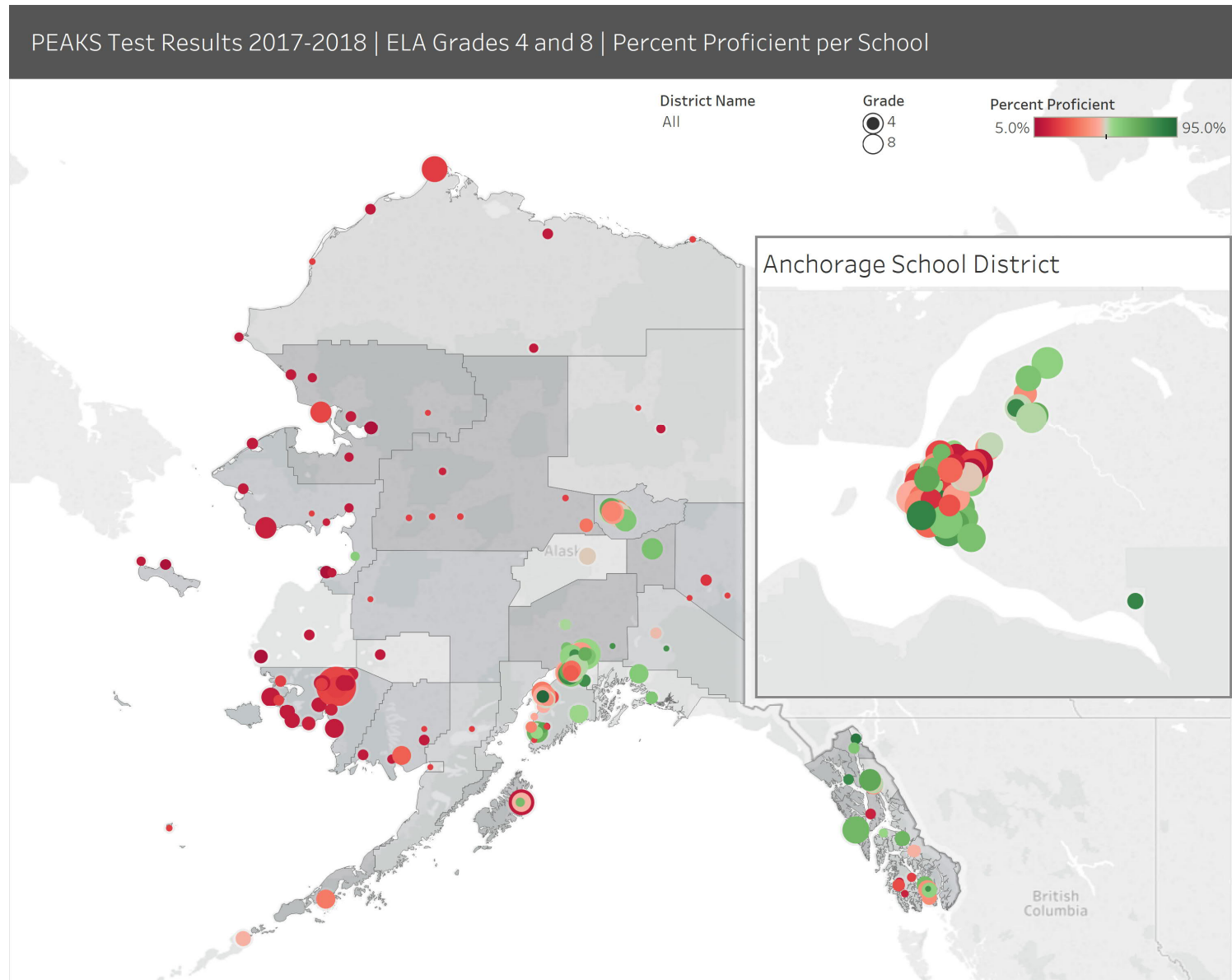
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# ALASKA PERFORMANCE EVALUATION FOR ALASKAN SCHOOLS (PEAKS)

- 4<sup>th</sup> Grade English Language Arts
- 8<sup>th</sup> Grade English Language Arts
- 4<sup>th</sup> Grade Math
- 8<sup>th</sup> Grade Math

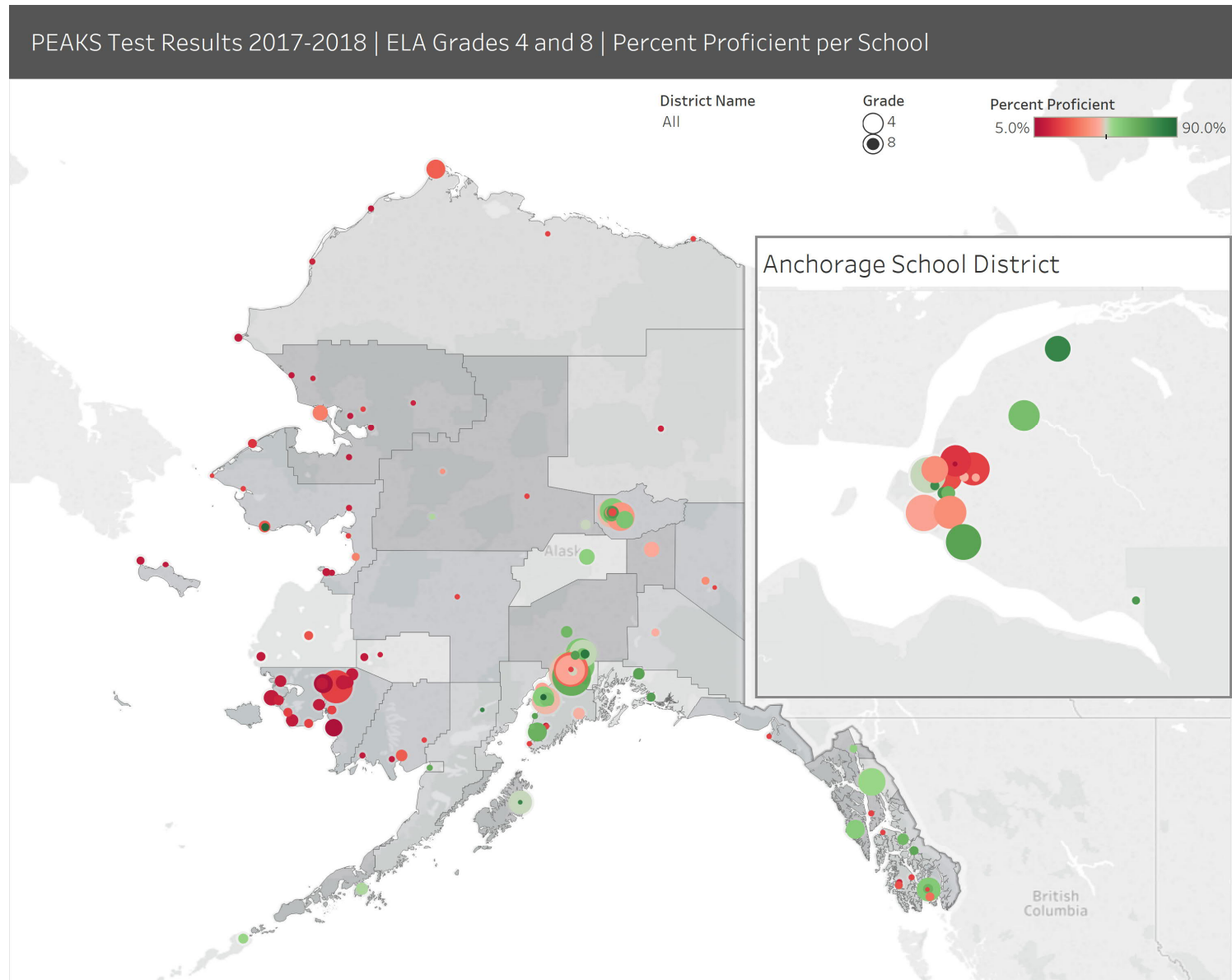
# 4<sup>th</sup> Grade English Language Arts

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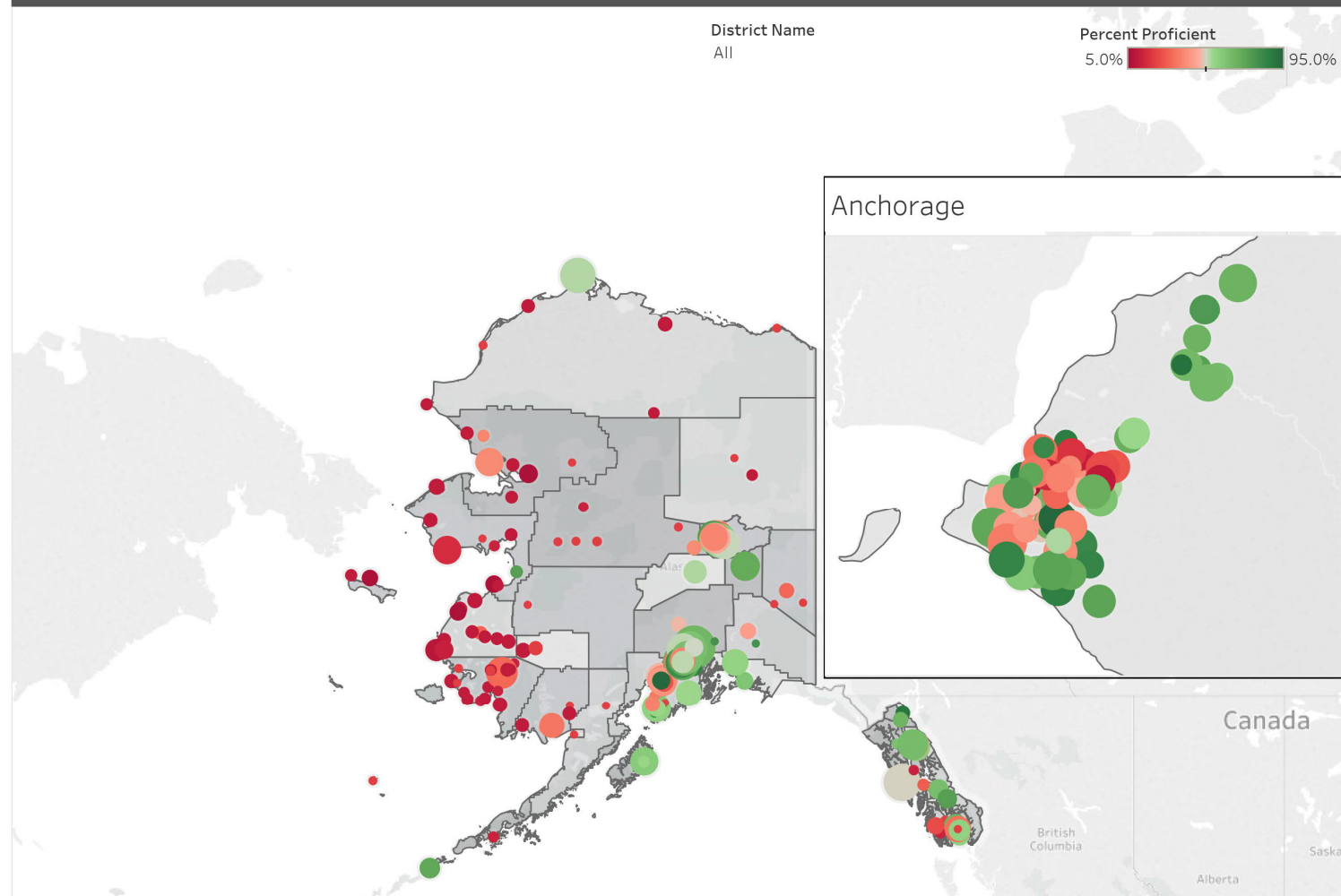
# 8<sup>th</sup> Grade English Language Arts

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# 4<sup>th</sup> Grade Math

PEAKS Test Results 2017-2018 | Math Grade 4 | Percent Proficient per School



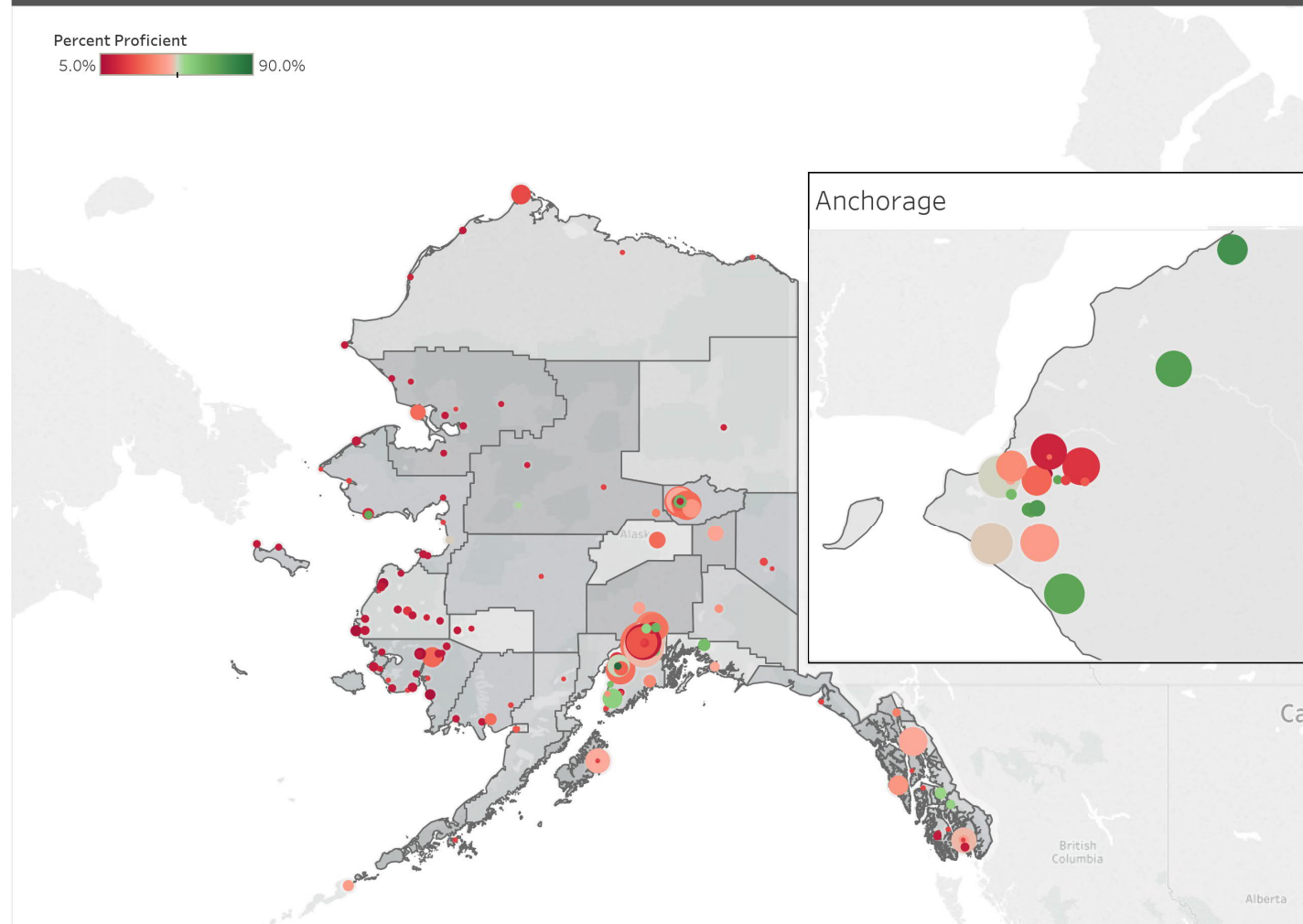
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# 8<sup>th</sup> Grade Math

PEAKS Test Results 2017-2018 | Math Grade 8 | Percent Proficient per School



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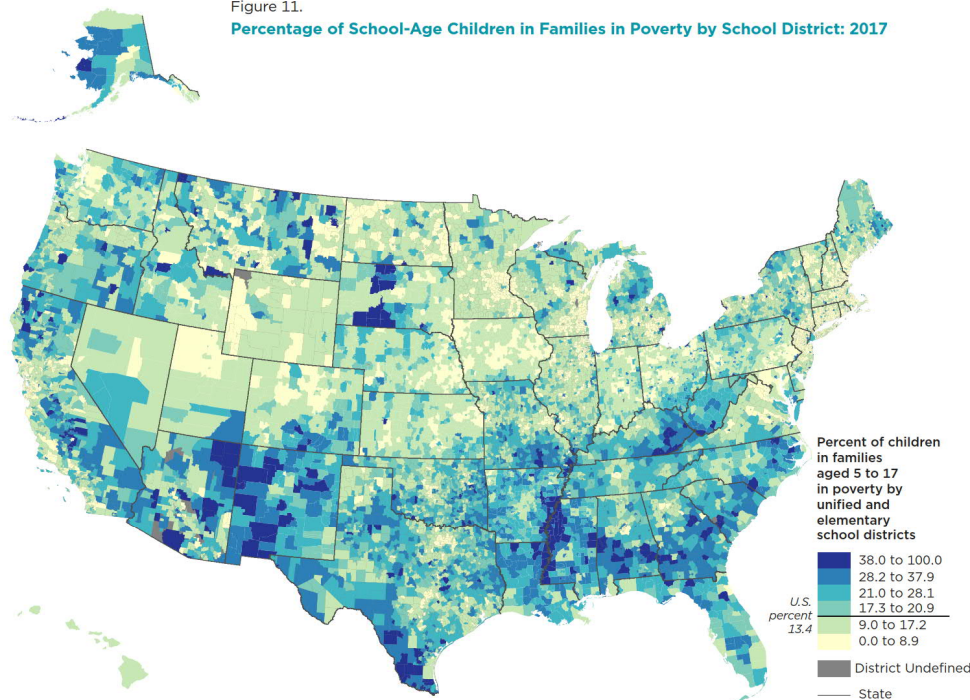
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# What drives the variation in test scores?

1. Test scores reflect poverty/affluence; frequently around  $\frac{1}{2}$  of the variation in test scores reflect the household and neighborhood challenges associated with poverty
2. The Gates Foundation Project, “Measuring Effective Teaching” focuses on actual test scores less the predicted test score (related to social-economic factors) to assess how well teachers are helping all of their students learn and grow, regardless of where they start.

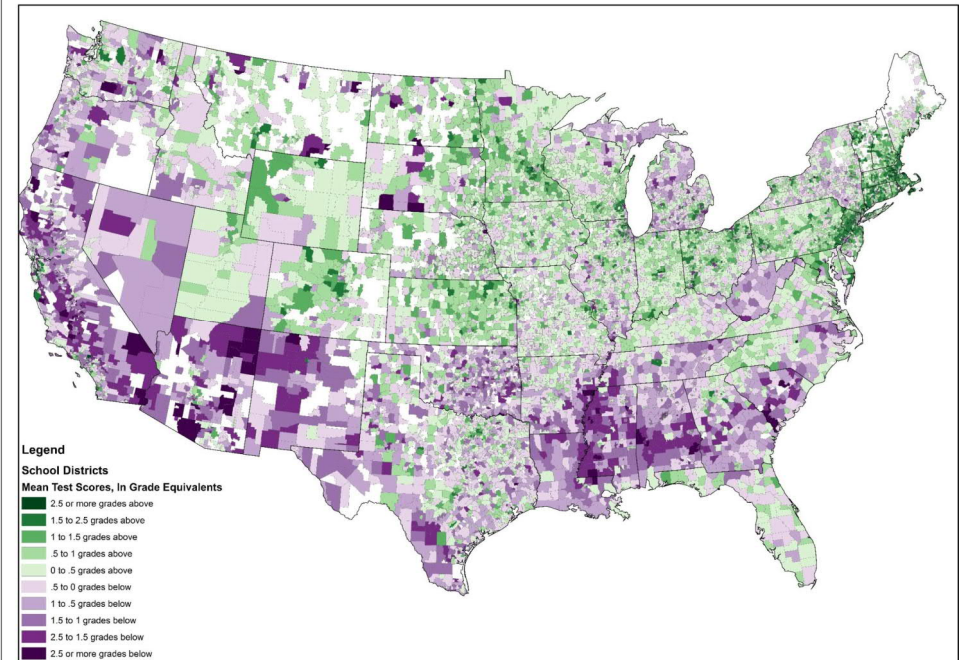
# Poverty & Student Achievement Are Highly Interrelated across the U.S.

Figure 11.  
Percentage of School-Age Children in Families in Poverty by School District: 2017



Note: The data provided are indirect estimates produced by statistical model-based methods using sample survey, decennial census, and administrative data sources. The estimates contain error stemming from model error, sampling error, and nonsampling error. Unified and Elementary School District boundaries are as of January 1, 2018.  
 Source: U.S. Census Bureau, Small Area Income and Poverty Estimates (SAIPE) Program, Dec. 2018.

Average Test Scores, by School District, Grades 3-8, 2009-2013



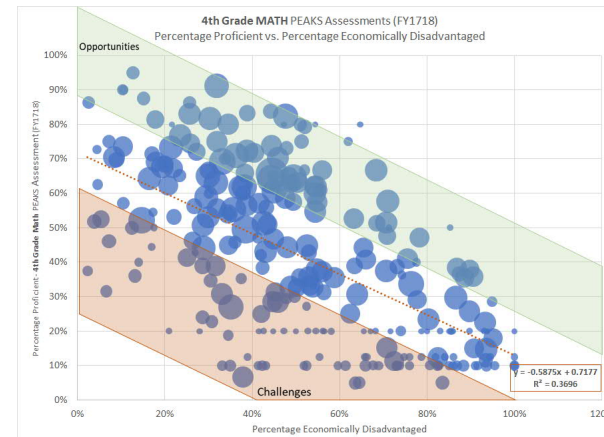
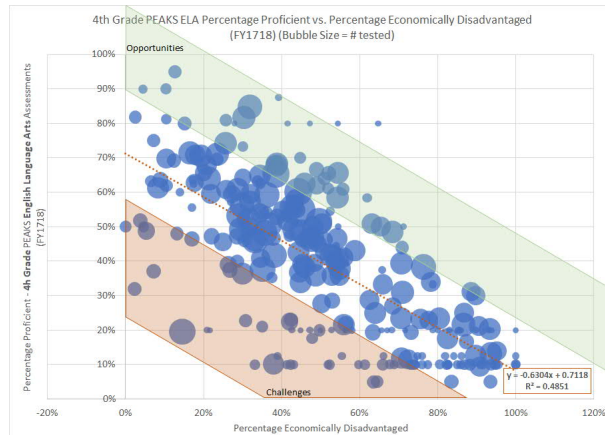
© (2016) sean f. reardon, Demetra Kalogrides, Erin Fahle, Kenneth Shores, and Benjamin Shear. Stanford Education Data Archive: seda.stanford.edu

# Poverty & Student Achievement Are Highly Correlated Across Alaska

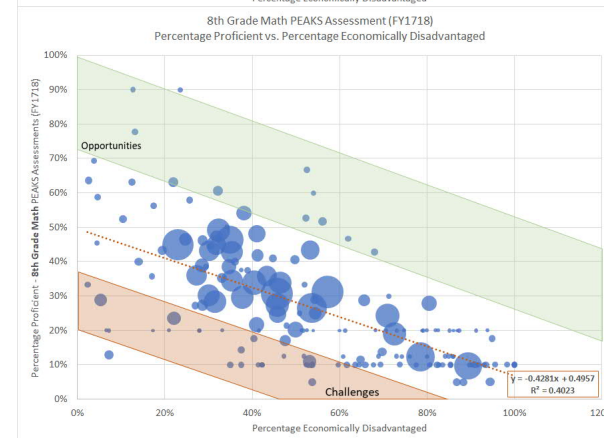
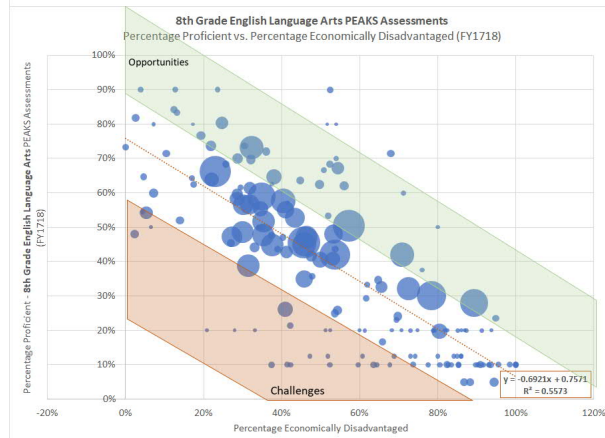
## English Language Arts

## Math

4<sup>th</sup> Grade



8<sup>th</sup> Grade

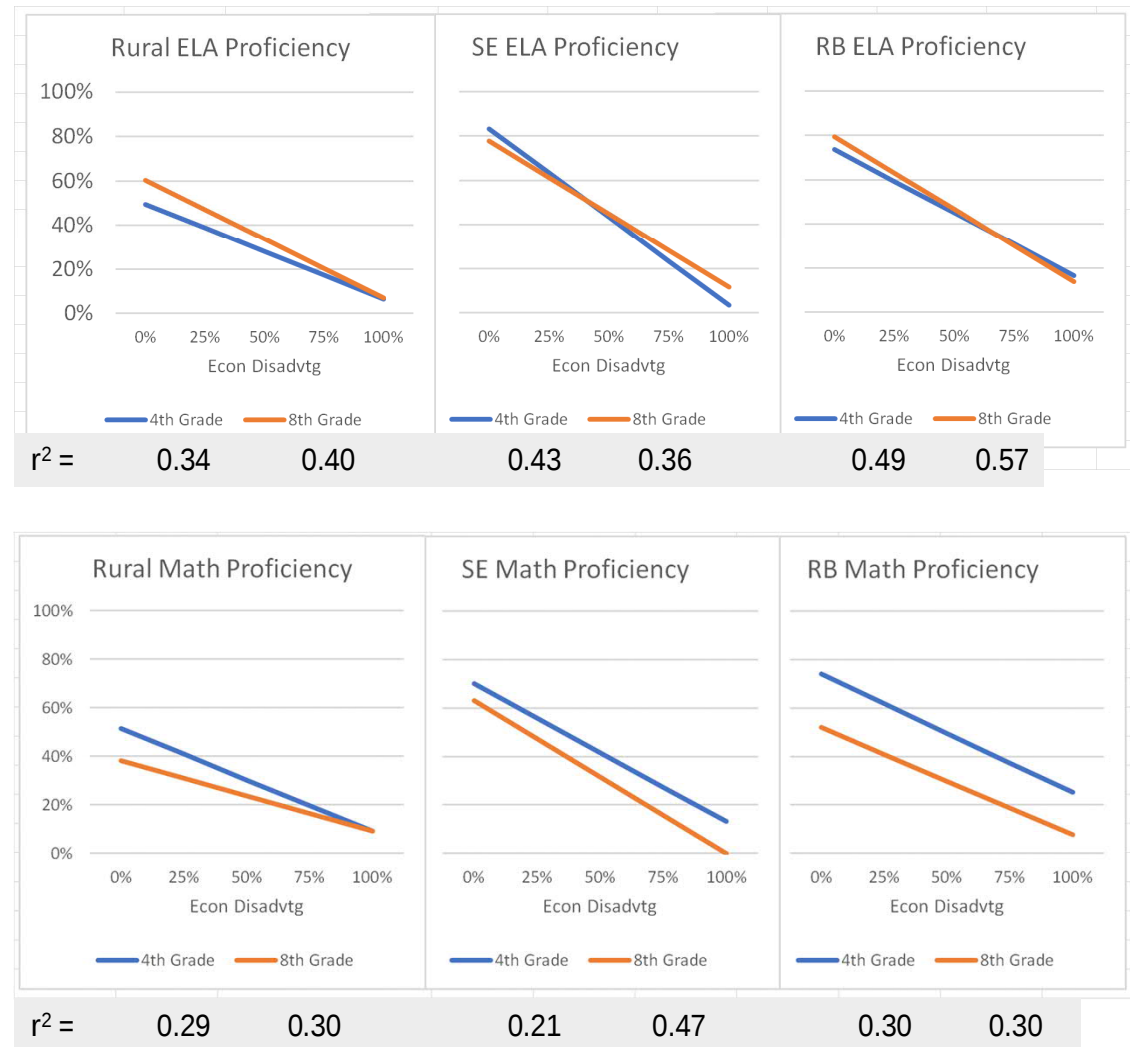


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Poverty & Student Achievement are relatively highly correlated within Alaska Regions (Rural, Southeast, Railbelt)

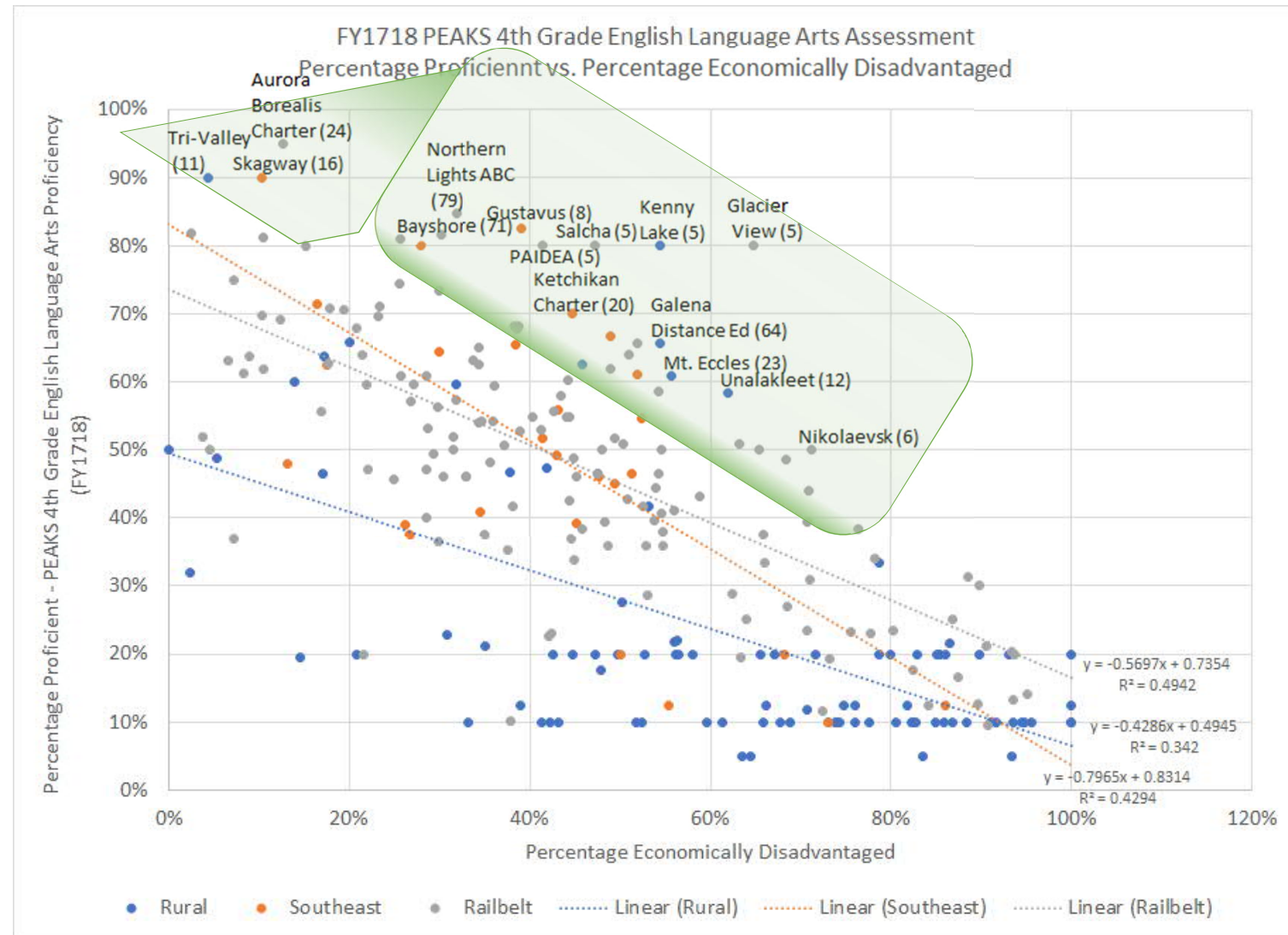


# Measuring Effective Teaching In Alaska

Identify schools with students performing well above expectations in light of the prevalence of poverty

# K-12 Progress to Date Student Assessments AK PEAKS English Language Arts 4<sup>th</sup> Grade

What can we learn from schools whose students are performing well above expectations relative to the headwinds of poverty, tailwinds of affluence; examples from across Alaska



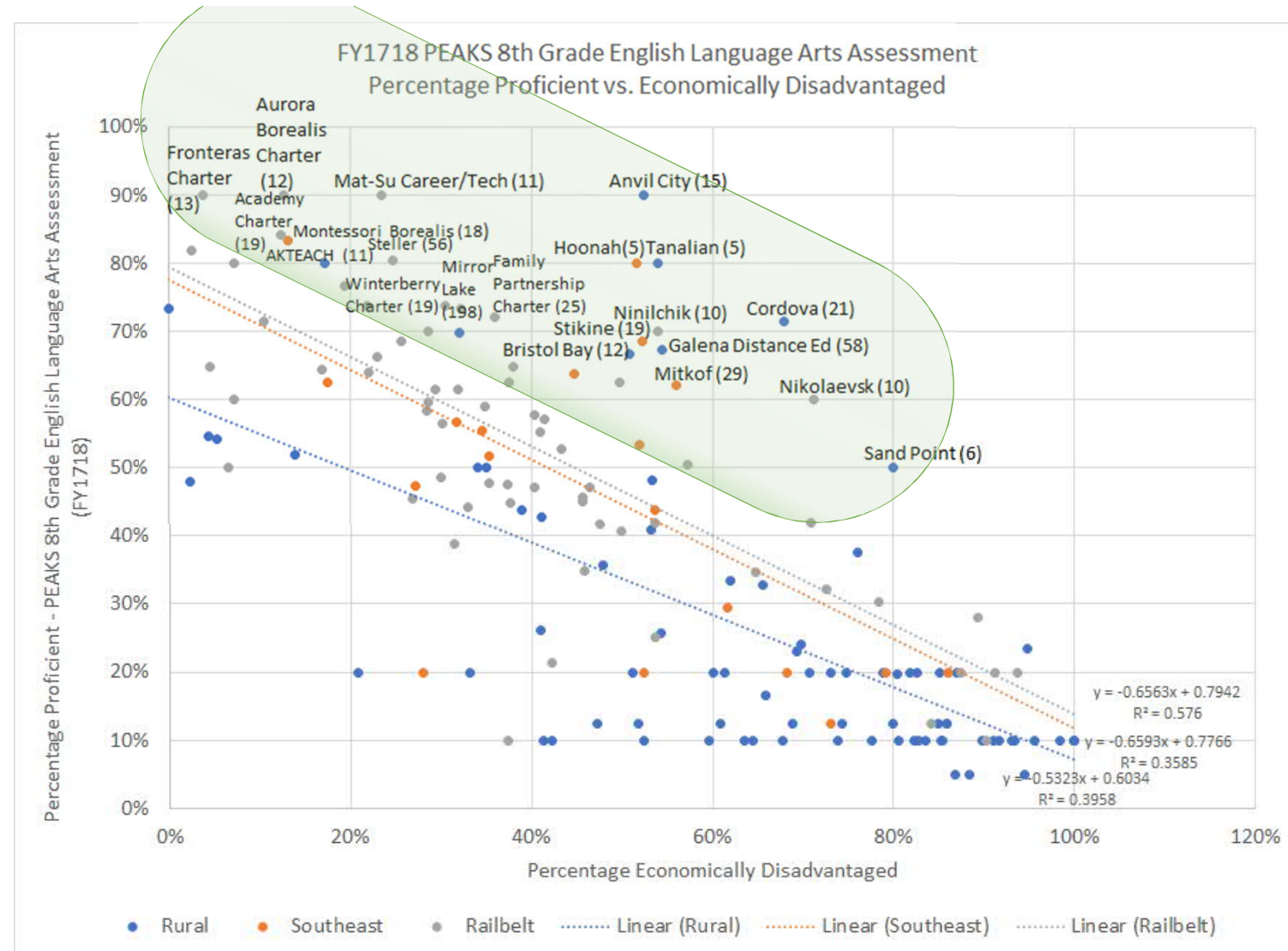
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# K-12 Progress to Date Student Assessments AK PEAKS English Language Arts 8<sup>th</sup> Grade

What can we learn from schools whose students are performing well above expectations relative to the headwinds of poverty, tailwinds of affluence; examples from across Alaska



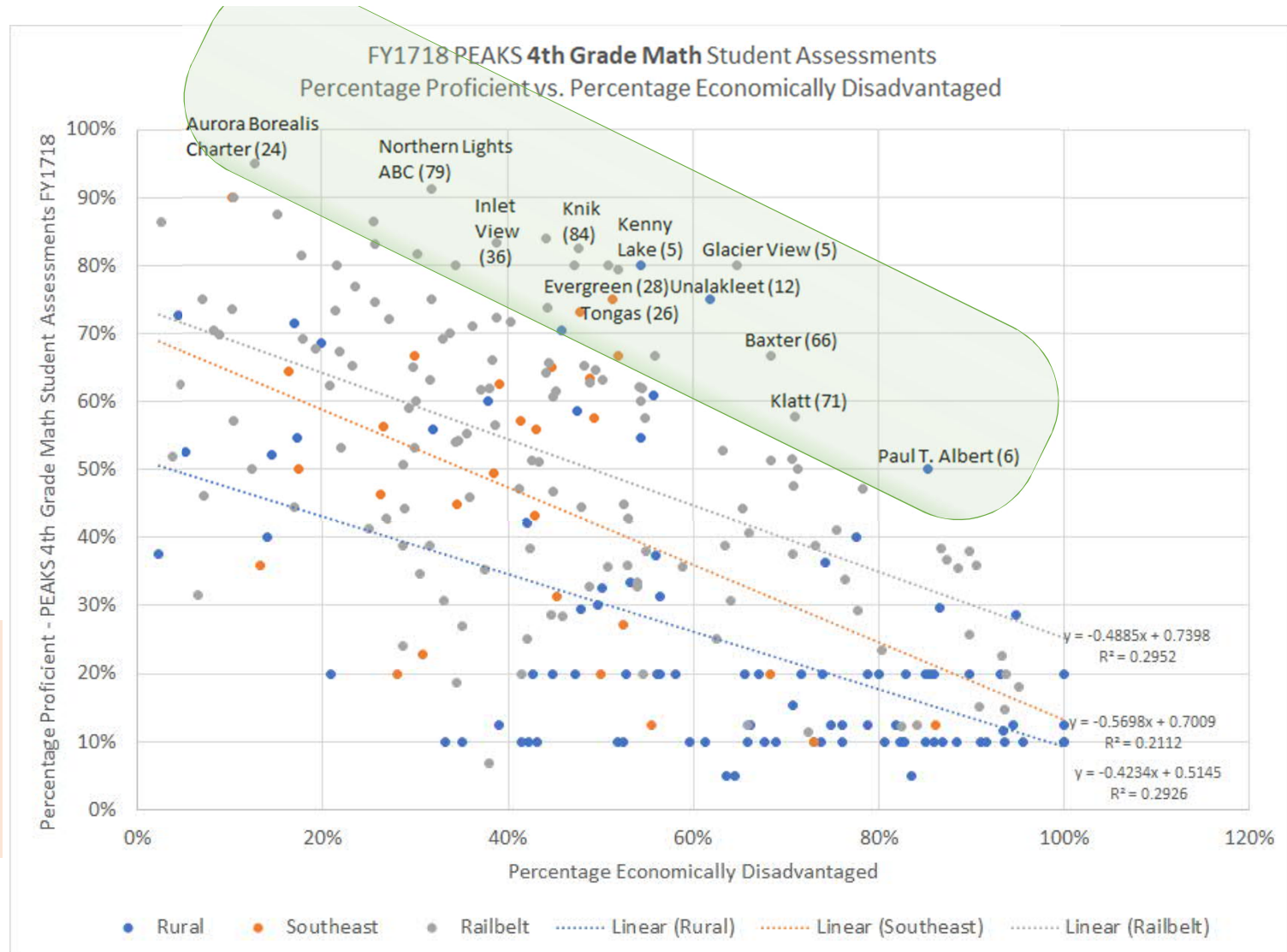
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# K-12 Progress to Date Student Assessments— AK PEAKS Math 4<sup>th</sup> Grade

What can we learn from schools whose students are performing well above expectations relative to the headwinds of poverty, tailwinds of affluence; examples from across Alaska



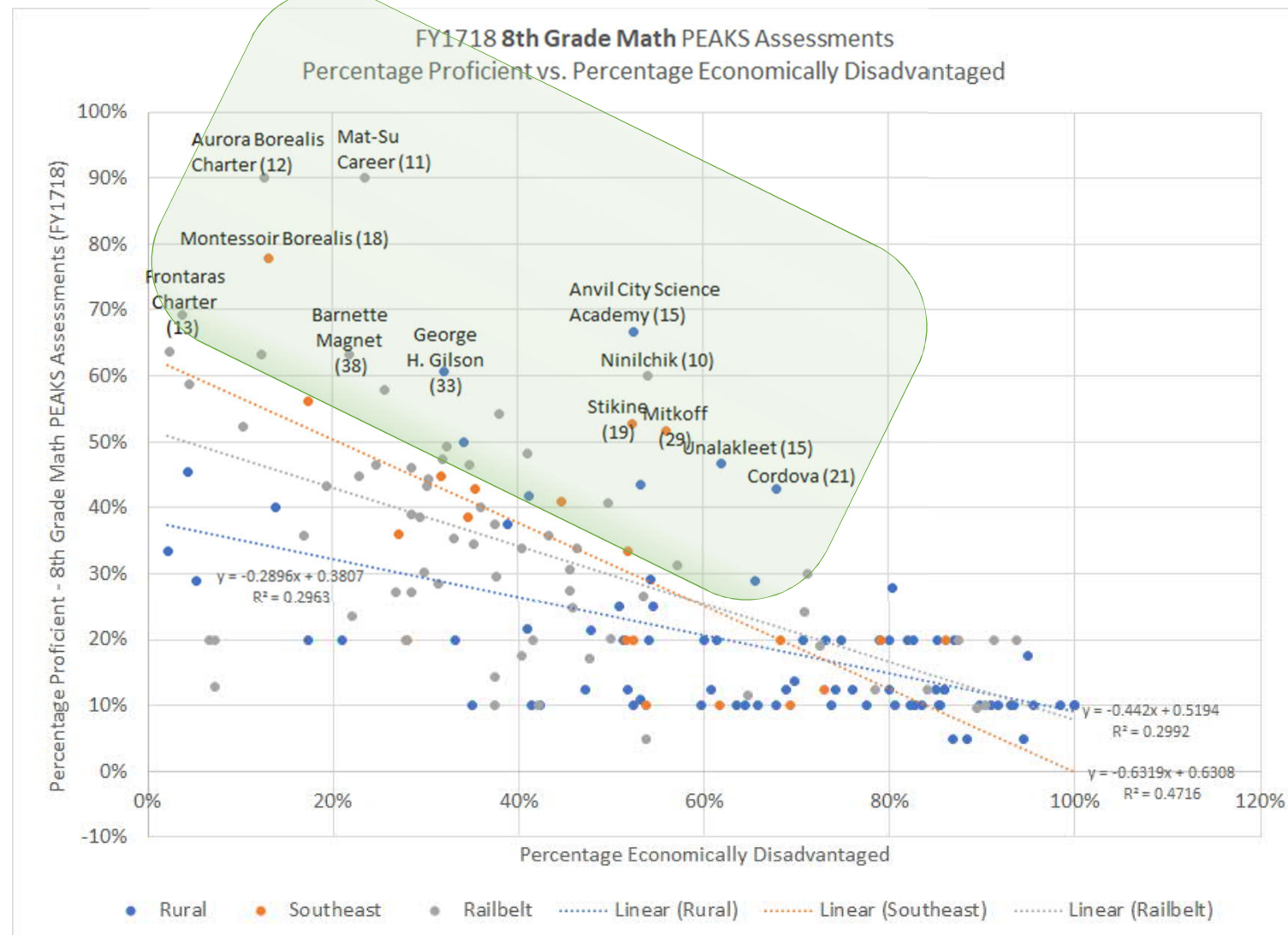
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# K-12 Progress to Date Student Assessments— AK PEAKS Math 8<sup>th</sup> Grade

What can we learn from schools whose students are performing well above expectations relative to the headwinds of poverty, tailwinds of affluence; examples from across Alaska



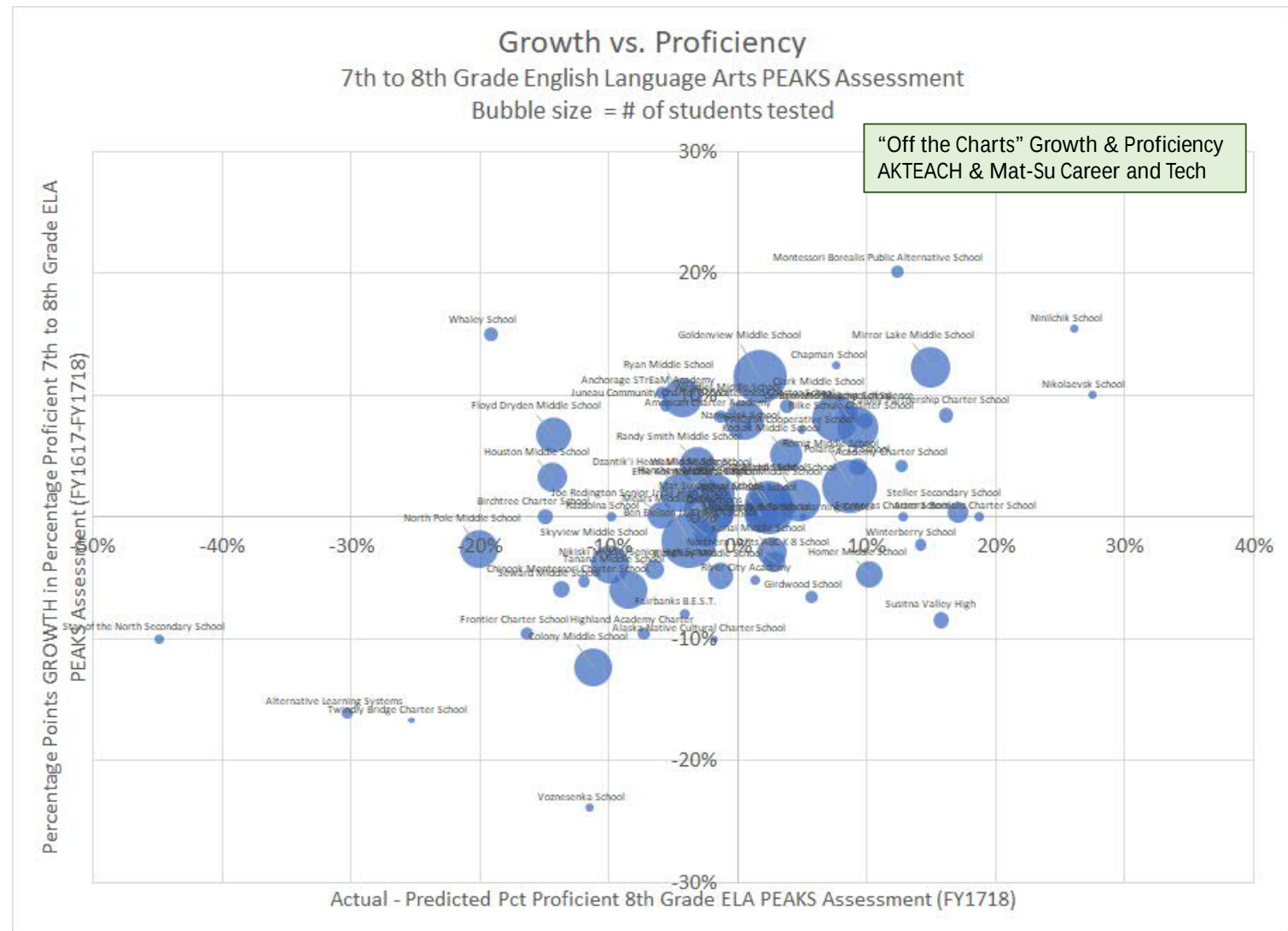
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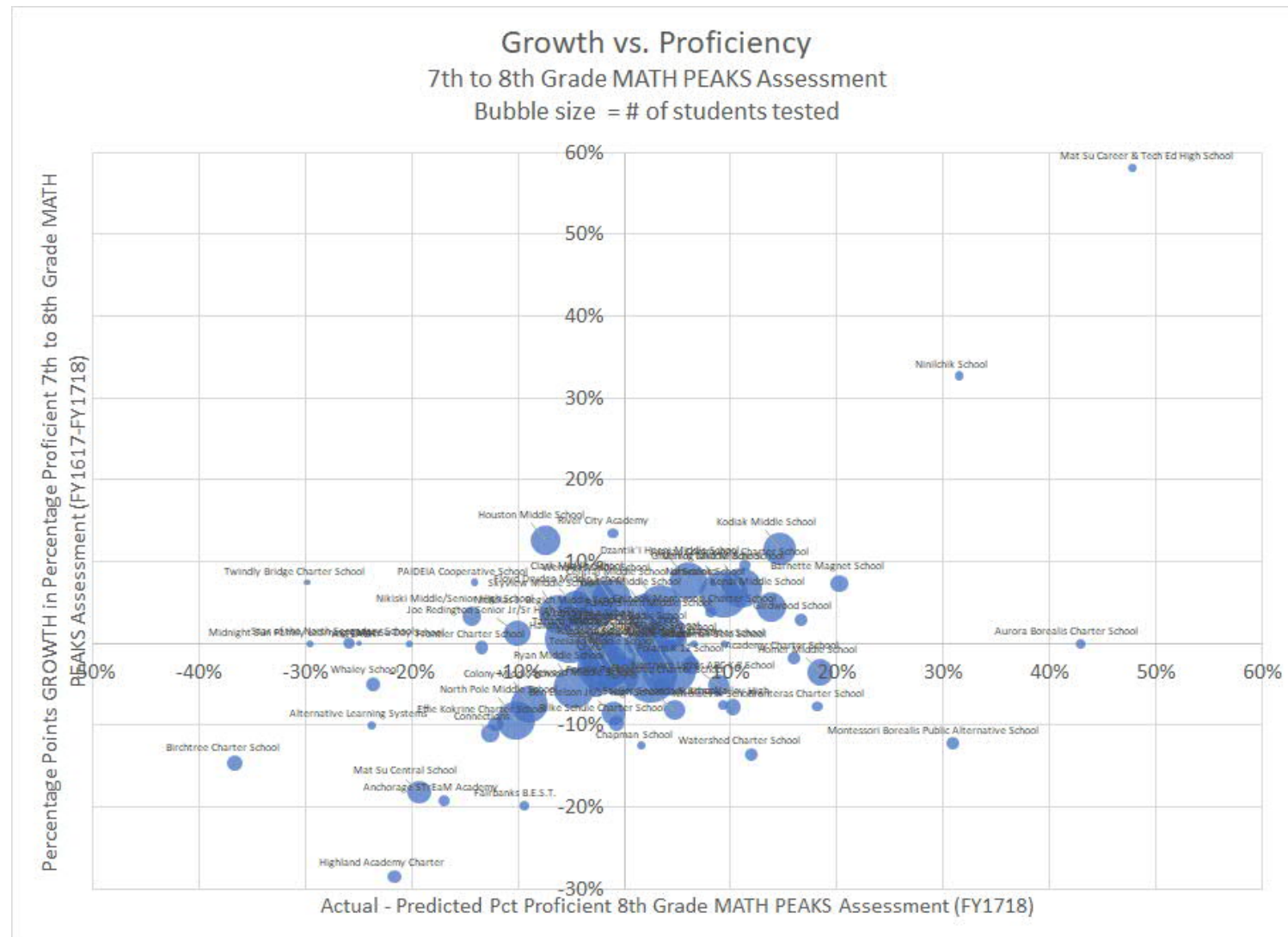
(actual – predicted by  
poverty/affluence)

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# Measuring Effective Teaching Math Proficiency

(Actual – Predicted by poverty/affluence)



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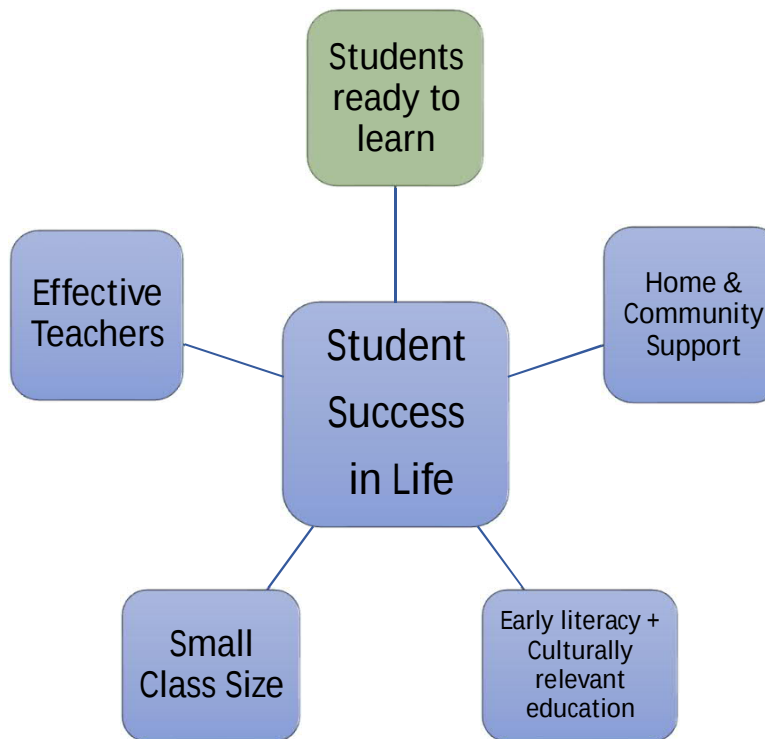
# What do Alaska Superintendents identify as key factors driving student academic performance

Survey of school districts with schools who student assessments exceed expected results for their poverty level

# What do local subject matter experts tell us when we ask “what is driving your superior results?”

## Rural Considerations:

- Rural districts with high teacher turnover rates often graduate fewer than half of their students, and their students have significantly lower reading [and math] proficiency
- Finding ways to engage students, with place based learning and courses that incorporate local culture and industry, is critical in making learning more relevant for students, teachers and the community



## Railbelt / Southeast Considerations:

- Highly experienced & effective teachers
- Community of parents that value education
- A generous and supportive municipality
- Kids that respond to our practices; work hard, desire to do well not only as a reflection of their own academic achievement but also a reflection of their school and community
- The more we have, the more we can do for our kids
- Instability in finance and policy are our biggest threat to continued success



# What does the national/international research say about factors related to student achievement?

John C Hattie, Meta-Analysis of Education Research, “Visible Learning” (2017)

Professor Raj Chetty (He is a professor of economics at Harvard University, specializing in the field of public economics. Some of Chetty's recent papers have studied equality of opportunity in the United States and the long-term impact of teachers on students' performance. During Chetty's first occasion teaching at Harvard University, he was offered tenure at the age of 28 and accepted at 29, becoming one of the youngest tenured faculty in the history of Harvard's economics department. He is a recipient of the John Bates Clark Medal and a 2012 MacArthur Fellow. Currently, he is also an advisory editor of the Journal of Public Economics.

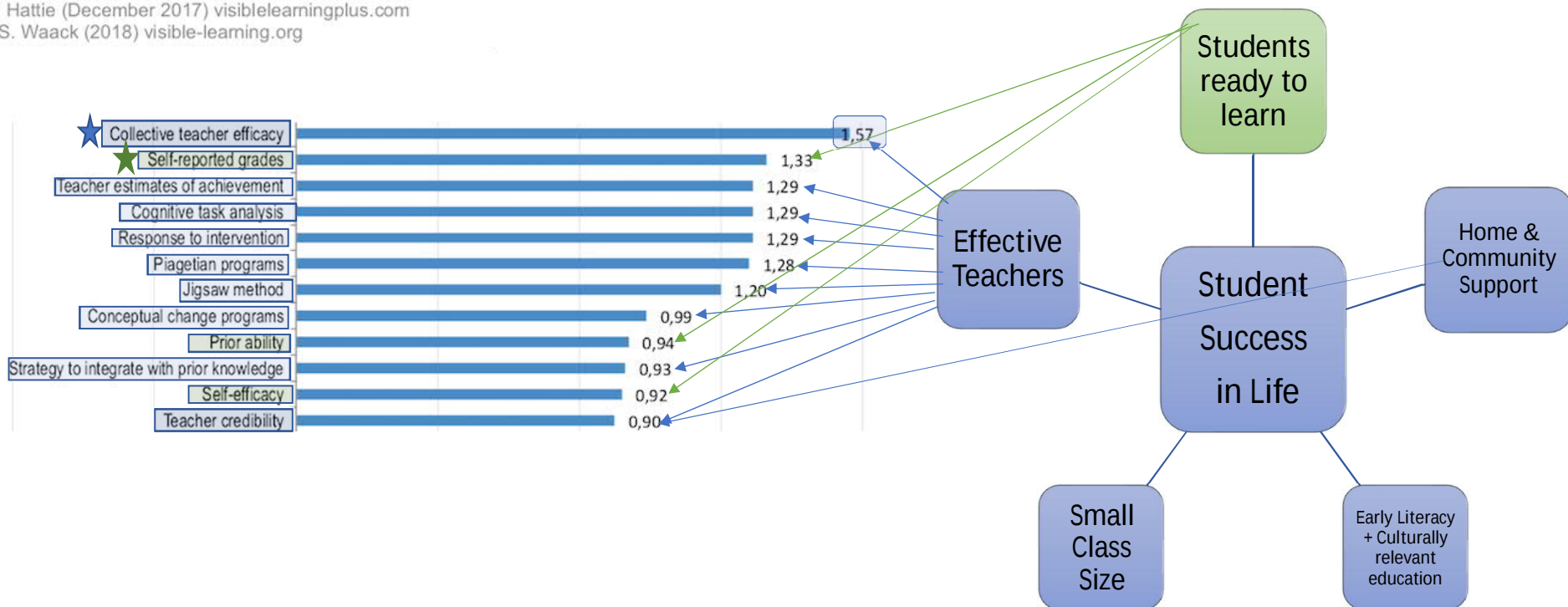
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## National & International Research (Hattie)

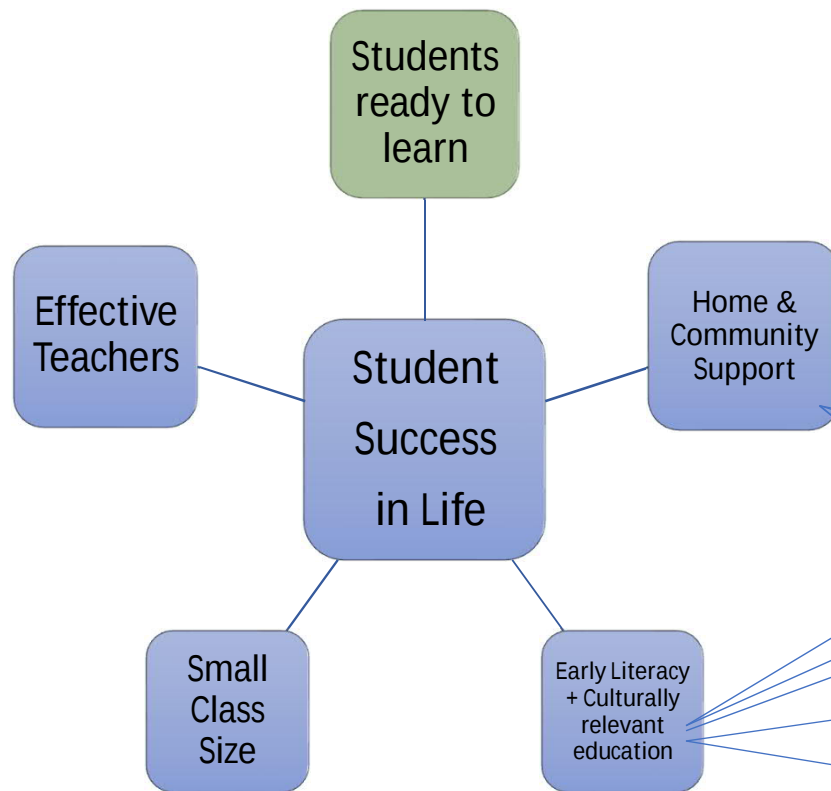
### Hattie's 2018 updated list of factors related to student achievement: 252 influences and effect sizes (Cohen's d)

Source: J. Hattie (December 2017) [visiblelearningplus.com](http://visiblelearningplus.com)

Diagram: S. Waack (2018) [visible-learning.org](http://visible-learning.org)

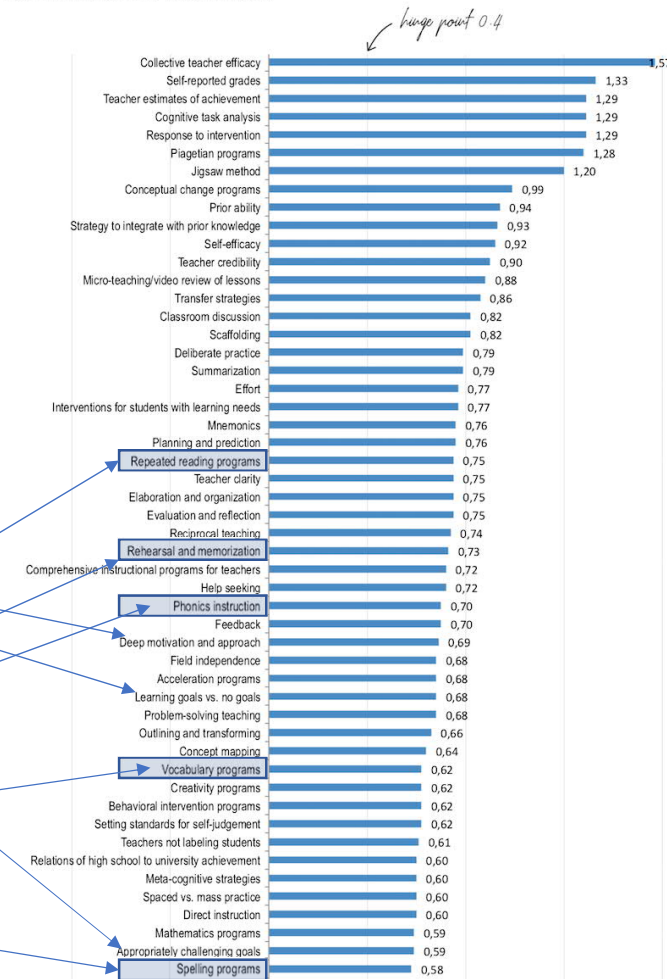


# K-12 Investing In Effective Measures to Support Student Success in Life



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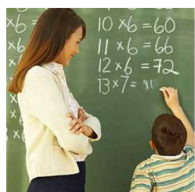


# K-12 Investing In Effective Measures to Support Student Success in Life

## Rigorous U.S. Research

- How should we change schools to produce better outcomes?

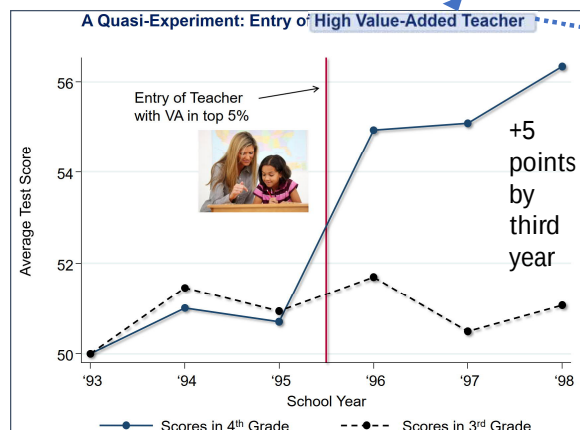
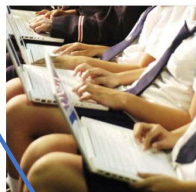
Better Teachers?



Smaller Classes?



Better Technology?



**Lessons on Class Size**

- Reducing class sizes in primary school by hiring more teachers can have large returns
  - Present value of lifetime earnings of a child growing up in a family at 25<sup>th</sup> percentile is about \$500,000 on average
  - 4% earnings gain from smaller class = \$20,000
  - Dividing a class of 30 students into two would increase total earnings of students by more than \$600,000
  - Costs (hiring another teacher and an additional room) likely to be well below \$600,000

Effective Teachers

Students ready to learn

Student Success in Life

Home & Community Support

Small Class Size

Early Literacy + Culturally relevant education

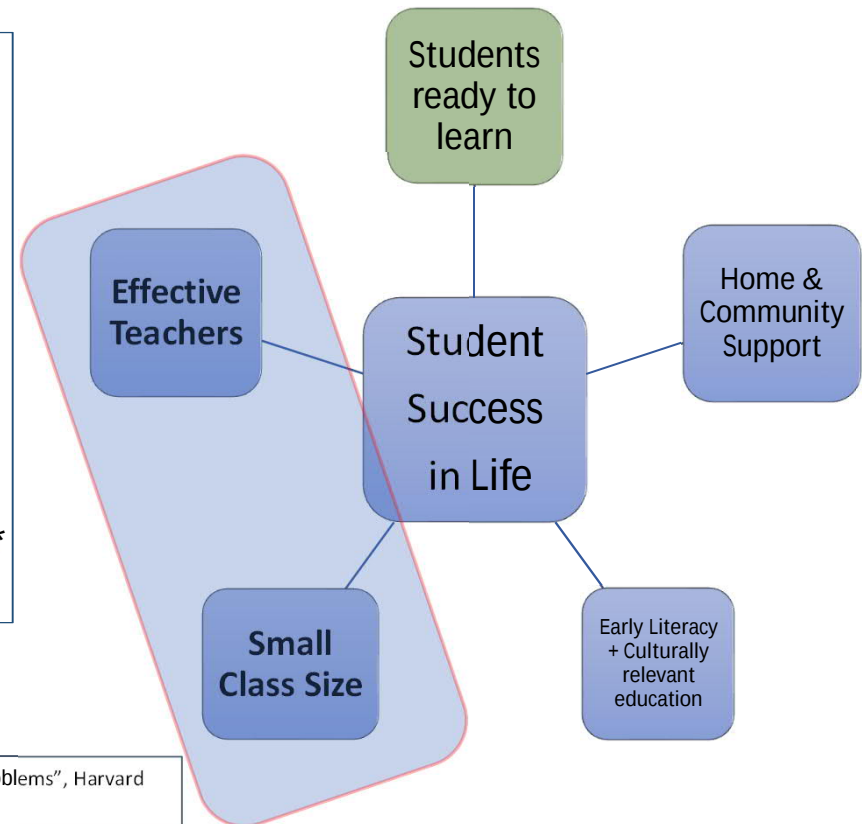
Source: Professor Raj Chetty, Head Section Leader Rebecca Toseland, "Using Big Data to Solve Social & Economic Problems", Harvard University, Opportunity Insights, Lecture Chart Pack #6, Regression discontinuity using class size cutoffs, 2018

# K-12 Investing In Effective Measures to Support Student Success in Life

## Reducing Class Size + Highly Effective Teachers = Large Long-Term Returns

- New data show that changing public schools in certain specific ways can have large long-term returns
- Reducing class size can be very valuable
  - But critical to hire highly effective new teachers when doing so
- There are large, measurable differences in teacher quality,
  - We should do more to attract and retain top teachers in public schools\* (not just using value-added metrics but also other tools)

Highly effective =  
Growth across skills &  
knowledge + social skills  
to prepare students for  
success in life



Source: Professor Raj Chetty, Head Section Leader Rebecca Toseland, "Using Big Data to Solve Social & Economic Problems", Harvard University, Opportunity Insights, Lecture Chart Pack #6, Regression discontinuity using class size cutoffs, 2018

# Appendices

1. Investment levels; Return on Investment Metrics
2. NAEP, PEAKS & MAP; What do tests measure
3. What drives success in life? [Chetty, Jackson]
4. DEED Functional Expenditures Across Alaska Districts

# Investment Levels, Return on Investment

## Alaska & Other States

- Investment Levels, Cost of Living Adjusted (COLA)
- Return on Investment, Cost of Living Adjusted (COLA)
- Test scores & success in life correlations

## Alaska Districts

- Investment percentage by category

## Illustrative Anchorage School District Comparisons

- PEAKS mapped to NAEP Scale; Council of Great City Schools Comparisons
- PEAKS growth & proficiency by grade cohort (English Language Arts)

# K-12 Investment Levels

## Total Current Spending

## Adjusted for Cost of Living (State)

Alaska had  
already fallen to  
78 percent of  
Wyoming in  
FY16

|  |  | Table 8. Per Pupil Amounts for Current Spending of Public Elementary-Secondary School Systems by State: Fiscal Year 2016 |  |      |  |                                                 |  |  |  |
|--|--|--------------------------------------------------------------------------------------------------------------------------|--|------|--|-------------------------------------------------|--|--|--|
|  |  | (Dollars.)                                                                                                               |  |      |  |                                                 |  |  |  |
|  |  |                                                                                                                          |  | SORT |  | ADJUSTED FOR STATE AVERAGE COST OF LIVING, C2ER |  |  |  |
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Prepared for House/Senate Education

# K-12 Investment Levels

## Salaries & Wages

## Adjusted for Cost of Living (State)

Alaska had already fallen to below the middle of the U.S. states in FY16; 63 percent of Wyoming

| Table 8. Per Pupil Amounts for Current Spending of Public Elementary-Secondary School Systems by State: Fiscal Year 2016 |                           |                    |                                                 |                   |                    |                    |                   |
|--------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------|-------------------------------------------------|-------------------|--------------------|--------------------|-------------------|
| (Dollars.)                                                                                                               |                           |                    | ADJUSTED FOR STATE AVERAGE COST OF LIVING, C2ER |                   |                    |                    |                   |
|                                                                                                                          |                           |                    | SORT                                            |                   |                    |                    |                   |
| RANK                                                                                                                     | Geographic area           | Total <sup>1</sup> | Salaries and wages                              | Employee benefits | Instruction        |                    |                   |
|                                                                                                                          |                           |                    |                                                 |                   | Total <sup>1</sup> | Salaries and wages | Employee benefits |
|                                                                                                                          |                           |                    |                                                 |                   |                    |                    |                   |
|                                                                                                                          | United States.....        | 11,762             | 6,866                                           | 2,806             | 7,160              | 4,603              | 1,885             |
| 1                                                                                                                        | Wyoming.....              | 17,199             | 10,065                                          | 4,514             | 10,199             | 6,486              | 2,854             |
| 2                                                                                                                        | New York.....             | 16,882             | 9,286                                           | 4,877             | 11,885             | 7,101              | 3,850             |
| 3                                                                                                                        | District of Columbia..... | 12,305             | 8,735                                           | 1,532             | 6,909              | 6,132              | 1,022             |
| 4                                                                                                                        | New Jersey.....           | 15,092             | 8,605                                           | 4,030             | 8,788              | 5,634              | 2,556             |
| 5                                                                                                                        | Connecticut.....          | 15,086             | 8,447                                           | 4,181             | 9,276              | 5,912              | 2,878             |
| 6                                                                                                                        | Vermont.....              | 14,808             | 8,403                                           | 3,686             | 8,882              | 5,587              | 2,498             |
| 7                                                                                                                        | North Dakota.....         | 13,413             | 8,062                                           | 2,957             | 8,029              | 5,463              | 2,048             |
| 8                                                                                                                        | Iowa.....                 | 12,218             | 7,804                                           | 2,578             | 7,436              | 5,209              | 1,698             |
| 9                                                                                                                        | Pennsylvania.....         | 15,111             | 7,722                                           | 4,539             | 9,258              | 5,422              | 3,153             |
| 10                                                                                                                       | Minnesota.....            | 12,416             | 7,722                                           | 2,727             | 8,096              | 5,431              | 1,948             |
| 11                                                                                                                       | Delaware.....             | 14,306             | 7,669                                           | 3,981             | 8,936              | 5,441              | 2,868             |
| 12                                                                                                                       | Nebraska.....             | 13,244             | 7,649                                           | 2,679             | 8,624              | 5,447              | 1,960             |
| 13                                                                                                                       | Ohio.....                 | 13,106             | 7,566                                           | 2,953             | 7,657              | 4,951              | 1,831             |
| 14                                                                                                                       | Illinois.....             | 14,590             | 7,461                                           | 4,646             | 8,886              | 5,084              | 3,148             |
| 15                                                                                                                       | Maryland.....             | 11,038             | 7,421                                           | 2,925             | 6,875              | 4,453              | 2,032             |
| 16                                                                                                                       | Massachusetts.....        | 11,730             | 7,415                                           | 2,836             | 7,307              | 5,073              | 2,049             |
| 17                                                                                                                       | Rhode Island.....         | 12,566             | 7,359                                           | 3,405             | 7,310              | 5,001              | 2,266             |
| 18                                                                                                                       | New Hampshire.....        | 13,339             | 7,224                                           | 3,379             | 8,357              | 5,182              | 2,418             |
| 19                                                                                                                       | Missouri.....             | 11,471             | 7,160                                           | 2,211             | 6,848              | 4,728              | 1,439             |
| 20                                                                                                                       | Maine.....                | 11,689             | 7,050                                           | 2,835             | 6,679              | 4,697              | 1,924             |
| 21                                                                                                                       | Virginia.....             | 11,190             | 6,970                                           | 2,741             | 6,818              | 4,618              | 1,805             |
| 22                                                                                                                       | Texas.....                | 9,886              | 6,878                                           | 1,203             | 6,046              | 4,604              | 774               |
| 23                                                                                                                       | Wisconsin.....            | 11,904             | 6,729                                           | 2,929             | 6,959              | 4,628              | 1,948             |
| 24                                                                                                                       | West Virginia.....        | 11,773             | 6,560                                           | 3,164             | 6,786              | 4,099              | 1,965             |
| 25                                                                                                                       | Montana.....              | 11,303             | 6,545                                           | 2,024             | 6,674              | 4,444              | 1,340             |
| 26                                                                                                                       | Arkansas.....             | 11,214             | 6,540                                           | 1,868             | 6,309              | 4,179              | 1,194             |
| 27                                                                                                                       | Kansas.....               | 11,040             | 6,521                                           | 1,953             | 6,721              | 4,312              | 1,287             |
| 28                                                                                                                       | Georgia.....              | 10,761             | 6,480                                           | 2,396             | 6,582              | 4,378              | 1,692             |
| 29                                                                                                                       | Michigan.....             | 13,004             | 6,422                                           | 4,169             | 7,604              | 4,281              | 2,796             |
| 30                                                                                                                       | Kentucky.....             | 10,526             | 6,401                                           | 2,608             | 6,091              | 4,134              | 1,633             |
| 31                                                                                                                       | Washington.....           | 10,766             | 6,400                                           | 2,420             | 6,103              | 4,024              | 1,489             |
| 32                                                                                                                       | Alaska.....               | 13,333             | 6,343                                           | 3,808             | 7,195              | 4,088              | 2,382             |
| 33                                                                                                                       | Louisiana.....            | 11,693             | 6,336                                           | 3,227             | 6,567              | 4,081              | 2,028             |
| 34                                                                                                                       | New Mexico.....           | 10,214             | 6,063                                           | 2,130             | 5,710              | 4,012              | 1,390             |
| 35                                                                                                                       | Mississippi.....          | 10,228             | 6,055                                           | 2,063             | 5,820              | 3,923              | 1,323             |

# K-12 Investment Levels

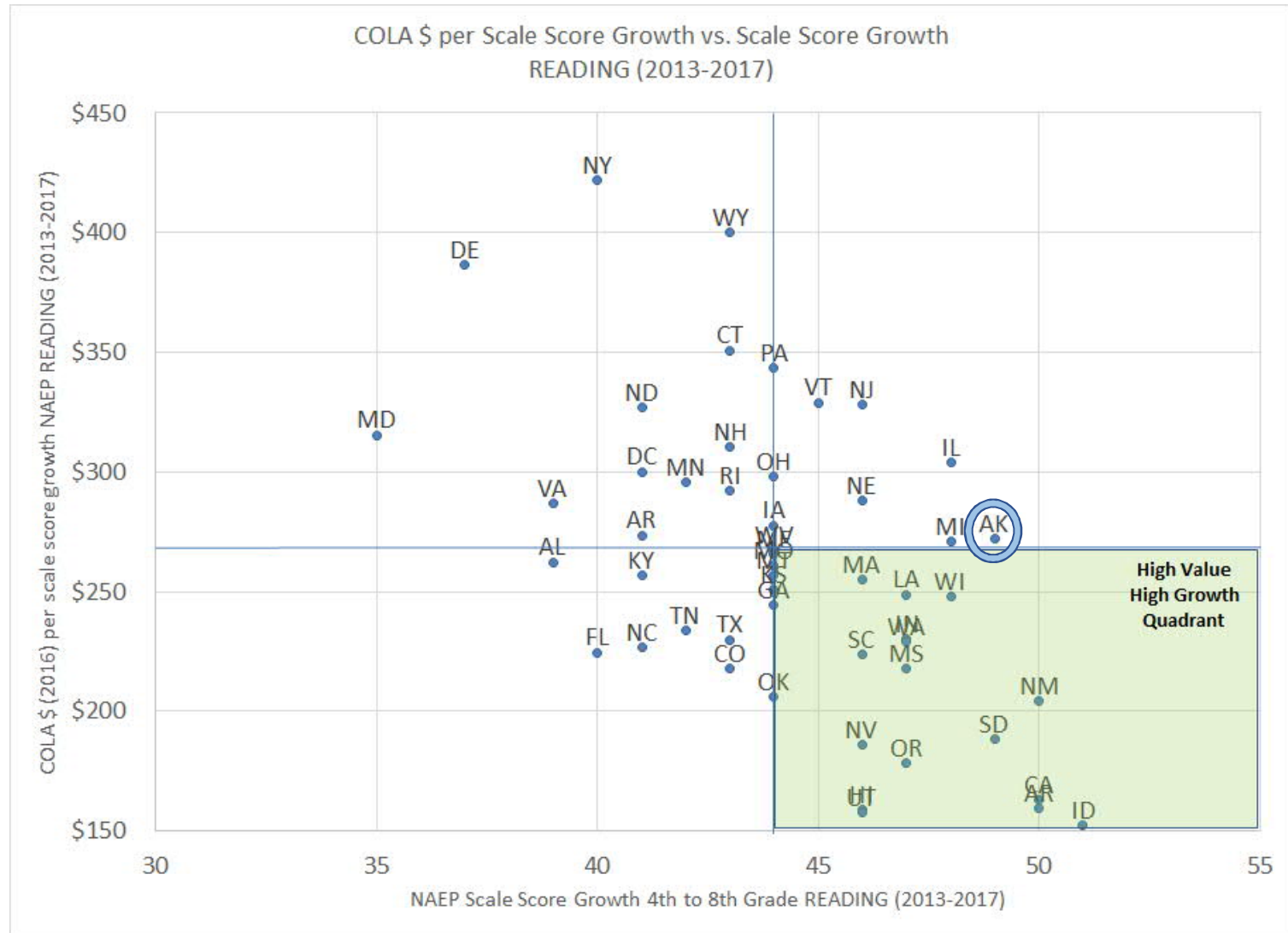
## Instructional Salary & Wages

## Adjusted for Cost of Living (State)

Alaska had already fallen  
to below the middle of  
the U.S. states in FY16;  
63 percent of Wyoming  
58 percent of New York

| Table 8. Per Pupil Amounts for Current Spending of Public Elementary-Secondary School Systems by State: Fiscal Year 2016 |                           |                                                 |                    |                   |                    |                    |                   |
|--------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------------------------|--------------------|-------------------|--------------------|--------------------|-------------------|
| (Dollars.)                                                                                                               |                           | ADJUSTED FOR STATE AVERAGE COST OF LIVING, C2ER |                    |                   |                    |                    |                   |
| RANK                                                                                                                     | Geographic area           | SORT                                            |                    |                   |                    |                    |                   |
|                                                                                                                          |                           | Instruction                                     |                    |                   |                    |                    |                   |
|                                                                                                                          |                           | Total <sup>1</sup>                              | Salaries and wages | Employee benefits | Total <sup>1</sup> | Salaries and wages | Employee benefits |
|                                                                                                                          | United States.....        | 11,762                                          | 6,866              | 2,806             | 7,160              | 4,603              | 1,885             |
| 1                                                                                                                        | New York.....             | 16,882                                          | 9,286              | 4,877             | 11,885             | 7,101              | 3,850             |
| 2                                                                                                                        | Wyoming.....              | 17,199                                          | 10,065             | 4,514             | 10,199             | 6,486              | 2,854             |
| 3                                                                                                                        | District of Columbia..... | 12,305                                          | 8,735              | 1,532             | 6,909              | 6,132              | 1,022             |
| 4                                                                                                                        | Connecticut.....          | 15,086                                          | 8,447              | 4,181             | 9,276              | 5,912              | 2,878             |
| 5                                                                                                                        | New Jersey.....           | 15,092                                          | 8,605              | 4,030             | 8,788              | 5,634              | 2,556             |
| 6                                                                                                                        | Vermont.....              | 14,808                                          | 8,403              | 3,686             | 8,882              | 5,587              | 2,498             |
| 7                                                                                                                        | North Dakota.....         | 13,413                                          | 8,062              | 2,957             | 8,029              | 5,463              | 2,048             |
| 8                                                                                                                        | Nebraska.....             | 13,244                                          | 7,649              | 2,679             | 8,624              | 5,447              | 1,960             |
| 9                                                                                                                        | Delaware.....             | 14,306                                          | 7,669              | 3,981             | 8,936              | 5,441              | 2,868             |
| 10                                                                                                                       | Minnesota.....            | 12,416                                          | 7,722              | 2,727             | 8,096              | 5,431              | 1,948             |
| 11                                                                                                                       | Pennsylvania.....         | 15,111                                          | 7,722              | 4,539             | 9,258              | 5,422              | 3,153             |
| 12                                                                                                                       | Iowa.....                 | 12,218                                          | 7,804              | 2,578             | 7,436              | 5,209              | 1,698             |
| 13                                                                                                                       | New Hampshire.....        | 13,339                                          | 7,224              | 3,379             | 8,357              | 5,182              | 2,418             |
| 14                                                                                                                       | Illinois.....             | 14,590                                          | 7,461              | 4,646             | 8,886              | 5,084              | 3,148             |
| 15                                                                                                                       | Massachusetts.....        | 11,730                                          | 7,415              | 2,836             | 7,307              | 5,073              | 2,049             |
| 16                                                                                                                       | Rhode Island.....         | 12,566                                          | 7,359              | 3,405             | 7,310              | 5,001              | 2,266             |
| 17                                                                                                                       | Ohio.....                 | 13,106                                          | 7,566              | 2,953             | 7,657              | 4,951              | 1,831             |
| 18                                                                                                                       | Missouri.....             | 11,471                                          | 7,160              | 2,211             | 6,848              | 4,728              | 1,439             |
| 19                                                                                                                       | Maine.....                | 11,689                                          | 7,050              | 2,835             | 6,679              | 4,697              | 1,924             |
| 20                                                                                                                       | Wisconsin.....            | 11,904                                          | 6,729              | 2,929             | 6,959              | 4,628              | 1,948             |
| 21                                                                                                                       | Virginia.....             | 11,190                                          | 6,970              | 2,741             | 6,818              | 4,618              | 1,805             |
| 22                                                                                                                       | Texas.....                | 9,886                                           | 6,878              | 1,203             | 6,046              | 4,604              | 774               |
| 23                                                                                                                       | Maryland.....             | 11,038                                          | 7,421              | 2,925             | 6,875              | 4,453              | 2,032             |
| 24                                                                                                                       | Montana.....              | 11,303                                          | 6,545              | 2,024             | 6,674              | 4,444              | 1,340             |
| 25                                                                                                                       | Georgia.....              | 10,761                                          | 6,480              | 2,396             | 6,582              | 4,378              | 1,692             |
| 26                                                                                                                       | Kansas.....               | 11,040                                          | 6,521              | 1,953             | 6,721              | 4,312              | 1,287             |
| 27                                                                                                                       | Michigan.....             | 13,004                                          | 6,422              | 4,169             | 7,604              | 4,281              | 2,796             |
| 28                                                                                                                       | Arkansas.....             | 11,214                                          | 6,540              | 1,868             | 6,309              | 4,179              | 1,194             |
| 29                                                                                                                       | Kentucky.....             | 10,526                                          | 6,401              | 2,608             | 6,091              | 4,134              | 1,633             |
| 30                                                                                                                       | West Virginia.....        | 11,773                                          | 6,560              | 3,164             | 6,786              | 4,099              | 1,965             |
| 31                                                                                                                       | Alaska.....               | 13,333                                          | 6,343              | 3,808             | 7,195              | 4,088              | 2,382             |
| 32                                                                                                                       | Louisiana.....            | 11,693                                          | 6,336              | 3,227             | 6,567              | 4,081              | 2,028             |
| 33                                                                                                                       | North Carolina.....       | 9,296                                           | 5,890              | 1,961             | 5,829              | 4,047              | 1,327             |
| 34                                                                                                                       | Tennessee.....            | 9,814                                           | 5,919              | 1,918             | 6,022              | 4,036              | 1,331             |
| 35                                                                                                                       | Washington.....           | 10,766                                          | 6,400              | 2,420             | 6,103              | 4,024              | 1,489             |
| 36                                                                                                                       | New Mexico.....           | 10,214                                          | 6,063              | 2,130             | 5,710              | 4,012              | 1,390             |
| 37                                                                                                                       | Mississippi.....          | 10,228                                          | 6,055              | 2,063             | 5,820              | 3,923              | 1,323             |

# Return on K-12 Investments COLA \$ per NAEP scale score growth - READING

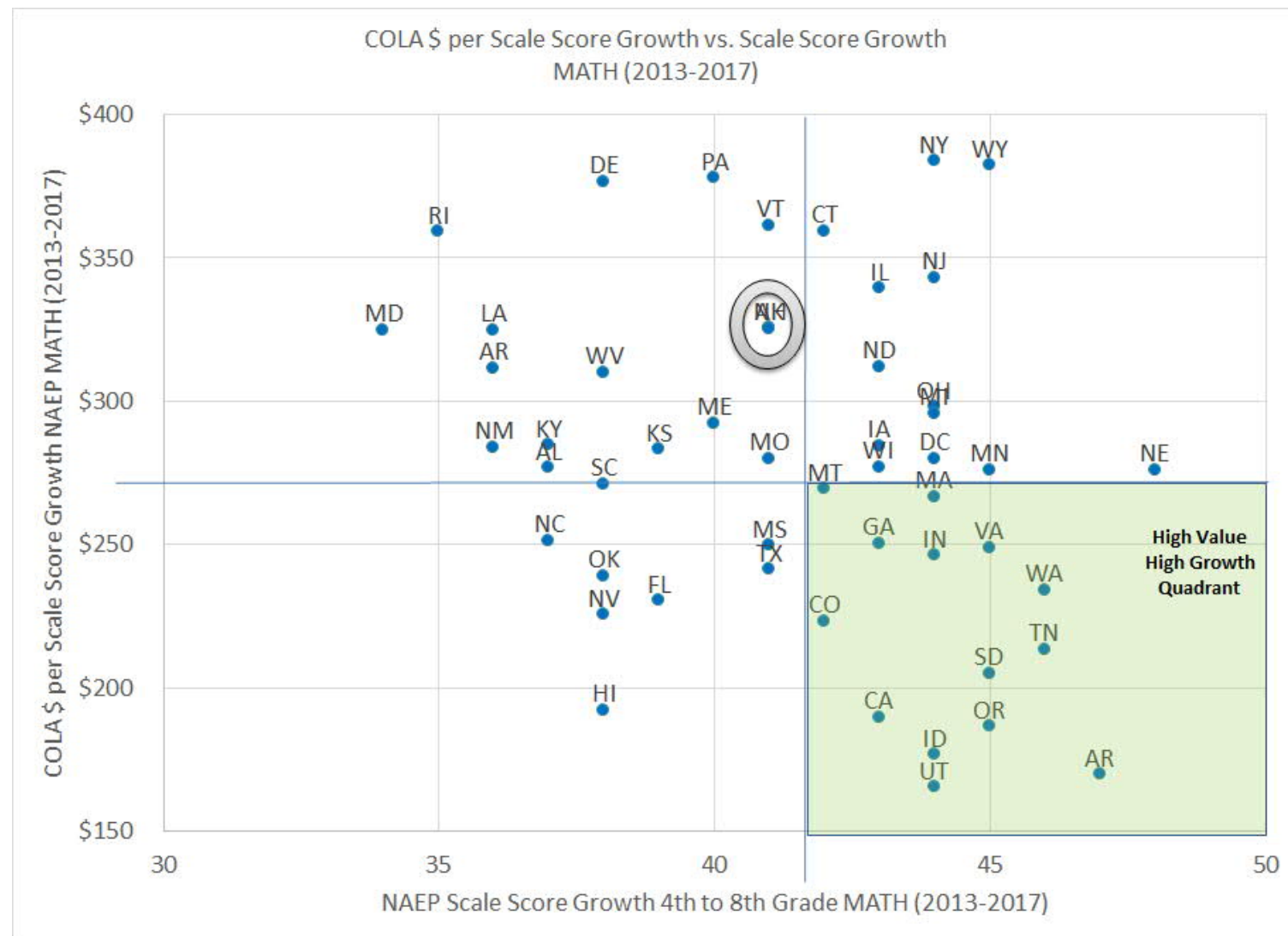


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# Return on K-12 Investments COLA \$ per NAEP scale score growth point – Math



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## K-12 Investment Levels

## Instructional Salary & Wages

## Governor's Proposed Budget FY20

## Adjusted for Cost of Living (State)

April 24, 2019

AK Governor's Proposed FY20 Budget would likely plunge Alaska's cost of living adjusted instructional salaries and wages per pupil to last in the U.S.; this scenario presents a high risk of exacerbating mounting challenges around attracting and retaining highly qualified and effective teachers

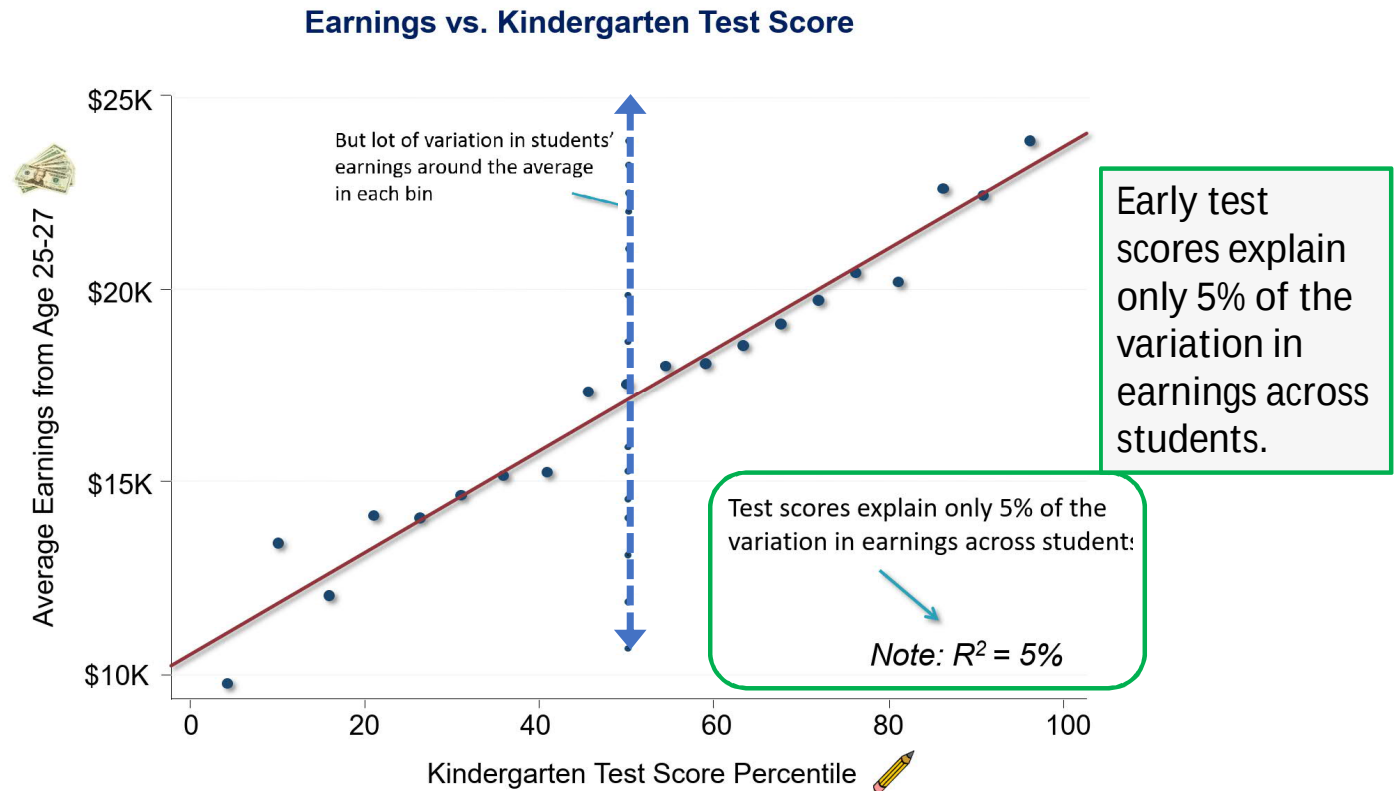
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| Table 8. Per Pupil Amounts for Current Spending of Public Elementary-Secondary School Systems          |                           |                                                 |                    |                   |                    |                    |                   |
|--------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------------------------|--------------------|-------------------|--------------------|--------------------|-------------------|
| by State: PROJECTED TO FY20 AK Gov's Proposed Budget (-23%); L48 Growth (+3% CAGR)^4 = 12.6% increase) |                           |                                                 |                    |                   |                    |                    |                   |
| (Dollars.)                                                                                             |                           | ADJUSTED FOR STATE AVERAGE COST OF LIVING, C2ER |                    |                   |                    |                    |                   |
| RANK                                                                                                   | Geographic area           | 112.6%                                          |                    |                   | SORT               |                    |                   |
|                                                                                                        |                           | 77.0%                                           |                    |                   | Instruction        |                    |                   |
|                                                                                                        |                           | Total <sup>1</sup>                              | Salaries and wages | Employee benefits | Total <sup>1</sup> | Salaries and wages | Employee benefits |
|                                                                                                        | United States.....        | 13,238                                          | 7,728              | 3,158             | 8,058              | 5,181              | 2,122             |
| 1                                                                                                      | New York.....             | 19,001                                          | 10,451             | 5,489             | 13,377             | 7,992              | 4,333             |
| 2                                                                                                      | Wyoming.....              | 19,357                                          | 11,328             | 5,080             | 11,479             | 7,300              | 3,212             |
| 3                                                                                                      | District of Columbia..... | 13,850                                          | 9,831              | 1,725             | 7,776              | 6,902              | 1,151             |
| 4                                                                                                      | Connecticut.....          | 16,979                                          | 9,507              | 4,706             | 10,440             | 6,654              | 3,240             |
| 5                                                                                                      | New Jersey.....           | 16,986                                          | 9,685              | 4,536             | 9,891              | 6,341              | 2,876             |
| 6                                                                                                      | Vermont.....              | 16,666                                          | 9,458              | 4,149             | 9,996              | 6,288              | 2,811             |
| 7                                                                                                      | North Dakota.....         | 15,096                                          | 9,073              | 3,328             | 9,037              | 6,148              | 2,306             |
| 8                                                                                                      | Nebraska.....             | 14,906                                          | 8,609              | 3,015             | 9,706              | 6,131              | 2,206             |
| 9                                                                                                      | Delaware.....             | 16,101                                          | 8,631              | 4,480             | 10,058             | 6,124              | 3,228             |
| 10                                                                                                     | Minnesota.....            | 13,974                                          | 8,691              | 3,069             | 9,112              | 6,113              | 2,192             |
| 11                                                                                                     | Pennsylvania.....         | 17,007                                          | 8,691              | 5,108             | 10,420             | 6,102              | 3,548             |
| 12                                                                                                     | Iowa.....                 | 13,751                                          | 8,783              | 2,901             | 8,370              | 5,862              | 1,911             |
| 13                                                                                                     | New Hampshire.....        | 15,013                                          | 8,131              | 3,803             | 9,406              | 5,832              | 2,721             |
| 14                                                                                                     | Illinois.....             | 16,421                                          | 8,397              | 5,229             | 10,001             | 5,722              | 3,544             |
| 15                                                                                                     | Massachusetts.....        | 13,202                                          | 8,345              | 3,192             | 8,224              | 5,710              | 2,306             |
| 16                                                                                                     | Rhode Island.....         | 14,143                                          | 8,283              | 3,832             | 8,227              | 5,629              | 2,550             |
| 17                                                                                                     | Ohio.....                 | 14,751                                          | 8,515              | 3,323             | 8,618              | 5,572              | 2,061             |
| 18                                                                                                     | Missouri.....             | 12,911                                          | 8,058              | 2,488             | 7,707              | 5,322              | 1,619             |
| 19                                                                                                     | Maine.....                | 13,155                                          | 7,935              | 3,190             | 7,517              | 5,286              | 2,165             |
| 20                                                                                                     | Wisconsin.....            | 13,397                                          | 7,573              | 3,296             | 7,832              | 5,209              | 2,193             |
| 21                                                                                                     | Virginia.....             | 12,595                                          | 7,845              | 3,085             | 7,674              | 5,197              | 2,032             |
| 22                                                                                                     | Texas.....                | 11,126                                          | 7,741              | 1,354             | 6,804              | 5,182              | 871               |
| 23                                                                                                     | Maryland.....             | 12,423                                          | 8,352              | 3,292             | 7,738              | 5,012              | 2,287             |
| 24                                                                                                     | Montana.....              | 12,722                                          | 7,366              | 2,278             | 7,512              | 5,002              | 1,509             |
| 25                                                                                                     | Georgia.....              | 12,112                                          | 7,293              | 2,697             | 7,408              | 4,928              | 1,904             |
| 26                                                                                                     | Kansas.....               | 12,425                                          | 7,339              | 2,198             | 7,565              | 4,854              | 1,449             |
| 27                                                                                                     | Michigan.....             | 14,636                                          | 7,228              | 4,692             | 8,559              | 4,818              | 3,147             |
| 28                                                                                                     | Arkansas.....             | 12,621                                          | 7,361              | 2,103             | 7,101              | 4,703              | 1,344             |
| 29                                                                                                     | Kentucky.....             | 11,847                                          | 7,204              | 2,935             | 6,856              | 4,653              | 1,838             |
| 30                                                                                                     | West Virginia.....        | 13,251                                          | 7,384              | 3,561             | 7,637              | 4,614              | 2,212             |
| 31                                                                                                     | Louisiana.....            | 13,161                                          | 7,131              | 3,632             | 7,391              | 4,593              | 2,283             |
| 32                                                                                                     | North Carolina.....       | 10,463                                          | 6,629              | 2,208             | 6,561              | 4,555              | 1,493             |
| 33                                                                                                     | Tennessee.....            | 11,046                                          | 6,662              | 2,159             | 6,778              | 4,543              | 1,499             |
| 34                                                                                                     | Washington.....           | 12,117                                          | 7,204              | 2,724             | 6,869              | 4,529              | 1,675             |
| 35                                                                                                     | New Mexico.....           | 11,495                                          | 6,824              | 2,397             | 6,426              | 4,515              | 1,565             |
| 36                                                                                                     | Mississippi.....          | 11,512                                          | 6,814              | 2,322             | 6,551              | 4,415              | 1,489             |
| 37                                                                                                     | Indiana.....              | 12,180                                          | 6,716              | 3,618             | 7,051              | 4,411              | 2,316             |
| 38                                                                                                     | South Carolina.....       | 11,591                                          | 6,682              | 2,453             | 6,366              | 4,284              | 1,540             |
| 39                                                                                                     | South Dakota.....         | 10,379                                          | 6,172              | 1,820             | 6,063              | 4,193              | 1,209             |
| 40                                                                                                     | Alabama.....              | 11,515                                          | 6,427              | 2,599             | 6,554              | 4,168              | 1,604             |
| 41                                                                                                     | Colorado.....             | 10,538                                          | 6,608              | 1,962             | 5,968              | 4,137              | 1,177             |
| 42                                                                                                     | Nevada.....               | 9,637                                           | 5,726              | 2,376             | 5,574              | 3,668              | 1,510             |
| 43                                                                                                     | Oklahoma.....             | 10,214                                          | 5,664              | 1,957             | 5,711              | 3,637              | 1,274             |
| 44                                                                                                     | Florida.....              | 10,109                                          | 5,741              | 1,800             | 6,208              | 3,634              | 1,101             |
| 45                                                                                                     | Idaho.....                | 8,742                                           | 5,212              | 1,887             | 5,205              | 3,581              | 1,273             |
| 46                                                                                                     | California.....           | 9,177                                           | 5,323              | 2,227             | 5,468              | 3,417              | 1,399             |
| 47                                                                                                     | Arizona.....              | 8,964                                           | 5,344              | 1,704             | 4,801              | 3,321              | 1,032             |
| 48                                                                                                     | Oregon.....               | 9,437                                           | 5,002              | 2,708             | 5,507              | 3,251              | 1,725             |
| 49                                                                                                     | Utah.....                 | 8,174                                           | 4,693              | 2,308             | 5,251              | 3,171              | 1,528             |
| 50                                                                                                     | Hawaii.....               | 8,218                                           | 4,535              | 1,865             | 4,821              | 3,114              | 1,254             |
| 51                                                                                                     | Alaska.....               | 10,267                                          | 4,884              | 2,932             | 5,540              | 3,052              | 1,930             |
| Alaska/U.S.                                                                                            |                           |                                                 |                    |                   |                    | 0.59               |                   |

Education

# What drives success in life?

Chetty et al.,  
early test scores as  
~5% of success in  
life as measured by  
earnings age 25-27



Source: Professor Raj Chetty, Head Section Leader Rebecca Toseland, "Using Big Data to Solve Social & Economic Problems", Opportunity Insights, Lecture Chart Pack #5

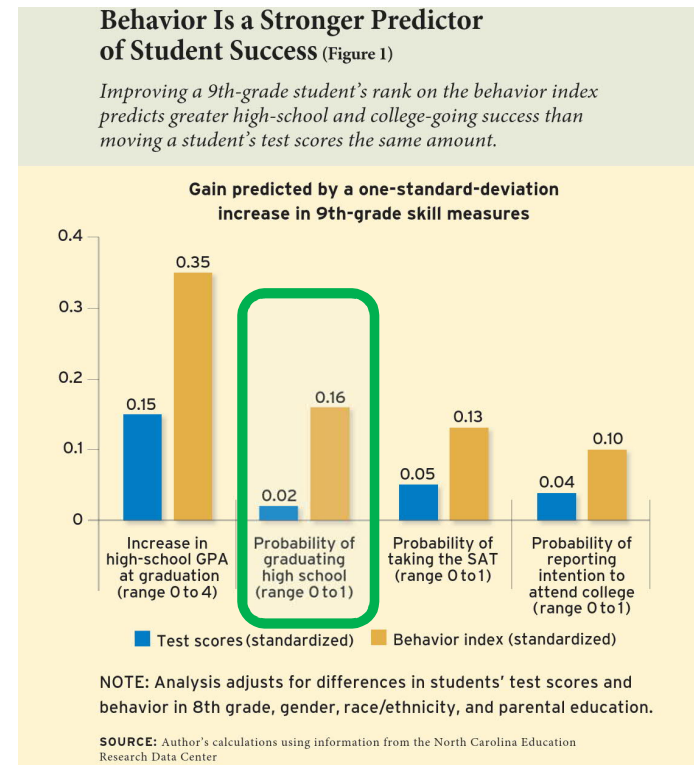
# What drives success in life?

Jackson,  
Social skills as primary driver of success in school and success in life; teachers impact on social skills is more predictive of students' longer term success in graduating high school and going on to success in life

Test scores are often the best available measure of student progress, but they do not capture every skill needed in adulthood. A growing research base shows that non-cognitive (or social-emotional) skills like adaptability, motivation and self-restraint are key determinants of adult outcomes. Therefore, if we want to identify good teachers, we ought to look at how teachers affect their students' development across a range of skills – both academic and non-cognitive.

A robust data set on 9<sup>th</sup> grade students in North Carolina allows me to do just that.

I find that, while teachers have notable effects on both test scores and non-cognitive skills, their impact on non-cognitive skills is 10 times more predictive of students' longer-term success in high school than their impact on test scores.



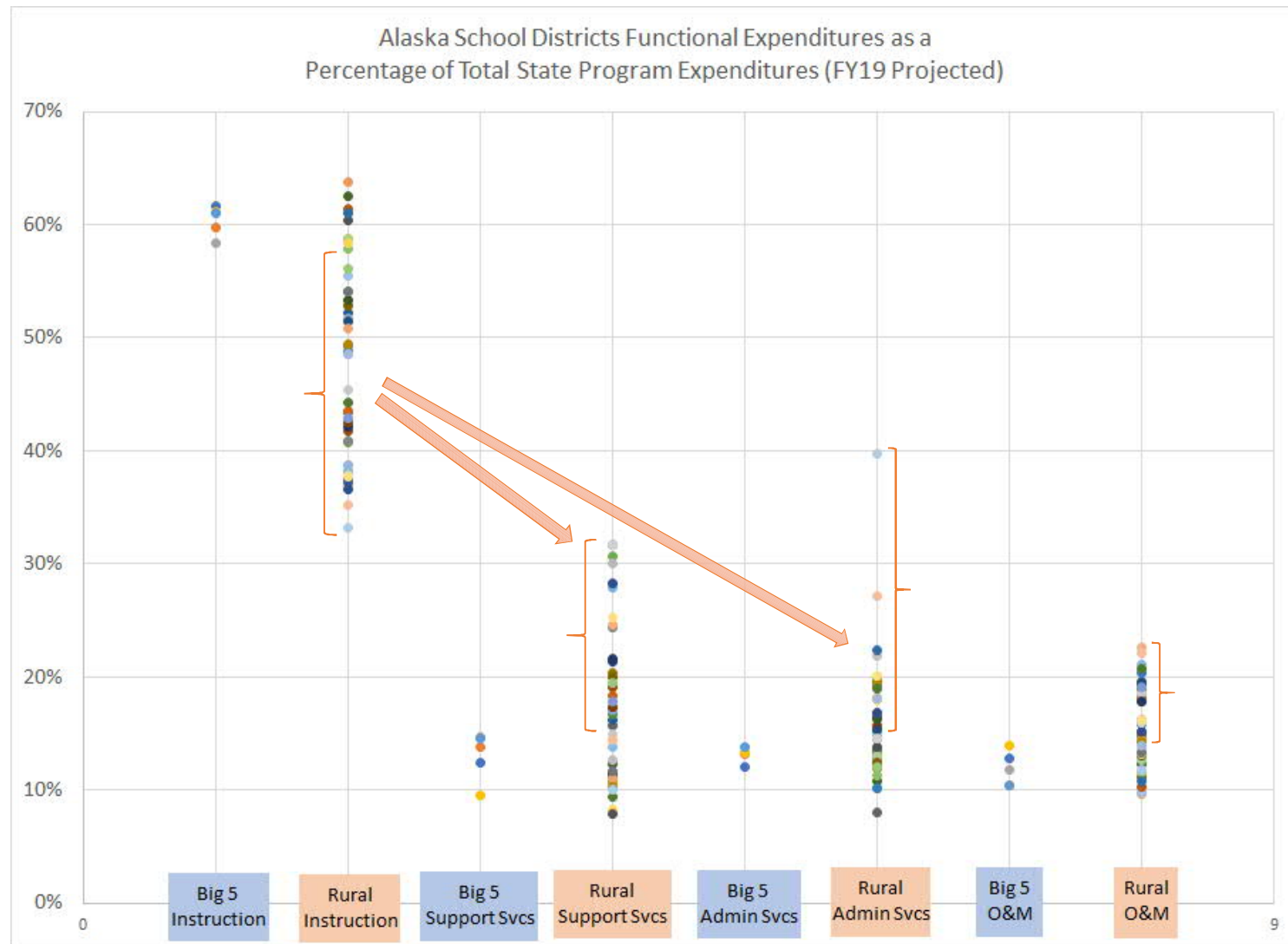
Source: C. Kirabo Jackson, "The Full Measure of a Teacher", Education Next, Winter 2019

# Review of Alaska School District Functional Expenditures

## Big 5 & Rural Alaska Districts

Alaskan districts continue to face significant challenges training, attracting and retaining qualified and effective teachers. These challenges remain especially daunting across rural Alaska where many districts hire the local talent they can find to fill positions in support and administrative services to help support their students.

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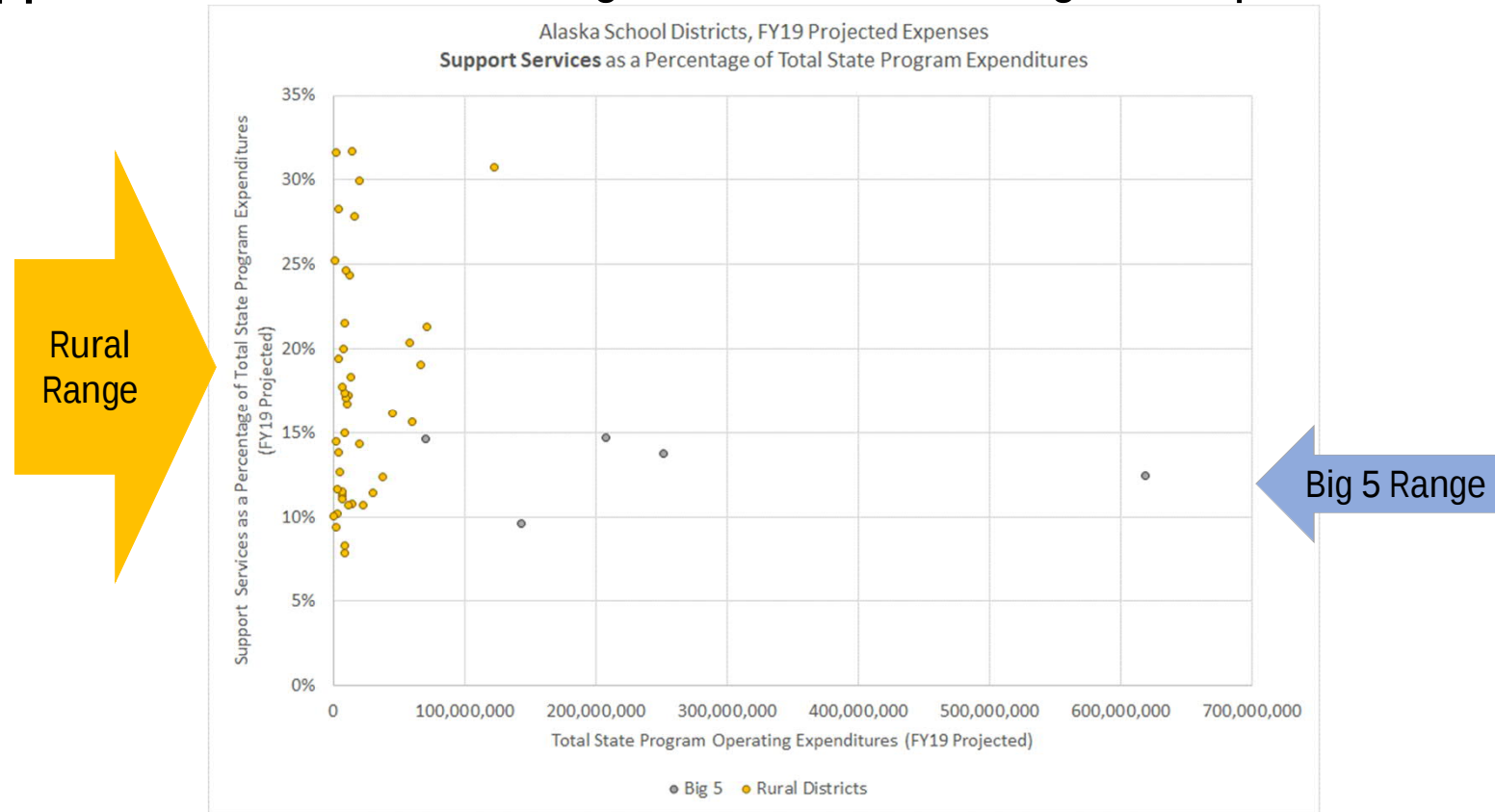
# Alaska Districts Expenditures by Function

## Instruction as Percentage of Total State Program Expenditures (FY19)



# Alaska Districts Expenditures by Function

## Support Services as Percentage of Total State Program Expenditures (FY19)



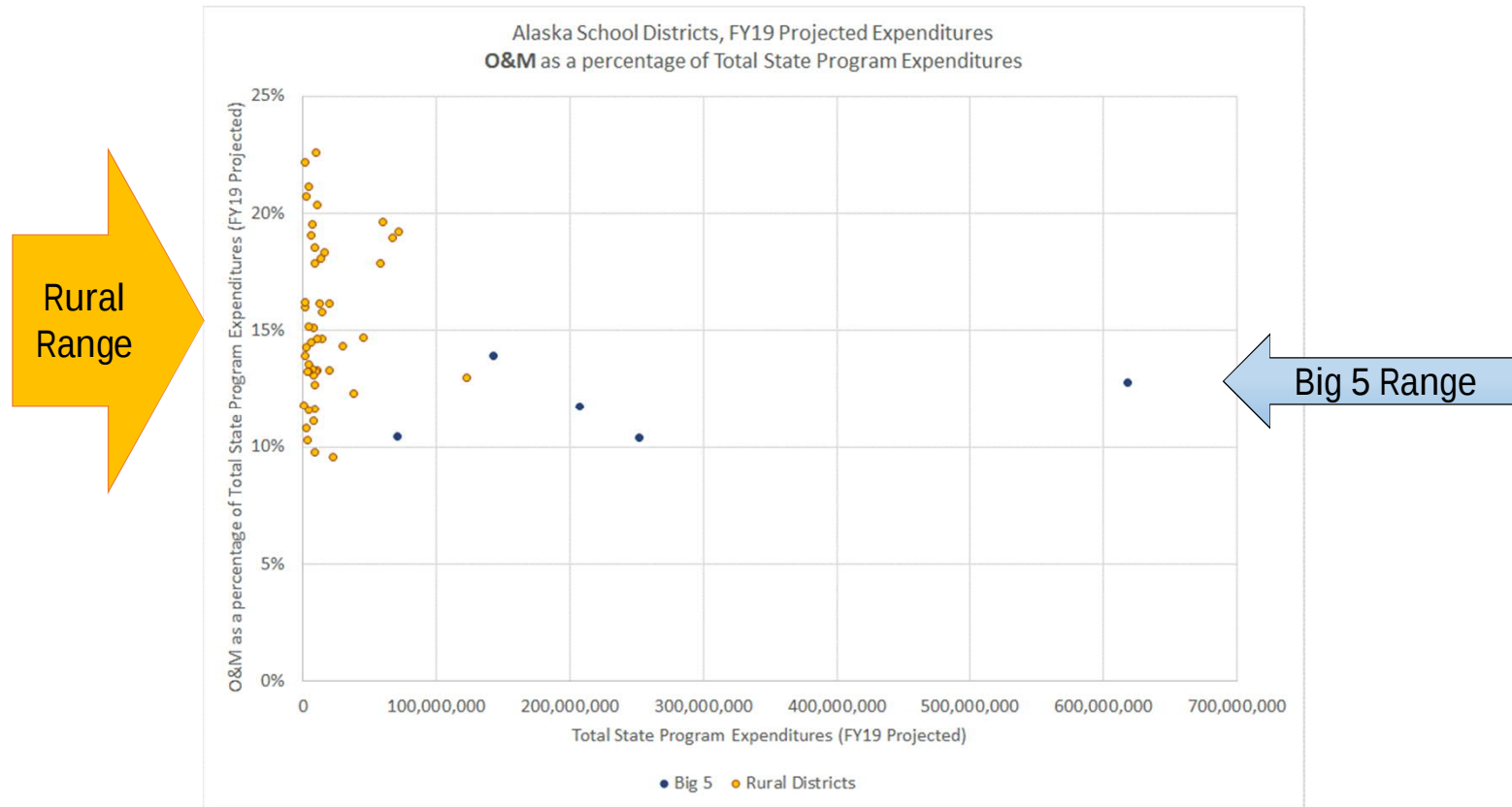
# Alaska Districts Expenditures by Function

## Administrative Services as Percentage of Total State Program Expenditures (FY19)



# Alaska Districts Expenditures by Function

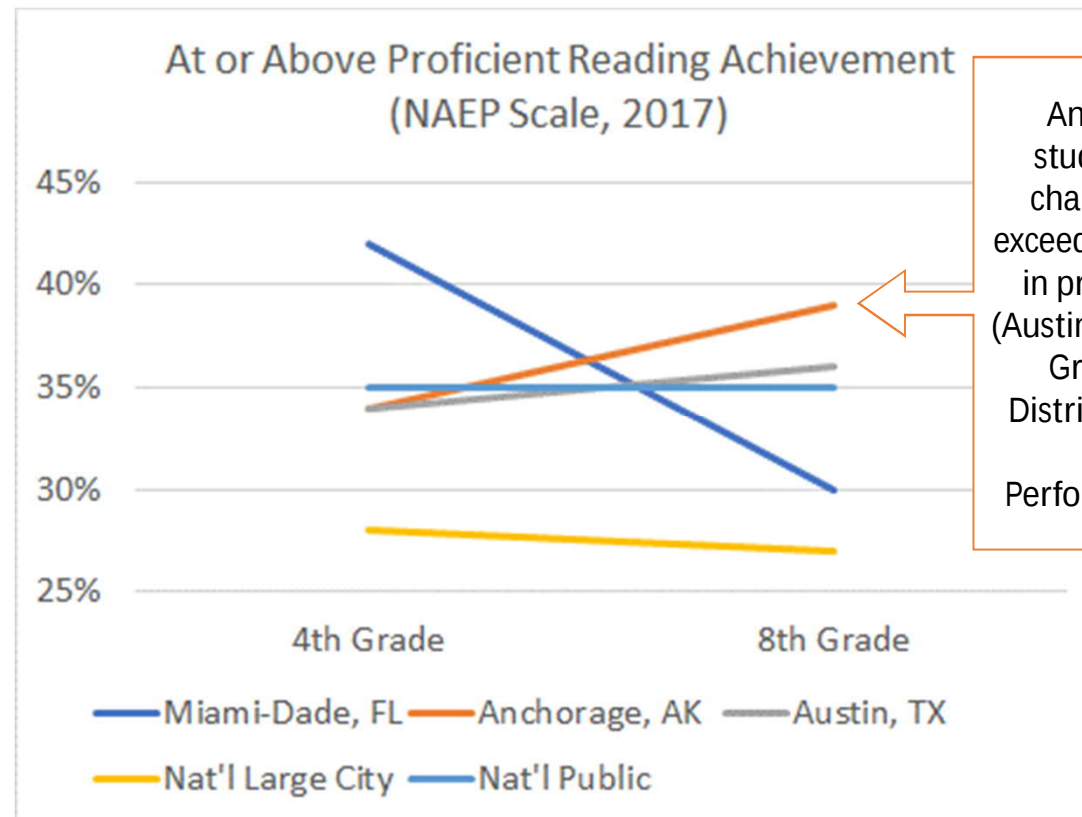
## O&M as Percentage of Total State Program Expenditures (FY19)



## 4<sup>th</sup> to 8<sup>th</sup> Grade Reading Assessments

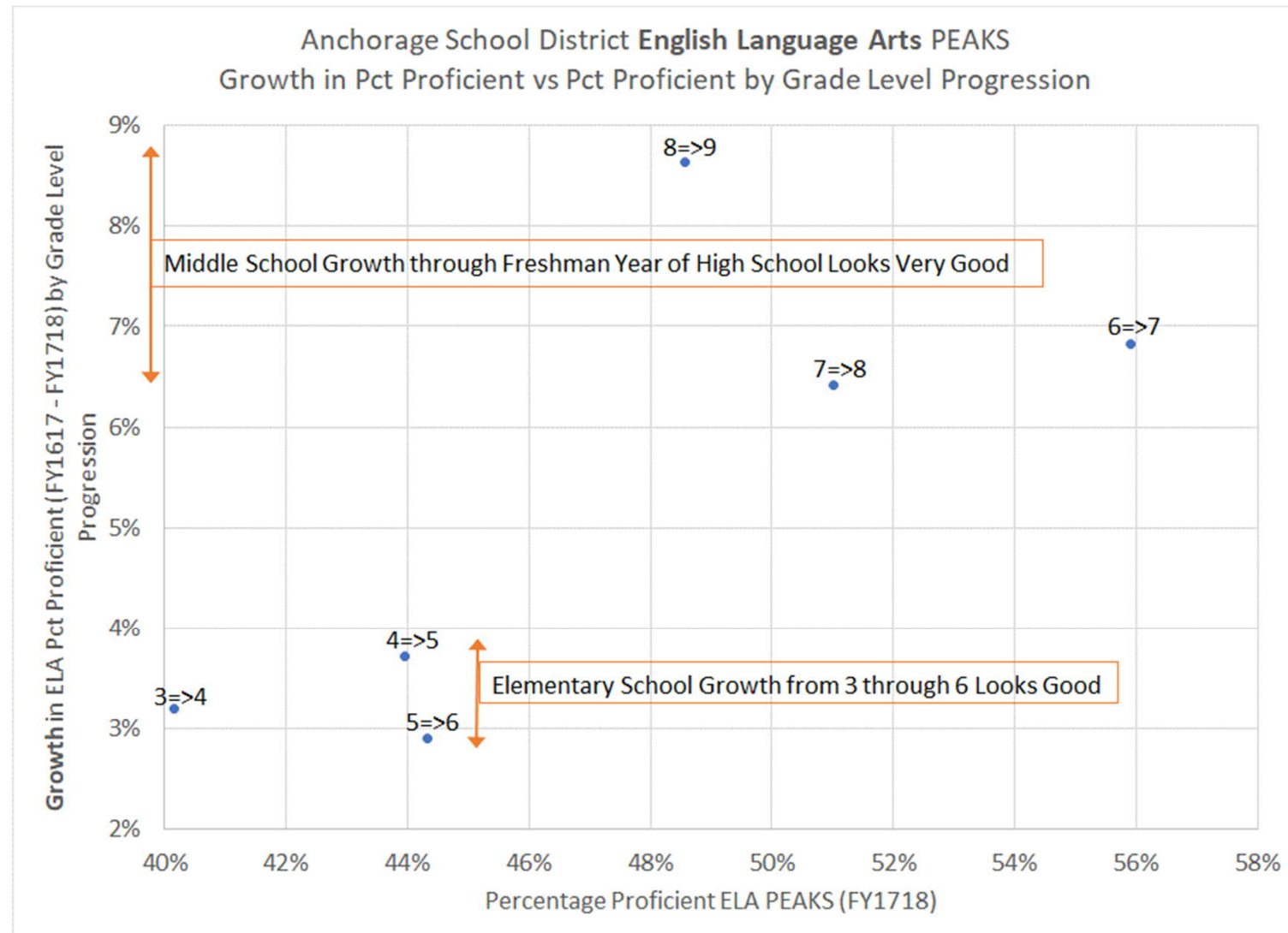
## Council of Great City Schools Academic Key Performance Indicators Report (October 2018)

Normalized to  
NAEP Scale  
(2017)



Anchorage School District student reading proficiency change from 4<sup>th</sup> to 8<sup>th</sup> grade exceeds the top district in change in proficiency and proficiency (Austin, TX) among the Council of Great City Schools School Districts reporting NAEP scores (2018 Key Academic Performance Indicators Report)

3<sup>rd</sup> to 9<sup>th</sup> grade  
English Language  
Arts PEAKS  
Assessments,  
Year over Year  
Growth &  
Proficiency  
Among Cohorts



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