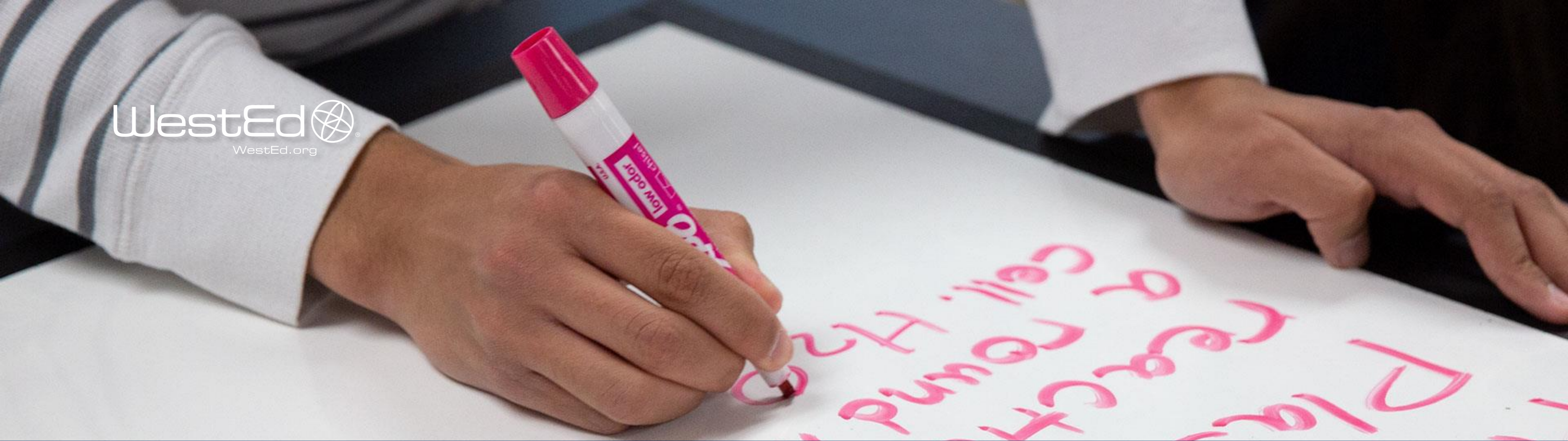# Class Size & Workforce

Raifu Durodoye Jr., PhD
Patrick McClellan
Lauren Outlaw
WestEd

Presentation to the Senate Committee on Education and the House Committee on Education, Little Rock, Arkansas September 8, 2020
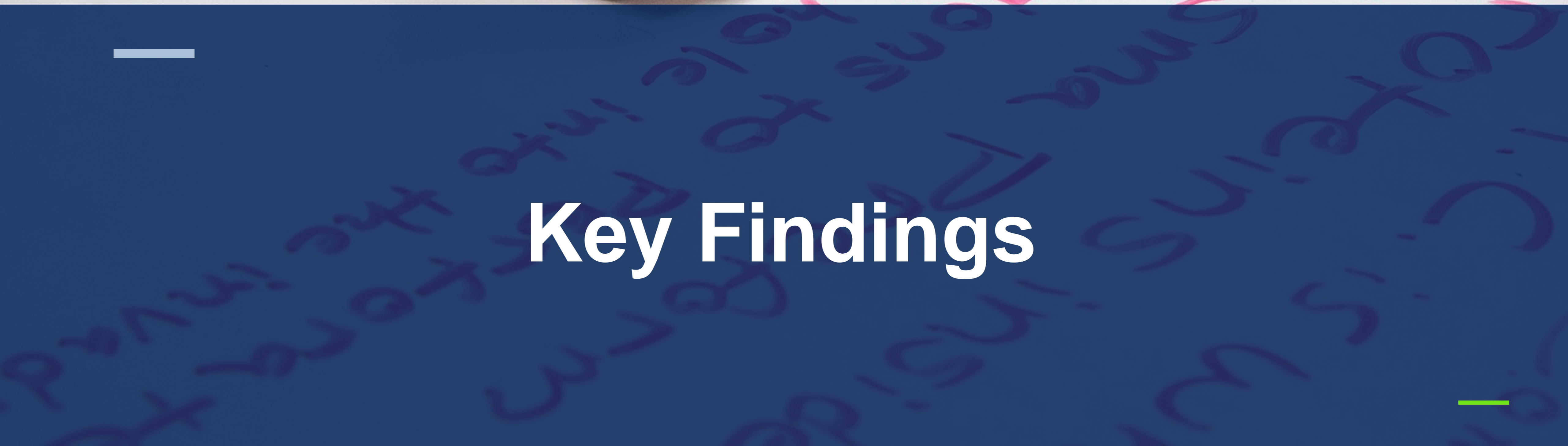
Roadmap

1. Key Findings

2. Methodology

3. Analysis Overview

Key Findings

Key Findings

- Average class sizes decreased as the proportion of low-income, special education, and homeless students increased. This was not the case for LEP students.

- More variation in achievement is explained via student demographics and previous performance than through class size.

- Teacher salaries are positively correlated with a school's growth in ELA and math. Though teacher salary is also highly correlated with teacher experience.

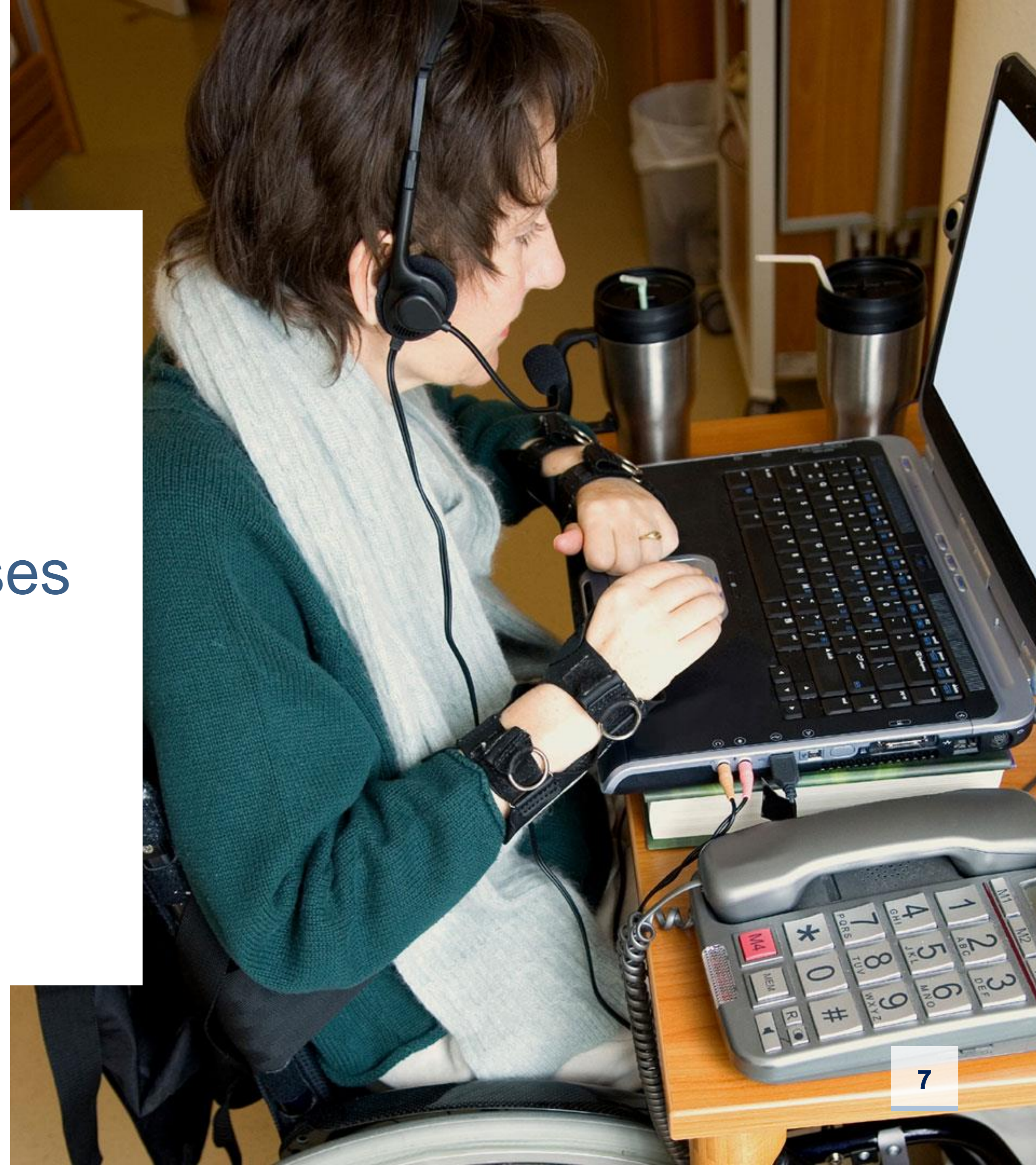# Data & Methodology

Performance and Funding: Data Sources

- **Arkansas Department of Education (ADE)**

    - Student demographic data

    - District Average salary data

- **MyADE Data**

    - Student demographics & class size

- **Office of Education Policy at the University of Arkansas**

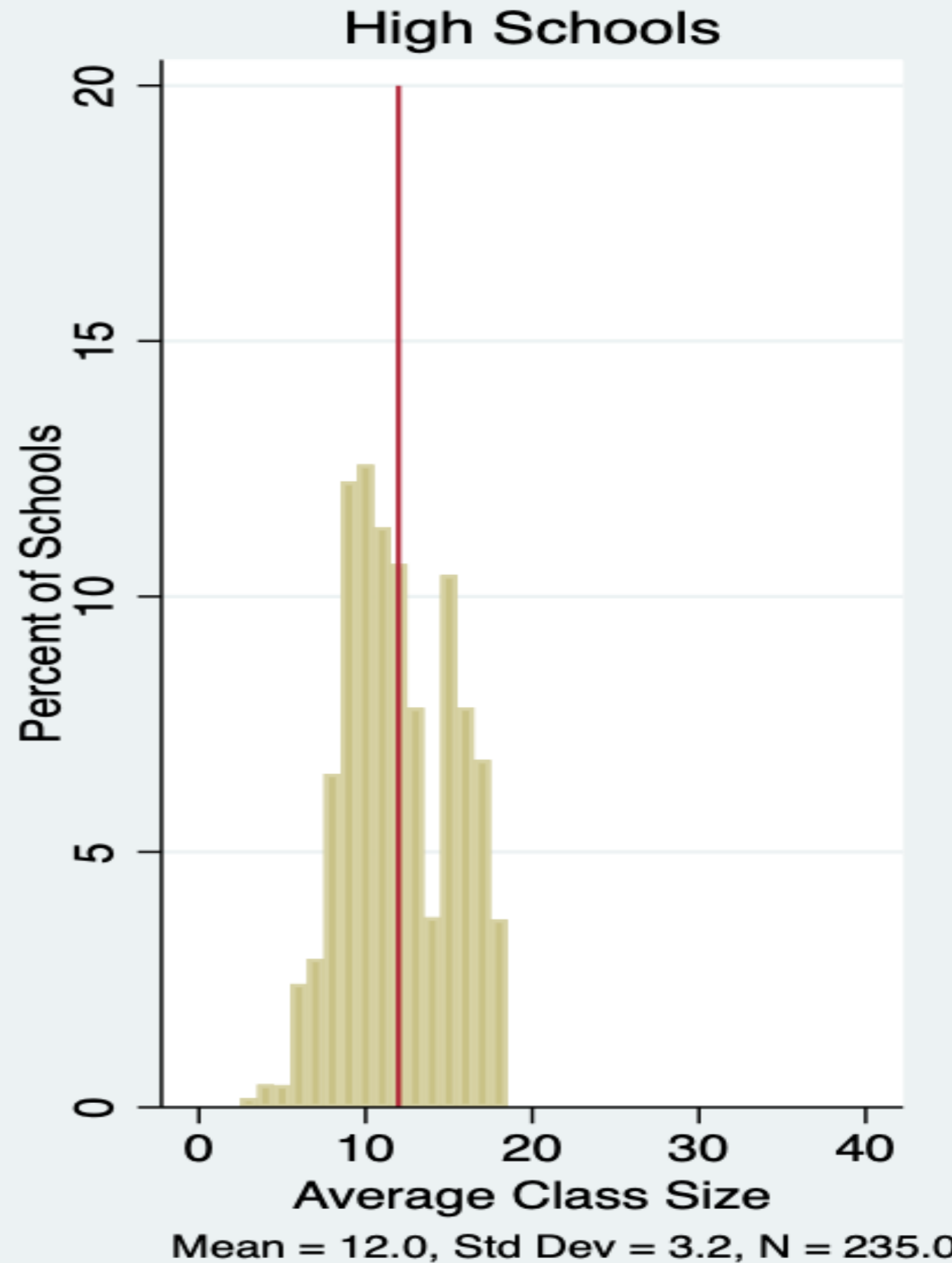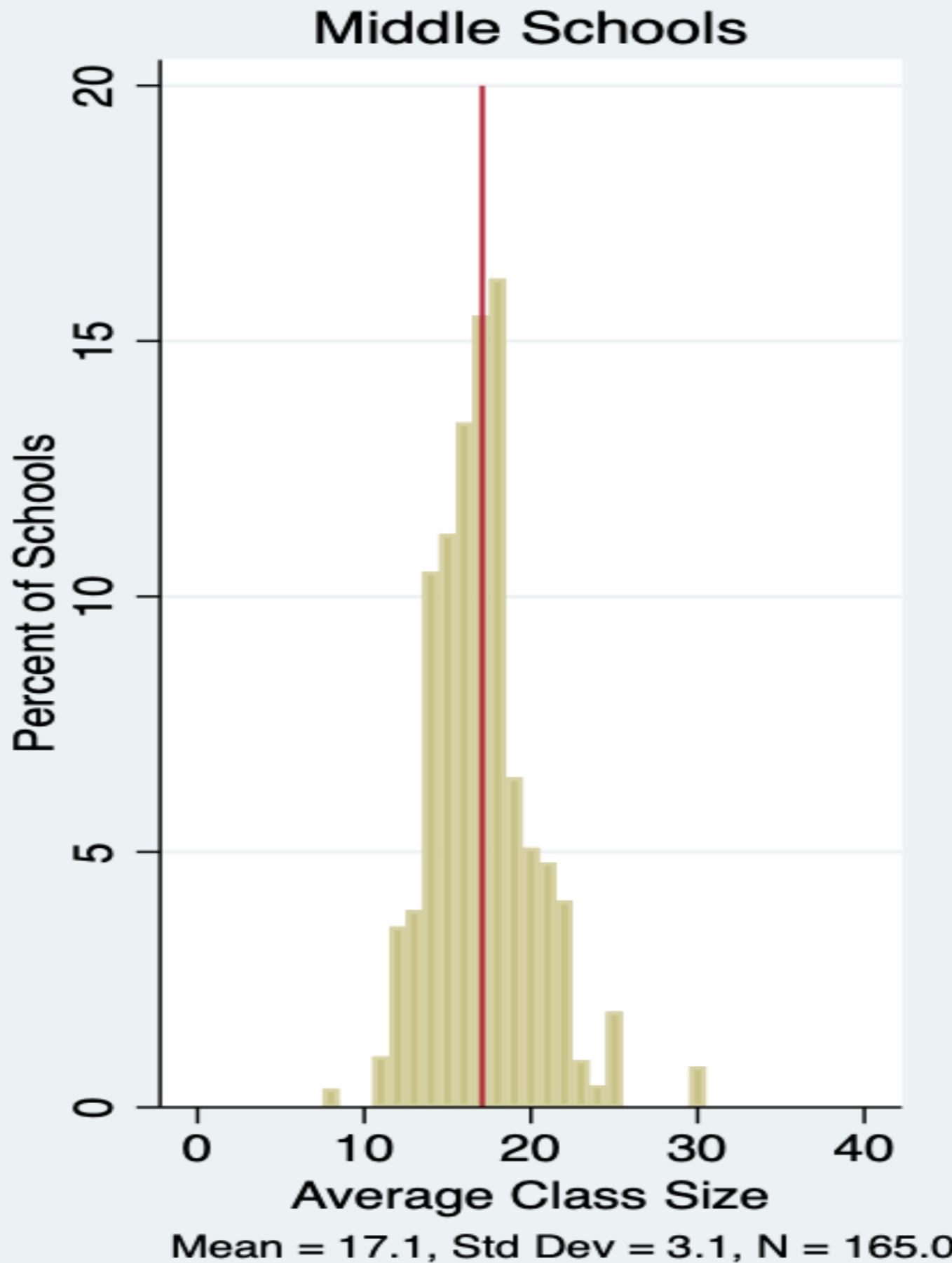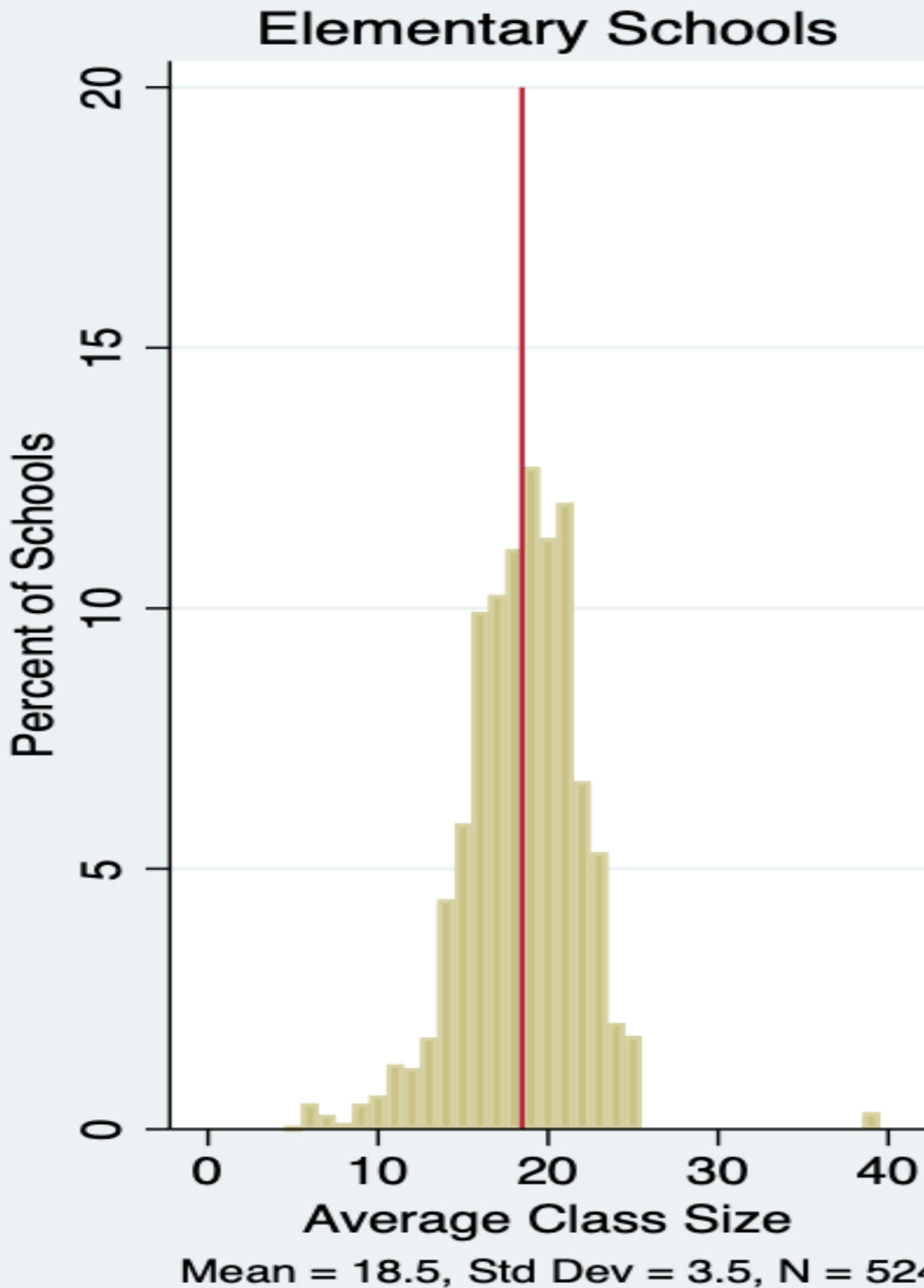   - School-level VAM measures

WestEd
WestEd.org

Methodology

- **Descriptive Analyses**
  - Univariate and Bivariate Analyses
- **Regression Analysis**
  - Ordinary Least Squares

WestEd
WestEd.org

Analysis Overview

Distribution of Average Class Sizes

Elementary Schools

Percent of Schools

Average Class Size

Mean = 18.5, Std Dev = 3.5, N = 524.0

Middle Schools

Percent of Schools

Average Class Size

Mean = 17.1, Std Dev = 3.1, N = 165.0

High Schools

Percent of Schools

Average Class Size

Mean = 12.0, Std Dev = 3.2, N = 235.0

Source: Arkansas Department of Education, 2018 School-Level Variables

Average Class Size by Student Population
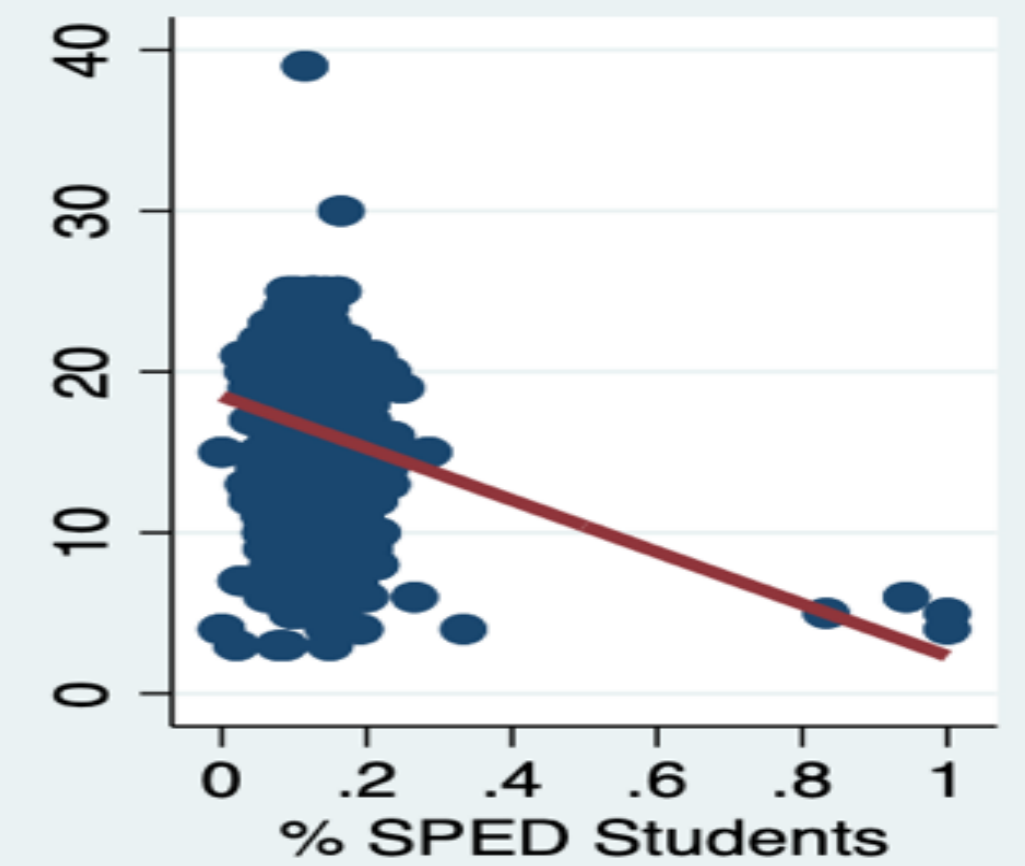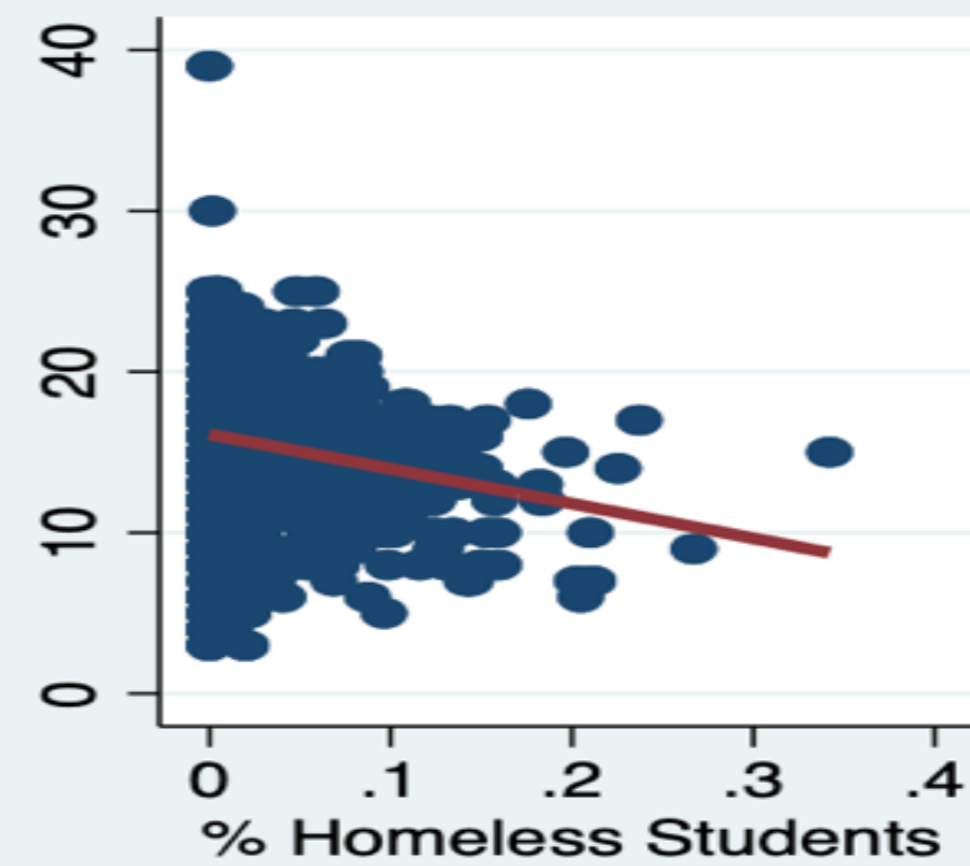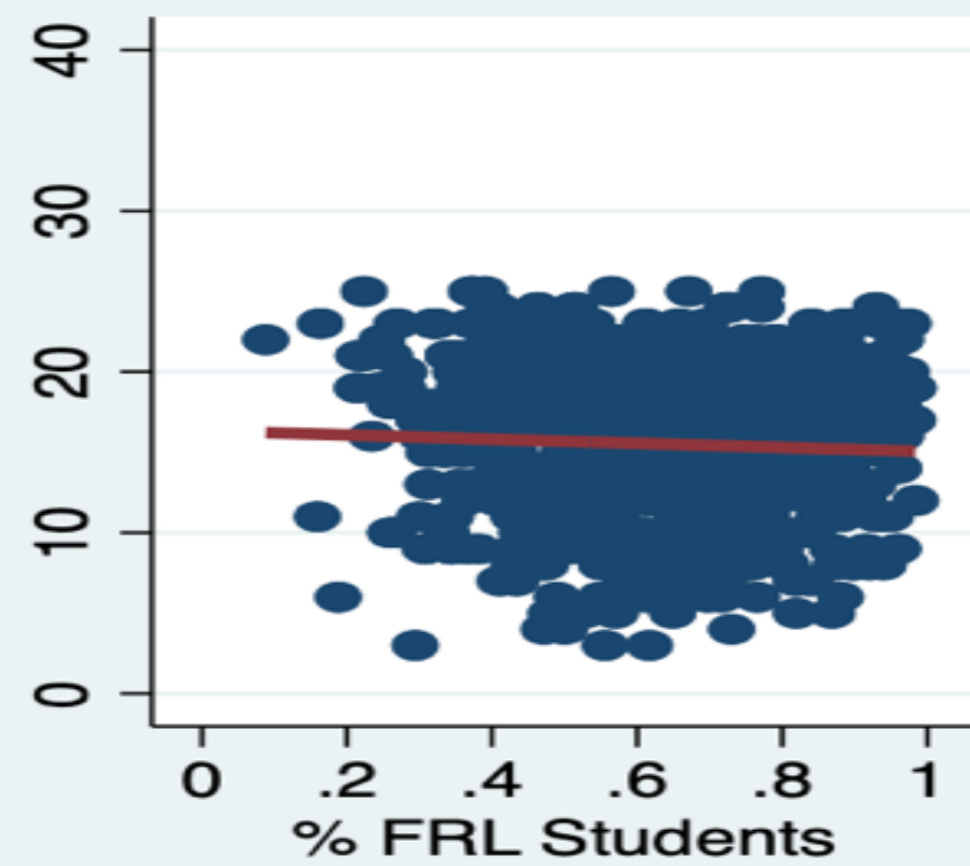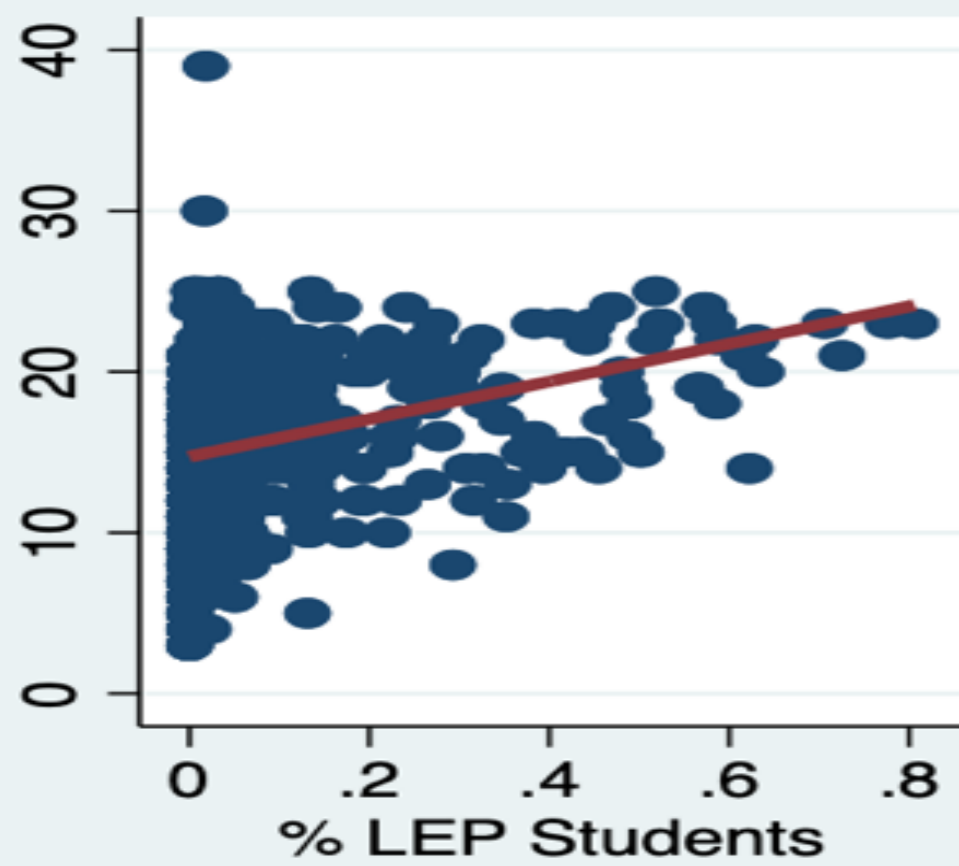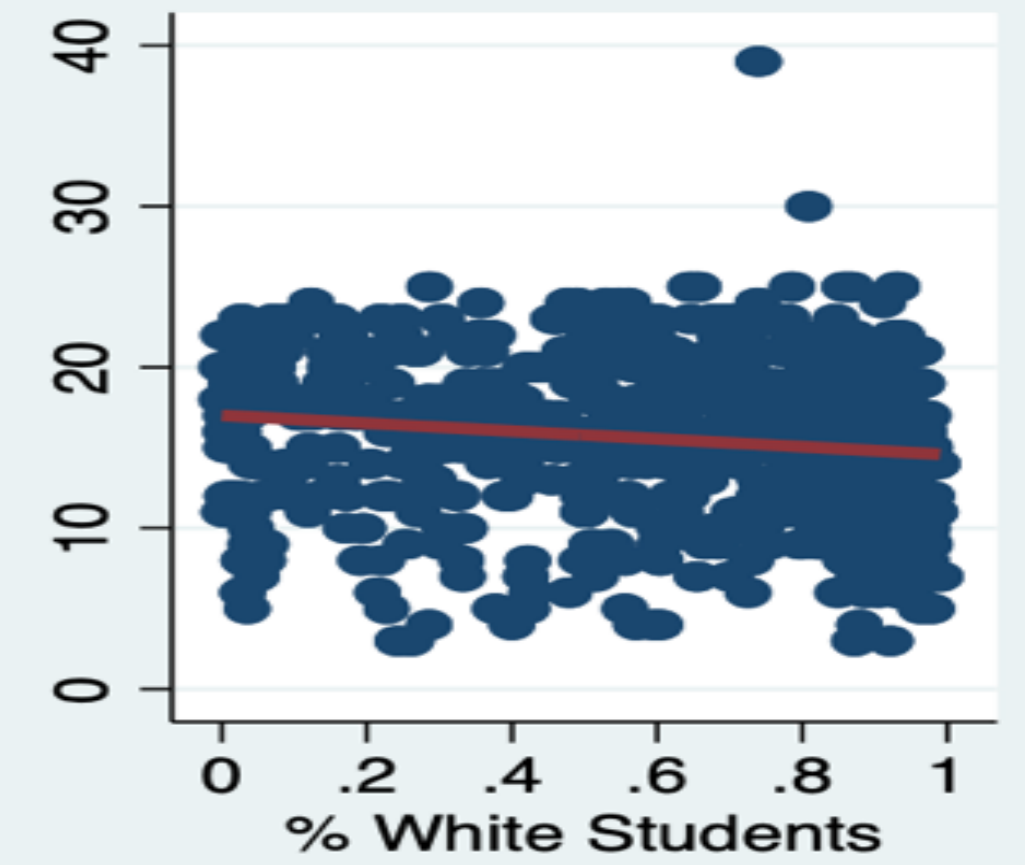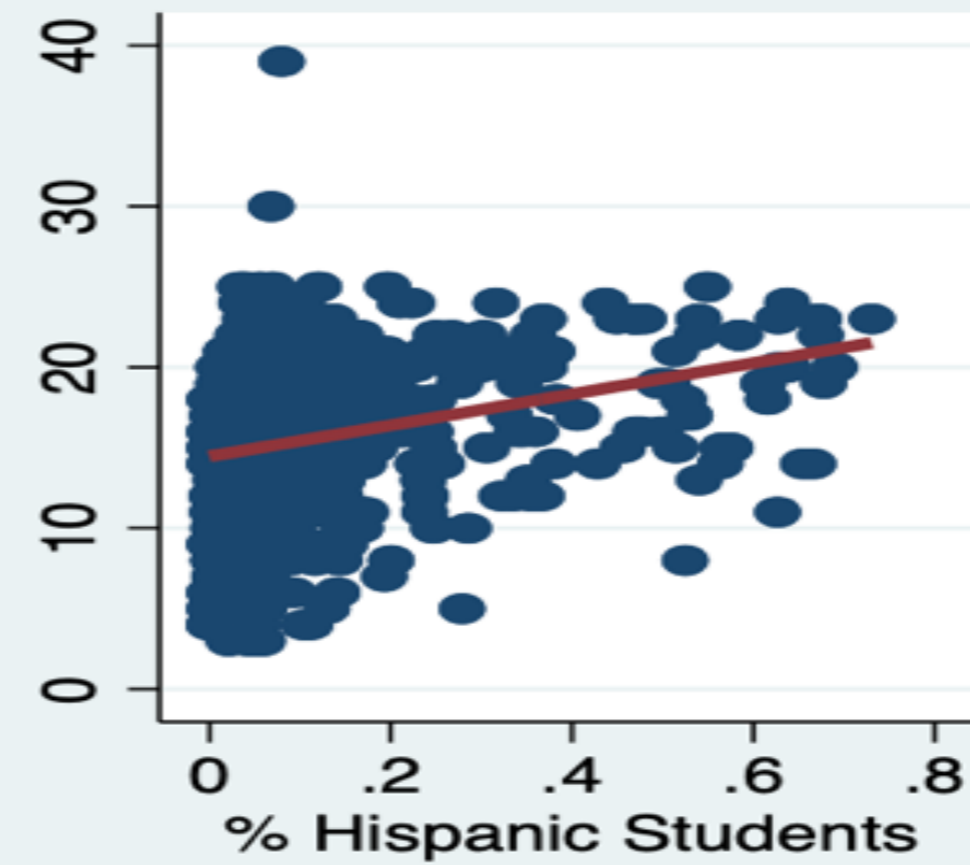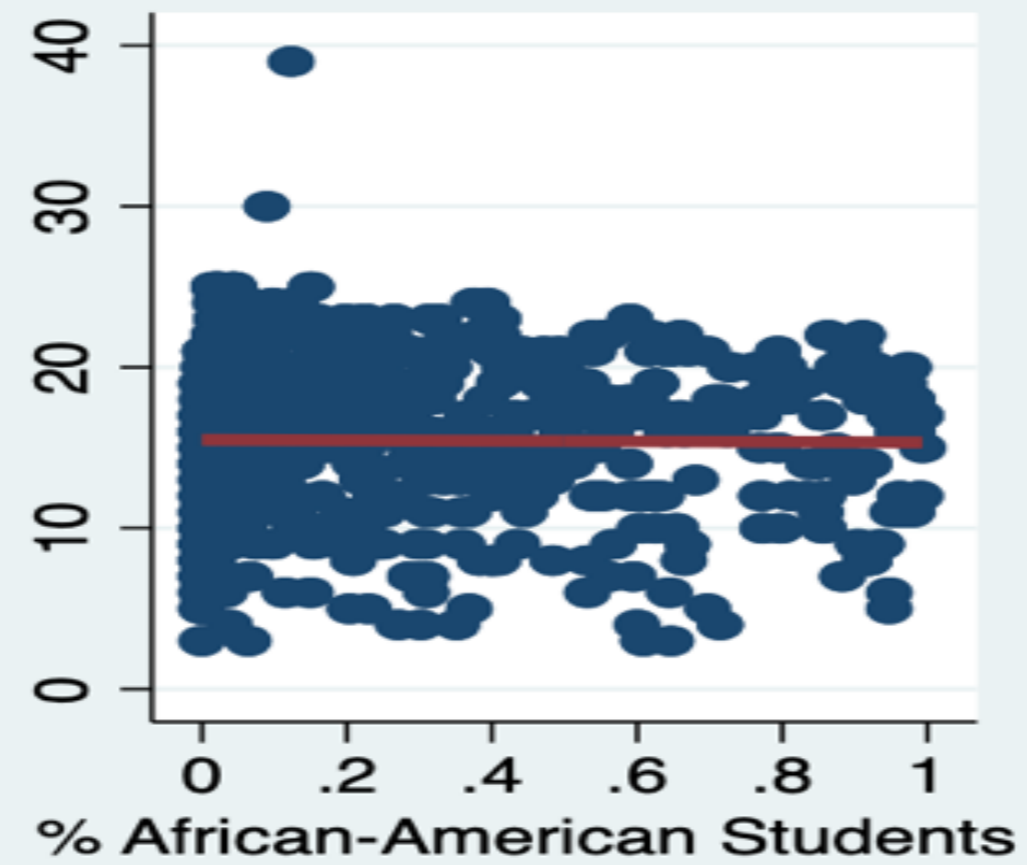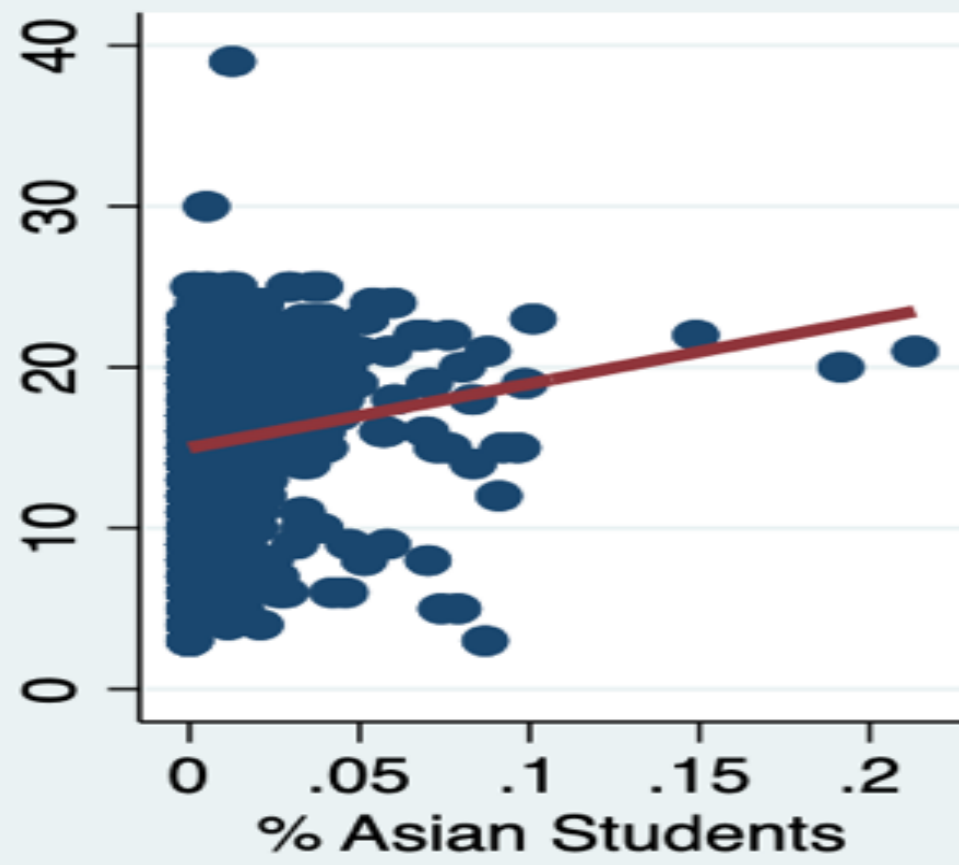
Source: Arkansas Department of Education, 2018 school-level data.

ACT Aspire Growth by Average Class Size
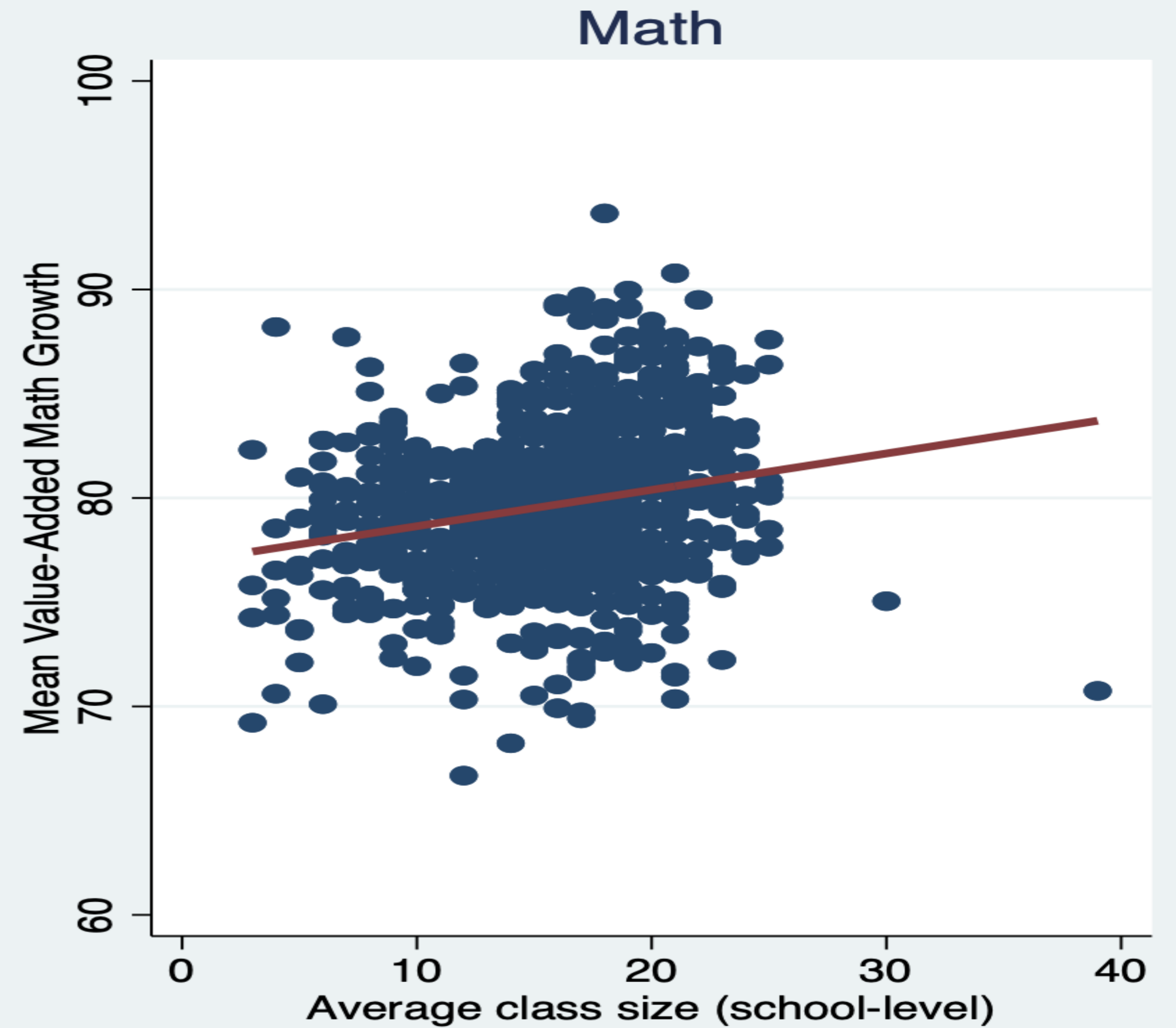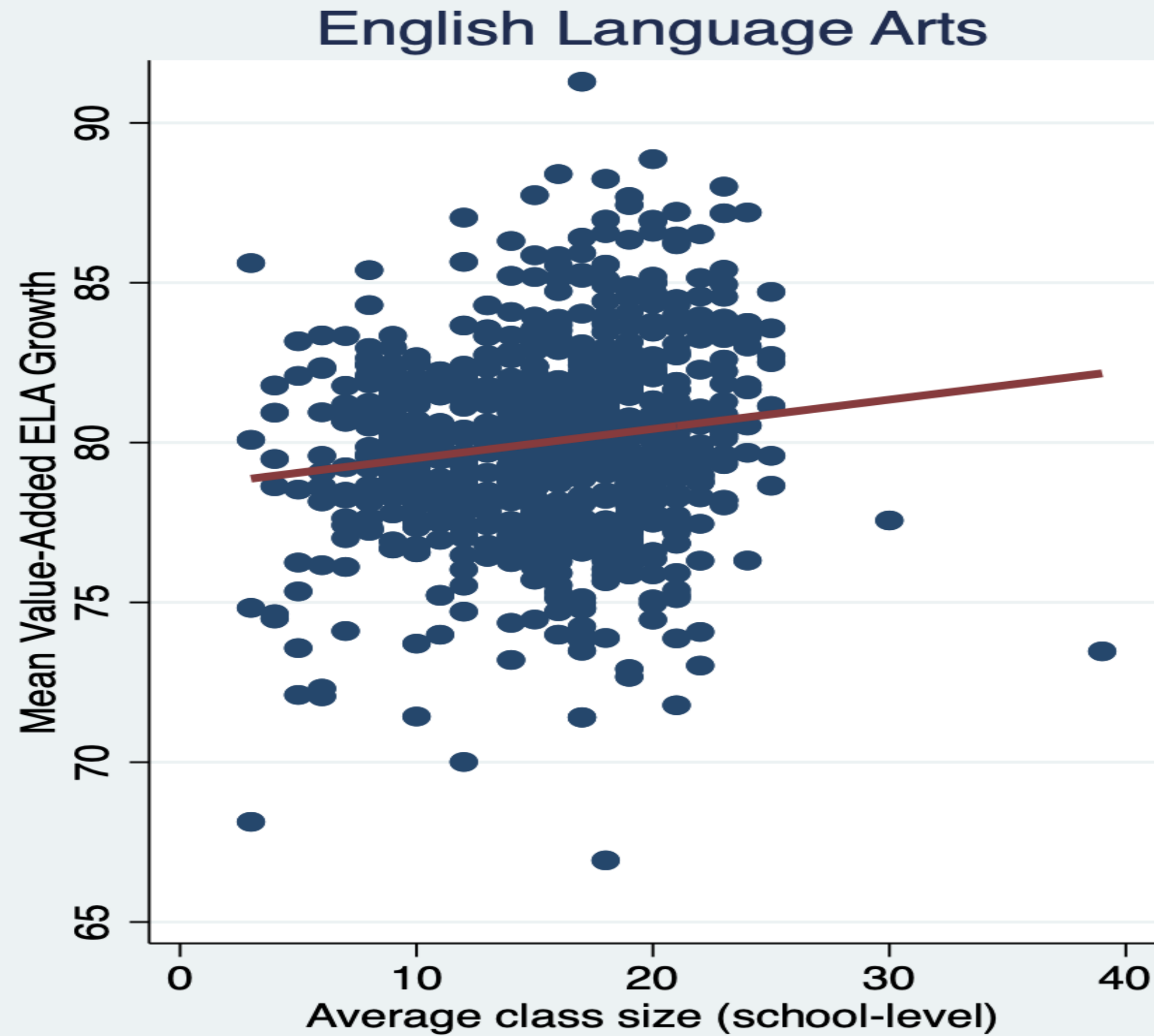
Source: Arkansas Department of Education, 2018 school-level data.

Teacher Workforce Characteristics by School Type

Level of Schooling	Average Years of Experience	Median Years of Experience
Elementary	11.73 years	10.05 years
Middle	12.31 years	10.55 years
High	12.95 years	10.90 years

WestEd
WestEd.org
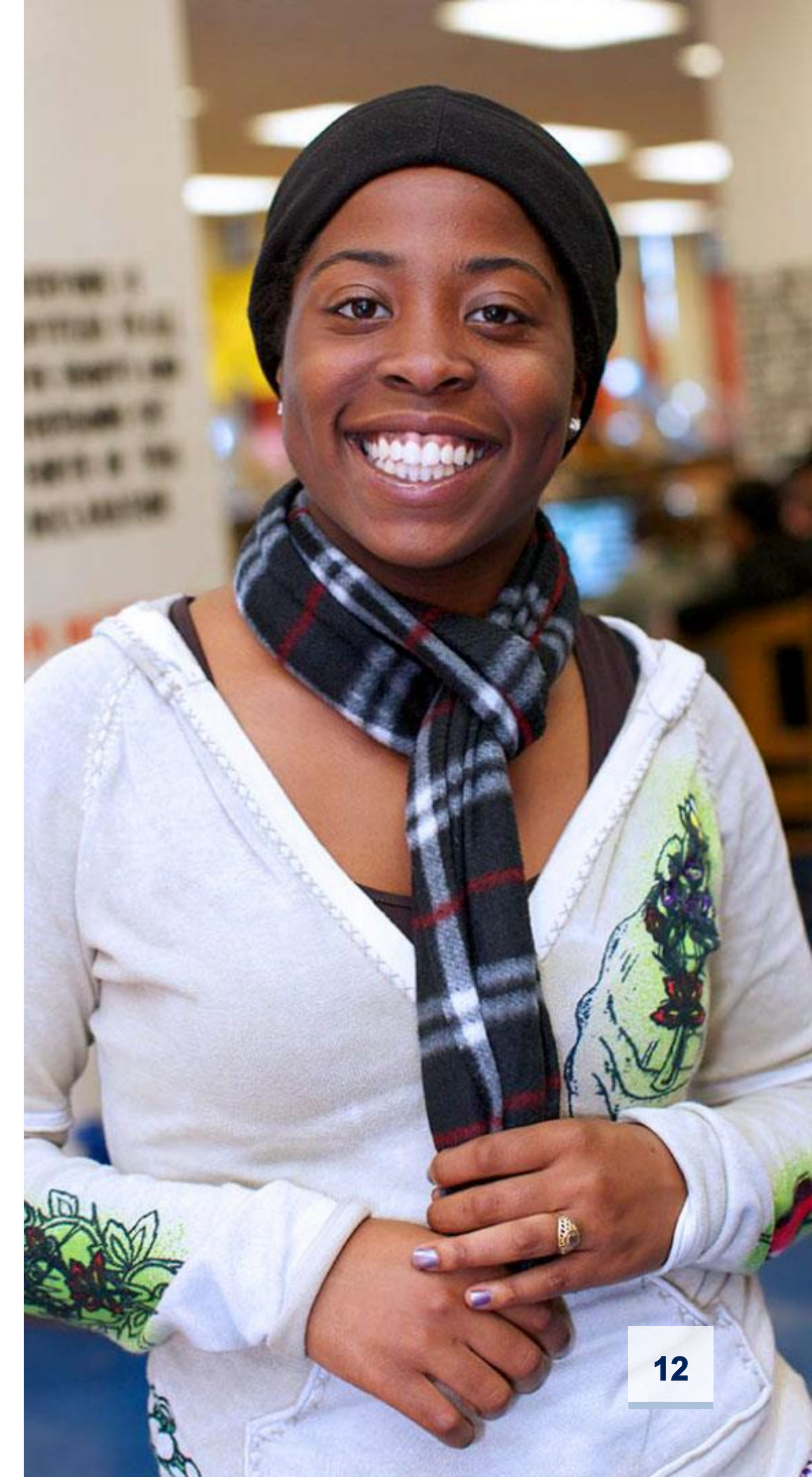
Class Size Regression Results

- **Class size was not shown to have a relationship with the VAM math and ELA growth measure.**

  - After controlling for other factors the model did not indicate that smaller class sizes equated to increased student growth.

- **Three predictors did have statistically significant relationships with the VAM measure.**

  - LEP students

    - Students who were learning English as a second language drove most of the growth in math and ELA

  - Previous VAM measure

    - A school's previous-year growth was correlated with the school's growth in the following year

  - Enrollment

WestEd
WestEd.org

Teacher Workforce Regression Results

- **The following predictors had statistically significant relationships with average district salary.**

  - Average Teacher Experience

    - A one-year increase in average teacher experience at a given district was associated with a $244 increase in average teacher salary at that district

  - Total FTE

    - Teachers were paid less, on average, the more full-time employees there were at the district

  - Total Mills

    - Districts with higher millage rates tended to pay their teachers more

  - Net Current Expenditures

WestEd
WestEd.org

Summary

Class size varies by multiple factors: grade band; the race/ethnicity of students within the school; EL or SPED student percentages; or the percentage of low-income students.

Schools that serve larger percentages of high need students have smaller class sizes, but our regression results do not indicate that smaller class sizes equate to higher growth.

Net current expenditures and total mills were both statistically significant predictors of teacher salary, indicating that communities that spend and tax more also pay teachers more, on average.

WestEd
WestEd.org

Appendix A: Terms and Definitions

Descriptive Analysis: Analyses to summarize or describe data to find patterns. Descriptive analyses may entail univariate analyses that describe the distribution of variables.

Students of Color: African American, Latinx, Native American, Pacific Islander, or mixed-race students.

LEP Students: Limited English Proficient students

Proficient: A student categorized as level 3 or level 4 on the ACT Aspire assessment.

Growth: Gain in assessment scaled score between two regularly scheduled test administrations.

Correlation Coefficients: A numerical value quantifying the statistical relationship between two variables. We report the Pearson correlation coefficient.

Linear Regression Analysis: A statistical method used to isolate the effect of one variable on another. Unlike correlational analyses, regression analyses estimate the effect of one variable (e.g. the percent of low-income students at a school) on another (a school's ACT Aspire proficiency), *while holding all other variables constant.*

WestEd

WestEd.org