Class Size and Workforce

This brief provides the study team's analytical findings on the following research questions:

1. How do class sizes vary in Arkansas? By school type and by student demographic?
2. Does achievement in math and ELA as measured by the ACT Aspire vary depending on class size?
3. What factors in Arkansas determine teacher salary?

Methodology

The study team analyzed student-level demographic data to examine variation in class size by school type and school demographics.[1] The team conducted a descriptive as well as an observational analysis to examine the relationship between class size and math and ELA growth on the statewide assessment, the ACT Aspire. Additionally, the team modeled district average teacher salaries to identify district-level workforce and financial characteristics that correlate with average teacher salary.

Summary of Key Findings

The first key finding was that average class size decreased as the proportion of low-income, special education, and homeless students increased.[2] This was not the case, however, for students with limited English proficiency (LEP) whose class sizes increased as the percentage of LEP students grew, meaning LEP students were more likely to attend schools with larger average class sizes. These results suggest that in Arkansas, class sizes actually decrease as students matriculate through the K-12 education system.

The next key finding pertained to the relationship between class size and student academic achievement. The study team found that class size positively correlates with school-level growth measures in math and ELA. This means that more students were proficient as class size increased. It is important to pair this finding with our previous result. Previous results indicated that higher percentages of high need students attended schools with lower class sizes. Thus, the results may reflect a deliberate strategy to decrease class sizes in schools that serve large numbers of disadvantaged students. The study team also analyzed this relationship while controlling for student, school, and district level characteristics. The team found that when accounting for other factors, class size did not have a statistically significant effect on math or

---

[1] The data was provided by the Arkansas Department of Education, the MyADE site, or the Office of Education Policy at the University of Arkansas. Performance dData are from the 2016-2019 academic years. Expenditure data is from the 2018 academic year.

[2] Class size and student demographic correlations were calculated from the 2017-18 academic year.

ELA growth on the ACT Aspire.[3] Other factors, like the percentage of LEP students within the school, and the school's previous achievement were better predictors of growth.

Lastly, the team was interested in determining which district-level factors correlated with average teacher salaries at the district level. The team found that the previous year's average salary and total full-time equivalent (FTE) staff were both negatively correlated with average salary. This suggests that as the previous year's average salary increased, and the total full-time equivalent staff increased, the average teacher salary decreased. The three variables that were positively correlated with average teacher salary were net current expenditures, total mills, and average teacher experience. These three variables had statistically significant relationships with average teacher salary, and indicated that as districts increase net expenditures, levied higher taxes, and employed more experienced teachers, the average teacher salary increased.

---

[3] VAM measures are a broad categorization of statistical techniques used to attribute positive or negative student academic peformance to teachers, schools, or districts.