Small Works in Arkansas: How Poverty and the Size of Schools and School Districts Affect School Performance in Arkansas

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Summary

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This is a summary of a study conducted by Ohio University researchers Jerry D. Johnson, Craig B. Howley, and Aimee A. Howley. This summary is a publication of the Rural School and Community Trust and the views and interpretations provided are those of the Rural School and Community Trust, and not necessarily those of the study authors. The full study can be retrieved through the ERIC Clearinghouse or it can be accessed at the web site of the Rural School and Community Trust.

The full study may be cited as: Johnson, J.D., Howley, C.B., & Howley, A.A. (2002). Size, excellence, and equity. A report on Arkansas schools and districts. Athens, OH: Ohio University, College of Education, Educational Studies Department. ERIC Document Reproduction Service (forthcoming).

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A series of studies in seven states (Alaska, California, Georgia, Montana, Ohio, Texas, and West Virginia) indicates that smaller schools reduce the harmful effects of poverty on student achievement and help students from less affluent communities narrow the academic achievement gap between them and students from wealthier communities. The implication is that the less affluent a community, the smaller the school and school district serving that community should be in order to maximize student achievement. The present study conducted by Ohio University researchers extends this analysis to Arkansas. The findings are remarkably consistent with those from the other states.

The Arkansas findings are:

- The higher the level of poverty in a community served by a school, the more damage larger schools and school districts inflict on student achievement. In more affluent communities, the impact of school and district size is quite small, but the poorer the community, the stronger the influence.
- The achievement gap between children from more affluent and those from less affluent communities is narrowed in smaller schools and smaller districts, and widened in larger schools and larger districts.
- Smaller schools are most effective against poverty when they are located in smaller districts; they are less effective when they are located in larger districts. Poverty dampens student achievement most in larger schools located in larger districts.
- The relationship between school size, poverty, and student achievement is as much as three times greater in schools with the largest percentage of African American students.

Methodology

Regression and correlation analyses were used to measure how *achievement levels* of students in various grades are related to:

- The level of *poverty* in the school and district
- The school and district *enrollment size*
- The *interaction between these two factors.*

The researchers looked for two kinds of effects:

- The *"excellence effect"* of school size — Does the size of a school or a school district affect its students' academic performance, and does the nature and extent of that effect depend on the level of poverty in the community the school serves? Regression analysis is used to indicate how achievement scores vary as school size varies in communities of differing poverty levels.
- The *"equity effect"* — Is poverty's power over student achievement greater in smaller or in larger schools? Correlation analysis is used to show whether the link between poverty and low levels of achievement is stronger in schools above or below median size.

For this research, the unit of analysis is the school and the district, not the individual student. This is appropriate in today's policy environment because teachers, administrators, and leaders are increasingly held accountable for the school-level aggregate performance of their students.

The Data

Student achievement test scores from all tested grades in all Arkansas schools and all Arkansas school districts2 were supplied by the Arkansas Department of Education. For schools, these data included three-year averages for the Stanford Achievement Test 9 for each of the grades 5, 7, and 9 (for years 1998, 1999, and 2000), and two-year averages for the Arkansas Benchmark test scores in literacy and math for grade 4 (1999 and 2000) and one year only for the Arkansas Benchmark scores for grade 8 (2000 only). For district scores, data was for the year 2000 only.3 The SAT data were reported as the mean percentile rank of students in each school or district, and the Arkansas Benchmark test data were reported as the proportion of students scoring at the "proficient" level or higher.