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AUTHOR Alspaugh, John W.

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ABSTRACT

This paper compares school district characteristics for rural Missouri K-8 and K-12 districts in four categories of enrollment size. A random sample of 56 K-8 and 56 K-12 districts yielded 4 equal categories of K-8 enrollment: 51-100, 101-150, 151-200, and more than 200 students. Data are presented in graphic form for assessed valuation per pupil; operating tax levy; expenditure per pupil; administrative cost per pupil; teacher salaries; student-teacher ratio; and achievement scores on the Missouri Mastery and Achievement Test (MMAT) for grades 3, 6, and 8. The assessed valuation per pupil--the basis for local taxation--was considerably lower than the state average in all rural districts studied. Expenditures and administrative cost per pupil were lower than the state average in all but the smallest K-12 districts. Teacher salaries were also considerably lower than average in all districts studied. Student-teacher ratio was higher than average in K-8 districts and lower than average in K-12 districts. Despite limited financial resources, all districts studied consistently achieved higher MMAT scores than state averages. The mean K-12 attendance rate was significantly higher than the K-8 rate, but both were higher than the state average. Two final graphs present data from 428 Missouri districts showing that the high school dropout rate was positively related to school size and negatively related to the high school grade span. (SV)

A Comparison of Four Enrollment Groups of K-8 and K-12 Missouri Rural School Districts

John W. Alspaugh
Educational Leadership and Policy Analysis
203 Hill Hall
University of Missouri
Columbia, MO 65211

Phone (314) 882-9649

Abstract

This expost facto study involved a comparison of four enrollment groups of K-8 and K-12 rural Missouri schools districts. The districts were compared to each other and the Missouri state average for a series of dependent variables. The rural districts have limited capability to raise local revenue because of their low assessed valuation per pupil. Their expenditures tended to be below the State average and declined as the enrollment increased. The student teacher ratio was lower for the K-12 districts than the K-8 districts. The teacher were under paid relative to the State average teacher salary. However, the educational outcomes of the rural schools were higher than the Missouri State averages.

A Comparison of Four Enrollment Groups of K-8 and K-12 Missouri Rural School Districts

The purpose of this study was to compare rural K-8 and K-12 school districts. A second goal was to study the effects of enrollment upon the operation of the schools. The two independent variables were district organization and K through 8 enrollment. The dependent variables were a set of financial and achievement measures. The schools were also compared to the Missouri state average for all of the dependent variables. Data for the expost facto study were from a random sample of 112 rural Missouri school districts. Fifty six were K-8 and fifty six were K-12. There were twenty eight schools in each of four K through 8 enrollment groups as follows: 51-100, 101-150, 151-200 and greater than 200. The data were analyzed using a two-way analysis of variance with fourteen observations per cell for each of the dependent variables. An alpha of .05 was used for the analysis.

Local Revenue

The assessed valuation per pupil representing the ability of the districts to raise funds by local taxation was the first dependent variable. The two-way anova found a statistically significant difference among the enrollment groups but not between K-8 versus K-12 districts. The results are illustrated in figure 1.

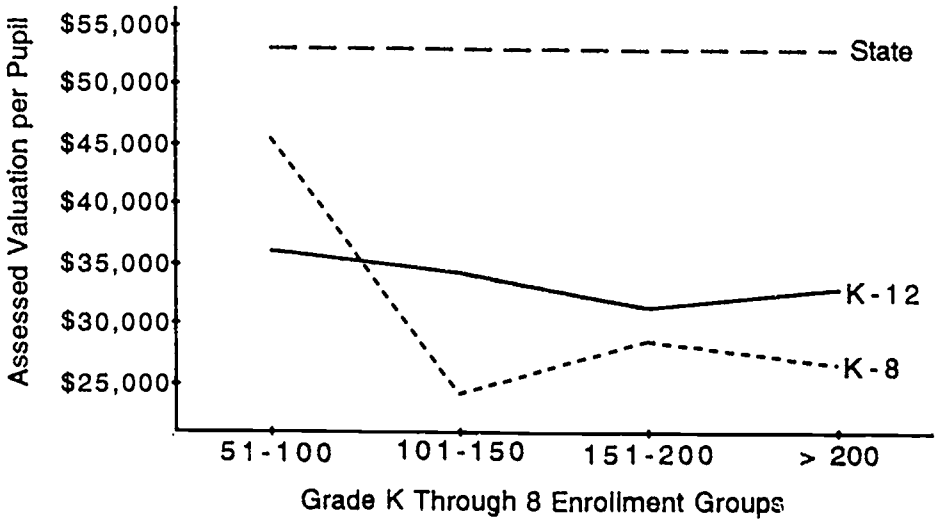

Figure 1. Assessed Valuation per Pupil

A two-way anova with operating tax levy as the dependent variable found statistically significant differences for both independent variables and a statistically significant interaction. Figure 2 illustrates the relationship between the two independent variables and the operation tax levy. Most of the districts have not built new buildings in recent years and hence did not have a tax levy for debt service.

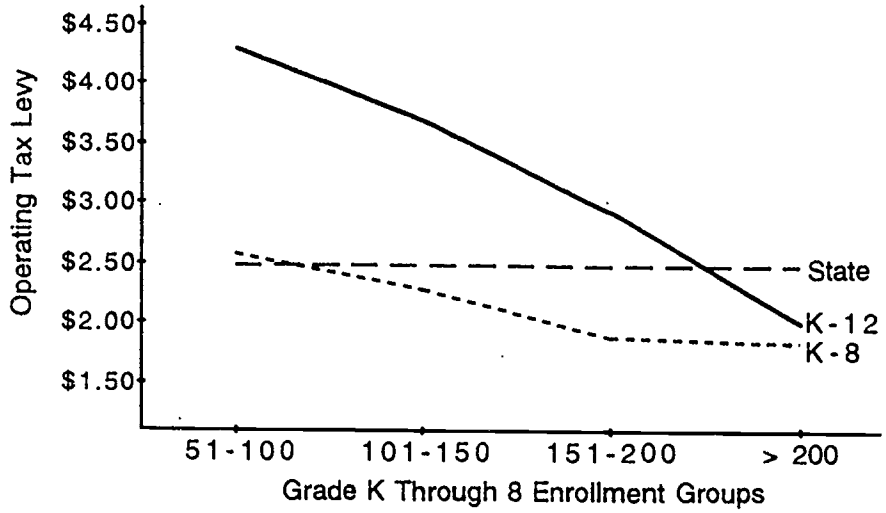

Figure 2. Operating Tax Levy

Expenditure per Pupil

The two-way analysis of variance for the total expenditures per pupil found statistically significant differences for both independent variables and a statistically significant interaction. Figure 3 illustrates the relationship between per pupil expenditures and the two independent variables. Rural schools generally spend less money per pupil than the urban schools.

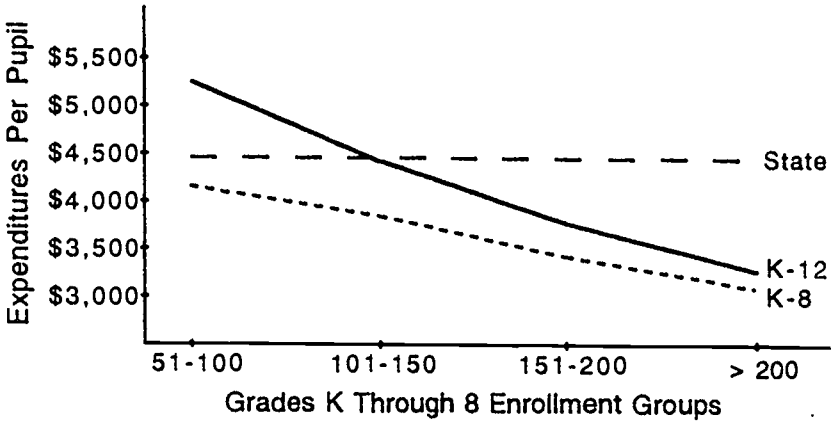

Figure 3. Total Expenditures per Pupil

Administrative cost per pupil is presented in Figure 4. The two-way anova found statistical significance for both independent variables and the interaction. Except for the smallest K-12 districts the administrative cost per pupil is less than the state average.

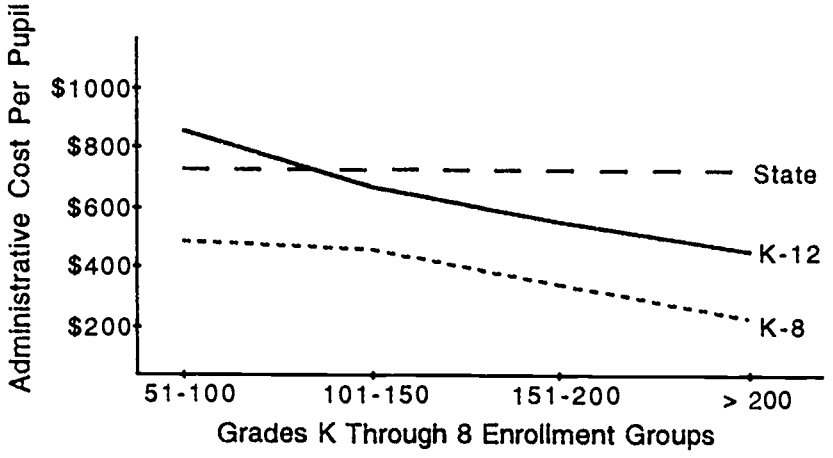

Figure 4. Administrative Cost per Pupil

Teacher Salaries

Previous research has shown that approximately half of the total expenditures for Missouri schools are for teachers salaries not including staff benefits. Previous research has also shown that student teacher ratio (S/T) is a primary factor in determining teacher salaries. Figure 5 shows the relationship between S/T ratios and the two independent variables. Part of the difference between the S/T ratios for K-8 and K-12 districts may be associated with the

difference in S/T ratios for elementary and high schools The two-way anova found statistical significance for both independent variables and the interaction.

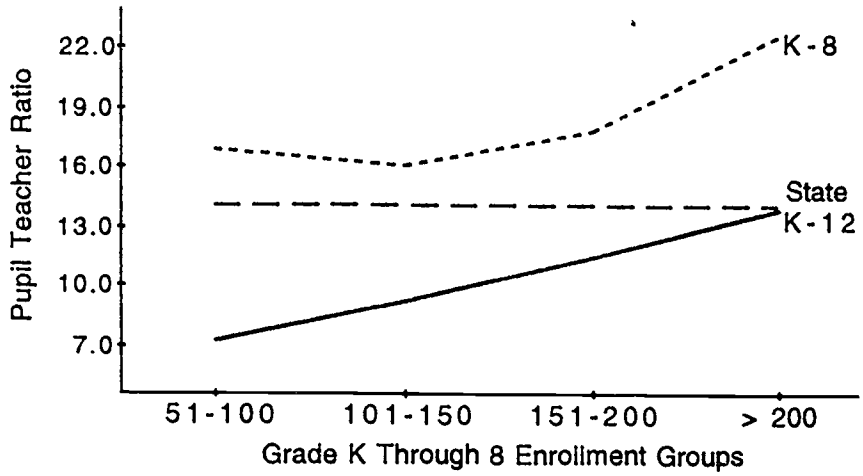

Figure 5. Student Teacher Ratio

Teachers salaries like the total expenditures per pupil are lower for rural schools than urban schools. The relationship between teachers salaries, the state average and the two independent variables is illustrated in Figure 6. The two-way analysis of variance found statistical significance for both independent variables and the interaction.

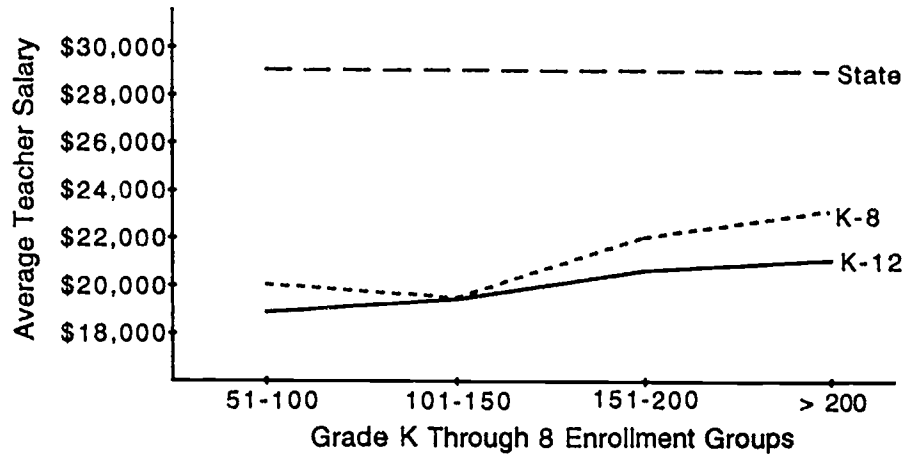

Figure 6. Teacher Salaries

Student Achievement

The Missouri Mastery and Achievement Test (MMAT) was used to assess student achievement in reading, mathematics, science and social studies at grades three, six and eight. A series of two-way analysis of variance tests found no statistically significant difference in student achievement for K-8 versus K-12 districts and among the four K through 8 enrollment groups. The achievement test scores for the rural schools were consistently higher than the state average. Figure 7 illustrates the relationship between mathematics achievement in the rural schools and the state average.

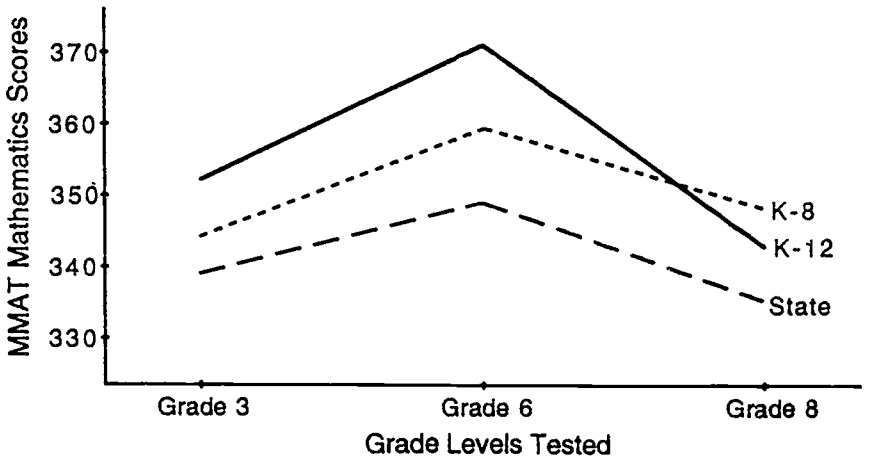

Figure 7. MMAT Mathematics Achievement Scores

A two-way analysis of variance for percent attendance found a statistically significant difference between the attendance rates for K-8 and K-12 districts. The mean K-8 attendance rate was 93.44%, the mean K-12 attendance rate was 95.14% and the state average attendance rate was 92.70%.

Data for the high school graduation rates of students from K-8 districts were not available so it was not possible to compare the graduation rates for the sample school districts Previous research studies have found higher graduation rates for rural schools than urban schools.

Summary

The findings indicate that the rural schools have limited financial resources, the rural teacher are under paid but the rural educational outcomes are higher than the Missouri state average.

School District Organization and High School Dropout Rates

The following graphs are based upon data from 428 Missouri School Districts.

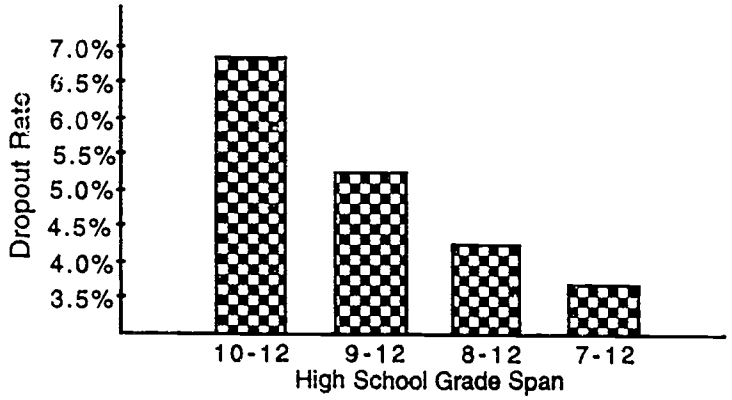

Figure 1. High school dropout rate by high school grade span

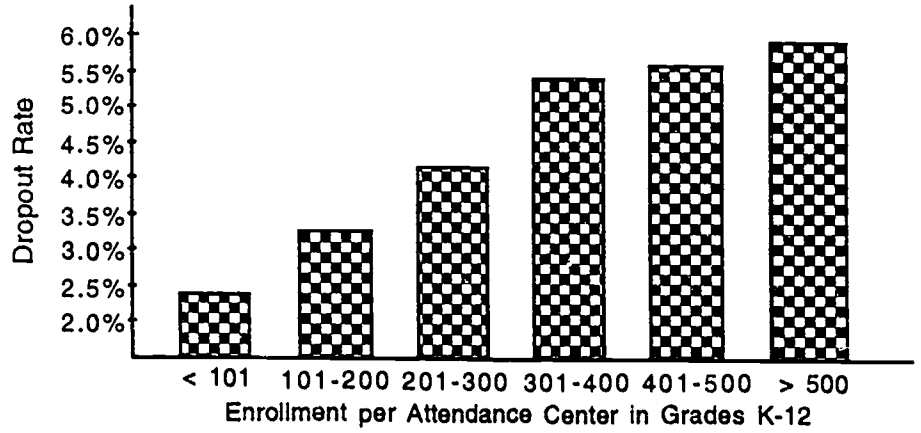

Figure 2. High school dropout rate by enrollment per attendance center