

Is Bigger Better?



A Comparison of Rural School Districts

The Center for



Rural Pennsylvania

A Legislative Agency of the Pennsylvania General Assembly

Is Bigger Better?

A Comparison of Rural School Districts

A report by
Wenfan Yan, Ph.D.
Indiana University of Pennsylvania

September 2006

3

This project was sponsored by a grant from the Center for Rural Pennsylvania, a legislative agency of the Pennsylvania General Assembly.

The Center for Rural Pennsylvania is a bipartisan, bicameral legislative agency that serves as a resource for rural policy within the Pennsylvania General Assembly. It was created in 1987 under Act 16, the Rural Revitalization Act, to promote and sustain the vitality of Pennsylvania's rural and small communities.

Information contained in this report does not necessarily reflect the views of individual board members or the Center for Rural Pennsylvania. For more information, contact the Center for Rural Pennsylvania, 200 North Third St., Suite 600, Harrisburg, PA 17101, telephone (717) 787-9555, fax (717) 772-3587, email: info@ruralpa.org.

Executive Summary

Table of Contents

4

Introduction	5
Methodology	6
Identifying Rural Districts	7
Analytic Procedure	7
Results	7
School District Background	
Characteristics	7
Fiscal Management	8
Administrative Capacity	8
Quality of Student Achievement	10
Conclusions	12
Cost Efficiency vs. Cost Deficiency .	12
Administrative Capacity vs.	
Administrative Deficiency	12
Big Means More?	12
Big Means Better?	13
Policy Considerations	13
Equalize Educational Resources	13
Re-examine Consolidation	13
Works Cited	14

Can school district consolidation improve academic programs, increase student achievement and improve cost efficiency in Pennsylvania schools? This question has drawn the attention of policymakers and state and local educational agencies alike for decades.

Since the 1950s, many school districts have been restructured into larger, centralized school districts. And many rural school districts followed the trend, typically set by urban districts, as transportation became available to students in remote areas.

More recently, advocates of large school districts have cited the advantages of concentrated resources and the efficiency of centralized offices.

To determine if the size of Pennsylvania's rural school districts affect student academic performance and administrative and financial efficiency, in 2003, the researcher examined rural countywide school districts, rural non-countywide school districts and mixed rural-urban school districts. The researcher looked at various indicators of the districts, such as background characteristics, fiscal management, administrative capacity and student academic achievement, to determine if significant differences exist.

With respect to background characteristics, rural countywide school districts and rural non-countywide school districts had higher percentages of students from low-income families than mixed rural-urban districts. Rural countywide school districts also had higher total district expenditures and more total staff than the other two district types. None of these differences, however, was statistically significant.

While there were differences among rural countywide school districts and the other two district types in the number of program offerings and educational resources available to students, the differences were not statistically significant.

A comparison of student academic achievement found that most of the statistically significant differences were between rural non-countywide and mixed rural-urban school districts, which indicated that mixed rural-urban school districts have overall significantly higher test scores in most of the Pennsylvania System of School Assessment (PSSA) and SAT exams.

The results also indicated that a smaller percentage of rural countywide school district graduates planned to go to degree-granting and non-degree-granting institutions than rural non-countywide and mixed rural-urban school districts. Rural countywide districts also had a higher percentage of graduates planning to join the military and a lower percentage of graduates choosing homemaking than the two other district types. But again, these differences were not statistically significant.

Overall, the research did not find any evidence to support the notion that bigger districts are better districts, in terms of cost, administration or academic achievement, in rural Pennsylvania.

Introduction

School district size is important to policymakers and educators who need to determine the most effective way to structure school organization. The optimum size of school districts has been debated since the 1950s when the advantages of large school districts were advocated under the argument of cost effectiveness and greater efficiency. From the 1950s through the 1970s, many school districts were restructured by combining multiple school systems into larger, centralized school districts. Many rural school districts followed this trend, set by mostly urban districts, to combine their districts as transportation became available for students in remote areas.

Advocates of large school districts often cite the advantages of concentrated resources and the efficiency of a central office, as administrative staff use common resources, align curriculum with standards, support professional development efforts, and improve accountability (Hannaway & Kimball, 2001). However, the effect of school district organization on fiscal, administrative, and student achievement for rural districts is not sufficiently established in the literature (Galles & Sexton, 1995; Howley, 1996).

For more than 40 years, a growing body of research has focused on the relationship between school size and school effectiveness (Monk & Plecki, 1999). Early studies did not address the effect of school size on student performance but focused more on school expenditures (Brazier, 1959; Hirsch, 1959; Michelson, 1972). Later studies switched the focus to the relationship between school size and student achievement (Summers & Wolfe, 1977; Walberg & Fowler, 1987; White & Tweeten, 1973).

The findings of these studies are inconclusive. For example, Coleman (1966) found that as school size increases, student achievement increases. However, Kiesling (1967) found the opposite: as school size increases, student achievement decreases. At the same time, Burkehead, Fox, and Holland (1967) found no statistically significant relationship between school size and student test scores. Using a nationwide sample of more than 300 elementary schools, Eberts, Kehoe and Stone (1984) found that the differences in student mathematics achievement between small schools (less than 200 students) and medium schools (200-800 students) is not significant but that real differences exist between small schools and large schools (more than 800 students). A study by Lee and Smith (1996) concluded that the optimal school size ranges from 600 to 900 students.

The research literature on school district size is limited in the following ways. First, the studies did not make a distinction between individual school size and district size. Most studies focused on the effect of individual school size, but few studies focused on how district size may affect school effectiveness or student achievement. Second, the relationship between school size and student achievement is complicated. It may involve many factors, such as socioeconomic status (Friedkin & Nocochea, 1988), school communities (Hannaway & Talbert, 1993), curriculum (Monk, 1987), and students' learning abilities, including IQ (Haller, Monk, & Tien, 1993; Niskanen, 1998). Third, most of the research advocating large school districts has been conducted in urban settings in large cities. In fact, about 75 percent of school districts in the U.S. are small districts that have fewer than 2,500 students. The number of school districts also varies from state to state. For example, Maryland only has 24 school districts, while Pennsylvania has 501 school districts. The findings of school size studies may not apply to rural schools that often have more students with lower socioeconomic status than urban or suburban schools, as these rural schools may not reap the same benefits as urban schools within large school districts. Characteristics of rural districts, such as low socioeconomic status and widespread populations, make the relationship between rural school district size and the potential benefits of consolidation unclear.

This study addressed the limitations of previous literature by comparing different school district types in rural Pennsylvania to determine whether or not the structure of school districts has an impact on fiscal management, administrative capacity, and student achievement.

Methodology

The primary goals and objectives of this study were to: identify indicators of appropriateness of fiscal management, effectiveness of administrative capacity and quality of student achievement in rural Pennsylvania school districts; and compare different types of school districts along the three dimensions mentioned below.

For the purpose of this study, the researcher divided rural school districts into three categories as follows: rural countywide school districts, rural non-countywide school districts, and mixed rural-urban school districts. Based on the way the Pennsylvania Department of Education summarizes school district data by county, the districts were identified as follows:

- Rural countywide school district – identified as a rural school district in a county that only has one school district;
- Rural non-countywide district – identified as a rural school district in a county that has multiple rural school districts; and
- Mixed rural-urban district – identified as a rural school district in a county that has at least one non-rural school district.

This project used both national and state level data for the 1999-2000 school year. The national level dataset is the Common Core of Data (CCD), which is developed by the National Center for Education Statistics (NCES).

For the state level dataset, the researcher used the Pennsylvania System of School Assessment (PSSA), conducted by the Pennsylvania Department of Education. The annual PSSA is a standards-based criterion-referenced assessment used to measure a student's attainment of academic standards and to determine the degree to which school programs enable students to attain proficiency of the standards. At the time of the study, every Pennsylvania student in the 5th, 8th, and 11th grades was assessed through the PSSA in reading and math (PDE, 2003). The PSSA is well suited for this study for several reasons. First, PSSA school and district profiles provide very comprehensive information about schooling. In addition to scores, PSSA profiles include school/district contacts, school/district enrollment, attendance, staff, SAT scores, ACT scores, program offerings, technology and resources, the number of dropouts, and the number of graduates. Second, most of the information is available at the district-level. School-level data

6

Rural School Districts in School Year 1999-2000

Rural Countywide School Districts (N=9)	Rural Non-Countywide School Districts (N=129)		Mixed Rural-Urban School Districts (N=129)	
Cameron (1)	Adams (6)	McKean (5)	Allegheny (3)	Fayette (5)
Clinton (1)	Armstrong (4)	Monroe (4)	Beaver (5)	Lackawanna (1)
Forest (1)	Bedford (5)	Northumberland (6)	Berks (7)	Lancaster (6)
Juniata (1)	Bradford (7)	Perry (4)	Blair (4)	Lawrence (6)
Mifflin (1)	Clarion (7)	Potter (5)	Bucks (4)	Lebanon (3)
Montour (1)	Clearfield (8)	Schuylkill (12)	Butler (5)	Lehigh (3)
Pike (1)	Crawford (3)	Snyder (2)	Cambria (5)	Luzerne (3)
Sullivan (1)	Elk (3)	Susquehanna (6)	Carbon (1)	Lycoming (4)
Warren (1)	Franklin (5)	Tioga (3)	Centre (3)	Mercer (5)
	Fulton (3)	Union (2)	Chester (6)	Montgomery (1)
	Greene (5)	Venango (5)	Columbia (4)	Northampton (5)
	Huntingdon (4)	Wayne (3)	Cumberland (4)	Somerset (9)
	Indiana (7)	Wyoming (2)	Dauphin (3)	Washington (7)
	Jefferson (3)		Delaware (1)	Westmoreland (4)
			Erie (6)	York (6)

Note: The numbers in parentheses are the number of rural school districts in the county.

also can be aggregated to the district-level. Of particular importance, the PSSA dataset has Administrative Unit Numbers (AUN) for each school district, which are identical to the state agency identification number in the CCD dataset.

The researcher used data from both CCD and PSSA for the 1999-2000 school year.

Identifying Rural Districts

This study used NCES definitions of rural and urban, which are based, in part, on the population density of the school district. As the Center for Rural Pennsylvania’s rural definition, based on the 2000 Census, was not yet released when the study began, the researcher used the NCES school district locale code information to identify rural school districts in Pennsylvania.

CCD uses eight locale codes to classify districts into the following categories: “large city,” “mid-size city,” “urban fringe of large city,” “urban fringe of mid-size city,” “large town,” “small town,” “rural outside MSA,”

and “rural inside MSA.” For this study, the researcher re-categorized Pennsylvania’s 500 active school districts into urban districts (large and mid-size city), suburban districts (urban fringe of large and mid-size cities and large town), and rural districts (small town and rural areas). As a result, the researcher identified 267 rural districts.

In 1999-2000, of the 267 rural school districts, the researcher identified nine as rural countywide school districts, 129 as rural non-countywide school districts, and 129 as mixed rural-urban school districts (See map on Page 6).

Analytic Procedure

The researcher first performed descriptive statistical analyses to develop profiles of the three school district types in terms of fiscal, administrative, and student achievement. He then used inferential statistical analyses, or ANOVA, to compare the three school district types and determine whether significant differences exist among them.

Results

School District Background Characteristics

The researcher analyzed school district background characteristics in terms of the percentage of low-income students, percentage of non-white students, median household income, median value housing units, unemployment rate, district enrollment, the number of schools, and school enrollment.

With respect to school district student composition, rural countywide school districts had about 31 percent of students from low-income families in 1999-2000, which was higher than the 23 percent for mixed rural-urban school districts, but very close to the 33 percent for rural non-countywide school districts. Rural countywide school districts had about 1.9 percent non-white students, which was slightly higher than the 1.5 percent non-white students in rural non-countywide school districts, but slightly lower than the 2.0 percent non-white students in mixed rural-urban school districts. However, the differences in the percentage of low-income students and non-white students between rural countywide school districts and the other two school district types were not statistically significant.

Regarding school district economic status, rural countywide school districts had the lowest

Summary of School District Background Characteristics, 1999-2000

	Low-income families	Non-white students	Median household income	Median value of housing units	Unemployment rate	Avg. district enrollment	Avg. # of schools per district	Avg. enrollment per school
Rural countywide school districts	31%	1.9%	\$24,166	\$55,000	5.1%	3,670	9	420
Rural non-countywide school districts	33%	1.5%	\$24,200	\$52,000	5.3%	2,110	4	510
Mixed rural-urban school districts	23%	2.0%	\$29,380	\$70,000	4.2%	2,560	4	540

median household income of about \$24,166. The median household income for rural non-countywide school districts was approximately \$24,200 and for mixed rural-urban school districts was about \$29,380. However, rural countywide school districts had a higher median value of housing units (\$55,000) than rural non-countywide school districts (\$52,000), but a lower median value of housing units than mixed rural-urban school districts (\$70,000). The differences between rural countywide school districts and the other two school district types in median household income and median value of housing units were not statistically significant.

During 1999-2000, the unemployment rates in rural countywide school districts were about 5.1 percent, which was lower than the rate of 5.3 percent in rural non-countywide school districts but still higher than the rate of 4.2 percent in mixed rural-urban school districts.

Overall, average enrollment in rural countywide school districts was higher than rural non-countywide school districts and mixed rural-urban school districts. During 1999-2000, the average district enrollment in rural countywide school districts was about 3,570, in rural non-countywide school districts it was about 2,110, and in mixed rural-urban school districts it was about 2,560. The enrollment differences were statistically significant.

Rural countywide school districts had about nine schools per school district, which was significantly higher than the approximate four schools per school district for both rural non-countywide and mixed rural-urban school districts.

However, when school size was examined, the average enrollment per school building in rural countywide school districts was about 420 students, which was lower than the 510 students per school in rural non-countywide school districts and the 540

students per school in mixed rural-urban school districts. Unlike school district enrollment and the number of schools, the differences in the number of students enrolled per school in each of the district types were not statistically significant.

Fiscal Management

Fiscal management was analyzed in terms of educational expenditures and fiscal distribution. Educational expenditures had two indicators: total current expenditures and expenditures per pupil. Fiscal distribution was the percentage of district total expenditures on instructional activities, support activities, and non-instructional activities.

Overall, rural countywide school districts had about \$9 million more in total district expenditures than rural non-countywide school districts and \$6 million more in total district expenditures than mixed rural-urban school districts. The difference between rural countywide school districts and rural non-countywide school districts is statistically significant.

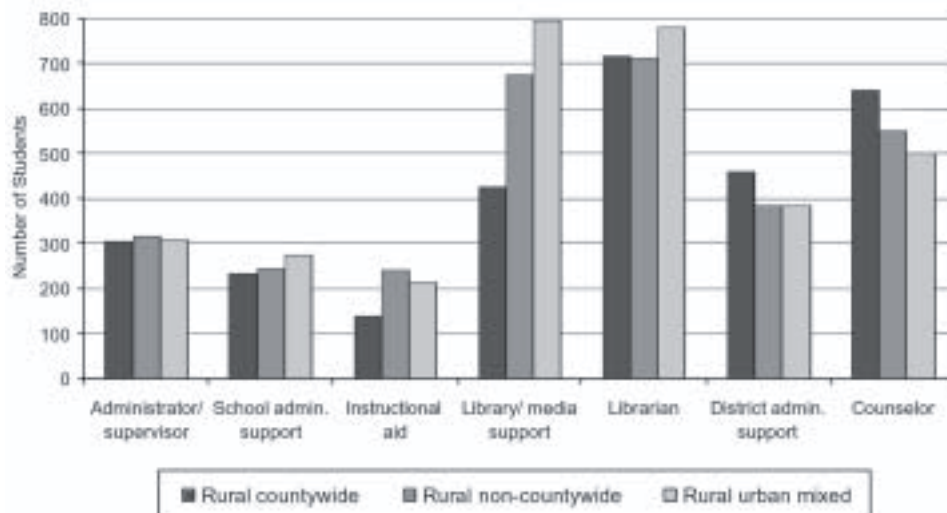
An examination of per-pupil expenditures indicated that rural countywide school districts spent about \$100 more on each student than rural non-countywide school districts and mixed rural-urban school districts, though such a difference was not statistically significant. During 1999-2000, the per-pupil expenditure for rural countywide school districts was about \$6,800, while rural non-countywide school districts and mixed rural-urban school districts spent about \$6,700 per pupil.

The three types of school districts all spend about 66 percent of total district expenditures on instructional activities, about 32 percent on support activities, and about 2 percent on non-instructional activities.

Administrative Capacity

To assess administrative capacity, the researcher examined: school staffing by comparing student-staff ratios; academic programs by comparing the percentage of schools within a district that provide certain programs at three school levels of elementary (Grades K-6), middle/junior high (Grades 6-9), and senior high (Grades 9-12); and educational resources by comparing the average number of computers in schools and the average library holdings.

Students Per Professional/Support Staff by District Type



School Staffing

School staff included: professional staff, such as administrators, teachers, counselors, and librarians; and support staff, such as instructional aides, administrative support staff, and library/media support staff. The student-teacher ratios were similar for all three district types, at about 16 to 17 students per classroom teacher.

Rural countywide school districts had about 305 students for every administrator/supervisor, while rural non-countywide had about 314 students, and mixed rural-urban school districts had about 309 students. Rural countywide school districts had about 233 students for every school administrative support personnel, while rural non-countywide school districts had about 245 and mixed rural-urban school districts had about 276. The results were not statistically significant. (See chart on Page 8.)

Rural countywide school districts had about 137 students per instructional aide, while rural non-countywide districts had about 238 and mixed rural-urban districts had about 214.

Rural countywide school districts had about 425 students per library/media support, while rural non-countywide districts had about 675 and mixed rural-urban districts had about 794.

Rural countywide school districts had about 718 students per librarian while rural non-countywide school districts had about 714 and mixed rural-urban school districts had about 780.

While rural countywide school districts had lower student-instructional aid ratios, lower student-library/media support ratios, and lower student-librarian ratios than rural non-countywide and mixed rural-urban school districts, the results were not statistically significant.

Rural countywide school districts had about 459 students per district administrative support person, while rural non-countywide and mixed rural-urban school districts each had about 384.

Rural countywide school districts had about 640 students per counselor

while rural non-countywide school districts had about 550 and mixed rural-urban school districts had about 500.

While rural countywide school districts had higher student-district administrative support and student-counselor support ratios, the results were not statistically significant.

Program Availability

Elementary programs

In terms of elementary program offerings, rural countywide school districts had lower percentages of elementary schools providing 22 of the 27 programs compared to rural non-countywide and mixed rural-urban school districts. (See table below.)

Only for the following three programs did rural countywide school districts have higher percentages of elementary schools offering the programs than rural non-countywide and mixed rural-urban school districts: foreign language instruction, intramural sports, and Even Start.

Middle/Junior High Programs

Rural countywide school districts had lower percentages for 25 of the 30 programs offered at the middle/

Percentage of Elementary Schools by District Offering Various Programs, 1999-2000

Program	Rural Countywide SD	Rural Non-Countywide SD	Mixed Rural Urban SD
Head start	18%	27%	18%
Even start	15%	12%	5%
Full-day kindergarten	33%	39%	19%
Before school programs/clubs	17%	22%	36%
After school programs/clubs	38%	58%	60%
Physical education with certified instructor	75%	95%	93%
Art instruction with certified instructors	88%	90%	92%
Music instruction with certified instructors	88%	96%	95%
Foreign language instruction with certified instructors	12%	8%	9%
Band/orchestra	76%	79%	77%
Chorus	73%	76%	70%
Intramural sports	48%	46%	34%
Environmental education center	15%	19%	23%
Independent study courses	2%	4%	3%
School-to-work activities	16%	35%	16%
Parent involvement programs	88%	94%	94%
Business partnerships	23%	22%	30%
Community service programs	27%	36%	42%
Magnet and/or academy programs	0%	.3%	.7%
Acceleration programs	26%	31%	38%
Enrichment programs	86%	90%	89%
Tutorial/extra help programs	75%	89%	86%
Educational field trips	85%	97%	94%
Distance learning	5%	16%	9%
On-site lunch service	81%	96%	94%
On-site breakfast service	70%	73%	59%

junior high school level than rural non-countywide and mixed rural-urban school districts. (See table below.)

Only five programs were offered in rural countywide school districts at higher percentages than in rural non-countywide and mixed rural-urban school districts: magnet programs, environmental education, intramural sports, tech prep and honors programs.

Senior High School Programs

Rural countywide school districts had lower percentages of senior high schools that offered 31 of 35 programs than rural non-countywide and mixed rural-urban school districts. (See table on Page 11.)

Only three programs were offered in rural countywide school districts at higher percentages than in rural non-countywide and mixed rural-urban school districts: enrichment programs, environmental education and intramural sports.

Educational Resources

With respect to educational resources, the researcher compared the average number of computers in schools and the average library holdings.

Rural countywide school districts had fewer computers per school than rural non-countywide and mixed

rural-urban school districts. In 1999-2000, rural countywide school districts had about 85 computers per school, while rural non-countywide school districts had about 101 and mixed rural-urban school districts had 116.

The same pattern occurred with CD-ROMs and library holdings. Rural countywide school districts had about 60 CD-ROMs per school and 10,170 book titles per school, while rural non-countywide school districts had 76 CD-ROMs and 10,800 book titles and mixed rural-urban school districts had about 89 CD-ROMs and 11,800 book titles per school. The difference in CD-ROM holdings between rural non-countywide districts and mixed rural-urban districts was statistically significant.

Quality of Student Achievement

The researcher examined student standardized test scores, including PSSA, SAT and ACT, to reveal one aspect of student academic achievement.

The researcher examined the following six PSSA scores: reading for Grades 11, 8 and 5; and math for Grades 11, 8, and 5.

Generally, rural countywide school districts had higher mean reading scores for all three grades than rural non-countywide districts but lower scores than mixed rural urban districts. For all grades, the most significant differences in reading scores were between

rural non-countywide school districts and mixed rural urban districts, where mixed rural urban districts had significantly higher scores than rural non-countywide districts.

For Grade 11, 8 and 5 math, rural countywide districts had higher mean scores than rural non-countywide school districts but lower scores than mixed rural urban districts. For Grades 8 and 5 math, the most significant differences in scores were between rural non-countywide school districts and mixed rural urban districts, where mixed rural urban districts had significantly higher scores than rural non-countywide districts. For Grade 11 math, the differences in scores between the three school types were not significant.

Percentage of Middle/Junior High Schools by District Offering Various Programs, 1999-2000

Program	Rural Countywide SD	Rural Non-Countywide SD	Mixed Rural Urban SD
Before school programs/clubs	26%	23%	27%
After school programs/clubs	77%	83%	85%
Required art instruction	89%	99%	95%
Required music instruction	89%	99%	92%
Required physical education	88%	99%	97%
Foreign language courses	65%	74%	74%
Industrial arts/technology education	85%	97%	96%
Band/orchestra	88%	99%	97%
Chorus	79%	97%	95%
Theater/arts	67%	75%	76%
Ninth-grade vocational education	28%	32%	17%
Consumer/homemaking education	85%	98%	94%
Tech prep	31%	22%	27%
Independent study	13%	19%	20%
Tutorial/extra help programs	72%	92%	90%
Magnet and/or academy programs	6%	2%	.2%
Honors programs/courses	43%	31%	38%
Environmental education center	32%	20%	17%
Career exploration/career resource center	80%	84%	71%
Community service programs/opportunities	46%	59%	63%
School-to-work activities	24%	59%	37%
Work-based learning	0%	11%	11%
Enrichment programs	85%	86%	89%
Acceleration programs	35%	55%	65%
Parent involvement programs	65%	79%	83%
Business partnership	23%	28%	35%
Distance learning	20%	31%	20%
Intramural sports	63%	59%	61%
On-site lunch service	88%	98%	97%
On-site breakfast service	50%	65%	57%

Percentage of Senior High Schools by District Offering Various Programs, 1999-2000

Programs	Rural Countywide SD	Rural Non-Countywide SD	Mixed Rural Urban SD
Before school programs/clubs	41%	43%	41%
After school programs/clubs	83%	89%	88%
Art course cluster/majors	61%	67%	76%
Music course cluster/majors	61%	57%	66%
Foreign language (non-traditional)	23%	45%	48%
Foreign language (level 5 and above)	39%	30%	45%
Required physical education	89%	96%	97%
Consumer/homemaking education	78%	96%	95%
Industrial arts/technology education	89%	96%	95%
Interscholastic sports	81%	96%	96%
Intramural sports	60%	48%	42%
Band/orchestra	89%	97%	97%
Chorus	89%	96%	96%
Theater/arts activities	89%	95%	93%
Acceleration programs	57%	62%	79%
Tutorial/extra help	64%	86%	86%
Magnet and/or academy programs	0%	3%	5%
Independent study	51%	73%	75%
Enrichment programs	89%	80%	79%
Tech prep	48%	54%	61%
Environmental education center	33%	23%	18%
High-schools-that-work initiative	0%	10%	16%
Higher education course offerings	43%	65%	72%
Career exploration/career resource center	72%	85%	86%
Driver education	74%	87%	81%
Community service programs/opportunities	78%	82%	81%
Business partnerships	39%	58%	64%
Distance learning	39%	58%	43%
School to work activities	89%	92%	83%
Work-based learning	34%	63%	49%
Work study	41%	61%	61%
Honors programs	76%	77%	85%
Parent involvement programs	72%	68%	81%
On-site lunch	89%	98%	96%
On-site breakfast	56%	62%	60%

Academic Attainment

The different paths that high school graduates choose after graduation was an important focus of the study. The researcher measured the percentage of high school graduates who planned to go on to degree-granting colleges and non-degree-granting institutions, and those who planned to start careers, join the military, or become homemakers. (See chart below.)

The percentage of graduates from rural countywide school districts who planned on going to degree-granting colleges was about 59 percent, while rural non-countywide school districts had about 62 percent of graduates who planned to attend and mixed rural-urban school districts had about 66 percent of graduates planning to attend. The difference between rural non-countywide districts and mixed rural-urban districts was significant.

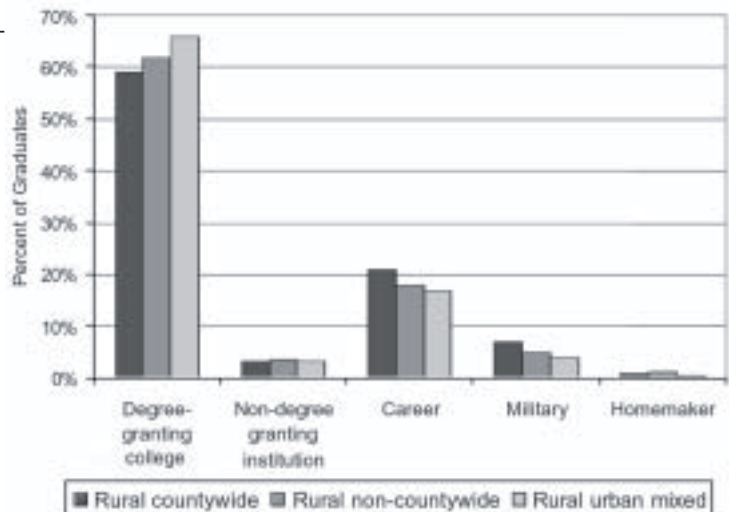
All three school district types had small percent-

SAT and ACT Scores

Rural countywide school districts had higher SAT verbal scores than rural non-countywide school districts but lower scores than mixed rural-urban school districts. Mixed rural urban districts had significantly higher SAT verbal scores than rural non-countywide districts. For SAT math scores, mixed rural urban districts had significantly higher mean scores than rural non-countywide districts. The differences in SAT math scores between rural countywide districts and the other two districts were not statistically significant.

Rural countywide school districts had higher ACT composite scores than rural non-countywide districts and mixed rural urban districts, but the differences were not statistically significant.

Post-High School Plans of Graduates by District Type



ages of graduates planning to attend non-degree-granting institutions, with rural countywide school districts having about 3.1 percent, rural non-countywide school districts having about 3.7 percent and mixed rural-urban school districts having about 3.4 percent. The differences were not statistically significant.

The percentages of graduates planning to pursue careers after graduation were much the same for all three district types, with about 21 percent for rural countywide school districts, 18 percent for rural non-countywide school districts and 17 percent for mixed rural-urban school districts.

Rural countywide school districts had about 7 percent of graduates planning to join the military while rural non-countywide school districts had about 5 percent and mixed rural-urban school districts had about 4 percent. The differences among all school district types were significant.

Rural countywide school districts had about 0.9 percent of graduates choosing homemaking, while rural non-countywide school districts had about 1.2 percent and mixed rural-urban school districts had about 0.6 percent. The difference between rural non-countywide districts and mixed rural-urban districts was significant.

Conclusions

After the investigation of available data, this study provided a picture of the differences among the three school district types in terms of background characteristics, fiscal management, administrative capacity and student achievement. Overall, this study did not find evidence to support school district consolidation in rural Pennsylvania.

As declining student enrollment has become a great challenge for most rural school districts, it is a critical time for policy makers and educational researchers to re-think the feasibility of restructuring school districts. However, the decision should be made only after a comprehensive examination of the efficiency of the existing school district structures. The following conclusions are based on the results of the analyses and provide empirical information for policymakers to foster more complete concepts of school district structures and school district efficiency.

Cost Efficiency vs. Cost Deficiency

The major premise behind the school district consolidation movement is one of cost efficiency, or “economies of scale” (Sher & Tompkins, 1977; Walberg, 1989).

However, from this study, the researcher did not find any evidence to support the concept of economies of scale. Rural countywide school districts had a much larger total district enrollment than the other two types of non-countywide school districts. Consequently rural countywide school districts had much larger total district expenditures than the other types of districts. If “economies of scale” exist, the expenditures per-pupil for rural countywide school districts should be less than those from the other types of non-countywide school districts. The results of this study, however, did not find any statistical differences among the three types of school districts in their per-pupil expenditures. To merge small rural school districts in Pennsylvania on the basis of cost efficiency, therefore, is not supported by this study.

Administrative Capacity vs. Administrative Deficiency

Another perception concerning school district consolidation is increased administrative capacity. This is based on the notion that a centralized district administration with fewer staff can fulfill the same duties. This study examined eight staff categories and found that countywide school districts had significantly higher numbers of total staff members than non-countywide school districts. However, when the ratios of students-per-staff members were compared, the analysis showed no statistically significant differences. This result does not support the concept of increased administrative efficiency through school district consolidation.

Big Means More?

Do big school districts offer more curricular programs than small school districts? Curricular offering is one of the indices most often used to measure the size effectiveness of school districts (Hannaway & Kimball, 2001). Most advocates for school district consolidation argue that big school districts have more specialized teaching faculty as well as more students, which

makes it possible to offer more diversified courses. However, there was no statistically significant difference found in this study among the three types of school districts in terms of the percentage of schools providing certain programs. The results of this study do not support the concept that big school districts have more curricular offerings than small school districts.

Big Means Better?

A point of controversy in studies of the varying sizes of schools or school districts is the claim that students from large school districts achieve more academically than students from smaller schools or school districts. This study, like many others, did not find consistent evidence to support the idea that bigger is better or, conversely, that smaller is better. The results show a very complex pattern in student achievement among

the three types of school districts. Countywide school districts perform better on some test scores but not on others. In addition, countywide school districts, which represent the biggest school districts, perform better than rural non-countywide school districts (small school districts) but not as well as mixed rural-urban school districts (small school districts). The results indicate that school district size might not be the direct reason for lower or higher academic performance of students. In addition, analyses of academic attainment of high school graduates did not reveal statistical differences between countywide school districts and non-countywide school districts in terms of the percentage of high school graduates who go to college or take other career paths. This study does not support the concept that big school districts have more students seeking postsecondary education than small school districts or vice versa.

Policy Considerations

Based on the above findings, the study does not support cost efficiency, administrative efficiency and student achievement as premises for school district consolidation in rural Pennsylvania. However, the study has brought the following considerations to the forefront for policymakers and school district administrators to consider.

Equalize Educational Resources

Although there were no significant statistical differences in program offerings among the different types of school districts, the study found some disadvantages with countywide school districts when compared with non-countywide school districts. For example, countywide school districts have fewer schools offering various programs than non-countywide school districts.

As indicated in both the national version and in the Pennsylvania supplementary document of No Child Left Behind (NCLB), schools and school districts are held accountable for the success of all students. The pre-condition of this promise is equal access to educational resources. The study discovered an unequal distribution of educational resources, including curricular offerings, among rural school districts. This may well create an obstacle in the equal success of all students.

To reach the goals of NCLB in Pennsylvania, it is important for policy makers and educational leaders to review the academic programs in rural school districts and to make sure that all school districts have equal learning opportunities for their students. The No Child Left Behind Pennsylvania supplement mentions equal funding. While this does not necessarily always lead to equal learning access, a more in-depth investigation of curricular offerings is critical for giving all students equal access to educational resources.

Re-examine Consolidation

As mentioned earlier, the perception of cost efficiency and administrative efficiency of larger school districts are not supported by this study. Other methods of increasing school district effectiveness might need to be examined rather than simply consolidating small school districts into larger ones. In addition, most of the existing studies, whether they support consolidation or not, did not distinguish rural school districts from urban school districts. Common sense tells us that the rural setting is very different from the urban setting in a variety of important dimensions. The benefits of consolidation that were found by some previous studies might work very well in urban settings. However, the same benefits may not be applicable to rural settings. Certainly, such benefits have not been witnessed in this study.

Works Cited

- Brazer, H. (1959). *City Expenditures in the United States*. New York: National Bureau of Economic Research.
- Burkehead, J., Fox, T. & Holland, J. (1967). *Input and Output in Large City Schools*. Syracuse, NY: Syracuse University Press.
- Coleman, J. et al. (1966). Equality of Educational Opportunity. ERIC: ED012275.
- Friedkin, N. & Necochea, J. (1988). School system size and performance: A contingency perspective. *Educational Evaluation and Policy Analysis*, 10, 237-249.
- Fowler, W.J., Jr., & Walberg, H.J. (1991). School size, characteristics, and outcomes. *Educational Evaluation and Policy Analysis*, 13(2), 189-202.
- Galles, G. M. & Sexton, R. L. (1995). Diseconomies of School District Size. *Journal of Social Political & Economic Studies*, 20(2), 241-241.
- Haller, E. J., Monk, D. H., & Tien, L. T. (1993). Small schools and higher-order thinking skills. *Journal of Research in Rural Education*, 9, 66-73.
- Hannaway, J. & Kimball, K. (2001). District Response to Reforms: Big Isn't Always Bad: School District Size, Poverty, and Standard-based Reform. In S. Fuhrman (Ed.), *From The Capitol to the Classroom: Standard-based Reform in the States*. Chicago: National Society for the Study of Education.
- Hannaway, J. & Talbert, J. (1993). Bringing context into effective schools research: Urban-suburban differences. *Educational Administration Quarterly*, 29, 164-186.
- Hirsch, W. (1959). Expenditure implications of metropolitan growth and consolidation. *Review of Economics and Statistics*, 41, 232-41.
- Howley, C. (1996). Compounding disadvantage: The effects of school and district size on student achievement in West Virginia. *Journal of Research in Rural Education*, 12, 25-32.
- Kiesley, H. J. (1967). Measuring a local government service: A study of school districts in New York state. *Review of Economics and Statistics*, 49, 356-367.
- Lee, J. (2001). Interstate variations in rural student achievement and schooling conditions. ERIC: ED459037.
- Lee, V. E. & Smith, J. B. (1996). *High school size: Which works best, and for whom?* Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.
- Michelson, S. (1972). For the plaintiffs: equal school resource allocation. *Journal of Human Resources*, 7(3), 238-306.
- Monk, D.H. (1984). Differences in the curricular offerings of large compared to small school districts. In J.P. Bail, W.H. Deming, & D.H. Monk (Eds.), *Improving the quality of small-rural schools*. Ithaca, NY: The Department of Education, Cornell University.
- Monk, D. H. (1987). Secondary school size and curriculum comprehensiveness. *Economic of Education Review*, 6(2), 137-150.
- Monk, D. H. & Plecki, M. L. (1999). Generating and Managing Resources for School Improvement. In J. Murphy & K. Seashore Louis (Ed.), *Handbook of Research on Educational Administration*. San Francisco: Jossey-Bass Publishers.
- Niskanen, W. A. (1998). Student performance and school district size. In W. Niskanen (Ed.), *Policy Analysis and Public Choice*. Northampton: Edward Elgar Publishing Limited.
- Pennsylvania Department of Education (2003). *Pennsylvania System of School Assessment*. Harrisburg, PA: Pennsylvania Department of Education.
- Summers, A. & Wolfe, B. (1977). Do schools make a difference? *American Economic Review*, 67(4), 639-652.
- Sher, J.P., & Tompkins, R.B. (1976). Economy, efficiency, and equality: The myths of rural school district consolidation. *CEFP Journal*, 15(2), 4-7, 13-14.
- Walberg, H.J. (1989). District size and student learning. *Education and Urban Society*, 21(2), 154-163.
- Walberg, H.J., & Fowler, W.J. (1987). Expenditures and size efficiencies of public school districts. *Educational Researcher*, 16(7), 5-13.
- Webb, L.D., & Metha, A. (1983). Educational program quality and school district size. *Texas Tech Journal of Education*, 10(1), 21-28.
- White, F., & Tweeten, L. (1973). Internal economics of rural elementary and secondary schooling. *Socio-Economic Planning Sciences*, 7, 353-369.

***The Center for Rural Pennsylvania
Board of Directors***

Senator John Gordner
Chairman

Representative Tina Pickett
Vice Chairman

Representative Mike Hanna
Treasurer

Dr. C. Shannon Stokes
Pennsylvania State University
Secretary

Senator John Wozniak

Steve Crawford
Governor's Representative

Dr. Nancy Falvo
Clarion University

Dr. Keith T. Miller
Lock Haven University

Dr. Robert F. Pack
University of Pittsburgh

William Sturges
Governor's Representative

Walt Whitmer
Northeast Regional Center for Rural Development



The Center for Rural Pennsylvania
200 North Third St., Suite 600
Harrisburg, PA 17101
Phone (717) 787-9555
Fax (717) 772-3587
www.ruralpa.org
1P0906-700