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The Financial Effects of Consolidation

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ABSTRACT

The purpose of this study was to determine the financial impact of school district consolidation. A survey of the 50 state departments identified 19 consolidations that met the criteria of this study. A longitudinal component provided for the determination of the expenditures and revenues for the three year period after consolidation. The rate of change in these categories was then compared to each consolidated district's respective state average rate of change in the same categories for the same period of time. Results indicated significant savings in the category "Administration" ($p<.05$); in no other expenditure category nor for "Total Revenue" were savings significant. It was concluded that there is no reason to expect financial savings or increased revenues as a result of consolidation. Overall, it appears that the financial impact of consolidation on individual districts is variable and that districts contemplating consolidation should strongly consider the various individual financial factors involved.

INTRODUCTION

School consolidation is a controversial issue that has been debated in rural communities throughout the nation for over 100 years. This conflict is primarily between advocates of local control and those who believe that educational quality and efficiency are improved when schools become larger (DeYoung, 1987). The research literature prior to 1970 supports reorganization on the basis of improved educational opportunity for students and reduced financial costs. However, subsequent to 1970, there has been mounting evidence to indicate that no significant advantages to consolidation exist.

Inevitably, a major justification for consolidation has been predicted financial savings. This study examines the question of whether or not school districts can expect to realize a financial benefit through the process of reorganization.

BACKGROUND

Advantages of Consolidation. A number of studies have attempted to relate school size to financial efficiency. In an investigation of 100 elementary schools, high schools, and school districts in Illinois, Sabulao and Hickrod (1970) determined that the optimum size for financial efficiency was 750 enrollment for grades K-8, 500 students for grades 9-12, and 5,000 pupils for a K-12 school district. Templeton (1972) reviewed the literature and identified the optimum school size as 300-800 enrollment in grades K-8 and 800-1,000 in grades 9-12. A special commission that investigated schools in the State of Washington identified optimum school sizes as 300 for grades K-8 and 1,000-1,500 for grades 9-12 (Riew, 1966). An Illinois study (Illinois State Board of Education, 1985) concluded that high schools with enrollments between 500 and 1,300 provided an array of course offerings, and realized optimum student

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achievement and maximum efficiencies over smaller schools.

In support of economy of scale, which can be defined as the financial benefits realized as a function of increased size of an organization, McGuffey and Brown (1978) determined that operating costs increased when the number of students served was less than the maximum allowed by the design of the building. For example, the $38 cost per pupil for operations and maintenance in schools that operated at 100 percent of capacity increased by $15 for schools housing only 90 percent capacity. A further enrollment decline to 80 percent of capacity resulted in an additional $23 cost per pupil. Similarly, Nelson (1985) identified reduced expenditures for capital improvement as an advantage of consolidation since maintenance of duplicate facilities was not needed.

When comparing smaller with larger high schools in Iowa, it was determined that larger high schools spent less per pupil for the same quality of education but that transportation costs increased when schools consolidated (Cohn, 1968). In a similar project, Riew (1966) identified financial advantages to larger Wisconsin high schools, i.e., increasing school size from 200 to 500 students decreased per-pupil costs by $95.45; increasing from 500 to 1,000 students lowered per-pupil costs by another $110; and increasing from 1,000 to 1,675 students decreased per-pupil costs by an additional $54.67. High schools with enrollments below 900 students were found to benefit the most from consolidation.

Disadvantages of Consolidation. Although larger schools can be more cost effective in some budget categories, these savings are often offset by diseconomies of scale, defined as the financial disadvantages associated with the increased size of an organization. Some potential diseconomies of larger or consolidated schools include: increased costs of transportation; higher rates of vandalism; lack of school bond issue support; and increased salaries due to higher salary schedules; and more specialized staff to offer the promised programs (Sher & Tompkins, 1977).

In the late 1950's, Hirsch (1960) conducted one of the first nationally recognized studies that concluded that larger school districts were not necessarily more financially efficient than smaller school districts. Hirsch's study included 29 school districts in the St. Louis area. The cost categories studied were: total expenditures, capital projects, administration, instruction, auxiliary services, operations and maintenance, and fixed costs. These were compared with average daily attendance, numbers of pupils per square mile, percent of increase in enrollment, and average assessed valuation per pupil. It was concluded that no economies of scale existed and that the sharing of academic programs rather than consolidation should have been pursued as solutions to the fiscal problems of the school districts.

In further support of diseconomy of scale, Rosenberg (1970) suggested that per-pupil expenditures of high schools of 90-260 students were slightly higher than for those schools three or four times that size. In a study involving the 50 states and the District of Columbia, Jewell (1989) found no significant relationship between costs per pupil and enrollment. It was also discovered that 80 percent of the variation in costs was related to the two factors of teacher salaries and pupil/teacher ratios.

Consolidation often results in additional costs for capital expenditures due to the need for larger facilities (Sher & Tompkins, 1977). Maintaining buildings at less than operational capacity may be far less expensive than the costs of upgrading facilities in the receiving district to accommodate an increased number of students (Jewell, 1989).

Financial advantages are not the only factors to consider in school consolidation. A study involving more than 500 school districts in New Jersey regarding the effects of expenditures and school district size on student achievement concluded that there was no significant relationship between cost per pupil and student achievement. Other studies have found that smaller school districts have higher levels of achievement than larger districts as measured by standardized tests (Walberg & Fowler, 1986; DeYoung, 1987).

In a reversal of the "bigger is better" trend, the New York City School District decentralized its school system from one district into 32 districts. The advantages realized from this change include improved student achievement and increased community support (Lederman, Frankl, & Baum, 1987; Rogers, 1981).

Kay, Hapgood, and Russell (1982) suggest that concerns for financial efficiency must not outweigh the effect of the consolidation on the community. If the school is the only source of community services, there should be reluctance to reorganize (McGuffey, & Brown, 1978). For example, in a feasibility study of the consolidation of two school districts in Utah, it was concluded that the issues of community identity and educational programs outweighed any cost savings that may have been realized (Brown & Amsler, 1988).

PURPOSE

The purpose of this study was to compare revenue and expenses for the three year periods before and after districts combined to determine if there were associated financial advantages or disadvantages.

METHOD AND DATA COLLECTION

The longitudinal aspect of this investigation provided pre- and post- consolidation financial data which were compared to determine the long-term effects of combining school districts. Data were obtained by surveying the state departments of the 50 states requesting financial information on those school districts that consolidated during the years of 1980-81 through 1983-84. To reduce the chances of an anomalous year significantly impacting the data, information on district operations were collected for each of the three years prior to the consolidation and for each of the three years after consolidation. The averages of these three year periods were then compared to the equivalent state data to determine the percentage of change in each category. The assumption was that changes in state averages represented normal changes due to inflation and other factors for that state, and that significant deviations by districts from the state average percentage change represented the impact of consolidation. Large variations in dollar amounts between states required that the percentage of change be the unit of analysis. Data were analyzed using the nonparametric Wilcox on matched-pairs, signed-ranks test. This statistical test was used because the assumptions necessary for independent-groups parametric analysis could not be guaranteed; specifically, sample size varied, a normal distribution was unlikely and the contribution of each district to its respective state averages could not be factored out. Consequently, a conservative approach was taken to decrease the chance of generating false significance.

RESULTS

Of the six expenditure categories (Administration, Instruction, Transportation, Operations and Maintenance, Total Costs, and Capital Projects), only Administration (see Table 1) indicated a significant ($p<.05$) savings as a result of consolidation. While the average increase in state costs for this category was 31 percent, districts that consolidated increased their cost by 10 percent for the same time period. For the five remaining categories of expenditures (see Tables 2-6), overall consolidated district averages may be above or below the state averages. However, there was not enough consistency of effect to suggest that consolidation would be likely to significantly impact these expenditure categories. Similarly, even though the average increase in the percentage of revenue (see Table 7) was slightly higher for consolidated districts, the lack of significance would suggest that increased revenue is not a necessary outcome of consolidation.

Post hoc analysis relating district size to the number of occurrences in the data when consolidation was advantageous or disadvantageous also suggests that size of consolidating districts is not an issue. Consolidating districts under 600 students realized financial advantages of 56 percent of the items analyzed and disadvantages in 40 percent of the items with no difference in five percent of the items. Consolidating districts of over 600 students realized financial advantages in 53 percent of the items analyzed and financial disadvantages in 41 percent of the items, with five percent of the items indicating no difference.

CONCLUSIONS

Prior to 1970, consolidation was favored on the basis of perceived financial efficiency and improved educational opportunities. However, later studies have raised questions related to the benefits of reorganization. Recent findings have shown that consolidated school districts incurred no overall fiscal advantages while possibly sacrificing both student achievement and community support.

The outcomes of this effort seem to corroborate recent research by concluding that major financial advantages are not a necessary outcome of school district consolidation. Administrative costs increased at a significantly slower rate than state average costs. However, in the overall budget this may be less than five percent of the budget (Far West Laboratory, 1988) and may not impact the overall expenditure rate to a large degree, especially in smaller rural districts. There were no significant differences in the rates of change in the categories of instruction, transportation, operations and maintenance, total costs, total revenue, and capital projects, when compared to state average costs.

DISCUSSION

The number of reorganizations which met our operational definition of consolidation was smaller than expected. State department personnel indicated that

Table 1

Administration: Average Dollars Per Pupil - Pre and Post Consolidation

Consolidation	District			State		
	Pre	Post	% Change	Pre	Post	% Change
Arkansas #1	92	96	4	86	112	30
Arkansas #2	75	95	27	80	104	30
Arkansas #3	132	197	49	96	125	30
Arkansas #4	114	126	11	96	125	30
Arkansas #5	98	112	14	96	125	30
California #1	181	176	-3	115	153	33
California #2	186	204	10	125	145	16
Iowa	159	211	33	83	99	19
Kentucky	30	30	0	36	46	28
New York	118	115	-3	86	120	40
North Carolina #1	138	175	27	152	201	32
North Carolina #2	112	147	31	124	162	31
Oregon #1	98	130	33	206	303	47
Oregon #2	17	37	118	182	274	51
Tennessee #1	109	47	-57	33	42	27
Tennessee #2	69	50	-28	28	35	25
Texas #1	489	469	-4	259	324	25
Texas #2	417	424	2	259	324	25
Washington	404	481	19	371	466	26
Averages	159	175	10	132	173	*31

*<.05: 10% vs 31% change.

Table 2

Instruction: Average Dollars Per Pupil - Pre and Post Consolidation

Consolidation	District			State		
	Pre	Post	% Change	Pre	Post	% Change
Arkansas #1	773	941	22	942	1348	43
Arkansas #2	973	1331	37	1122	1428	27
Arkansas #3	1484	1779	20	1250	1519	22
Arkansas #4	1080	1604	49	1250	1519	22
Arkansas #5	936	1420	52	1250	1519	22
California #1	1593	1871	17	1839	2306	25
California #2	1845	1775	-4	1481	1822	23
Iowa	942	1185	26	1379	1850	34
Kentucky	663	860	30	847	1087	28
New York	1662	2175	31	2023	2739	35
North Carolina #1	1084	1388	28	1145	1443	26
North Carolina #2	949	1129	19	993	1189	20
Oregon #1	759	1044	38	1336	1829	37
Oregon #2	666	992	49	1174	1684	43
Tennessee #1	664	767	16	827	1044	26
Tennessee #2	574	753	31	715	875	22
Texas #1	1487	1797	21	1268	1686	33
Texas #2	1264	1632	29	1268	1686	33
Washington	1573	1786	14	1576	1928	22
Averages	1104	1380	25	1247	1605	29

Table 3

Transportation: Average Dollars per Pupil - Pre and Post Consolidation

Consolidation	District			State		
	Pre	Post	% Change	Pre	Post	% Change
California #1	225	248	10	85	102	20
California #2	300	361	20	62	81	31
Iowa	71	138	94	108	165	53
Kentucky	88	97	10	100	127	27
New York	185	359	94	221	276	25
North Carolina #1	73	81	11	91	102	12
North Carolina #2	67	86	28	67	90	34
Oregon #1	519	516	3	112	140	25
Oregon #2	106	131	24	95	136	43
Tennessee #1	68	113	66	73	82	12
Tennessee #2	0	0	0	62	75	21
Texas #1	117	178	52	85	101	19
Texas #2	95	126	33	85	101	19
Washington	158	198	25	145	155	7
Averages	145	189	30	99	124	25

Note: Transportation reflects an N of 14 due to one state with five cases not providing that data.

Table 4

Operations and Maintenance: Average Dollars Per Pupil - Pre and Post Consolidation

Consolidation	District			State		
	Pre	Post	% Change	Pre	Post	% Change
California #1	272	369	36	292	364	25
California #2	267	282	6	212	271	28
Iowa	149	232	56	268	300	12
Kentucky	106	150	42	143	203	42
New York	331	376	14	359	430	20
North Carolina #1	203	183	-10	183	225	23
North Carolina #2	162	240	48	146	196	34
Oregon #1	734	600	-18	311	409	32
Oregon #2	98	160	63	276	380	38
Tennessee #1	104	142	37	181	218	20
Tennessee #2	86	116	35	146	194	33
Texas #1	274	338	23	301	371	23
Texas #2	202	279	38	301	371	23
Washington	435	558	28	462	586	27
Averages	225	262	16	233	292	25

Note: Operations and maintenance has an N of 14 due to one state with five cases not providing that data.

Table 5
Total Costs: Average Dollars Per Pupil - Pre and Post Consolidation

Consolidation	District			State		
	Pre	Post	% Change	Pre	Post	% Change
Arkansas #1	1151	1385	20	1422	2016	42
Arkansas #2	1283	1804	41	1623	2229	37
Arkansas #3	1932	2415	25	1793	2458	37
Arkansas #4	1373	2054	50	1793	2458	37
Arkansas #5	1270	1805	42	1793	2458	37
California #1	2261	2916	25	2374	2454	3
California #2	2741	2726	-1	1922	1867	-3
Iowa	1651	2483	50	2203	3065	39
Kentucky	1384	1694	22	1608	2011	25
New York	3232	6118	89	3917	5123	31
North Carolina #1	1872	2416	29	2022	2582	28
North Carolina #2	1661	2066	24	1699	2126	25
Oregon #1	2591	3365	30	2698	3537	31
Oregon #2	1095	1452	33	2381	3235	36
Tennessee #1	1464	1617	10	1523	1898	25
Tennessee #2	992	1237	25	1300	1611	24
Texas #1	2678	3444	29	2151	2904	35
Texas #2	2326	3078	32	2151	2904	35
Washington	2638	3158	20	2744	3367	23
Averages	1873	2481	32	2059	2648	29

Table 6
Capital Projects: Average Dollars Per Pupil - Pre and Post Consolidation

Consolidation	District			State		
	Pre	Post	% Change	Pre	Post	% Change
Arkansas #1	65	138	112	99	121	22
Arkansas #2	31	161	419	107	127	19
Arkansas #3	142	197	39	115	134	17
Arkansas #4	43	99	130	115	134	17
Arkansas #5	91	92	1	115	134	17
California #1	6	12	100	111	234	111
California #2	0	0	0	111	234	111
Iowa	48	75	56	176	217	23
Kentucky	79	78	-1	76	81	7
New York	303	2675	783	266	247	-7
North Carolina #1	54	46	-15	98	114	16
North Carolina #2	91	83	-9	74	89	20
Oregon #1	0	37	3700	220	93	-58
Oregon #2	100	66	-34	197	151	-23
Tennessee #1	732	618	-16	95	132	39
Tennessee #2	26	27	4	145	101	30
Texas #1	81	422	421	244	386	58
Texas #2	358	225	-37	244	386	58
Washington	230	3783	1543	346	246	29
Averages	131	465	255	155	177	14

Table 7
Total Revenue: Average Dollars Per Pupil - Pre and Post Consolidation

Consolidation	District			State		
	Pre	Post	% Change	Pre	Post	% Change
Arkansas #1	1223	1592	30	1612	2100	30
Arkansas #2	1375	2029	48	1843	2233	21
Arkansas #3	2204	2984	35	1961	2456	25
Arkansas #4	1555	2356	52	1961	2456	25
Arkansas #5	1398	2189	57	1961	2456	25
California #1	2307	2922	27	2446	3105	27
California #2	2900	2764	-5	2015	2441	21
Iowa	1659	2362	42	2442	3205	31
Kentucky	1459	1708	17	1615	2026	25
New York	3265	6642	103	3961	5118	29
North Carolina #1	1949	2508	29	2189	2756	26
North Carolina #2	1828	2323	27	1855	2281	23
Oregon #1	3117	3972	27	2710	3454	27
Oregon #2	1215	1781	47	2446	3234	32
Tennessee #1	1631	1735	6	1606	2008	25
Tennessee #2	1079	1313	22	1387	1696	22
Texas #1	2637	3679	40	2171	3016	39
Texas #2	2336	3424	47	2171	3016	39
Washington	2612	3157	21	2747	3375	23
Averages	1987	2707	36	2163	2760	28

most mergers involved a nonoperating school district or districts with different organizational plans (i.e., elementary-only district combining with K-12 district). Consequently, a large number of consolidations were not included in the scope of this study. Although eight states did not respond, follow-up telephone conversations with representatives from these states indicated that the cases included in this study comprised more than half of the total.

This project appears somewhat unique since no other studies were found that compared pre-consolidation financial data with corresponding post-consolidation financial data. In addition this research was limited to financial considerations only while most other studies mixed financial and non-financial factors in their investigations.

When looking at variations in the raw data, it was observed that some district expenditures increased up to twice the percentage rate of their state average expenditures while other school districts recorded net reductions in actual expenditures for select categories. For the category of capital expenditures, three districts posted extremely high percentage increases after consolidation. Overall, it appears that the financial impact of consolidation on districts is variable. Some districts do post select savings in some categories while others spend more; however, there appears to be no overall basis for expecting that significant financial advantage or increased revenues are necessary outcomes of consolidation. These discrepancies may be explained by the uniqueness of each school district in terms of student enrollment, geographic location and categorical revenue receipts and expenditures. A second factor may be attributed to a change in state funding patterns which favored smaller, rural schools over the larger urban or metropolitan institutions. The review of literature would suggest that each school district considering reorganization should study the implications of consolidation in the context of fiscal, educational and community advantages. This study would suggest that districts contemplating consolidation should look in depth at the various individual financial factors involved.

This research did not address district level effects of consolidation due to the nationwide scope of the project. In depth studies should be conducted at the state level to determine the more specific effects of consolidation on individual school districts.

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