Restructuring:
Cost Savings and Benefits

Arkansas Public School Districts

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This report was prepared during a research project conducted by a member of the adjunct faculty, and is provided as a public service to the community. It is intended to provide objective information about the school-finance system Arkansas, and does not reflect the opinion of Webster University or its staff and faculty about the recommended future direction of education policy in Arkansas.

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Abstract

An operational and academic efficiency score was developed for each of the 310 school districts in Arkansas for the purpose of determining the cost and benefits of restructuring. For each district, nineteen (19) operational measures and nine (9) achievement measures were converted to a standardized score. On a continuum from the most inefficient school districts (negative scores) to the most efficient (positive scores), 135 school districts were identified as inefficient and 175 as efficient. In general, the school districts identified as inefficient had high per pupil expenditures, low K-12 teacher salaries, low student-to-teacher ratios, low student-to-administration ratios, and below average test scores. The data indicated that the greatest cost savings would occur when the 117 most inefficient school districts with less than 900 students would reorganize to form school districts of 900 or greater, creating an annual cost savings of $40,097,655. In addition to the cost savings, the major benefits or restructuring would be higher teacher salaries and educational improvements for 47,500 students. Both efficient and inefficient school districts were found in most school district size categories.

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Introduction

During the early 1940s, the Arkansas Education Association (AEA) had established itself as a leader in district reorganization. Low salaries and school reorganization were the main issue of the AEA in the latter part of the decade. Arkansas Initiated Act I of 1948 brought about a reduction from 1,589 school districts in 1948 to 424 districts in 1949. The Act abolished all districts with fewer than 350 children but failed to include a continuing provision. By 1981, 121 school districts had a pupil count of less than 350 students.[1] By 2001, 56 of the state's 310 school districts had fewer than 350 students.[2] From 1983 to 1998 the number of school districts in the state were reduced from 369 to 310.[3]

[1] Ronald Herman Bradshaw, "The Financial Feasibility and Desirability of Establishing a County School System in Arkansas," (Ed.D. diss., University of Arkansas, 1984), p. 9.

[2] Arkansas Department of Education, "Arkansas Statistical Report 2000-2001" (Little Rock: Department of Education, 2002).

[3] See Appendix B, "Annexation/Consolidations of Local Education Agencies (LEA), 1983-2001," Arkansas Department of Education, http://www.as-is.org/search/annexconsol/2001.doc .

The “Educational Equity: Improving School Finance in Arkansas” report to the Arkansas Joint Committee on Education in 1978, stated that the optimum school district enrollment is not absolute, that each state should establish its own optimum enrollment size to allow each district to function at the most effective and efficient level possible. The report indicated that districts with enrollments of 1,000 – 1,499 were the most efficient, based on the average expense per Average Daily Attendance (ADA) and administrative costs were most efficient in districts with enrollments of 1,500 B 4,499. Also, the report noted that very small and very large districts were operating inefficiently.[4]

Recommendation No. 6 of the “Educational Equity” report was School District Reorganization with part (a) stating:

> Immediate steps should be taken to alter state funding procedures so as not to encourage the perpetuation of small inefficient school districts. In the explanation of this recommendation the report went on to say that state finance policy has tended to encourage the maintenance of small units rather than serving as an incentive to reduce their number. “In viewing alternative organizational arrangements, more intensive study of the issue should include overall educational, geographical, and economic considerations before recommendation of a specific revised organization.” [5]

A 1990 study on Arkansas school consolidation explained that certain costs such as

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[4] Bradshaw, “The Financial Feasibility,” p. 25.

[5] Kern Alexander, James Hale, et al., “Educational Equity: Improving School Finance in Arkansas,” (Little Rock: Report to the Advisory Committee of the Special School Formula Project of the Joint Interim Committee on Education, 1978), pp. 243-244.

capital outlay, staff salaries, utilities, and the like, remain for all school districts regardless of size, but that smaller schools are unable to realize any significant economies as fixed expenses are divided among a limited student population, thereby increasing per student production costs. This study also notes that school districts can be either too small or too large to achieve maximum operating efficiency; that studies on school size have suggested that when a district lies within a range of 600 to 1,600 students, optimum economies of scale can be expected. However, the study points out, the scale is subject to circumstances of geographic location, transportation, and capital outlay expenditures. The study cautions that consolidation of school districts must be considered on an individual basis, weighing the advantages and disadvantages of each particular case.[6]

The Arkansas Association of Educational Administrators produced a study in 1999 on school consolidation which indicated that mass consolidation would not save millions of dollars; that savings in one area often offset additional expenses in other areas. The study suggest to those who propose large-scale consolidation to determine if larger districts will provide more opportunities for children to take the courses they want; more efficiency in the administration of the schools; and more qualified specialists in curriculum, finance, and pupil transportation.[7]

Arkansas 2001-2002

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[6] Richard Patrick Paul, "The Arkansas School Consolidation Issue: A Study of the Relationship of Certain Input Variables on School Effectiveness," (Ed.D. diss., University of Arkansas, 1990), pp. 70-72.

[7] Truett Goatcher, "School District Consolidation Will Save Millions of Dollars: Fact or Myth?" (Little Rock: Arkansas Association of Educational Administrators, January 1999) p. 10.

In May 2001, the State's system of funding public education was declared both inadequate and inequitable and, as a result, unconstitutional by Collins Kilgore, chancery court judge in Pulaski County.[8] The Arkansas Legislature created the Blue Ribbon Commission on Public Education in April 2001 in anticipation of the court's ruling. A 25-member panel was formed to conduct a comprehensive review of the state's education system and to make recommendations to the 2003 General Assembly.[9]

The Organizational Structure subcommittee of the Arkansas Blue Ribbon Commission on Public Education recommended the following in June 2002:

> Any school district that does not meet the required core curriculum or cannot meet the minimum teacher salaries by September 2003 shall be dissolved and reorganized with contiguous districts as determined by the Board of Trustees of the schools by July 2004. Consideration of the following shall provide justification for the decisions:
>
> (a) geography and community activity patterns
> (b) amount of time a child spends on the bus
>
> Incentive monies according to the current incentive formula shall be provided to schools that consolidate voluntarily by September 2003. Cost recommendation, $4 million for the 2003-2005 biennium.
>
> Amend Arkansas= Public School Choice statute to enhance the ability of students and parents to utilize it and create regional high schools dispersed throughout the state.
>
> These changes would:
>
> a) Offer student access to an expanded curriculum
> b) Offer greater access to higher education
> c) Offer greater access to vocational education
> d) Address the problem of inefficiency (particularly at the high school level)

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[8] On November 21, 2002, the Arkansas Supreme Court affirmed the chancery court ruling that the State's system of funding public education was both inequitable and inadequate and therefore unconstitutional.

[9] Cynthia Howell, "Education Panel Stands Pat," *Arkansas Democrat Gazette*, 20 June 2002, sec. 1A, 7A.

e) Address the problem of teacher shortage (especially in some rural areas)
f) Address to a greater degree the issue of teacher salaries
g) Address the issue of facilities (elementary facilities are often better)[10]

The Advisory Committee to the Arkansas Board of Education also proposed school reforms after the May 2001 court decision. The August 2002 report by the Advisory Committee discussed improving the efficiency of elementary and secondary education by asking the question, "Does the system accomplish the purposes for which it was created with the least consumption of resources (economic efficiency or efficient use of resources)?" A study produced for the committee by the Education Commission of the States on Arkansas school districts found low pupil-to-teacher ratio as an indicator of economic inefficiency because the low ratio increased the consumption of resources while decreasing the likelihood of achieving the system's purpose. This study indicated that low pupil-to-teacher ratios in Arkansas school districts are primarily, though not exclusively, the result of operating small high schools. The committee's report states that the primary policy tool considered by SBAC to-date for dealing with economic inefficiency of small high schools are requiring all high schools to teach all 38 units each year and requiring school districts to substantially increase the minimum teacher's salary while leaving the state aid formula basically unchanged. The report also discusses an alternative that more directly addresses economic efficiency by the state, 'unit funding.' They explain that the basic idea of 'unit funding' is that the state determines the number of students that constitute a 'unit' for various cost factors, sets a

[10] Arkansas Blue Ribbon Commission on Public Education, "Adopted Recommendations and Costs," 19 June 2002.

dollar value to the unit, computes a district's entitlement, then calculates state and local shares. In this way, they explain, the state attaches a cost to necessary services and provides funding to districts on that basis.[11]

As past and present studies on Arkansas school district consolidation, economies of scale and efficiency have shown that an optimum enrollment size to allow each district to function at the most effective and efficient level possible is not absolute, and that all school districts regardless of size have certain costs and because of these costs, smaller schools are not able to realize any significant economies because the fixed expenses are divided among a limited student population. Also, a low student-to-teacher ratio contributes to the consumption of resources. Two of the studies cautioned that consolidation of school districts must be considered on an individual basis, weighing the advantages and disadvantages of each particular case.

Restructuring: Cost Savings and Benefits

The purpose of this study was to determine on a broad scale the magnitude of the costs and benefits of restructuring the state's educational system. The question posed was, "If the state educational system were restructured, what amount of cost savings might be available for educational improvements?"

The first step in determining the cost savings of restructuring was to create a plan for identifying school districts that were operating efficiently or that were producing the desired effect with desired costs relative to the state average. From past studies on

[11] Education Advisory Committee Report to the State Board of Education, August 2002.

economies of scale and efficiency, we found that an optimum enrollment size to allow each district to function at the most effective and efficient level was not absolute. After a review of school district size and expenditure per pupil, and past studies, the conclusion was that this study must look at each school district individually over many variables if a defensible determination was to be made about restructuring through the identification of effective and efficient school districts.

Another influence on the construction of the study came from the Town Meetings of the Blue Ribbon Commission that were held across the state in the Spring of 2002. Many citizens voiced their concern that school districts should not be judged 'just by size' on school district reorganization, but that all components of the district should be examined, especially achievement outcomes.

After much reflection, a set of criteria for examining each school district was devised. The criteria were "indicators of efficiency." In all, 28 indicators of operational and academic efficiency were examined, including nine indicators of achievement outcomes. These indicators were selected through four categories that were determined to be instrumental to a school district's operation as an educational institution. The four categories and their indicators of efficiency were:[12]

I. Fiscal Efficiency (8 indicators)
II. Academic Achievement Efficiency (9 indicators)
III. Size Efficiency (5 indicators)
IV. Administration Efficiency (6 indicators)

[12]See Appendix A for a definition of each indicator. Data Documents: Arkansas Department of Education, Arkansas Statistical Report, ASR_001(2000-2001), ASR_000, (1999-2000).

The indicators of each category are:

I. Fiscal Efficiency: 8 Indicators

a. Difference: The percent of Local Average Daily Membership (ADM) to State ADM – Minus the percent of Local Net Current Expenditure to State Net Current Expenditure[13] local ADM/State ADM – local per pupil costs/state per pupil costs. State average for both: .3226 percent.
   i. (Logic: Relative to the state, if a school district has 20 percent of the students, then the school district should have 20 percent of the costs. If the percentage of student cost were greater than the percentage of students, the school district would show student costs greater than the average and a negative standardized score.)

b. Average K-12 Teacher Salary (No Federal Funds)
   i. K-12 Teacher Salary - K-12 Certified Full time Equivalency. The FTE of K-12 certified employees of the district that include K-12 classroom teachers, librarians, counselors, psychologists, and other K-12 certified, non-administrative employees and paid from the Teacher Salary Fund. Certified employees paid from federal funds are not included. Amount Paid K-12 Certified Full Time Equivalency. The total salaries of all K-12 Certified Full time Equivalency. Benefits paid by the districts such as teacher retirement, FICA/Med and state mandated insurance payments are not included. In 2000-2001 the amount paid to substitute teachers was excluded in the ASR. The 1999-2000 ASR included the amount paid to substitute teachers. 2000-2001

c. Transportation Cost as a Percent of Net Current Expenditure (No Federal Funds)
   i. Student Transportation cost divided by Net Current Expenditure.
   ii. Student Transportation cost includes salaries, benefits, purchased services, supplies, property, other.

d. Transportation Cost per pupil in ADM
   i. Student Transportation cost divided by the number of students in ADM.

e. Teacher K-12 Salary as a Percent of Net Current Expenditure[14]

[13] Net Current Expenditure: Current Expenditures without Federal Funds was used for all computations that included Current Expenditure.

[14] K-12 Teacher Salary does not include employees paid from federal funds. Also, benefits paid by the districts such as teacher retirement, FICA/Med and state mandated insurance payments are not included.

i. K-12 Teacher Salary divided by Net Current Expenditure.

f. Certified Non-teacher Salary as a Percent of Net Current Expenditure
   i. Certified Non-teacher Salary (same as Administrative Employee Salary) – Amount paid Certified Full Time Equivalency less K-12 Certified Full Time Equivalency which would equal administrative employees including superintendents, assistant superintendents, principals, and supervisors employed by the district and paid from the Teacher Salary Fund. Certified employees paid from federal funds are not included. Benefits paid by the districts such as teacher retirement, FICA/Med and state mandated insurance payments are not included. 2000-2001

g. Maintenance and Operation (M&O) as a Percent of Net Current Expenditure
   i. Operations and Maintenance Expenditures by District, includes Salaries, Benefits, Purchased Services, Supplies, Property, Other divided by Net Current Expenditure.

h. M&O per pupil in (ADM)
   i. Operations and Maintenance Expenditures by District, includes Salaries, Benefits, Purchased Services, Supplies, Property, Other divided by the number of students in ADM.

II. Academic Achievement Efficiency: 9 Indicators

a. Benchmark 4 - Math Proficiency (% of Students at this level)
b. Benchmark 4 - Literacy Proficiency (% of Students at this level)
c. Benchmark 8 - Math Proficiency
d. Benchmark 8 - Literacy Proficiency
e. ACT Composite years (1999-2000, 2000-2001)
f. SAT Grades 5, 7, 10 (1999-2000) Norm Curve Equivalency (NCE)

III. Size Efficiency: 5 Indicators

a. ADM per School (Number of students in each school)
b. ADA Percent Change (5 Years) Negative change
c. ADM per K-12 FTE Teacher (Student to Teacher Ratio)
d. ADM per Certified Non-teacher (Student to Administrator Ratio)

e. ADM per Grade (Students per grade; 13 grades)

IV. Administration Efficiency: 6 Indicators

a. Number of K-12 Teachers per Certified Administrator
b. Number of Classified Personnel per Certified Administrator
c. School Administration Costs as a Percent of Net Current Expenditure[15]
d. School Administration Costs per ADM
e. Administrators Salary as a ratio to Teacher Salary
f. Superintendent Salary per ADM

See Appendix A for a full definition of each indicator.

Standardized Scores

Each of the 28 indicators was converted to a standardized score so that each school district would be relative to the other school districts in the state on each measure. The standardized score or 'Z' score would have a mean of zero and a standard deviation of one. The relative position of each school district on each indicator would be the number of standard deviations above or below the mean of zero. The total score of the 28 standardized indicators for each school district would indicate an efficient or inefficient school district, relative to the other school districts, as measured by these indicators.

It should be noted that free and reduced lunch rate and race were not included as indicators of operational and academic efficiency, as neither are a cost item or an outcome measure. Federal funds and students per square mile were also not included

[15] F33 Expenditure II Report, "School Administration Expenditures by District: School Administration Salary, Benefits, Purchased Services, Supplies, Property, Other, Total," ASR_01.

as efficiency measures. Race, free and reduced lunch rate, and students per square mile were presented in the study only to describe the demographics of each school district.

Presented in the next section is an overview of the 310 school districts in Arkansas by school district size. This will allow for an understanding of how many school districts are within a certain district size, the number of students within a district size category, and the relationship between district size and student cost.

Descriptive Overview of Arkansas School Districts 2000-2001

In 2000-2001, Arkansas had 444,978 students in Average Daily Membership (ADM) attending 310 school districts with total spending for net current expenditures (excludes federal funds), of over $2.3 billion. The average net current expenditure per pupil in ADM was $5,207. The school districts employed 23,982 full time classified and 31,109 full time K-12 certified personnel (see Appendix E for additional Arkansas facts from 1969 to 2000). The average salary for a K-12 teacher was $34,729 and for a school district superintendent, $72,580.

School district enrollment ranged from 71 pupils in ADM in Witts Springs (Searcy County) to 23,444 in Little Rock (Pulaski County). Of the 310 school districts, 196 show an enrollment of less than 1,000 students in ADM. These 196 districts represent 63 percent of the districts and 23 percent of the state total ADM. Presented in Table 1 is an overview of the 310 school districts by size. For illustration purposes, note in Table 1

that district size category between 200 and 299 students records 31 school districts which represents 10 percent of all districts, 1.8 percent of all students in ADM, and an average net current expenditure of $6,189 per student.

Table 1
School District Size
Arkansas 2000-2001

School District Size	# of Districts by Size	% of Total Districts	Total ADM by Size	% of Total ADM	Current Expenditure Net/ADM	Current Expend. with Fed/ADM
0 - 99	2	.65%	159	0.04%	$8,397	$9,477
100 - 199	12	3.9%	1,906	0.4%	7,411	8,232
200 - 299	**31**	**10.0%**	7,937	**1.8%**	**6,189**	6,880
300 - 399	25	8.1%	8,623	1.9%	5,386	6,009
400 - 499	26	8.4%	11,512	2.6%	5,261	5,872
500 - 599	37	11.9%	20,520	4.6%	5,111	5,701
600 - 699	15	4.8%	9,888	2.2%	4,927	5,560
700 - 799	20	6.5%	14,944	3.4%	4,967	5,615
800 - 899	16	5.2%	13,383	3.0%	5,053	5,598
900 - 999	12	3.9%	11,325	2.5%	4,734	5,265
1,000 - 1,999	62	20.0%	86,239	19.4%	4,910	5,458
2,000 - 2,999	21	6.8%	52,654	11.8%	4,866	5,418
3,000 - 3,999	10	3.2%	34,631	7.8%	5,133	5,616
4,000 - 4,999	6	1.9%	26,170	5.9%	5,132	5,669
5,000 - 5,999	4	1.3%	22,399	5.0%	4,934	5,489
6,000 - 6,999	2	0.6%	13,301	3.0%	5,134	5,533
7,000 - 7,999	3	1.0%	22,771	5.1%	5,317	5,669
8,000 - 8,999	1	0.3%	9,079	2.0%	6,300	6,669
10,000-10,999	1	0.3%	10,925	2.5%	4,782	5,205
11,000-11,999	1	0.3%	11,320	2.5%	4,733	5,487
12,000-12,999	1	0.3%	12,479	2.8%	5,774	6,153
19,000-19,999	1	0.3%	19,376	4.4%	5,848	6,382
20,000+	1	0.3%	23,444	5.3%	6,673	7,133
Total or Avg.	310		444,985		$5,207	$5,738

Presented in Figure 1 and Figure 2 are expenditure per pupil by school district size as exhibited in Table 1. Shown in Figure 1 is Net Current Expenditure per student in ADM by the smallest to the largest school district size. Current Expenditure including Federal Funds is shown per student in ADM by school district size in Figure 2.

Figure 1

Figure 2

School Districts by Efficiency Score

After the 28 indicators of efficiency for each school district were converted to a standardized score, the 28 standardized scores were totaled, and the 310 school districts were ranked on the total efficiency score. The total standardized efficiency score for the districts ranged from -3.029 to +2.1903. This indicates that the most inefficient school district, as measured by the 28 indicators, was three standard deviations below the mean and the most efficient school district was two standard deviations above the mean. (For detailed information on these indicators, see School

District Data) [click on 'Cancel' if asked for a login and password]. Overall, 135 school districts had a negative score, or an indication of being inefficient, and 175 had a positive or efficient score.[16]

Because there were different degrees of inefficiency and efficiency, as measured by the 310 standardized scores, the school districts were placed in eight categories based on their total standardized score ranging from the most inefficient to the most efficient. School districts with a standardized score between -3.0 and -1.04 were labeled INEF1, indicating the most inefficient school districts. Standardized scores between +1.01 and +2.19 were labeled E1, the most efficient districts. The line graph depicts the continuum nature of the standardized scores with zero (0) as the mean, negative scores to the left of the mean, and positive scores to the right.

INEF1 (most inefficient)			Mean		(most efficient)	E1
-3.0	-1.0	-.50	0	+.50	+1.0	+2.0

The –3.0, representing the most inefficient school district score, indicates a score that is three standard deviations below the mean on the combined 28 measures of efficiency. The 310 school district scores fall between the –3.0 and +2.0, with +2.0 being the most efficient score or two standard deviations above the mean.

Presented in Table 2 are the eight categories of efficiency, starting with INEF1, the most inefficient, the standardized score range within each category, the number of school districts in each category, and other school district information.

[16] For a ranking of the 310 school districts on the 28 indicators of efficiency see, Spreadsheet: Data

Restructuring, Sheet – DataEfficSort (prints 70 pages, 88 columns).

Table 2
ADM, Expenditure, Salary, O & M by
School District Efficiency Rank
Arkansas (2000-2001)

Efficiency Rank Low to High	Standardized Score Range (Z - Score Range)	# Districts	# Counties	# Schools	ADM	Current Net Exp /ADM	Avg. K12 Teacher Salary	O&M per ADM	Student to K12 Teacher Ratio
INEF1	-3.0 to -1.04	43	32	89	14,149	$6,328	$29,167	$887	11.7
INEF2	-0.92 to -0.50	35	31	84	19,323	5,453	30,173	651	12.8
INEF3	-0.49 to -0.25	27	24	75	23,523	5,374	32,242	591	13.4
INEF4	-0.24 to -.0082	30	25	90	25,756	5,161	31,492	584	13.5
E4	+.0065 to +0.24	36	29	178	72,850	5,735	35,784	606	13.4
E3	+0.25 to +0.49	40	34	170	69,344	5,116	34,335	564	14.7
E2	+0.50 to +0.99	51	34	159	63,374	4,897	33,133	499	12.5
E1	+1.07 to +2.19	48	30	282	156,666	4,980	37,422	512	15.5
State		310	75	1,127	444,985	$5,207	$34,729	$560	13.3

Note: INEF1 = Lowest efficiency rank; E1 = Highest efficiency rank

From Table 2, the data indicate that the 43 most inefficient ranking school districts record the highest expenditure per pupil, the lowest average teacher salary, the highest per pupil cost for operations and maintenance, and the lowest student-to-teacher ratio relative to the other school districts in the state. For these 43 school districts, expenditure per pupil was $1,121 above the state average while average teacher salary was $5,562 below the state average. Average operations and

maintenance cost was above the state average by $327 per student and on another note, 40 of the 43 districts experienced a decline in enrollment from 1995-96 through 2000-01 of 3 percent to 35 percent.[17]

As noted in Table 3, the 43 most inefficient school districts are not the poorest school districts in the state as measured by assessed property value per pupil. Their average assessed property value per pupil was $48,777 compared to the state average of $47,951. Two of the most inefficient school district categories, INEF2 and INEF3, did record the lowest average school district wealth at $42,250 and $41,843, respectively, on assessed property value per pupil.

Table 3
Selected Revenue & Expenditures
by School District Efficiency Rank
Arkansas 2000-2001

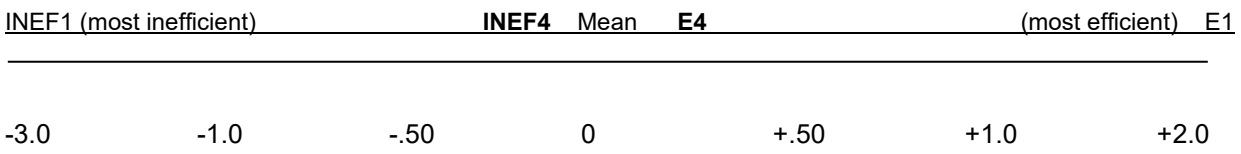
Efficiency Rank	# Districts	Assessed Value / ADM	Total Mills	Local Tax Receipts/ ADM	O & M % Current Net Exp.	K12 Teacher Salary as % Net Current Exp.
INEF1	43	$48,777	33.3	$1,462	14.0%	39.4%
INEF2	35	42,250	32.0	1,273	11.9	43.3
INEF3	27	41,843	31.3	1,160	11.0	44.7
INEF4	30	48,817	31.4	1,375	11.3	45.1
E4	36	63,232	33.5	2,257	10.6	46.6
E3	40	49,458	31.4	1,552	11.0	45.6
E2	51	54,155	31.6	1,540	11.6	54.0
E1	48	58,364	32.1	1,755	10.3	48.6
State		$47,951	32.0	$1,664	10.8%	46.6%

Note: INEF1 = Lowest efficiency rank; E1 = Highest efficiency rank

[17] See Spreadsheet, Data Restructuring, Sheet – DataEfficSort.

The 43 most inefficient school districts spent 14 percent of their net current expenditure on operations and maintenance compared to the state average of 10.8 percent, and 39.4 percent on K-12 teacher salaries compared to 46.7 percent for the state average. In summary, their operations and maintenance expense was higher than the state average and their K-12 teacher salary expense was lower than the state average, as a percent of net current expenditure.

Tables 4 and 5 present average test score results for the eight categories of school district efficiency. On all four measures of the Benchmark Exam, all three-grade levels of the SAT, and the two ACT composite scores, the average achievement scores range from low to high from the most inefficient to the most efficient school districts. On an average, the inefficient school districts have the lowest achievement scores on all the test measures and the efficient school districts have the highest achievement scores, with a few exceptions for the categories of INEF4, the least inefficient school districts, and E4, the least efficient school districts. Both INEF4 and E4 scores are close to the mean score of zero (0), either slightly below or above the mean as shown in the line graph below.



Also, presented in Table 4 is average 2000-2001 superintendent salary by efficiency category. In the 43 most inefficient school districts, on an average, one

superintendent served 329 students compared to 3,264 in the 48 most efficient districts. Average per pupil cost for the superintendent's salary in the 43 most inefficient districts was $263 compared to $45 in the 48 most efficient districts.

Table 4
Benchmark Exam - Proficiency Level
by School District Efficiency Rank
Arkansas

Efficiency Rank	# Districts	Superintendent Salary 2001-2002	B4 Math Proficiency 1999-2000	B4 Literacy Proficiency 1999-2000	B8 Math Proficiency 1999-2000	B8 Literacy Proficiency 1999-2000
INEF1	43	$63,266	14.1	23.4	10.2	19.6
INEF2	35	63,528	18.9	37.3	13.9	27.2
INEF3	27	69,055	17.6	35.8	11.9	25.5
INEF4	30	68,341	24.9	43.0	18.6	35.0
E4	36	74,527	20.1	39.6	17.1	32.1
E3	40	74,408	21.9	40.2	18.9	33.5
E2	51	73,534	25.4	47.0	22.9	37.9
E1	48	86,644	25.1	50.1	25.0	39.3
State		$72,000	21	40	18	32

Note: INEF1 = Lowest efficiency rank; E1 = Highest efficiency rank

Following in Table 5 are the average test scores for SAT Grades 5, 7, and 10 for 1999-2000, and the ACT composite score for 2000-2001 and 2001-2002 by the eight levels of school district efficiency. The category of INEF1, containing the 43 most inefficient school districts, records the lowest test score averages while E1, containing the 48 most efficient school districts, records the highest test score averages on all five of these test measures. The 30 least inefficient school districts (INEF4) and the 36 least

efficient school districts (E4) are the exceptions to the observation of a continuum of low to high-test scores from inefficient school districts to efficient school districts. Both categories, INEF4 and E4, are located slightly below or above the mean of “0”.

Table 5
SAT and ACT
by School District Efficiency Rank
Arkansas

Efficiency Rank	# Districts	SAT Grade 5 1999-2000	SAT Grade 7 1999-00	SAT Grade 10 1999-00	ACT Comp 01 2000-01	ACT Comp 02 2000-02
INEF1	43	40.7	41.4	39.0	17.1	17.8
INEF2	35	45.6	43.5	42.9	18.9	18.8
INEF3	27	45.1	45.6	41.9	19.3	18.9
INEF4	30	48.6	50.0	46.4	20.1	19.7
E4	36	48.6	49.6	48.3	19.9	20.1
E3	40	50.3	50.9	48.4	20.3	20.0
E2	51	51.4	53.3	51.4	20.7	20.4
E1	48	56.4	55.6	53.5	21.1	21.0
State		48.6	48.8	48.6	19.8	19.7

Note: INEF1 = Lowest efficiency rank; E1 = Highest efficiency rank

As stated earlier, race and the percentage of students on free and reduced lunch were not measures of efficiency, nor was the number of students per square mile. To help present an overall view of the school districts located within the eight categories of efficiency these demographic measures are presented in Table 6. On an average, the most inefficient school districts have the highest percentage of students receiving free and reduced lunch and the least number of students per square mile among the school

districts in the state. The 48 school districts in E1, the most efficient school district category, have the highest percentage of Hispanic students and the greatest number of students per square mile. School districts in three of the four most inefficient categories, INEF1, INEF2, and INEF3, record the highest percentage of African American students and the highest percentage of free and reduced lunch students of the eight categories of efficiency.

Table 6
Race, Free & Reduced Lunch, Square Miles
by School District Efficiency Rank
Arkansas

Efficiency Rank	# Districts	2001- 02 %White	2001- 02 %Black	2001- 02 %Hispanic	2001- 02 % Free & Reduced	ADM/ SQ.MILE
INEF1	43	53%	45%	2%	71.8%	2.8
INEF2	35	70	27	2	61.7	3.7
INEF3	27	68	29	2	60.3	7.3
INEF4	30	84	13	3	53.6	5.8
E4	36	81	16	3	47.7	24.1
E3	40	83	14	3	46.9	10.1
E2	51	93	4	2	42.3	11.2
E1	48	90	5	4	35.7	26.1
State	310	71%	23%	4%	51.4%	12.0

Note: INEF1 = Lowest efficiency rank; E1 = Highest efficiency rank

School District Size and School District Efficiency Categories

When combining the information on school district size with the eight school district efficiency categories, we find that 118 of the 135 most inefficient school districts have less than 1,000 enrollment in ADM. In total, there are 196 school districts that have less than 1,000 ADM. Table 7 presents the number of school districts by size and by efficiency categories. The data in this table show that efficient and inefficient school districts are found in most school district size categories.

As noted in Table 7, all 14 school districts with an ADM of less than 200 students record the highest inefficient scores on the 28 indicators of efficiency. Also, it should be pointed out that three of the 31 school districts with 300 - 399 ADM record an efficient score; 10 of the 26 districts with 400-499 ADM record an efficient score; and 16 of the 37 districts with 500-599 ADM record an efficient score. It is not until we get to 600-699 ADM that we have more school districts with an efficient score than with an inefficient score (9 to 6, respectively, or 60 percent with an efficient score). All 21 school districts with an enrollment between 2,000 and 2,999 record an efficient score, but five are at E4, the least efficient of the efficient categories as the efficiency score is nearing zero.

Table 7
Number of School Districts by Size and Efficiency Categories

Size (ADM)	# Dists	INEF-1	INEF-2	INEF-3	INEF-4	E4	E3	E2	E1	TOTAL INEF	TOTAL E	% E1+E2
0-99	2	2								2	0	0%
100-199	12	11	1							12	0	0%
200-299	31	15	9	1	3	2	1			28	3	0%
300-399	25	5	6	4	6	1	1	2		21	4	8%
400-499	26	4	5	4	3	6	3	1		16	10	4%
500-599	37	3	6	5	7	4	8	4		21	16	11%
600-699	15	1		3	2	1	3	4	1	6	9	33%
700-799	20		4	2	1	1	3	5	4	7	13	45%
800-899	16	1	2		1	3	4	2	3	4	12	31%
900-999	12			1		1	2	6	2	1	11	**67%**
1000-	62	1	1	6	5	8	10	19	12	13	49	50%
2000-	21					5	1	6	9	0	21	71%
3000-	10		1		2	2		1	4	3	7	50%
4000-	6			1			1	1	3	1	5	67%
5000-	4						1		3	0	4	75%
6000-	2						1		1	0	2	50%
7000-	3								3	0	3	100%
9000-	1					1				0	1	0%
10000-	1								1	0	1	100%
11000-	1								1	0	1	100%
12000-	1								1	0	1	100%
19000-	1						1			0	1	0%
20000-	1					1				0	1	0%
Total	310	43	35	27	30	36	40	51	48	135	175	

Note: See Table 1 for complete size categories. For example, 1,000-1,999, 2,000-2,999, 3,000-3,999, . . . 20,000+
INEF1=most inefficient, E1=most efficient

.The last column in Table 7 shows the percentage of school districts by size that have an E1 and E2 ranking, the most efficient rankings for the districts. The smallest district size that records 50 percent or more of the districts with an E1 or E2 ranking is 900 to 999 ADM. When combining school district size and the most efficient categories (E1 and E2), the data indicate that the most efficient K-12 Arkansas school districts are those with an enrollment of at least 900 students in ADM up to 12,000 students. But, it should be noted that 26 of the 184 school districts that have less than 900 ADM scored E1 or E2 (the highest efficiency rating) on the efficiency scale.

Cost Savings to Restructure

Several scenarios were used to compute the cost savings of school district restructuring. The first scenario involved the average cost per student of the 101 most efficient school districts (E1 and E2) as the measure of what an efficient school district's cost per student should be if that school district had an average ADM of 2,000. The current expenditure per student of the 101 most efficient school districts was $4,958 and the average enrollment in ADM was 2,000.

To arrive at the cost savings for this first scenario, ADM for each of the 131 most inefficient school districts with less than 2,000 students was multiplied by $4,958. Each product was subtracted from the district's total net current expenditure, resulting in the cost savings for restructuring to a 2,000 ADM district. Twenty-two (22) of the 131 most inefficient school districts had expenditure per student of less than $4,958 so the cost to level up for those school districts was $2,847,117. The cost savings for the remaining

districts was $38,131,904, resulting in a net cost savings of $35,284,787.

The second scenario was to apply the average State cost per student of $5,207 to the 131 most inefficient school districts with an ADM of less than 2,000. The net cost savings was $18,310,955.

The third and fourth scenarios were to apply the average cost per student of the most efficient school districts with an average enrollment of 900 students in ADM to the most inefficient school districts with the same or less ADM. The average cost per student for the most efficient school districts with an average enrollment of 900 students in ADM was $4,722. Applying this cost to the 117 inefficient school districts with less than 900 students equated to a total net savings of $40,097,655. Applying the same average cost to the 106 inefficient school districts with less than 600 students resulted in a net savings of $34,471,410.

In each of the scenarios, some school districts had to receive extra funding to bring them up to the expected cost level while other districts recorded a savings. Table 8 presents a summary of the different cost savings by different scenarios.

Table 8 Cost Savings Cost per Student by Most Efficient School Districts Applied to the Most Inefficient School Districts				
Suggested School District Size in ADM	Average Current Expenditure/ADM of Efficient Dists.	# Most Inefficient School Districts with less than suggested ADM	Total ADM of Inefficient School Districts	Net Savings
600	$4,722	106	38,903	$34,471,410
900	$4,722	117	47,488	$40,097,655
1,000	$4,736	118	48,934	$38,617,996
2,000	$4,958	131	68,168	$35,284,787
State Avg.	$5,207	135	87,751	$23,356,931

The data from Table 8 indicate that the greatest cost savings would occur when the 117 most inefficient school districts with less than 900 ADM would reorganize to form school districts of 900 ADM or greater, creating a cost savings of $40,097,655.

To complete the outlook of restructuring, the 117 most inefficient school districts with less than 900 ADM were placed with the 75 counties in the state. Table 9 presents the number of school districts and the number of inefficient school districts with less than 900 ADM for each county.[18] This table could help determine the possibilities of restructuring an inefficient school district with an efficient one within the same county.

[18] For school districts by county see Spreadsheet: Data Restructuring, Sheet – County.

117 Most Inefficient School Districts by County

Presented in Table 9 are the 75 counties in the state, the number of districts within each county and the number of 117 inefficient districts with less than 900 ADM.

Table 9
117 Inefficient School Districts with Less than 900 ADM
by County

County	# Districts in County	# Inefficient Districts Less than 900 ADM	County	# Districts in County	# Inefficient Districts Less than 900 ADM
Arkansas	4	2	Lawrence	6	2
Ashley	3	1	Lee	1	0
Baxter	3	0	Lincoln	3	2
Benton	7	1	Little River	2	1
Boone	6	0	Logan	4	0
Bradley	2	1	Lonoke	4	0
Calhoun	1	1	Madison	3	2
Carroll	3	0	Marion	3	1
Chicot	3	2	Miller	4	1
Clark	2	1	Mississippi	6	0
Clay	3	0	Monroe	3	2
Cleburne	5	1	Montgomery	3	1
Cleveland	3	1	Nevada	3	2
Columbia	6	5	Newton	4	3
Conway	3	2	Ouachita	4	2
Craighead	8	0	Perry	3	1
Crawford	5	1	Phillips	5	3

Table 9 continued

Table 9 117 Inefficient School Districts with Less than 900 ADM by County					
County	# Districts in County	# Inefficient Districts Less than 900 ADM	County	# Districts in County	# Inefficient Districts Less than 900 ADM
Crittenden	5	3	Pike	4	2
Cross	3	2	Poinsett	5	2
Dallas	3	2	Polk	5	4
Desha	4	2	Pope	5	0
Drew	2	0	Prairie	3	2
Faulkner	6	2	Pulaski	3	0
Franklin	5	3	Randolph	4	3
Fulton	3	0	St Francis	3	2
Garland	7	1	Saline	5	0
Grant	2	0	Scott	1	0
Greene	4	1	Searcy	4	3
Hempstead	4	3	Sebastian	6	0
Hot Springs	5	1	Sevier	3	1
Howard	4	2	Sharp	4	2
Independence	7	4	Stone	3	1
Izard	4	1	Union	9	5
Jackson	3	2	Van Buren	5	2
Jefferson	5	1	Washington	9	1
Johnson	5	2	White	9	4
Lafayette	3	3	Woodruff	3	2
			Yell	6	4

Summary

The purpose of this study was to determine on a broad scale the magnitude of the costs and benefits of restructuring the state's educational system. The question posed was, "If the state educational system were restructured, what amount of cost savings might be available for educational improvements?"

An operational and academic efficiency score was developed for each of the 310 school districts for the purpose of this study. Preliminary analysis of school district size and expenditure per pupil plus a review of the literature signified that restructuring based on one or two measures was not defensible. Also, taken into consideration were the concerns of many citizens during the Blue Ribbon Commission Town Meetings about restructuring. The major concern was that size alone should not be the determining factor for restructuring, that student achievement and other factors should also be considered.

A set of criteria labeled "indicators of efficiency" was constructed for examining each school district. The indicators of efficiency were structured around four categories that were determined to be instrumental to a school district's operation as an educational institution. The four categories were: (1) Fiscal Efficiency, (2) Academic Achievement Efficiency, (3) Size Efficiency, and (4) Administration Efficiency. In all, 28 indicators of efficiency were identified and examined, including nine indicators of achievement outcomes. Free and reduced lunch rate, race, students per square mile, and federal funds were not included as indicators of efficiency.

The 28 indicators of efficiency were converted to a standardized score, making

each school district relative to the other school districts in the state on each indicator. Each resulting standardized score or AZ@ score had a mean of zero and a standard deviation of one. The total score of the 28 standardized indicators for each district reflected an efficient or an inefficient operation. The 310 efficiency scores ranged from a -3.029 (most inefficient) to +2.1903 (most efficient) with 135 districts having a negative or inefficient score and 175 with a positive or efficient score.

The districts were placed in eight categories of efficiency with those scoring -3.0 to -1.04 labeled as the most inefficient (INEF1), and those with a score of +1.01 to +2.19 labeled as the most efficient (E1). Of the 135 school districts with a negative efficiency score, 43 were identified as the most inefficient (INEF1) and 48 of the 175 districts with a positive efficiency score were identified as the most efficient (E1) school districts.

The average K-12 teacher salary for the 43 most inefficient school districts was $5,562 below the state average of $34,729 even though these districts recorded the highest average expenditure per pupil in ADM of all the 310 school districts. Operations and maintenance cost per pupil was $887 for the 43 most inefficient school districts compared to the state average of $560, or stated as a percentage of net current expenditure, 14 percent compared to 10.8 percent for the state average. On an average, each K-12 teacher served 11.7 students in the 43 most inefficient school districts compared to 15.5 for the state average. Also, one classified personnel served 13.8 students in the 43 most inefficient districts compared to 21.6 students in the 48 most efficient; and one superintendent served 329 students in the most inefficient

districts compared to 3,264 in the most efficient. Per pupil cost for the superintendents= salary in the most inefficient districts was $263 compared to $45 in the most efficient Also, the data indicate that 40 of the 43 most inefficient school districts lost from 3 to 35 percent of their student population from 1995-96 through 2000-01.

On all nine measures of academic efficiency, the inefficient school districts recorded the lowest test scores and the most efficient districts recorded the highest test scores with the exception of those school districts with a positive or negative standardized score approaching zero.

In general, the most inefficient school districts had high expenditures per pupil, low K-12 teacher salaries, low pupil-to-teacher ratios, low pupil-to-classified personnel ratios, low pupil-to-administration ratios, declining enrollment, and below average test scores. Also, school districts in three of the four most inefficient categories (INEF1, INEF2, INEF3) recorded the highest percentage of students receiving free and reduced lunch, the highest percentage of African American students, and the least number of students per square mile among the eight categories of efficiency.

From combining school district size and the most efficient school district categories (E1 and E2), the data indicate that the most efficient K-12 Arkansas school districts are those with a student enrollment of at least 900 students in ADM up to 12,000 students. The data also indicate that 26 school districts with less than 900 ADM recorded an efficiency score that placed them in the E1 or E2 category, the most efficient category ranks.

Five scenarios were used to compute the cost savings of school district

restructuring. The greatest cost savings occurred when the average expenditure per pupil for the most efficient school districts with an average of 900 students in ADM was applied to the 117 most inefficient school districts with an enrollment of less than 900 students in ADM. In other words, $4,722 was used as the measure of what an efficient school districts=s cost per student should be if that school district had an average ADM of 900 students. For this scenario, the net cost savings was $40,603,790. The net cost savings included the cost to bring 18 of the school district=s expenditure per pupil up to $4,722. In each scenario, it was expected that average teacher salary would increase, student-to-teacher ratios would increase, and maintenance and operations cost would decrease due to economies of scale.

The 117 most inefficient school districts with less than 900 students in ADM were matched with the County in which they operate. In 17 of the 75 counties, an inefficient school district with less than 900 students in ADM was not identified. It appeared that most of the remaining counties had efficient school districts that the 117 inefficient school districts could merge with unless there were geographic barriers that this study could not determine.

In addition to the cost savings of $40,097,655 for the 117 most inefficient school districts to reorganize, the major benefits would be higher teacher salaries and educational improvements for 47,488 students. Both would be attainable due to higher pupil-to-teacher ratios, lower maintenance and operation costs, and other cost saving factors that would result because of the reorganized school district size.

As the data indicate, on average, these 117 school districts have low-test scores

on nine measures of achievement outcomes, below the state average on K-12 teacher salaries, and above the state average on per pupil expenditures. Their efficiency score indicates they are below the state average on most if not all the 28 indicators of efficiency.

For the 47,488 students attending these 117 inefficient school districts the benefits of restructuring would be the possibilities of educational improvement and achievement enhancement. For the teachers, the benefits of restructuring would be obtaining higher salaries than they are presently receiving plus the possibility through the cost savings to receive additional educational tools to help remove the low achievement of their students.

Concluding Remarks: Measuring Adequacy

It would seem that from the data on the 48 most efficient school districts in the state one could determine the cost of an adequate education. After all, these school districts record the highest student achievement, the highest teacher salaries and some of the lowest per student costs for Operations and Maintenance and Administration.

The average teacher salary for the 48 most efficient school districts is $37,422 compared to $34,729 for the state; the student-to-teacher ratio is 15.5 compared to 13.3 for the state; the cost per student for Operations and Maintenance is $512 compared to $587 for the state; the cost of a superintendent per student is $45 compared to the state average of $116; and total school administration cost is $288 per student compared to $328 for the state average. The number of students to one administrator is 255

compared to 185 for the state average, and the number of students per grade, per school, and per district is greater than the state average. On eight of the nine test score measures the 48 efficient school districts scored the highest in the state.

Overall, the average cost per student for an education for the 156,666 students located in these 48 districts is $4,980 compared to $5,207 for the state. This is combined with an average enrollment of 3,264 students per district. School-district enrollment within the 48 school districts ranged from 600 to 12,000.

As impressive as all of this appears, one problem remains with using these 48 school districts as an adequacy measure: the student diversity found in these districts is not comparable to the student diversity found in the state. On an average the 48 most efficient school districts have a student population that is 90 percent white, 4.5 percent African American, and 4.1 Hispanic, with 63 percent of the students paying for their school lunch. The state average student enrollment is 78.5 percent white, 18 percent African American, and 2.5 percent Hispanic, with 48.6 percent of the students paying for their school lunch. Because of the wide student diversity found across the state, the needs of the individual students would have to be considered in addition to this method of determining the cost of an adequate education. This plan provides a measure of what an education costs for the most efficient and effective school districts in the state but it does not provide for the cost of student diversity other than a reflection of the student diversity that is found in the 48 districts.

Appendix A

Definitions

Reference: *Annual Statistical Report of the Public Schools of Arkansas* (ASR).

The data used for the ASR was self-reported by the individual school districts. The data was not audited prior to submission to the Arkansas Department of Education. Data and definitions from the 1999-2000 and 2000-2001 ASR were used in this study.

Definitions of 28 school district variables used in the study.

1. ACT - American College Testing Assessment, skill level testing in English, math, reading, and science reasoning. Nationally, nearly half of all test takers fall in the 17-23 range, with a possible range from 1-36. The assessment is designed to assess high school students= general educational development and their ability to complete college-level work. Composite Score, 1999-2000 & 2000-2001.

2. ADA - Average Daily Attendance (K-12). The annual average of the total days in attendance divided by the number of Days taught. It includes students that attend school outside the district on a tuition agreement between the respective districts. 2000-2001

3. ADA Percent Change (5 years) - Percent change in ADA Last 5 Years. The percentage change in the average daily attendance in the district from FY 1995-96 through 2000-2001 in grades K-12. A negative (-) sign indicates a loss in ADA.

4. ADM per Grade - Students in ADM divided by K-12 grades or by 13.

5. ADM per Certified Non-teacher - The number of students in ADM divided by the number of Certified Full Time Equivalent Administrative Employees, 2000-2001.

6. ADM per School - The number of students in ADM divided by the number of schools in the district, 2000-2001.

7. ADM per K-12 FTE Teacher - The number of students in ADM divided by the number of K-12 Certified Full Time Equivalent Teachers (student to teacher ratio), 2000-2001.

8. ADM - Average Daily Membership. The annual average of the total days of attendance and absences

divided by the number of days taught. It includes students who attend school outside the district on a tuition agreement between the respective districts. The average for the first three (3) quarters is used for State funding purposes. 2000-2001

9. Benchmark 4 - Literacy Proficiency (% of Students) - Criterion-referenced test aligned to the Frameworks and were developed by Arkansas teachers and the Arkansas Department of Education. Proficient students demonstrate solid academic performance for the grade tested and are well prepared for the next level of schooling. Other levels of student achievement on the Benchmark Exams are Advanced, Basic, and Below Basic (1999-2000).

10. Benchmark 4 - Math Proficiency (% of Students) - Criterion-referenced test aligned to the Frameworks and were developed by Arkansas teachers and the Arkansas Department of Education. Proficient students demonstrate solid academic performance for the grade tested and are well prepared for the next level of schooling. Other levels of student achievement on the Benchmark Exams are Advanced, Basic, and Below Basic, (1999-2000).

11. Benchmark 8 - Literacy Proficiency (% of Students) - Criterion-referenced test aligned to the Frameworks and were developed by Arkansas teachers and the Arkansas Department of Education. Proficient students demonstrate solid academic performance for the grade tested and are well prepared for the next level of schooling. Other levels of student achievement on the Benchmark Exams are Advanced, Basic, and Below Basic, (1999-2000).

12. Benchmark 8 - Math Proficiency (% of Students) - Criterion-referenced test aligned to the Frameworks and were developed by Arkansas teachers and the Arkansas Department of Education. Proficient students demonstrate solid academic performance for the grade tested and are well prepared for the next level of schooling. Other levels of student achievement on the Benchmark Exams are Advanced, Basic, and Below Basic, (1999-2000).

13. Certified Non-teacher Salary (Administrative Employee Salary) - Amount paid Certified Full Time Equivalency less K-12 Certified Full Time Equivalency which would equal administrative employees including superintendents, assistant superintendents, principals, and supervisors employed by the district and paid from the Teacher Salary Fund. Certified employees paid from federal funds are not included. Benefits paid by the districts such as teacher retirement, FICA/Med and state mandated insurance payments are not included. 2000-2001

14. K-12 Teacher Salary - K-12 Certified Full time Equivalency. The FTE of K-12 certified employees of the

district that include K-12 classroom teachers, librarians, counselors, psychologists, and other K-12 certified, non-administrative employees and paid from the Teacher Salary Fund. Certified employees paid from federal funds are not included. Amount Paid K-12 Certified Full Time Equivalency. The total salaries of all K-12 Certified Full time Equivalency. Benefits paid by the districts such as teacher retirement, FICA/Med and state mandated insurance payments are not included. In 2000-2001 the amount paid to substitute teachers was excluded in the ASR. The 1999-2000 ASR included the amount paid to substitute teachers. 2000-2001

15. Maintenance and Operation (M&O) – Common Core of Data (CCD)-Operations and Maintenance Expenditures by District, includes Salaries, Benefits, Purchased Services, Supplies, Property, Other, and Total, Cycle 1, 2000-2001.

16. Maintenance and Operation as percent of Net Current Expenditure (M&O % NetCurExp). Z-score reversed (low percent positive).

17. Net Current Expenditure - Net Current Expenditures are current expenditures less exclusions which include: (a) Tuition paid by individuals, (b) Transportation fees paid by individuals, (c) Title I expenditures, (d) Title I carryover funds, (e) Title VI expenditures, (f) Title VI carryover funds, (g) Food Service revenues, (h) Student activities revenues, (I) Textbook revenues, and (j) Summer School Revenues. Current expenditures include instruction, support services, non-instructional services except for community services, direct program support plus the exclusions listed above. Property expenditures are not included. 2000-2001

18. Percent of Local ADM to State ADM minus Percent of Local Net Current Expenditure to State Net Current Expenditure (Logic: Relative to state, if a school district has 20% of the students then the school district should have 20% of the costs. If the percentage of student cost were greater than the percentage of students, the school district would show student costs greater than the average and a negative z - score. The state average on both was .3226%.

19. Non-teacher Salary as a ratio to K-12Teacher Salary - Certified Administrative Employee Salary divided by Certified K-12 Teacher Salary by school district.
Z-score reversed (low ratio positive).

20. Non-teacher Salary as a percent of Net Current Expenditure – Certified Administrative Employee Salary divided by Net Current Expenditure. Z-score reversed (low percent, positive).

21. Number of Classified Personnel per Certified Non-teacher - Number of Classified Personnel divided by

the number of Certified Administrative Employees by district. 2000-2001

22. Number of K-12 Teachers per Certified Non-teachers - Number of Certified K-12 Teachers divided by the number of Certified Administrative Employees by school district.2000-2001

23. SAT Grades 5 - Stanford Achievement Test, Ninth Edition (SAT-9), Basic Battery that includes a composite score for math, vocabulary, and reading comprehension, norm- referenced test, Norm Curve Equivalency (NCE), 1999-2000.

24. SAT Grade 7 - Stanford Achievement Test, Ninth Edition (SAT-9), Basic Battery which includes a composite score for math, vocabulary, and reading comprehension, norm-referenced test, Norm Curve Equivalency (NCE), 1999-2000.

25. SAT Grade 10 - Stanford Achievement Test, Ninth Edition (SAT-9), Basic Battery which includes a composite score for math, vocabulary, and reading comprehension, norm-referenced test, Norm Curve Equivalency (NCE), 1999-2000.

26. School Administration Costs as Percent of Net Current Expenditure - School Administration Expenditures by District includes School Administration Salary, Benefits, Purchased Services, Supplies, Property, Other, Total (F33 Expenditure II Report, ASR_01). School Administration Costs divided by Net Current Expenditure. 2000-2001. Z-score reversed (low percent positive).

27. School Administration Costs per ADM - School Administration Expenditures by District includes School Administration Salary, Benefits, Purchased Services, Supplies, Property, Other, Total, F33 Expenditure II Report, ASR_01. School Administration Costs divided by the number of students in ADM. 2000-2001.
Z-score reversed (low cost/ADM positive).

28. Superintendent Salary per ADM - Arkansas Superintendent Salary, 2000-2001, divided by students in ADM. Z-score reversed (low cost/ADM positive).

29. Transportation Cost - Student Transportation Expenditures by District, includes Salaries, Benefits, Purchased Services, Supplies, Property, Other, and Total, Common Core of Data (CCD), FY 2000-2001.

30. Transportation Cost as Percent of Net Current Expenditure - Transportation Cost divided by Net Current

Expenditure, 2000-2001. Z-score reversed (low percent positive).

Additional Definitions

Arkansas Comprehensive Testing, Assessment, and Accountability Program (ACTAPP). Current law and State Board of Education regulations require the administration of criterion-referenced tests administered in Grades 4, 6, 8, (Benchmark Exams), End-of-Course Exams in Algebra I and Geometry, and a Literacy Exam at Grade 11. The state=s norm-referenced test (Stanford Achievement Test, Ninth Edition (SAT-9) is administered at Grades 5, 7, and 10.

Efficiency: The ability to produce the desired effect with a minimum of effort, expense, or waste. Policies that achieve the greatest effectiveness at least cost are said to be efficient. A school district is said to be inefficient if it spends more on education than other districts with the same performance and the same educational costs. The degree of inefficiency is measured by the extent of this excess spending.

Efficiency Index - The actual costs and performance level of each school district is measured by their relative position above or below the state average on each cost or performance level by the z-score. The sum of the costs and performance level scores or z-scores, depict a school district's ability to produce desired performance outcomes with desired costs relative to the state average. A school district that has high cost or moderately high costs and low student performance would be termed inefficient.

Reliability of the 28 Indicators – The reliability or internal consistency of the 28 indicators of efficiency used in this study is r = .86. A good indicator of reliability is r = .80.

Z-Scores - Z-scores or standardized scores are used to compare scores from different distributions even when the scores are measuring different things (the same concept as percentage). The Z-score is a relative position of a raw score in a distribution - relative to the mean and standard deviation of that distribution. The Z-score depends upon the distribution. The highest Z-score in one distribution may be +3 and +1 in another. The Z-score distribution will have a mean of zero (0) and a standard deviation of one (1). A particular raw score, changed to a Z-score, will show how many standard deviations the raw score is above or below the mean. The formula for deriving a Z-score is: Z = (raw score - mean) divided by the standard deviation. By using Z-scores, this study is positioning each school district relative to all the school districts in the state on 28 school district measures.

Appendix B

ANNEXATION/CONSOLIDATIONS
OF LOCAL EDUCATION AGENCIES (LEA)
(1983-2001)

Source: Arkansas State Department of Education, http://www.as-is.org/search/annexconsol/2001.doc

ANNEXATION/CONSOLIDATIONS

OF LOCAL EDUCATION AGENCIES (LEA)

(1983-2001)

Source: Arkansas State Department of Education, http://www.as-is.org/search/annexconsol/2001.doc

# of LEAs in State Prior to Annexation /Consolidation	Effective date of Annexation /Consolidation	Counties	Former Name of District(s)	New Name of District	LEA# of New District	# of Districts in State After Merge
370	July 1, 1983	Johnson County	Coal Hill & Hartman	Westside	36-06-000	369
369	July 1, 1983	Lawrence County	Hoxie & Cloverbend	Hoxie	38-04-000	368
368	July 1, 1983	Jefferson County	Wabbaseka-Tucker & Plum Bayou	Wabbaseka-Tucker	35-08-000	367
367	July 1, 1984	Clay County	Greenway & Rector	Clay County Central	11-06-000	366
366	July 1, 1984	Mississippi County	Gosnell & Dell	Gosnell	47-08-000	365
365	July 1, 1984	Craighead County / Mississippi County	Monette & Leachville	Buffalo Island Central	16-05-000	364
364	July 1, 1984	Greene County	Marmaduke & Lafe	Marmaduke	28-03-000	363
363	July 1, 1984	Ashley County	Hamburg & Portland	Hamburg	02-03-000	362
362	July 1, 1984	Jefferson County	Pine Bluff & Linwood	Pine Bluff	35-05-000	361
361	July 1, 1985	Lincoln County	Star City & Glendale	Star City	40-03-000	360
360	July 1, 1985	Craighead County	Caraway & Lake City	Riverside	16-13-000	359
359	July 1, 1985	Baxter County/ Stone County	Big Flat & Fifty-Six	Tri County	03-06-000	358
358	July 1, 1985	Izard County	Oxford & Violet Hill	Izard County Consolidated	33-06-000	357
357	July 1, 1985	Yell County	Havana & Belleville	Western Yell County	75-09-000	356

356	July 1, 1985	Grant County	Sheridan & Grapevine	Sheridan	27-05-000	355
355	July 1, 1985	Independence County	Batesville & Desha	Batesville	32-01-000	354
354	July 1, 1985	Bradley County	Warren & Banks	Warren	06-02-000	353
353	July 1, 1985	Jackson County	Newport & Beedeville	Newport	34-03-000	352
352	July 1, 1985	Clay County	Corning & Knobel	Corning	11-01-000	351

ANNEXATION/CONSOLIDATIONS
OF LOCAL EDUCATION AGENCIES (LEA)
(1983-2001)

# of LEAs in State Prior to Annexation /Consolidation	Effective date of Annexation /Consolidation	Counties	Former Name of District(s)	New Name of District	LEA# of New District	# Of Districts in State After Merge
351	July 1, 1985	Nevada County	Cale, Oakgrove, Willisville, Bodcaw& Laneburg	Nevada County Sch. Dist. 1	50-08-000	347
347	July 1, 1985	Greene County	Oak Grove & Paragould	Northeast School District	28-08-000	346
346	July 1, 1985	Independence County	Floral & Pleasant Plains	Midland	32-11-000	345
345	July 1, 1985	Arkansas County	Dewitt & St. Charles	Dewitt	01-01-000	344
344	July 1, 1985	Ouachita County/ Calhoun County	Bearden & Thornton	Bearden	52-01-000	343
343	July 1, 1985	Cleveland County	Kingsland & New Edinburg	Kingsland	13-01-000	342
342	July 1, 1985	Chicot County	Eudora & Ross Van Ness	Eudora	09-02-000	341
341	July 1, 1986	Poinsett County	Trumann & Common	Trumann	56-05-000	340
340	July 1, 1986	Poinsett County	Tyronza & Lepanto	East Poinsett County	56-08-000	339
339	July 1, 1986	Mississippi County	South Mississippi County & Luxora	South Mississippi County	47-06-000	338
338	July 1, 1986	Baxter County/ Marion County	Mountain Home & Oakland	Mountain Home	03-03-000	337
337	July 1, 1986	Ashley County	Hamburg & Wilmot	Hamburg	02-03-000	336
336	July 1, 1986	Mississippi County	Manila & Etowah	Manila	47-12-000	335
335	July 1, 1986	Sevier County	DeQueen & Gillham	DeQueen	67-01-000	334

334	July 1, 1986	Columbia County	Magnolia & Village	Magnolia	14-02-000	333
333	July 1, 1987	Ouachita County	Fairview & Chidester	Fairview	52-04-000	332
332	July 1, 1987	Grant County	Sheridan & Leola	Sheridan	27-05-000	331
331	July 1, 1987	St. Francis County	Palestine & Wheatley	Palestine-Wheatley	62-05-000	330
330	July 1, 1987	Clark County	Amity & Okolona	Amity	10-01-000	
	July 1, 1987	Clark County	Arkadelphia & Okolona	Arkadelphia	10-02-000	
	July 1, 1987	Clark County	Gurdon & Okolona	Gurdon	10-03-000	
	July 1, 1987	Pike County	Delight & Okolona	Delight	55-01-000	329
329	July 1, 1990	Drew County	Drew Central & Wilmar	Drew Central	22-02-000	328

ANNEXATION/CONSOLIDATIONS
OF LOCAL EDUCATION AGENCIES (LEA)
(1983-2001)

# of LEAs in State Prior to Annexation /Consolidation	Effective date of Annexation /Consolidation	Counties	Former Name of District(s)	New Name of District	LEA# of New District	# Of Districts in State After Merge
328	July 1, 1990	Independence County	Newark & Oil Trough (86%)	Newark	32-06-000	
	July 1, 1990	Independence County	Southside & Oil Trough (14%)	Southside	32-09-000	327
327	July 1, 1990	Lafayette County/ Miller County	Lewisville & Garland	Lewisville	37-02-000	326
326	July 1, 1990	Hempstead County	Blevins & Washington (23%)	Blevins	29-01-000	
	July 1, 1990	Hempstead County	Hope & Washington (22%)	Hope	29-03-000	
	July 1, 1990	Hempstead County	Saratoga & Washington (55%)	Saratoga	29-05-000	325
325	October 16, 1990	Ouachita County	Fairview & Camden (court ordered)	Fairview	52-04-000	324
323	July 1, 1991	White County	Griffithville, Judsonia & Kensett	Riverview	73-07-000	322
322	July 1, 1991	Faulkner County	Mount Vernon & Enola	Mount Vernon - Enola	23-06-000	321
321	July 1, 1992	Sevier County/ Little River County	Horatio & Winthrop	Horatio	67-03-000	320
320	July 1, 1992	Lawrence County/ Sharp County	Strawberry & Poughkeepsie	River Valley	38-07-000	319
319	July 1, 1993	Baxter County	Norfork & Tri-County (0%)	Norfork	03-04-000	
	July 1, 1993	Izard County/ Baxter County	Calico Rock & Tri-County (5%)	Calico Rock	33-01-000	

	July 1, 1993	Searcy County/ Baxter County	Marshall & Tri-County (17%)	Marshall	65-02-000	
	July 1, 1993	Stone County/ Baxter County	Mountain View & Tri-County (46%)	Mountain View	69-01-000	
	July 1, 1993	Stone County/ Baxter County	Stone County & Tri-County (32%)	Stone County	69-02-000	318
318	July 1, 1993	Desha County	Dumas & Desha-Drew (27%)	Dumas	21-04-000	
	July 1, 1993	Desha County	McGehee & Desha-Drew (73%)	McGehee	21-05-000	317
317	July 1, 1993	Jackson County	Tuckerman & Grubbs	Jackson County School District	34-05-000	316

ANNEXATION/CONSOLIDATIONS OF LOCAL EDUCATION AGENCIES (LEA) (1983-2001)						
# of LEAs in State Prior to Annexation /Consolidation	Effective date of Annexation /Consolidation	**Counties**	Former Name of District(s)	New Name of District	LEA# of New District	# Of Districts in State After Merge
316	September 1, 1993	Jefferson County	Altheimer - Sherrill & Wabbaseka - Tucker	Althemier Unified School District #22	35-01-000	315
315	July 1, 1994	Ashley County	Hamburg & Parkdale	Hamburg	02-03-000	314
314	July 1, 1994	Grant County	Sheridan & Prattsville	Sheridan	27-05-000	313
313	July 1, 1995	Pike County/ Clark County	Glenwood & Amity	Centerpoint	55-02-000	312
312	July 1, 1996	Greene County	Northeast Arkansas School District & Stanford	Paragould School District	28-08-000	311
311	July 1, 1998	Lonoke County	Carlisle & Humnoke	Carlisle	43-03-000	310

(%) Percentage represents Average Daily Membership (ADM) annexed/consolidated to new district.

Source: Arkansas State Department of Education, http://www.as-is.org/search/annexconsol/2001.doc

Appendix C

Ranking of School Districts on the 28 Indicators of Efficiency

See Spreadsheet: **Data Restructuring:** Sheet, **DataEfficSort** (70 pages, 88 columns)

Appendix D

School Districts by County and Efficiency Score

See Spreadsheet: **Data Restructuring**: Sheet, **By County**, 11 pages

Appendix E

Arkansas Fast Facts

(Sources: The Annual Statistical Report/Rankings of Arkansas School Districts; Statewide Information System)

Table 1: State Profile

Item	2000	2001
Area in Square Miles	52,980	52,980
Number of Congressional Districts	4	4
Number of Counties	75	75
Number of Educational Cooperatives	15	15
Number of School Districts Assigned to an Educational Cooperative	307	307
Number of School Districts Not Assigned*	3	3
Total Number of School Districts in the State (Excluding the Department of Corrections School District)	310	310
Number of Required Days in School Calendar Year	178	178
Average Daily Membership (K-12)**	445,739	444,978
Average Daily Attendance (K-12)	419,712	418,906
Average Daily Transported (K-12)	314,852	312,357
Number of Teachers (K-12)	31,010	31,083
Average Salary of Classroom Teachers (K-12)	$33,888	34,729
Current Expenditures per Pupil in Average Daily Attendance	4,945	5531
Number of State-Sponsored Schools***	4	4

** ADM figures include Magnet and M-to-M students received by school districts. For ADM demographics data (race/ethnicity, gender, etc) search the General Information/Enrollment Data section.

***This includes the Arkansas School for the Blind, Arkansas School for the Deaf, Arkansas Department of Corrections School District and the Arkansas School for Math and Science

Table 2: Total Number of Schools

Type of School*	2002
Elementary Schools	612
Middle/Jr. Highs	184
High Schools	337
Total Number of Schools	1133

*Data is based on level designators submitted by each of the school districts.

Table 3: Ten Largest Public School Districts in Arkansas by Enrollment

Rank	Name of District	City	County	Enrollment 2001-2002
1	Little Rock School District	Little Rock	Pulaski	24,460
2	Pulaski County Special School District	Little Rock	Pulaski	18,333
3	Fort Smith School District	Fort Smith	Sebastian	12,596
4	Springdale School District	Springdale	Washington	11,924
5	Rogers School District	Rogers	Benton	11,349
6	North Little Rock School District	N. Little Rock	Pulaski	9,059
7	Conway School District	Conway	Faulkner	7,982
8	Fayetteville School District	Fayetteville	Washington	7,932
9	Cabot School District	Cabot	Lonoke	7,305
10	Bentonville School District	Bentonville	Benton	7,184

Table 4: State Profile II

Item	Most Recent Data
Attendance Rate	93.2
College Remediation Rate (2000)	41.0
Dropout Rate	3.0
Enrollment (2001-2002)	448,246
Graduation Rate	84.3
Percent of Students Eligible for Free and Reduced-Cost Meals	50.5
Percent of Teaching Staff Completely Certified	94.2
Percent of Teaching Staff with Masters Degrees	30.7
Students Participating in Gifted and Talented Programs	41,345

Students Participating in Special Education Programs	53,327

Source: Arkansas State Department of Education: http://www.as-is.org

Arkansas Education Facts: 1969 - 2000

	High School Graduates		Teachers (K-12)		Pupil-Teacher Ratio		Average Teacher's Salary		Per Pupil Expenditure
1969-70	26,068	**1969**	19,610	**1969**	23.5	**1969-70**	$6,307	**1969-70**	$501
1970-71	25.965	**1970**	21,122	**1970**	21.9	**1970-71**	$6,525	**1970-71**	$500
1971-72	25,892	**1971**	20,305	**1971**	22.7	**1971-72**	$6,842	**1971-72**	$512
1972-73	25,705	**1972**	20,611	**1972**	22.4	**1972-73**	$7,333	**1972-73**	$609
1973-74	24,384	**1973**	20,053	**1973**	22.4	**1973-74**	$7,820	**1973-74**	$627
1974-75	26,836	**1974**	20,678	**1974**	22.0	**1974-75**	$8,651	**1974-75**	$700
1975-76	27,029	**1975**	21,256	**1975**	21.5	**1975-76**	$9,733	**1975-76**	$788
1976-77	27,628	**1976**	21,821	**1976**	21.1	**1976-77**	$9,595	**1976-77**	$856
1977-78	28,604	**1977**	22,463	**1977**	20.4	**1977-78**	$10,398	**1977-78**	$945
1978-79	28,302	**1978**	23,112	**1978**	19.8	**1978-79**	$11,121	**1978-79**	$1,032
1979-80	29.052	**1979**	23,851	**1979**	19.0	**1979-80**	$12,299	**1979-80**	$1,193
1980-81	29,577	**1980**	24,078	**1980**	18.6	**1980-81**	$13,273	**1980-81**	$1,330
1981-82	29,710	**1981**	23,497	**1981**	18.6	**1981-82**	$14,506	**1981-82**	$1,470
1982-83	28,447	**1982**	23,713	**1982**	18.2	**1982-83**	$15,029	**1982-83**	$1,553
1983-84	27,049	**1983**	23,696	**1983**	18.2	**1983-84**	$16,929	**1983-84**	$1,780
1984-85	26,342	**1984**	23,985	**1984**	18.0	**1984-85**	$18,696	**1984-85**	$1,979
1985-86	26,227	**1985**	24,767	**1985**	17.5	**1985-86**	$19,519	**1985-86**	$2,129
1986-87	27,101	**1986**	24,944	**1986**	17.5	**1986-87**	$19,904	**1986-87**	$2,177
1987-88	27,776	**1987**	25,572	**1987**	17.1	**1987-88**	$21,134	**1987-88**	$2,367
1988-89	27,920	**1988**	27,730	**1988**	15.7	**1988-89**	$21,955	**1988-89**	$2,450
1989-90	26,475	**1989**	25,585	**1989**	17.0	**1989-90**	$22,930	**1989-90**	$2,637
1990-91	25,529	**1990**	25,984	**1990**	16.8	**1990-91**	$23,878	**1990-91**	$2,798
1991-92	26,032	**1991**	25,785	**1991**	17.0	**1991-92**	$27,435	**1991-92**	$3,155
1992-93	25,679	**1992**	26,017	**1992**	17.0	**1992-93**	$27,805	**1992-93**	$3,192
1993-94	24,990	**1993**	26,014	**1993**	17.1	**1993-94**	$28,508	**1993-94**	$3,315
1994-95	24,636	**1994**	26,181	**1994**	17.1	**1994-95**	$28,950	**1994-95**	$3,449
1995-96	25,094	**1995**	26,449	**1995**	17.1	**1995-96**	$29,960	**1995-96**	$3,620
1996-97	25,146	**1996**	26,681	**1996**	17.1	**1996-97**	$31,021	**1996-97**	$4,168
1997-98	27,147	**1997**	26,932	**1997**	16.9	**1997-98**	$31,795	**1997-98**	$4,434
1998-99	26,896	**1998**	30,745	**1998**	16.2	**1998-99**	$32,819	**1998-99**	$4,679
1999-00	27,335	**1999**	31,010	**1999**	16.2	**1999-00**	$33,888	**1999-00**	$4,945

Source: Arkansas State Department of Education, http://www.as-is.org