

Approved: 1-31-95
Date

MINUTES OF THE HOUSE COMMITTEE ON EDUCATION.

The meeting was called to order by Chairman Rochelle Chronister at 3:30 p.m. on January 18, 1995 in Room 519-S of the Capitol.

All members were present except: Eugene Shore (excused)
Jim Morrison (excused)

Committee staff present: Ben Barrett, Legislative Research Department
Avis Swartzman, Revisor of Statutes
Lois Thompson, Committee Secretary

Conferees appearing before the committee: Gerald R. Bass, Oklahoma State University
Mary F. Hughes, Research Consultant

Others attending: See attached list

Chairman Rochelle Chronister introduced the two Oklahoma State University professors who were commissioned by the Legislature to study the state's school finance law -- in particular, the portion that sends extra money to schools with fewer than 1,900 students.

Dr. Gerald Bass presented a summary of the qualitative study of Low Enrollment Weighting in Kansas School Districts. The three recommendations were: 1) Change terminology from "low enrollment" to "district size", 2) Ensure "hold-harmless" changes, should change be considered, and 3) Consider greater local contribution by non-isolated low enrollment districts. (Attachment 1)

Dr. Mary F. Hughes explained the multi-phased study of an economy of scale weight factor for low enrollment school districts in the state of Kansas. (Attachment 2)

The floor was opened to questions from the committee.

A memorandum prepared by the Kansas Legislative Research Department, entitled Summary of the Bass-Hughes Findings and Recommendations Concerning An Economy of Scale Factor for Low Enrollment School Districts was handed out to committee members without comment due to the lateness of the hour. (Attachment 3)

The meeting adjourned at 5:05 p.m.

The next meeting of the committee will be January 19, 1995.

***Low Enrollment Weighting
in Kansas School Districts***

***Summary of the
Qualitative Study***

***Gerald R. Bass
Oklahoma State University***



Data Gathering

- ❖ **Review of the literature**
 - ❖ **Challenges to small schools & districts**
 - ❖ **Definitions of "small"**
 - ❖ **Funding for small schools & districts**
- ❖ **Review of legislation**
 - ❖ **Size criteria**
 - ❖ **Other criteria**
- ❖ **Interviews with superintendents**



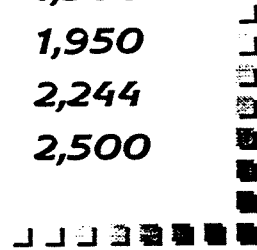
Challenges to small districts

- ❖ ***High per-pupil costs***
 - ❖ ***Low pupil-teacher ratios***
 - ❖ ***Low base for allocating fixed costs***
- ❖ ***"Dis-economy" of scale***
- ❖ ***Curriculum/program offerings***
- ❖ ***Staffing***



How small is "small"?

❖ <i>White & Tweeten (OK)</i>	675
❖ <i>Natl. Comm. on Reorg.</i>	975
❖ <i>Washington Levy Comm.</i>	1,000
❖ <i>Conant</i>	1,300 +
❖ <i>Cohn (JA)</i>	1,500
❖ <i>Mort</i>	1,950
❖ <i>Osburn</i>	2,244
❖ <i>Chambers et al. (MO)</i>	2,500



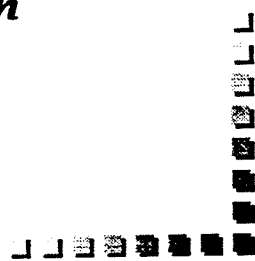
Policy bases for the funding of small districts

- ❖ ***Neutrality***
No special treatment
- ❖ ***Intolerance***
Forced reorganization
- ❖ ***Funding of all***
By size criterion
- ❖ ***Funding of some***
By size and isolation criteria



Isolation criteria

- ❖ ***Density of population***
- ❖ ***Distance (or travel time)***
- ❖ ***State Determination
(multiple criteria)***



Interview findings

- ❖ ***Few responses to request for suggested size criterion***
- ❖ ***Positions depend on perspective***
 - ❖ ***Those in larger districts want smaller criterion***
 - ❖ ***Those in smaller districts want to maintain current criterion***
- ❖ ***Rationale for low enrollment funding similar to the literature***

Recommendations

- ❖ ***Change terminology from "low enrollment" to "district size"***
- ❖ ***Ensure "hold-harmless" changes, should change be considered***
- ❖ ***Consider greater local contribution by non-isolated low enrollment districts***

**Multi-phased Study of an Economy of Scale Weight
Factor
for Low Enrollment School Districts
in the State of Kansas**

Executive Summary

Mary F. Hughes

Gerald R. Bass

**Presented to the
Legislative Coordinating Council,
Kansas Legislature**

December 19, 1994

*House Education
Attachment 2
1-18-95*

In the development of the School District Finance and Quality Performance Act (hereinafter referred to as the "Act"), the Kansas Legislature included a weighting factor for low enrollment districts, defined as those with fewer than 1,900 students. On December 16, 1993, Judge Marla J. Luckert ruled that the low enrollment weighting in the Act did not "contain a rational basis grounded upon education theory." The Act was then ruled to be unconstitutional because the low enrollment weighting was not deemed to be severable.

On April 27, 1994, the Kansas Legislative Coordinating Council (LCC) executed a contract with Drs. Mary Hughes and Gerald Bass to study the low enrollment weighting and to make recommendations to the LCC and the Kansas Legislature regarding "an appropriate economy of scale weight factor for low enrollment school districts to document a rational basis for providing additional revenue to low enrollment school districts. This document has been provided as a summary of the final report pursuant to that contract.

Included in this summary are, first, the findings and conclusions developed by Dr. Bass through a review of the literature and the qualitative data collection through interviews with Kansas public school superintendents. Following that is a similar section from Dr. Hughes' quantitative data analysis. The final portion of this summary contains the recommendations developed from those findings.

Summary of the Qualitative Data Analysis

From the review of the literature, it has been concluded that:

1. there is no consistent definition of "small" as the term applies to schools or school districts;

2. small schools and/or school districts will generally incur higher per-pupil costs if they fulfill an expectation to provide an educational program equivalent to that offered in larger districts;
3. probably the most significant factor in such higher per-pupil costs is the lower pupil-teacher ratios encountered in the smaller schools;
4. state policies reflect varied approaches to dealing with small schools, from intolerance and forced consolidation to the provision of supplemental funding to all qualifying districts; and
5. many states which provide such funding do so only to school districts which meet criteria for both size and isolation.

The qualitative data collection failed to provide persuasive evidence relative to the appropriate, or acceptable, size criterion for the low enrollment weighting factor. Among the few who did provide responses relevant to that point, most superintendents in currently eligible districts did not want to change the existing 1,900 criterion and those in districts with more than 1,900 students tended to report a need to lower the figure but not to have a specific number or range to recommend. Superintendents in districts receiving low enrollment weighting also agreed that the funding level from that source was appropriate and allowed their districts to provide appropriate and effective educational programs while those in larger districts perceived the low enrollment funding as distributing too much money to too many school districts.

Summary of the Quantitative Data Analysis

The purpose of the data analysis was to (1) ascertain the magnitude of the relationship between school district enrollment size and expenditure levels; (2) determine the extent to which economy of scale accounts for such relationship; and (3) document a rational basis for providing additional revenue to low enrollment school districts.

The research questions to be explored were:

1. Is there a relationship between school district enrollment size and expenditure levels?
2. Are differences in school district expenditures due to enrollment size or to other factors?
3. At what school district enrollment size does economy of scale account for a difference in expenditures?

To answer the three research questions, five years of school data for the years 1989-90 to 1993-94 were examined. Specific information such as Expenditures and Transfers per Pupil and salary related expenditures could not be used in the analysis because they represented past legislative history. It was felt that the results from an examination of past legislative history data would be a direct reflection of the existing system.

The statement of the problem guided the direction for areas of investigation.

Low enrollment weighting recognizes and compensates for the higher fixed and operating costs per pupil necessary to provide an education program in low enrollment districts of less than 1,900 enrollment in the State of Kansas.

Such costs include:

- (1) Basic educational programs and services,
- (2) Repair and maintenance of facilities,
- (3) Administration,
- (4) Support and instructional staff, and
- (5) Equipment and other overhead.

From an examination of state school expenditures by expenditure categories, 74 percent of total expenditures (transfers excluded) could be attributed to Instructional and School Administration categories. The major remaining expenditure category was Operations and Maintenance, which had strong elements of the costs included in the statement of the problem and accounted for 59 percent of the remaining expenditures.

Findings of the Data

1. The data analysis was based on five years of Kansas school data. Throughout this study, school districts were not identified by name. In essence, this part of the study was a blind review of the school districts.

2. Data related to past expenditure history could not be used in the data analysis. Therefore, Expenditure and Transfers per pupil and Salary related data were omitted in analyzing the problem.
3. The greatest statistical problem encountered was the non-normality of many of the variables or data that contained serious outliers or were non-linear (see attached charts). In the measure of relationships, a basic assumption that underlies the use of the Pearson correlation analysis is that two variables have a linear relationship. Pearson is inappropriate to describe a curvilinear relationship. For this data study, rank order correlation analysis was incorporated along with the Pearson.
4. The greatest challenge was in identifying an expenditure area that was not reflective of past expenditure history.
5. From 1989-90 to 1993-94, the relationship between Expenditures and school district size has increased, as noted in the increase of the rank order correlation coefficients from $-.86$ to $-.96$. This indicates that in 1989-90 approximately 74 percent of the variation in expenditures could be attributed to school district size and by 1993-94, 92 percent of the variation in expenditure data could be attributed to school district size.
6. From the analysis of the data, it was found that school district size was not significantly related to land area in square miles, percentage of students bused greater than 2.5 miles, or assessed valuation of property per pupil. It was found that school districts with less than 100 students per attendance center could have as little as 10 square miles of land area or 688 square miles; that from 16 to 84 percent of the students could be bused greater than 2.5 miles; and that assessed valuation per student could be as small as \$21,000 and as large as \$449,000. In summary, there was no pattern in what constitutes a small school district other than the state designation of less than 1,900 enrollment.
7. Operations and maintenance was chosen as the base element of this study for the following reasons:
 - a. A reference point had to be chosen that was relative to all the school districts in the state.
 - b. The reference point could not reflect past legislative history of the funding formula.
 - c. The reference point needed to be one that was free of the influence of local choice and local wealth, would remain constant over time, and was a necessary function of the basic school operation.Operations and Maintenance represents 58 percent of the expenditures that remain after Instructional and Administration categories have been removed.
8. Expenditures for Operations and Maintenance consist of 21 categories with four of the categories salary related. Of the 21 categories, Non-certified salaries, Repair of Buildings, Electricity costs, Equipment and Furniture, Rentals, Heating costs, and Repairs and maintenance had the strongest

influence on the differences in Operations and Maintenance costs per pupil among the school districts.

9. Over a five year period, 1989-90 to 1993-94, 60 percent of the school districts reported Repair of Buildings as an expenditure. In 1993-94, the average cost per pupil for Repair of Buildings ranged from \$2 to \$1,103, with 111 school districts reporting zero amounts for this category (see Table 8 attached).
10. In 1993-94, 84 percent of the school districts reported Repairs and Maintenance as an expenditure with costs ranging from sixty cents (\$.60) to \$817 per pupil. Thirty-two school districts reported zero amounts for this category. Seventy-five percent (75 percent) of the school districts participated in the category Equipment and Furniture in 1993-94 compared to 57 percent in 1989-90. The per pupil amount expended for Equipment and Furniture in 1993-94 was from \$5 to \$807, with 77 school districts reporting zero amounts (see Table 9 attached).
11. The five year average for Total Operations and Maintenance per Pupil was \$547, with a range between \$212 to \$1,239 per pupil. Total Operations and Maintenance per pupil could not be used as the main source of the examination because too many school districts had not participated in all the 21 categories over the five year period.
12. It was found that salary related operations and maintenance costs and heating costs were strongly related to past expenditure history.

Electricity costs per pupil and a composite of the remaining 15 operations and maintenance categories were found not to be related to past expenditure history. But, only electricity cost per pupil was representative of all the school districts. The remaining 15 O&M categories had school district category participation rates from 34 percent to 84 percent.

13. Electricity costs per pupil has a low relationship to total expenditures and transfers per pupil and to local wealth (except for school districts with greater than \$101,000 assessed valuation per pupil). From the analysis of five years of data, it was found that Electricity cost per pupil, more so than any of the non-salary related operations and maintenance costs, represents the most unbiased measurement of school district expenditures.
14. For Kansas data, Electricity cost per pupil represents the most unbiased measurement of the relationship between school district expenditures and school district size.

Electricity cost per pupil represents an example of how expenditures react across school district size when expenditures are not related to the influence of past legislative history.

The importance of this concept is not the magnitude of the expenditure, but how the legislature acts when it is not related to past legislative history.

15. When incorporating an unbiased measurement, for comparing school district size and expenditures, the data indicate that school district size is not a significant factor in non-salary related costs per pupil in the state of Kansas.
16. When school districts are compared on data that represent past expenditure history, the school districts have a strong relationship with expenditures and school district size.
17. After examining five years of data for the 21 operations and maintenance categories, it was found that differences in the non-salary related categories were due to school districts with high expenditures spending greater amounts of money per pupil in a greater number of the categories than school districts with low expenditures. School district size was not a significant factor in the differences in non-salary related operations and maintenance expenses, except for heating costs per pupil. Heating costs per pupil were found to be reflective of past legislative history and local wealth.
18. The most concrete example of high expenditure school districts spending more money per pupil in a greater number of the non-salary related operations and maintenance categories than low expenditure school districts is to actually look at the differences by category by school districts.

On 15 non-salary related operations and maintenance expenditure categories, the five year average for the highest expenditure school district is \$710 per pupil compared to \$25 per pupil for the lowest expenditure school district. The highest expenditure school district spends \$338 per pupil on Rentals, the lowest spends zero; the highest spends \$125 per pupil on Repair of Buildings, the lowest spends zero; the highest spends \$28 per pupil on Equipment and Furniture, the lowest spends zero; and the highest spends \$36 per pupil on General Supplies and the lowest spends \$7 per pupil. There is a difference in school district size: the highest spending school district has an enrollment of 246 and the lowest, 1,918. The difference in the \$710 per pupil expenditures and the \$25 per pupil cannot be attributed to the difference in school district size. It can only be attributed to one school district spending a greater amount of money in a greater number of categories than the other school district.

Another example, one school district with an enrollment of 822 and one with an enrollment of 21,000. The 822 enrollment school district has a per pupil expenditure in the 15 non-salary operations and maintenance categories of \$523 and the 21,000 enrollment size has a per pupil expenditure of \$85 per student. We ask again, is the difference in expenditure due to school district size or to one school district spending a greater amount of money in a greater number of the categories than another school district. The highest spending school district spends \$206 per pupil on Rentals, \$73 per pupil on Repair of Buildings, \$62 per pupil on General Supplies, and \$82 per pupil on Equipment and Furniture. The lowest spending school district spent zero on Rentals, zero on Repair of Buildings, \$10 per student on General Supplies, and \$2 per student on Equipment and Furniture. The high spending school district has an

average of 164 students per attendance center and the low spending school district has an average of 429 enrollment.

The difference in \$525 per student and \$85 per student cannot be attributed to school district size, but to one school district spending a greater amount of money in a greater number of categories than the other school district (see Table 27-A attached).

19. Attendance centers of equal enrollment size located in different school districts can have unequal expenditures. The data indicate that expenditures for attendance centers are dependent upon the size of school district in which the attendance center is located.
20. A greater portion of a large school district's non-salary related operations and maintenance budget is consumed by electricity costs than a small school district's. The percentage of electricity cost per pupil to non-salary related operations and maintenance cost per pupil ranges from 8.5 percent for a small school district to 52 percent for a large district.

Specific Answers to the Research Questions

The research questions to be explored were:

1. Is there a relationship between school district enrollment size and expenditure levels?

From the analysis of five years of non-salary related data and school district size the results indicated the following:

(1) There is a relationship between school district enrollment size and expenditure levels with variables that are related to past expenditure history; and

(2) There is no significant relationship between non-salary related expenditures per pupil and school district enrollment size when the non-salary related expenditures are not related to past expenditure history.

2. Are differences in school district expenditures due to enrollment size or to other factors?

From the analysis of five years of non-salary related data, the results indicate that differences in non-salary related school district expenditures are due to school district spending greater per student amounts relative to other school districts and not to school district size.

On the surface, there appears to be a size factor related to expenditure levels, but by examining the component parts, the data indicate that high expenditure

school districts have spend greater amounts per pupil in a greater number of the 21 operations and maintenance categories than school districts that have low expenditures. many of the low expenditure school districts have recorded zero amounts or low dollar amounts in many of the 21 operations and maintenance areas. School district size is not a significant factor, other than low enrollment school districts may have had a greater amount of funds to spend per pupil than high enrollment school districts.

3. At what school district enrollment size does economy of scale account for a difference in expenditures?

There does not appear to be a significant relationship between non-salary related expenditures and school district size. Examining salary related expenditures was beyond the bounds of this study.

The minimum enrollment size required for a school district to support an equivalent educational program offered by a majority of the school districts in the state was addressed in this study.

From the analysis of three years of certified personnel data, it was found that for a student ratio of 6 students to 1 certified instructional personnel, a minimum of 96 enrollment would be required to support 16 certified instructional personnel, the required number to provide an equivalent educational program similar to one provided by a majority of the school districts in the state.

For a student to certified staff ratio of 10.9 to 1, the minimum enrollment size required for a school district to support 16 certified instructional staff would be 174.4.

Recommendations

The consultants conducted separate analyses of data. Dr. Bass focused on the literature and qualitative data while Dr. Hughes was dealing with the quantitative data. From these analysis activities, two sets of recommendations were developed. These are presented below, beginning with the recommendations from the qualitative analysis followed by those from the quantitative analysis.

Recommendations from the Qualitative Analysis

1. The Kansas legislature should change the terminology of “low enrollment” to “district size.” The low enrollment weighting is really a misnomer. While the review of literature identified a very wide range of criteria for definition of “small,” including sizes far in excess of 1,900, it would seem unlikely that such a large proportion of a state’s school districts would be identified as such. If it is assumed that there is a continuum of district sizes from small to large, the criterion in Kansas certainly skews the categorization. On the other hand, there appears to be an historical basis for providing greater funding per-pupil to those school districts with up to 1,900 students. The legislature can clear up the confusion over the designation of low enrollment simply by changing the terminology. Certainly, some critics would complain that the legislature was engaged in an exercise in semantics, but the consultants believe that such a change would simply be an effort toward “truth in advertising” by calling the factor what it really is, a mechanism that provides varying levels of funding according to district size.
2. Any future change in the criterion of 1,900 students for the low enrollment weighting should be accompanied by a hold-harmless provision which would allow time (up to 3-5 years) for leaders in school districts which would lose funding to make adjustments in their budgets and programs or to seek voter approval of LOB authority to compensate for such loss.
3. The Kansas legislature should consider whether to link the LOB with the low enrollment weighting to provide a state-local split in the funding, particular for those school districts which are not isolated. The literature and the experience

of other states indicate that there is considerable conceptual, if not political, support for limiting the state's obligation for funding small school districts that remain small through local choice rather than because of low population density. Continuing to provide the low enrollment weighting to all small districts provides a financial disincentive to such districts which might otherwise consider a reorganization. By establishing a geographical isolation factor and holding non-isolated districts locally responsible, at least in part, for the supplemental funding, the legislature could reduce the state's cost of this portion of the financing plan, eliminate or reduce the financial disincentive to school district reorganization, allow non-isolated small districts to continue in operation at the option (and expense) of the local residents, and ensure that all schoolchildren of the state are provided with a minimum, quality educational program.

Recommendations from the Quantitative Analysis

1. Because non-salary related operations and maintenance cost per pupil varies across the school districts and electricity cost per pupil remains constant, an adjustment to operations and maintenance cost is recommended based on the median percentage of electricity costs per pupil to non-salary related operations and maintenance costs per pupil.

All school districts that have above the median percentage of electricity costs to non-salary related operations and maintenance costs, based on a five year average, would have an adjustment to non-salary related operations and maintenance funding.

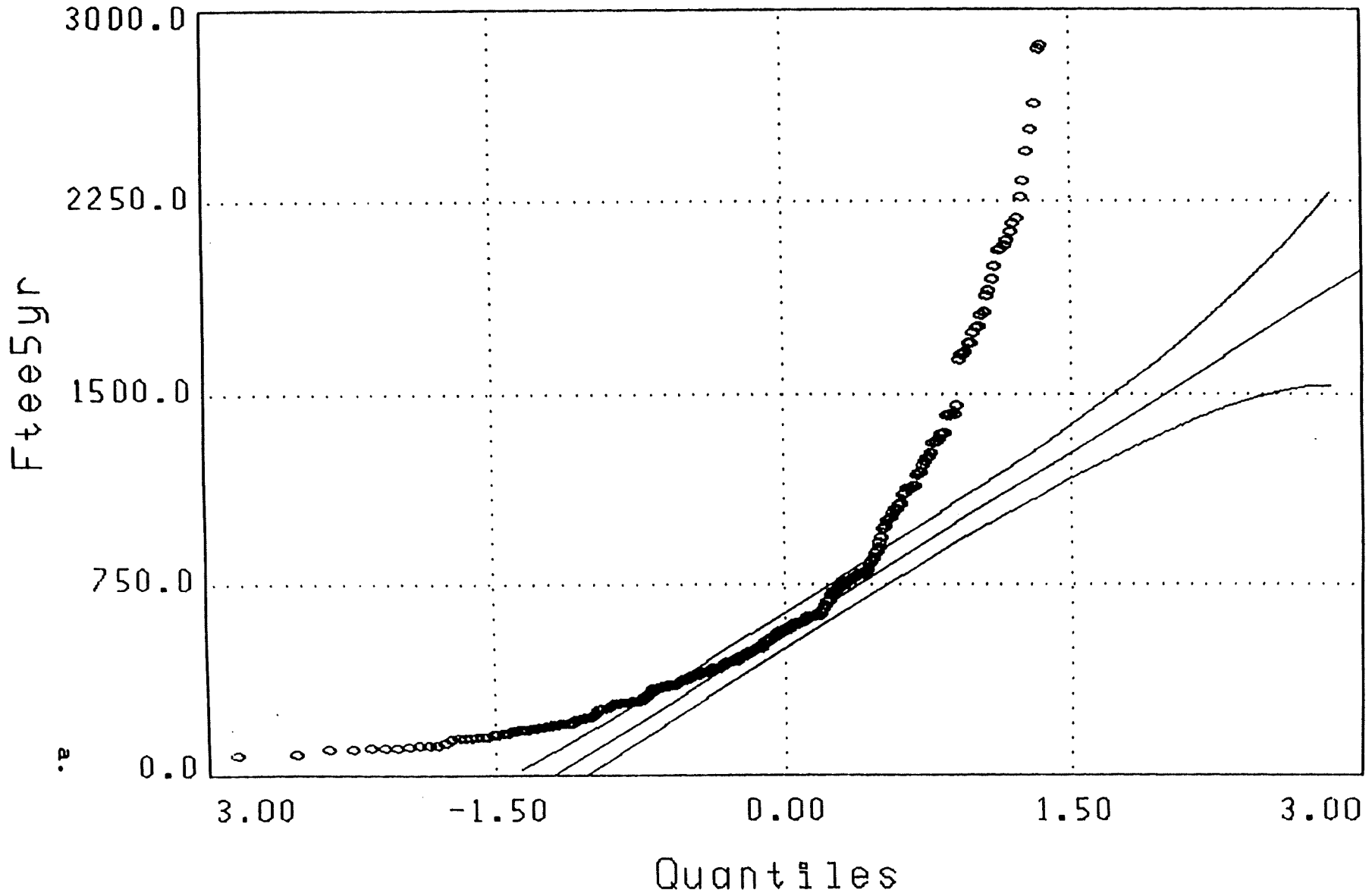
2. Low enrollment weighting would be set at the minimum school district size that would support 16 certified instructional staff required for an equivalent educational program provided by a majority of the school districts in the state. For example, if the state legislature chose to establish a student to certified instructional personnel ratio of 6 to 1, the minimum school district size would be 96 enrollment. School districts with less than 96 enrollment would receive low enrollment weighting funds.

The majority of the low enrollment weighting funds would be equally distributed on a per pupil basis across the school districts of the state. The base amount of \$3,600 per pupil would be increased in equal per pupil amounts for all the school districts.

3. From the quantitative analysis of this study, the data have indicated that non-salary related expenditures are not a function of school district size. Therefore, only salary related expenditures should be allocated through the present low enrollment weighting formula. The remaining amount of low enrollment weighting funds should be allocated in equal per pupil amounts to all school districts in the state.

Appendix J

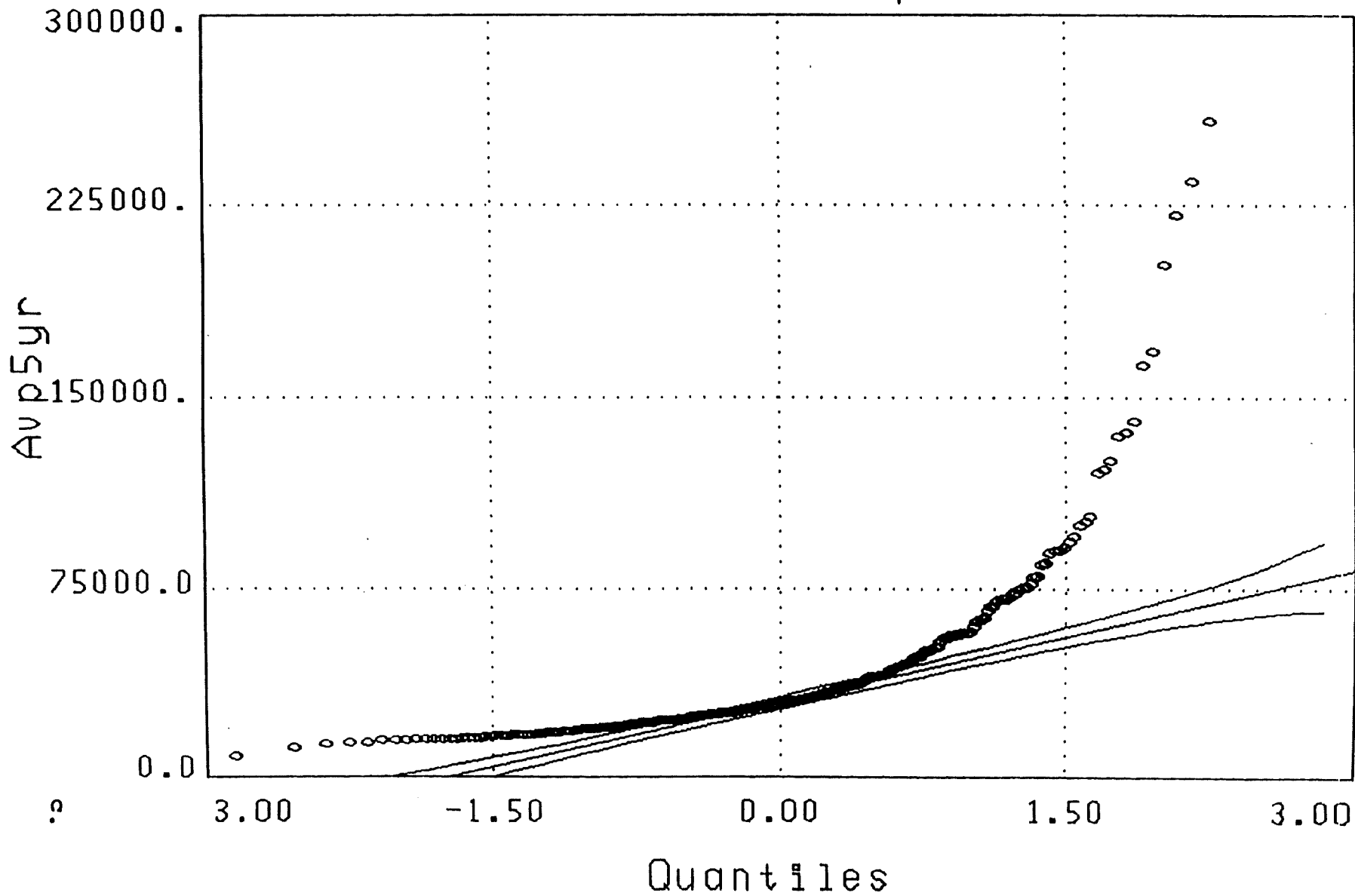
Normal Probability Plot
School District Size FTEE ENR 5 Yr



2-13

2-14

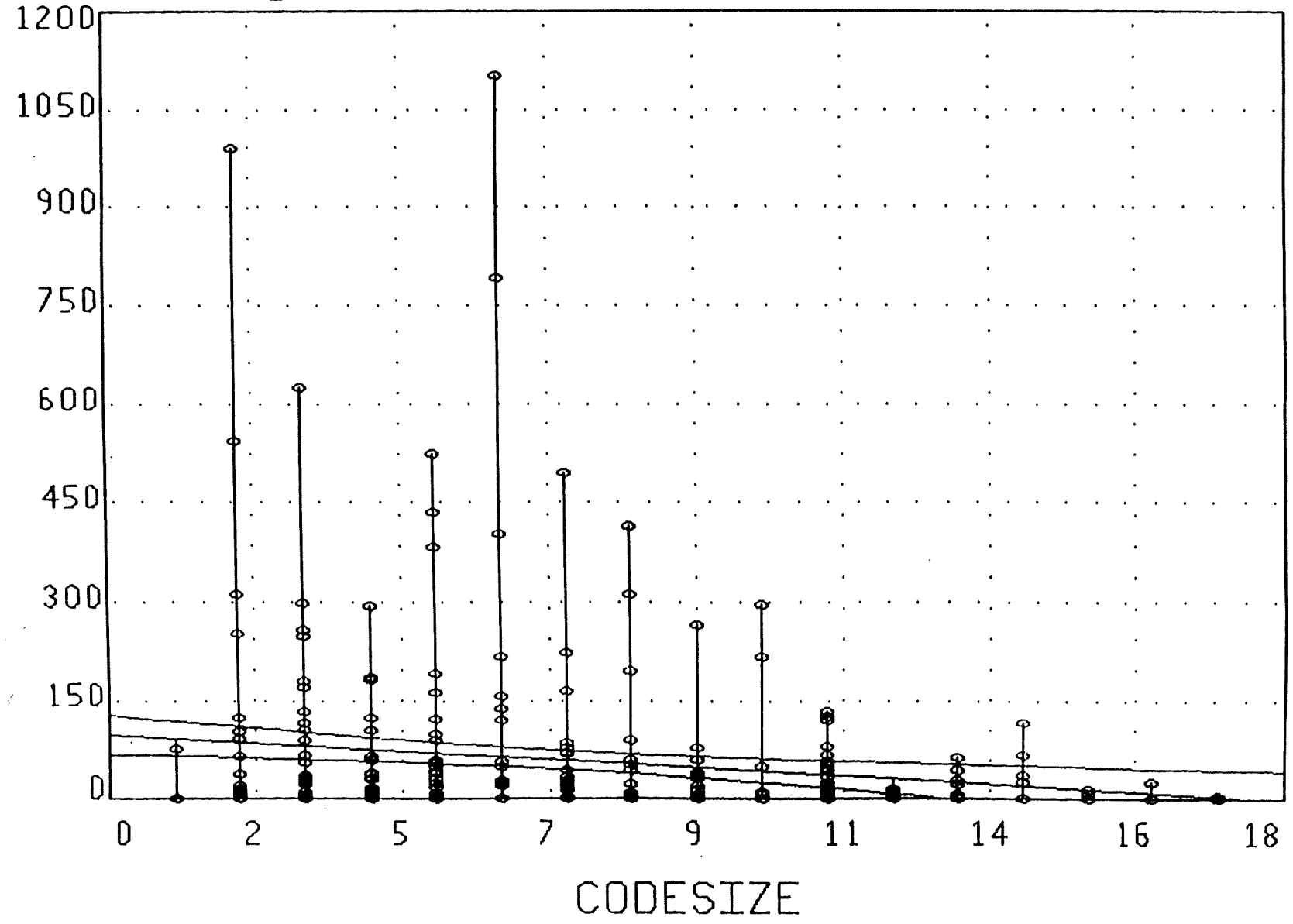
Normal Probability Plot Assessed Valuation/Pupil 5 YR AVG



2-14

Repair of Buildings/Pupil (5 Yr Avg) By School District Size - Kansas

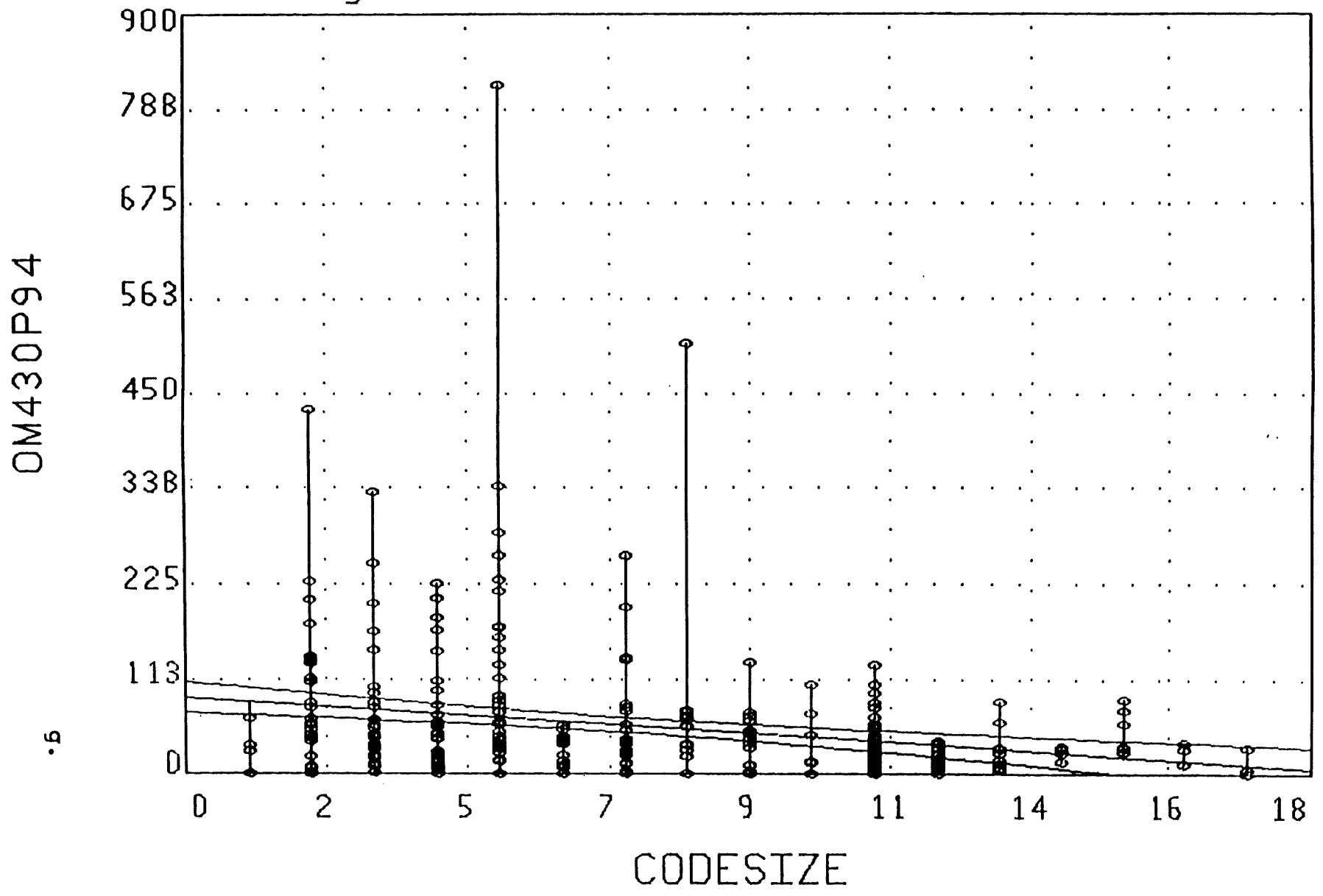
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71-8

Repairs & Maintenance/Pupil 5 Yr Avg By School District Size - Kansas

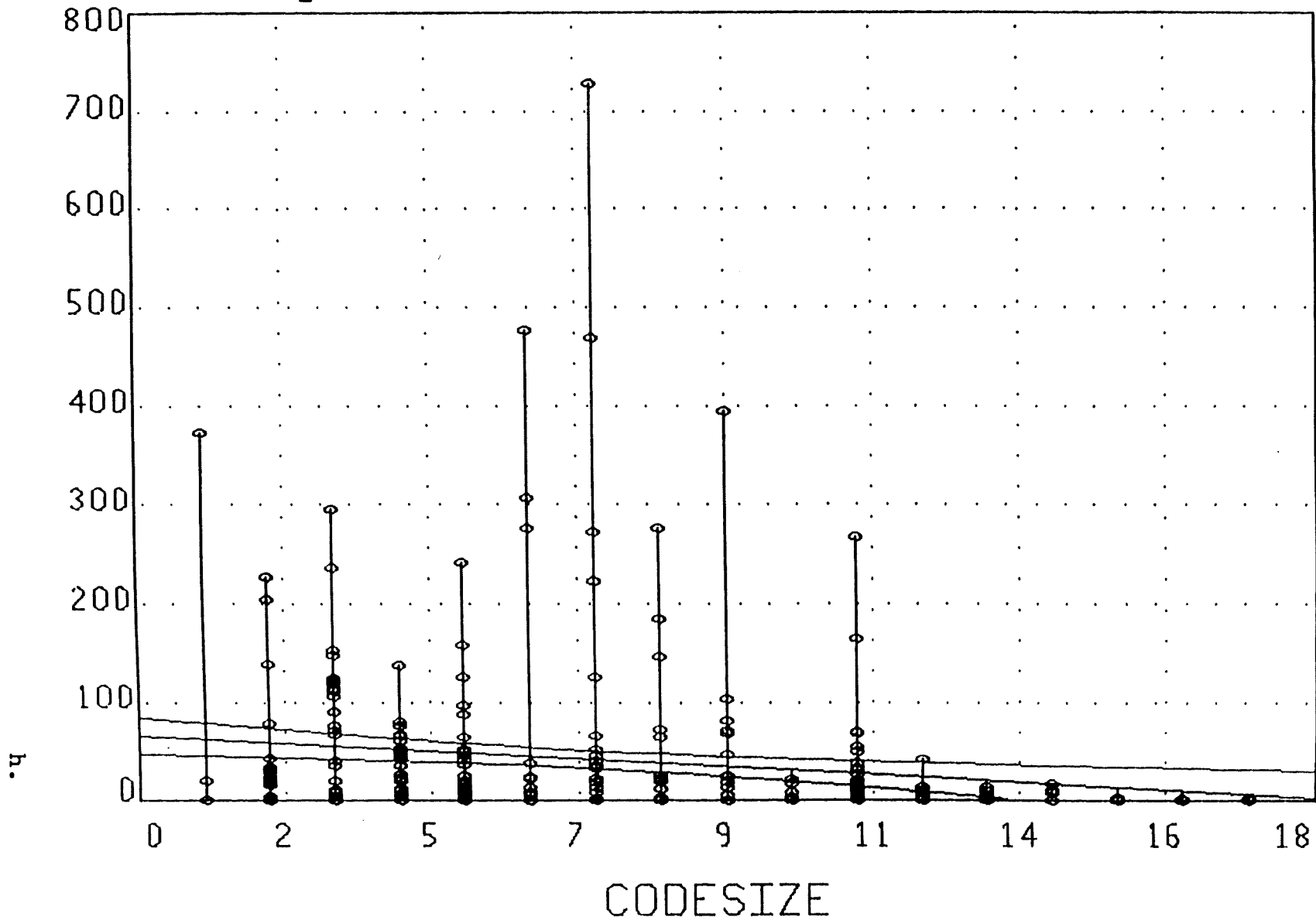


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71-8

O&M Property & Equip/Pupil (5 Yr Avg) By School District Size - Kansas

OM700P94



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Table 8
OPERATIONS & MAINTENANCE
1989-90 TO 1992-93

Percentage of School Districts With O&M Expenditure by Category

CATEGORY	120	210	220	290	300	411	420	430
School Districts								
89-90 % WITH	100%	49%	79%	59%	37%	94%	33%	70%
90-91 % WITH	100%	63%	93%	77%	39%	96%	58%	86%
91-92 % WITH	100%	67%	96%	79%	39%	96%	61%	87%
92-93 % WITH	100%	69%	96%	79%	41%	96%	62%	88%
93-94 % WITH	100%	70%	97%	82%	44%	97%	62%	89%
89-94 % 5YR	100%	64%	92%	75%	40%	96%	55%	84%

CATEGORY	440	460	490	520	590	610	621	622
School Districts								
89-90 % WITH	25%	53%	44%	64%	34%	88%	99%	99%
90-91 % WITH	35%	60%	48%	71%	47%	95%	99%	99%
91-92 % WITH	38%	59%	44%	72%	48%	96%	99%	99%
92-93 % WITH	36%	63%	44%	71%	46%	97%	99%	99%
93-94 % WITH	36%	63%	48%	71%	48%	98%	99%	99%
89-94 % 5YR AVG WITH	34%	60%	46%	70%	45%	95%	99%	99%

CATEGORY	626	629	680	700	800
School Districts					
89-90 % WITH	22%	31%	29%	57%	34%
90-91 % WITH	39%	33%	31%	68%	48%
91-92 % WITH	43%	29%	30%	68%	46%
92-93 % WITH	46%	30%	25%	74%	48%
93-94 % WITH	46%	28%	29%	75%	46%
89-94 % 5YR AVG WITH	39%	30%	29%	68%	44%

Data Source: 1989-90 to 1993-94 Data, Kansas State Board of Education

Table 9
 Operations and Maintenance (O&M)
 Average O&M Expenditure per Pupil
 1989-90 & 1993-94
 By Category

Category OPERATIONS & MAINTENANCE	89-90 \$ Per Pupil	Range \$ Per Pupil	# Sch Dists	93-94 \$ Per Pupil	Range \$ Per Pupil	# Sch Dists
120 Non-Certified Salary	*\$224	\$80 - \$649	303	*\$249	\$64 - \$507	304
622 Electricity	78	25 - 274	299	90	20 - 330	301
621 Heating	39	6 - 213	300	43	7 - 252	302
430 Repairs & Maint	27	.1 - 207	211	37	.6 - 817	272
460 Repair of Buildings	27	2 - 632	167	42	2 - 1103	193
610 General Supplies	27	6 - 179	268	34	8 - 239	298
520 Insurance	22	.7 - 236	194	20	3 - 151	216
700 Property (Equipment/	21	4 - 419	172	22	5 - 807	227
220 Social Security	* 18	2 - 299	239	* 20	5 - 405	295
629 Other (Energy)	18	5 - 185	93	8	2 - 81	84
210 Insurance (Employee)	* 15	.2 - 168	149	* 16	3 - 119	213
490 Other (Pur Prop Svc)	14	9 - 119	133	12	2 - 474	146
800 Other (Property Svc)	14	8 - 160	103	18	3 - 583	140
300 Prof Technical Svc	11	.1 - 175	113	17	3 - 301	134
440 Rentals	11	1 - 227	76	17	3 - 886	112
411 Water/Sewer	9	.6 - 55	286	11	2 - 50	295
290 Other (Emp Benefits)	* 7	3 - 86	180	* 6	5 - 45	250
590 Other (Purchased Svc)	7	4 - 46	102	10	7 - 130	146
680 Miscellaneous Suppli	7	6 - 105	87	5	9 - 112	87
420 Cleaning	4	.3 - 69	99	7	10 - 53	189
626 Motor-Fuel (Not Bus)	3	.1 - 33	66	3	3 - 161	140
Total O & M /Pupil Mean	\$499	\$211 - \$1,350		\$609	\$250 - \$1,673	
Expend & Transfers/Pupil	\$3,695	\$2,350 - \$8,393		\$4,673	\$3,724 - \$10,471	
Enrollment FTEE	407,882	72 - 43,942		437,208	74 - 45,357	

* Salary Related Operations & Maintenance Data

Data Source: 1989-90 & 1993-94 Data, Kansas State Board of Education

Table 27-A
 High and Low Expenditure School Districts on
 15 Operations & Maintenance Categories
 Costs Per Pupil by Category
 Five Year Average

15 O&M CATEGORIES TOTAL	430	440	460	610	700	93-94 FTEE	# PUPILS PER ATT/CNT
\$710	\$31	\$338	\$125	\$36	\$ 28	246	123
\$664	26	515	14	52	21	707	236
\$646	11	3	347	64	153	565	282
\$596	81	17	157	81	180	293	146
\$523	13	206	73	62	82	822	164
\$89	0	0	0	21	2	849	212
\$85	0	0	0	10	3	21,002	429
\$57	6	1	1	18	2	30,537	536
\$54	7	0	0	23	8	1,205	151
\$25	7	0	0	7	0	1,918	480

430 = Repairs & Maintenance

440 = Rentals

460 = Repair of Building

610 = General Supplies

700 = Equipment & Furniture

MEMORANDUM

Kansas Legislative Research Department

300 S.W. 10th Avenue
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SUMMARY OF THE BASS-HUGHES FINDINGS AND RECOMMENDATIONS CONCERNING AN ECONOMY OF SCALE FACTOR FOR LOW ENROLLMENT SCHOOL DISTRICTS

(Report to the Legislative Coordinating Council, December 19, 1994)

Overview

The consultants approached the project from two different perspectives. Dr. Bass used a "qualitative" approach in arriving at his finding and recommendations. This consisted of a review of literature and interviews with Kansas public school superintendents. In contrast, Dr. Hughes relied upon a "quantitative" approach, *i.e.*, statistical analyses of a variety of multi-year Kansas school district data. The result was separate sets of findings and recommendations from the different research techniques and areas of emphasis.

A. The Qualitative Analysis

Finding

- In the literature, there is no consistent definition of the term "small" as the term applies to schools or school districts. Furthermore, the interview process failed to provide persuasive evidence relative to the appropriate, or acceptable size criterion for a low enrollment weight factor.

Recommendations

- Terminology in the Kansas law should be changed from "low enrollment" to "district size." This is because the formula really provides funding levels according to district size. In Kansas, "low enrollment" applied to districts up to 1,900 is something of a misnomer.
- In the event the low enrollment weighting adjustment is changed so that any district having an enrollment of fewer than 1,900 pupils loses funding, the change should include a "hold-harmless" provision that allows three to five years for affected districts to make adjustments in programs and budgets or to seek Local Option Budget (LOB) authority to cover the loss.

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- The Legislature should consider whether to link the LOB with the low enrollment weighting to provide a state-local split in funding, particularly for school districts which are not isolated.

Comment. While not explicitly stated, at this point the consultant clearly implies that the Kansas low enrollment weight provision is too inclusive and, that in addressing this issue, distinction should be made between districts having low enrollment due to geographic isolation and other low enrollment districts. In this respect, the consultant states:

- continuing to provide low enrollment weighting to all small districts provides a financial disincentive to such districts which might otherwise consider reorganization;
- use of a geographic isolation factor and holding nonisolated districts locally responsible, at least in part, for supplemental funding would:
 - reduce the state's cost of this portion of the financing plan,
 - eliminate or reduce the financial disincentive to school district reorganization, and
 - allow nonisolated small districts to remain in operation at the option and expense of local residents.

B. The Quantitative Analysis

Findings

Statement of Limitations and Procedures Followed. The consultant emphasized the difficulty presented in determining through statistical analysis the relationship between school district size and expenditure levels attributable to economy of scale, independent of the influence of past legislative policies. Put differently, past legislative policies have recognized and supported the notion of higher costs of low enrollment districts. The challenge adopted by the consultant was not simply to document from the data that past legislative policies have produced the intended results; rather, it was to identify economy of scale factors that exist independently from the influence of past policies. In this regard, the consultant moved through the following steps:

- excluded salary related expenditures from the study (because they strongly reflect past legislative history), and

- concentrated on operations and maintenance (O&M), certified personnel, and noncertified personnel. (O&M represented about 15 percent of total expenditures.)

(a) **O&M Analyses**

- Found that the O&M category as a whole could not be used because districts of the same size have vastly different building expenditures per pupil and districts of different sizes had the same per pupil building expenditures.
- Explored the 21 categories within O&M to determine those used by virtually all districts that did not reflect past total expenditure and transfer history and that were not related to local wealth and school district size; *i.e.*, that were an unbiased measure of O&M costs among all districts.
- Found that, except in districts with more than \$101,000 assessed valuation per pupil, only per pupil electricity costs (an O&M category) was both an unbiased expenditure item and an expenditure found to exist in all school districts; that is, an expenditure not representative of past expenditure history, school district size, or local wealth.

(For 1993-94, the district cost per pupil of electricity equates to about 2.0 percent of total average per pupil costs.)

- Recommended a nonsalary related O&M adjustment for all school districts in which electricity costs per pupil exceed the statewide median percentage of electricity costs per pupil. An exception to such an adjustment would be districts with an assessed valuation per pupil two standard deviations above the mean. For these districts, either no adjustment or a modified adjustment would be made.

(See also listing of recommendations (below).)

(b) **Certified Personnel**

- Examined Kansas school district certified personnel data in order to define an equivalent educational program offered by a majority of Kansas school districts.
- Determined the minimum number of instructional certified personnel necessary for a "one unit" educational program to be 16 persons -- one kindergarten teacher, 12 classroom teachers, one school counselor, one library media person, and one reading specialist. (See listing of recommendations (below).)
- Explained that a minimum school district size can be determined if the minimum ratio of students to instructional personnel is stipulated. For

example, based on a student/instructor ratio of 6:1, the minimum enrollment would be 96 students.

- Stated that school districts with more than the minimum number of students recommended by the state as a small school would not need additional funding to support an equivalent educational program, as their student numbers would support the staff required.
- Cautioned that a limitation of the type of recommendation above would be that Kansas would need to totally revamp its method of funding schools by moving to a formula based on staffing ratios and by establishing a state salary schedule.

Consolidated Recommendations from the Quantitative Analyses

- An adjustment to O&M of districts should be applied, based on the median percentage of electricity costs per pupil to nonsalary related O&M costs per pupil. This adjustment should apply to all school districts that have above the median percentage of electricity costs to nonsalary related O&M, based on a five year average. This adjustment is considered appropriate because nonsalary related O&M cost per pupil varies across school districts and electricity cost per pupil remains constant.
- Low enrollment weighting would be set at the minimum school district size that would support the 16 certified instructional staff necessary for an equivalent educational program provided by a majority of the school districts in the state.

(For example, if the Legislature chose to establish a student to certified instructional personnel ratio of 6:1, the minimum school district size would be 96 enrollment. School districts with less than 96 enrollment would receive low enrollment weighting funds.)

The majority of the low enrollment weighting funds would be equally distributed on a per pupil basis across the school districts of the state. The base amount of \$3,600 per pupil would be increased in equal per pupil amounts for all school districts.

- Only salary related expenditures should be allocated through the present low enrollment weighting formula. This is because nonsalary related expenditures are not a function of school district size. The remaining amount of low enrollment weighting funds should be allocated in equal per pupil amounts to all school districts in the state.

ATTACHMENT I

WHAT THE QUANTITATIVE ANALYSES REVEALED CONCERNING
THREE RESEARCH QUESTIONS

1. **Question.** Is there a relationship between school district enrollment size and expenditure levels?

Answer. Yes, by 1993-94, 92 percent of the variation in expenditure data could be attributed to school district size.

A separate analysis of nonsalary related data produced the finding that there is a relationship between school district enrollment and expenditures with variables that are related to past expenditure history, but not with variables that are not related to past expenditure history.

2. **Question.** Are differences in school district expenditures due to enrollment size or other factors?

Answer. Variations are due mostly to enrollment size.

A separate analysis of nonsalary related data indicate differences are due to school districts spending greater per student amounts relative to other school districts and not to school district size.

3. **Question.** At what school district enrollment size does economy of scale account for a difference in expenditures?

Answer. No general or specific answer was given. The consultant stated:

“There does not appear to be a significant relationship between nonsalary related expenditures and school district size. Examining salary-related expenditures was beyond the bounds of the study.”