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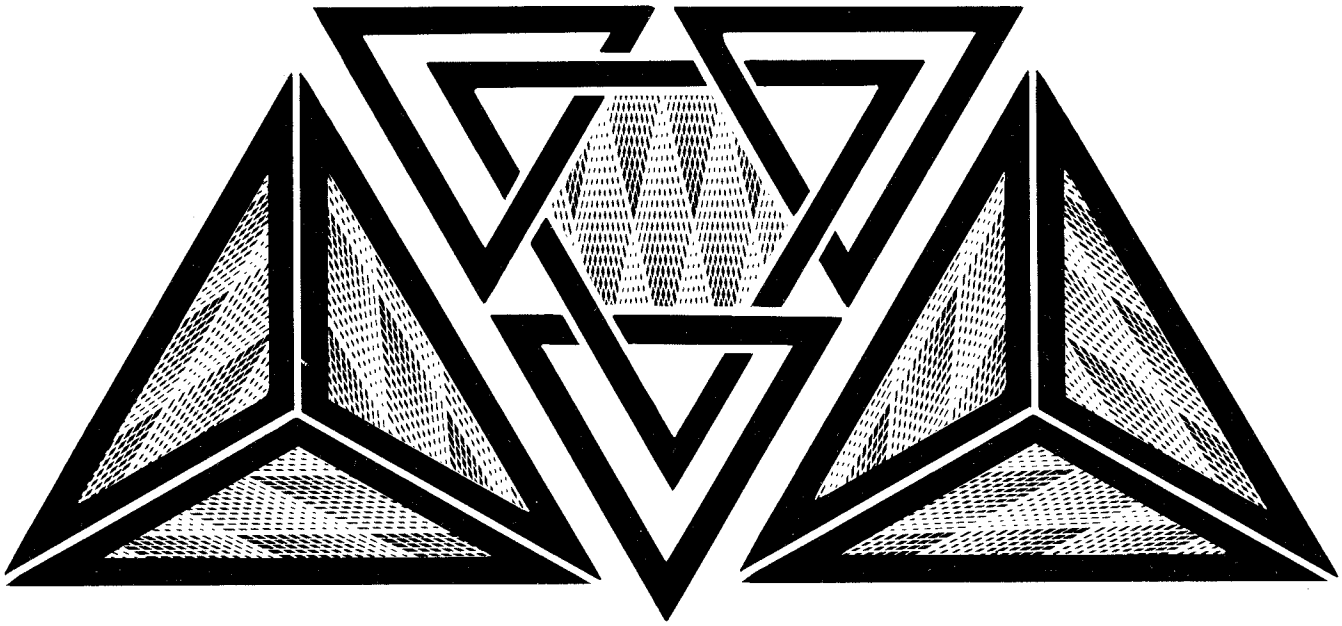
GENERAL FUND COST STUDY ARIZONA SCHOOL DISTRICTS



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JUNE, 1979

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TABLE OF CONTENTS

Section		Page
I.	INTRODUCTION AND STUDY METHOD	1
II.	ELEMENTARY VS. HIGH SCHOOL EXPENDITURES	4
III.	ELEMENTARY EXPENDITURES BY GRADE AND PROGRAM	8
IV.	HIGH SCHOOL EXPENDITURES BY PROGRAM	21
V.	SOURCES OF EXPENDITURE VARIATION AMONG ELEMENTARY AND HIGH SCHOOL DISTRICTS	28
VI.	ELEMENTARY AND HIGH SCHOOL BENCHMARK DISTRICTS	38

Appendixes

A.	SCHOOL DISTRICT SAMPLE	47
B.	REGULAR INSTRUCTIONAL PROGRAM AREAS	48
C.	TABLES C-1 THROUGH C-11	51-62

LIST OF ILLUSTRATIONS

Chart		Page
1A.	General Fund Expenditures Per Student by Function: 1977-78 (Elementary and High School)	5
1B.	Major Differences in General Fund Expenditures by Function: 1977-78 (Elementary and High School)	6
2.	Average Elementary General Fund Expenditure and Ratio of FTE Students to FTE Teachers by Grade Level: 1977-78	9
3.	Comparison of Elementary Average Class Size for Regular Teachers and Ratio of FTE Students to FTE Teachers by Grade Level: 1977-78	10
4.	Average General Fund Expenditure Per FTE Student and Average Ratio of FTE Students to FTE Teachers by Program: 1977-78	
	A. Grades 1-8	12
	B. Grades 1-3	13
	C. Grades 4-6	14
	D. Grades 7-8	15
5.	Percent Distribution of Elementary General Fund Expenditures Within Grade Level by Program: 1977-78	17-18
6.	Elementary General Fund Expenditures Per FTE Student by Program for Lowest and Highest Spending Districts: 1977-78	19
7.	Average General Fund Expenditure Per FTE Student and Average Ratio of FTE Students to FTE Teachers for High School by Program: 1977-78	22
8.	Percent Distribution of High School General Fund Expenditures by Program: 1977-78	24
9.	High School General Fund Expenditures Per FTE Student by Program for Lowest and Highest Spending Districts: 1977-78	27
10.	Major Sources of Variation in Elementary District General Fund Expenditures Per Student From Typical Elementary Level	30-31
11.	Major Sources of Variation in High School District General Fund Expenditures Per Student From Typical High School Level	36-37

LIST OF TABLES

Table		Page
1.	Average Student/Teacher Ratios and Average Class Sizes For Lowest and Highest Spending Elementary Districts: 1977-78	20
2.	Comparison of Average Elementary and High School Regular Teacher Class Sizes and FTE Student/Teacher Ratios: 1977-78	21
3.	Average High School General Fund Expenditures Per FTE Student and Percentage Distribution of FTE Students by Vocational Education Program: 1977-78	25
4.	Average Student/Teacher Ratios and Average Class Sizes For Lowest and Highest Spending High School Districts: 1977-78	26
5.	Typical General Fund Expenditures Per Student: 1977-78	29
6.	Characteristics of an Elementary Benchmark District General Fund: 1977-78	39-40
7.	Characteristics of a High School Benchmark District General Fund: 1977-78	42-43
8.	Reconciliation of Benchmark District Expenditures Per Student With Elementary and High School General Fund Average Expenditures: 1977-78	45

GENERAL FUND COST STUDY
ARIZONA SCHOOL DISTRICTS

SECTION I

INTRODUCTION AND STUDY METHOD

In 1977-78, General Fund spending by Arizona school districts was nearly $600 million. These expenditures covered the costs of most of the public school regular operations. With the exception of capital items, General Fund expenditures reflect the backbone of the public school system. Most of the instructional staff, administrative personnel, a variety of support functions and physical plant maintenance and operations are covered by the General Fund. It is also at this area that most of the state's financial assistance to the schools is aimed and on which the major budgeting control provisions historically have been applied.

The purpose of this study is to develop estimates of district General Fund expenditures on various education programs and school district functions for 1977-78 in order (1) to understand better how school districts are using their resources, (2) to establish the major sources of expenditure variation among the districts, and (3) to make the findings available for use in deliberations on policy proposals for a restructure of state aid and budgetary control provisions.

In 1974, the Arizona Legislature completed a major overhaul of the school financing system. State aid for General Fund operations was increased. All former methods of distributing aid to the districts were replaced by an equalization aid formula. General Fund budget limitations were modified. Lower spending districts were given a five-year period to accelerate their allowable expenditures to the level supported by the aid formula. A redo of school district budget formats and school district accounting procedures was mandated.

The revised state aid provisions solidly established the principle of equalizing basic state aid. Aid is distributed to the districts each year on the basis of a statutory formula. Essentially, this formula prescribes the following:

1. Determine the total dollar support level for the district.

2. Determine how much a qualifying tax rate of $1.30 ($2.60 for unified districts) would raise on the district's assessed valuation.

3. If the amount which could be raised by the qualifying tax rate is less than the support level, the difference is the district's entitlement to state aid.

The support level was statutorily established for the year 1973-1974 at $745 for each elementary student and $1,015 for each high school student. Under the statutory provisions, these original support levels have increased by seven percent each year until in 1978-1979 they are $1,045 for each elementary student and $1,423 for each high school student. This system of aid guarantees that each district will have available for its use a combination of state aid and district dollars equal to the support level and with a tax rate that will not exceed an upper limit.

Closely tied to the establishment of support levels is the annual determination of the General Fund budget limitation for each district. With the exception of certain revenue sources (including override elections) each district is allowed to increase its budget for General Fund expenditures by an amount per student equal to the increase in the state support level per student. In 1978-79, for example, the allowable increases per student were $68 in the elementary system and $93 for high school students.

However, it must be candidly conceded that when the state constructed its present basic aid system, there was a large dose of the unknown in the selection of the support levels established for elementary and high school students. Little was known about what the support levels would buy in terms of education programs, instructional staffing ratios or elementary programs and functions compared to high school programs and functions. Nor was much known about why spending levels per student varied substantially among the districts. In other words, it was not possible to translate the support levels into a picture of what they would operationally provide at the school district level. This study is aimed at filling this void.

Study Method

The expenditure analysis is based on data compiled for a sample of Arizona school districts for the year 1977-78. The study was integrated with the requirements for the statutorily mandated special education cost study. The basic special education study results were provided to the Legislature in December, 1978.*

The sample is composed of 28 districts. Ten of these districts are either unified or elementary districts teaching high school. Fourteen districts are elementary and four districts are high school. When the combined districts are separated into their elementary and high school portions, the sample consists of the equivalent of 24 elementary districts and 13 high school districts. (See Appendix A for a listing of the sample districts.)

Selection of the sample was designed to provide a representative group that would reflect the diversity of the state's school districts. The criteria used to select the districts included (1) student population—small to large, (2) assessed valuation per student—low to high, (3) expenditure levels per student—low to high, (4) geographical and urban-rural dispersion, and (5) districts with different enrollment trends—growing, stable and declining.

The elementary portion of the sample accounted for nearly 50 percent of the state's elementary ADM in 1977-78. The high school sample contained about 60 percent of the state's high school ADM.

Extensive, on-site field work was undertaken by personnel of the Department's audit division during 1978. Detailed data on fund expenditures, staffing levels, curriculum and teacher and student time devoted to different education program areas were obtained with the cooperation and assistance of district personnel.

Procedures were established to (1) allocate administration and operations expenditures between the General Fund (001) and the Special Education Fund (002), (2) allocate special education expenditures to the various handicapped categories, (3) allocate General Fund expenditures for unified districts and elementary districts teaching high school to elementary

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* See Arizona Department of Education, *Special Education Cost Study* (December, 1978).

and high school functions, (4) allocate elementary General Fund expenditures to the different grade levels, (5) allocate elementary and high school General Fund expenditures to the various education program (curriculum) areas, and (6) isolate the sources of General Fund expenditure variations among the school districts.

As the General Fund expenditure analysis was nearing completion, several meetings were held to permit a review by representatives from the sample districts. The basic data compiled for each of the districts, the allocation methods and major findings were presented and discussed in some detail. The primary purpose of these meetings was to permit a critique of the data compiled for individual districts and of the methods used to allocate General Fund expenditures to the various grade levels and education programs.

This report reflects an analysis of school district General Fund expenditures only. As already mentioned, the basic special education cost study results are treated in a separate report. School district expenditures for transportation and the various capital areas are not considered in this analysis. County expenditures covering the employers' contributions for state retirement and Social Security for school district certified staff are not included in district General Fund expenditures.

In the course of distributing General Fund expenditures to their appropriate program areas, approximately $9.1 million of administrative and operations expenditures were reassigned from the General Fund to the Special Education Fund. This amount represents three percent of the total General Fund expenditures reported by the sample districts. The special education cost study reflects this reallocation. The expenditures per student for each handicapped category include the amounts allocated from the General Fund to special education.

The major findings of the General Fund expenditure analysis are presented in the following sections. Heavy reliance is made of charts included in the text. The first reference to a chart is accompanied by a ( ) which refers to an appendix table that contains the data from which the chart has been developed.

SECTION II

ELEMENTARY VS. HIGH SCHOOL EXPENDITURES

Average General Fund expenditures per student by elementary and high school systems are displayed in Chart 1-A (Appendix Table C-1). Elementary expenditures per student averaged $1,102, while the corresponding high school average was $1,282.

The difference, $180 per student, was substantially less than the variation in the support levels used to determine entitlement to state aid. In 1977-78 the state aid support level was $977 for elementary students and $1,330 for high school students. The difference in support levels, $353 per student, was about twice the variation in spending levels. Relative to expenditure levels it appears that the elementary system is under-supported in establishing entitlement to state aid.

In addition, the disparity between spending levels and support levels creates a distortion in the application of the General Fund budget limit. Since 1973-74, the school districts have been permitted to increase the controlled portion of their General Fund budgets by an amount equal to seven percent of the state aid support level per student. For 1978-79, the allowable elementary increase of $68 per student actually represented only about a six percent increase over the elementary average expenditure of $1,102 in 1977-78. On the other hand, the allowable high school increase of $93 per student amounted to more than a seven percent increase over the high school average expenditure of $1,282 in 1977-78.

As Chart 1-A reveals, the differences that do exist between the elementary and high school systems are primarily concentrated in the instructional support and operations functions.* Administration spending was identical. Very little variation existed in the dominant instruction function.

As shown in Chart 1-B (Appendix Table C-1), most of the $180 difference in spending levels was attributable to guidance and psychological services (counselors) and interscholastics within the instructional support function. Utilities and physical plant maintenance accounted for most of the variation in the operations function.

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* As used in this report, school district functions are defined to include the following items as specified in the Uniform System of Financial Records (USFR).

Administration: Function 100 (Administration), Function 310 (Principal's Office), Function 350 (Curriculum Services) and Employee Benefits allocable to this function.

Instruction: Function 200 (Instruction) and Employee Benefits allocable to this function.

Instructional Support: Function 300 (Instructional Support), exclusive of Function 310 and 350, plus Employee Benefits allocable to this function.

Operations: Function 400 (Operations) less Employee Benefits allocated to the other functions.

CHART 1-A

GENERAL FUND EXPENDITURES PER STUDENT
BY FUNCTION: 1977-78
ELEMENTARY AND HIGH SCHOOL

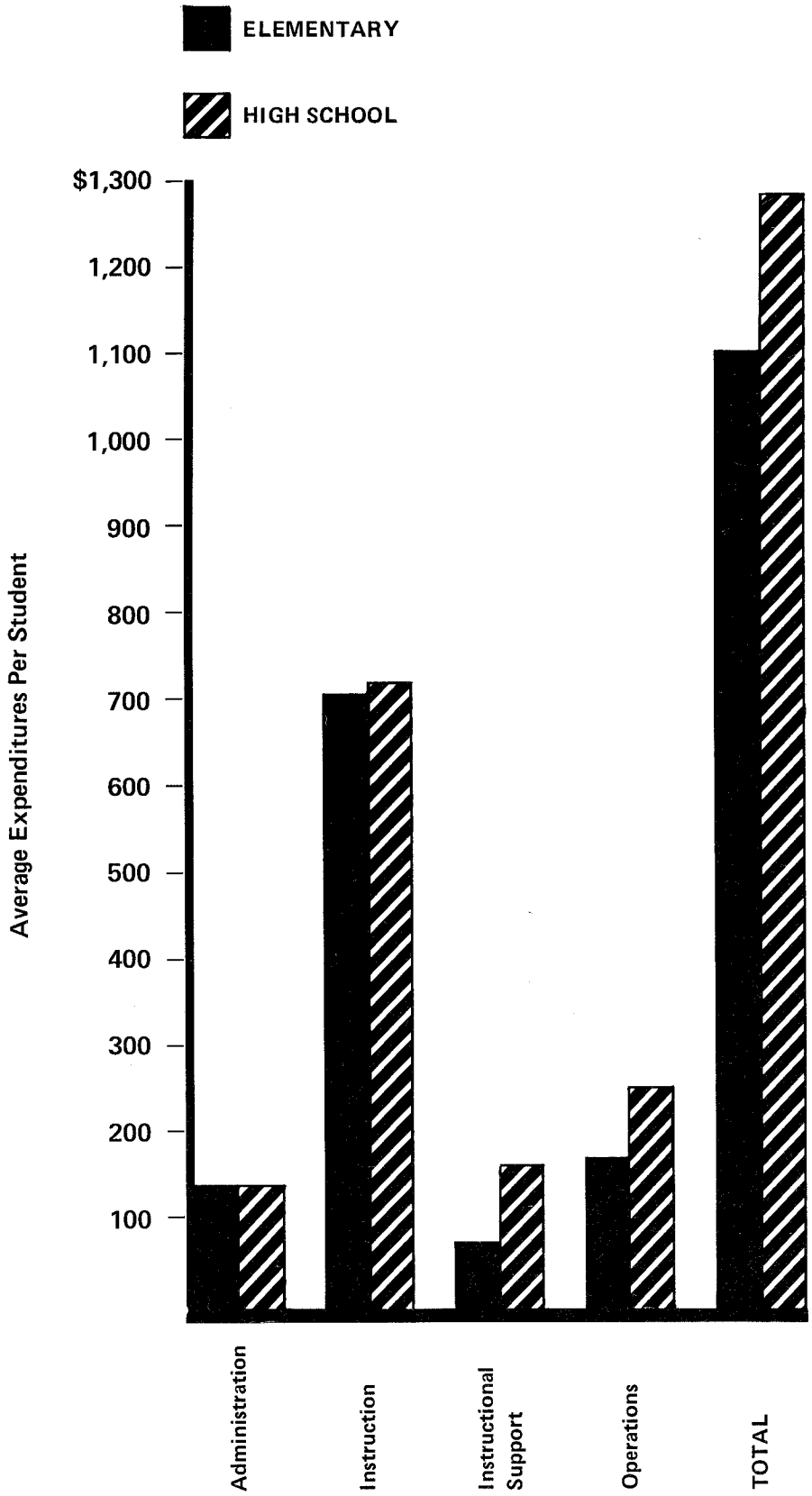
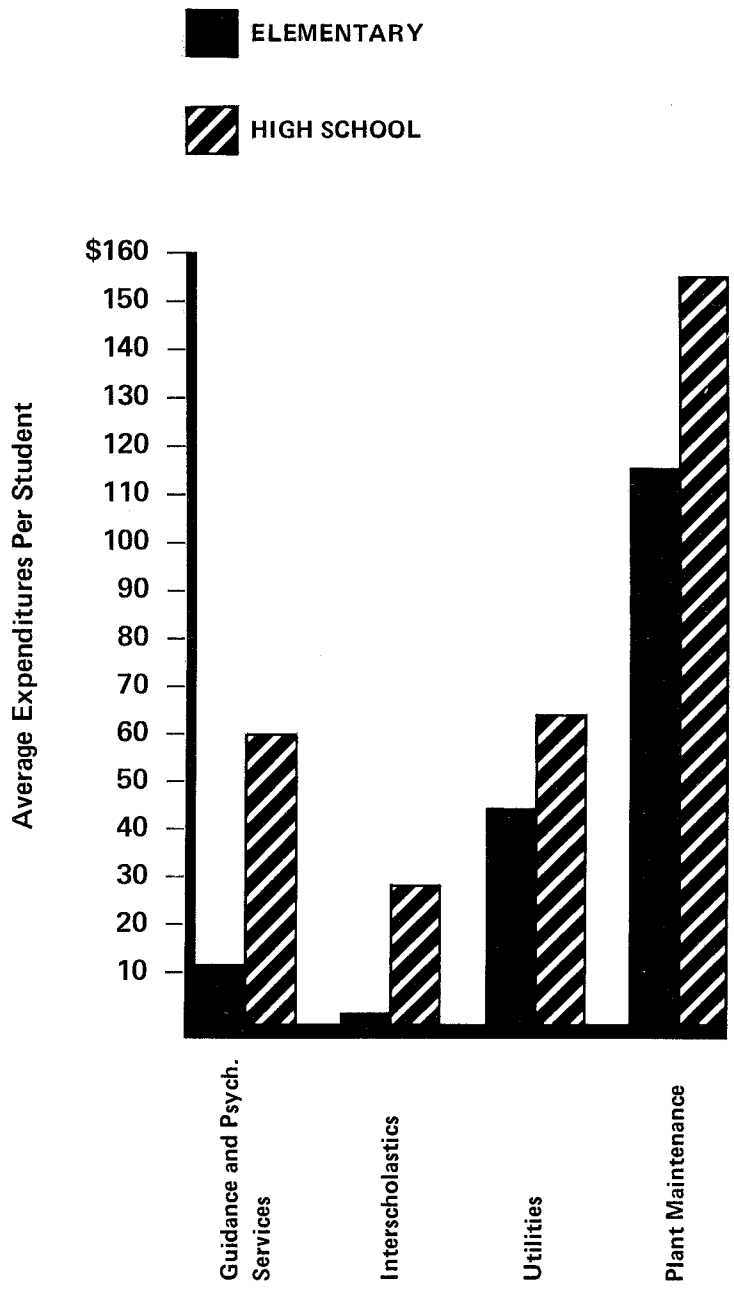


CHART 1-B

MAJOR DIFFERENCES IN GENERAL FUND EXPENDITURES BY FUNCTION: 1977-78 ELEMENTARY AND HIGH SCHOOL



In large part, the difference between elementary and high school General Fund spending levels is relatively small because teacher staffing levels are quite similar. In 1977-78, the elementary system averaged one full-time equivalent (FTE) teacher paid from the General Fund for every 22.4 students in average daily membership (FTE students). The corresponding ratio for the high school system was 23.8 students to one teacher. If all other cost factors had been the same between the two systems, the lower elementary FTE student/teacher ratio would have caused higher instructional expenditures in the elementary system. In fact, however, the high school system exhibits slightly higher salary schedules as well as a higher percentage of teachers paid on the upper portions of the salary schedule. As a result, high school instruction expenditures per student averaged slightly above ($18) the elementary level.

(A word of caution should be inserted here. These FTE student/teacher ratios do not represent average class sizes faced by teachers. As will be discussed later, class size for regular elementary teachers averaged 25.9 in 1977-78. Average high school teacher class size was 25.2.)

SECTION III

ELEMENTARY EXPENDITURES BY GRADE AND PROGRAM

In this section, the major findings concerning elementary General Fund expenditures at different grade levels and spending for the various programs that comprise the elementary curriculum are reported. A comparison is made between teacher class sizes and ratios of FTE students to FTE teachers. The question of whether higher spending districts expend more per student because of particular emphasis on specific education programs is explored.

Elementary General Fund Expenditures Per Student by Grade Level

Average 1977-78 expenditures per student at different grade levels are shown on Chart 2 (Appendix Table C-2). For each grade level group the corresponding FTE student/teacher ratio is also presented.

Except for kindergarten, there is a systematic increase in expenditures per student as students progress from grade 1 through grade 8.*

Expenditures averaged $1,052 per student for grades 1-3, while the spending level for grades 7-8 averaged $1,174.

Paralleling this expenditure pattern was a decrease in FTE student/teacher ratios from the lower grades to the upper grades. The student/teacher ratio averaged 23.6 in grades 1-3. For grades 7-8 the average was 20.9.

To some extent, however, these overall grade level averages paint a misleading picture. Contained on Chart 3 (Appendix Table C-3) is a comparison of average class sizes for "regular" teachers with the FTE student/teacher ratios for the different grade levels.** While the FTE ratios systematically decline from the lower to the upper grades, average "regular" teacher class size exhibits a much more stable pattern. In fact it can be argued, with the exception of kindergarten, that average "regular" teacher class sizes among the grades do not significantly differ from about 26 to one.

There are two major reasons why the FTE ratios decline while the class sizes are relatively stable. The first and most significant reason is the difference between teacher and student contact hours at the different grade levels (see Appendix Table C-3). While students spend more time at school as they progress up the grade levels, required contact time for teachers

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* The kindergarten cost of $1,156 per student is based on a student FTE count which is the same as the method used to establish ADM for state aid purposes. Because kindergarten programs are half day in length, each student in average daily membership is counted as one-half FTE.

** "Regular" teachers at the elementary level are defined as all teachers paid from the General Fund other than full-time specialists engaged in the areas of fine arts (music, art, band), physical education, industrial arts and home economics.

CHART 2

AVERAGE ELEMENTARY GENERAL FUND EXPENDITURE
AND RATIO OF FTE STUDENTS TO FTE TEACHERS
BY GRADE LEVEL: 1977-78

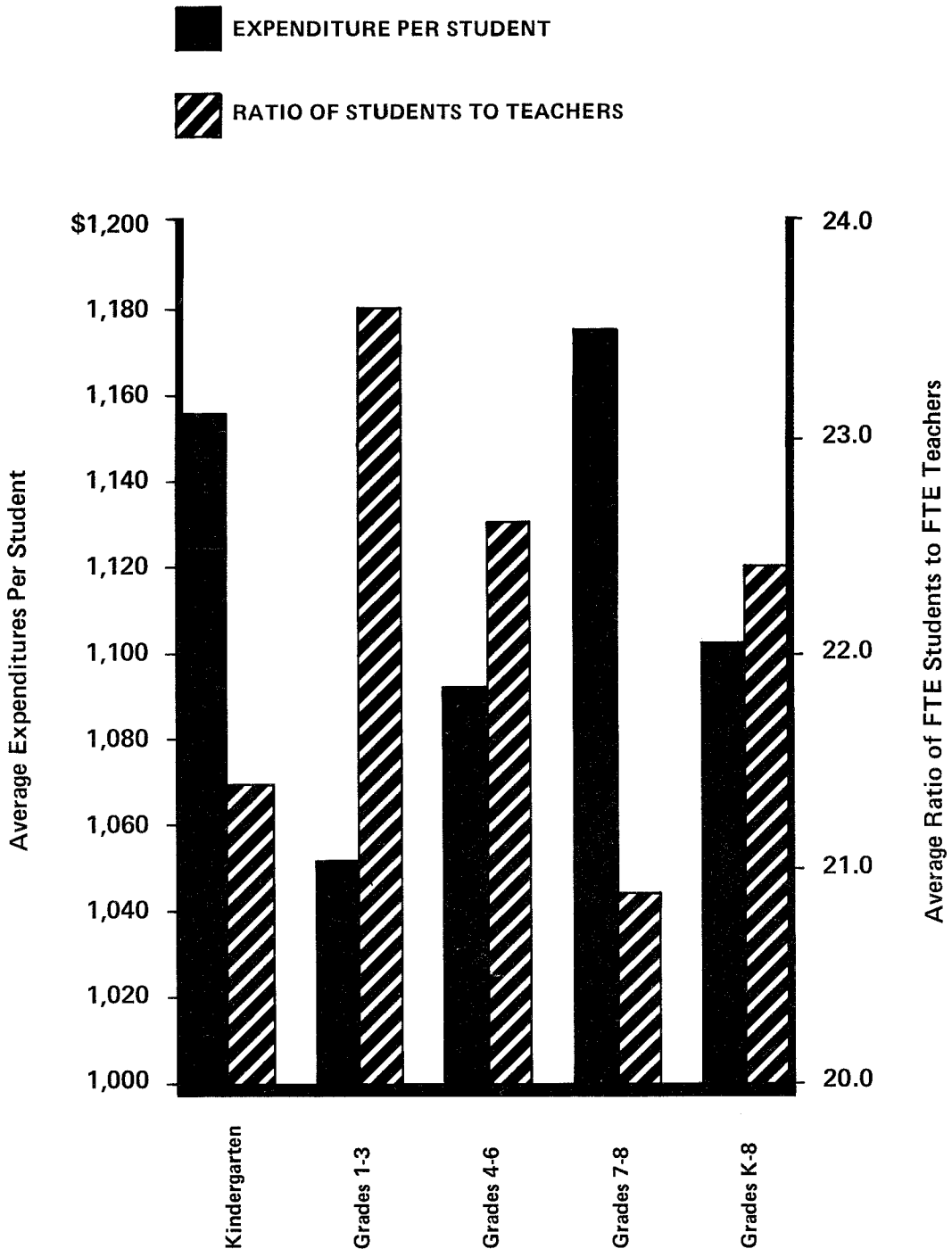
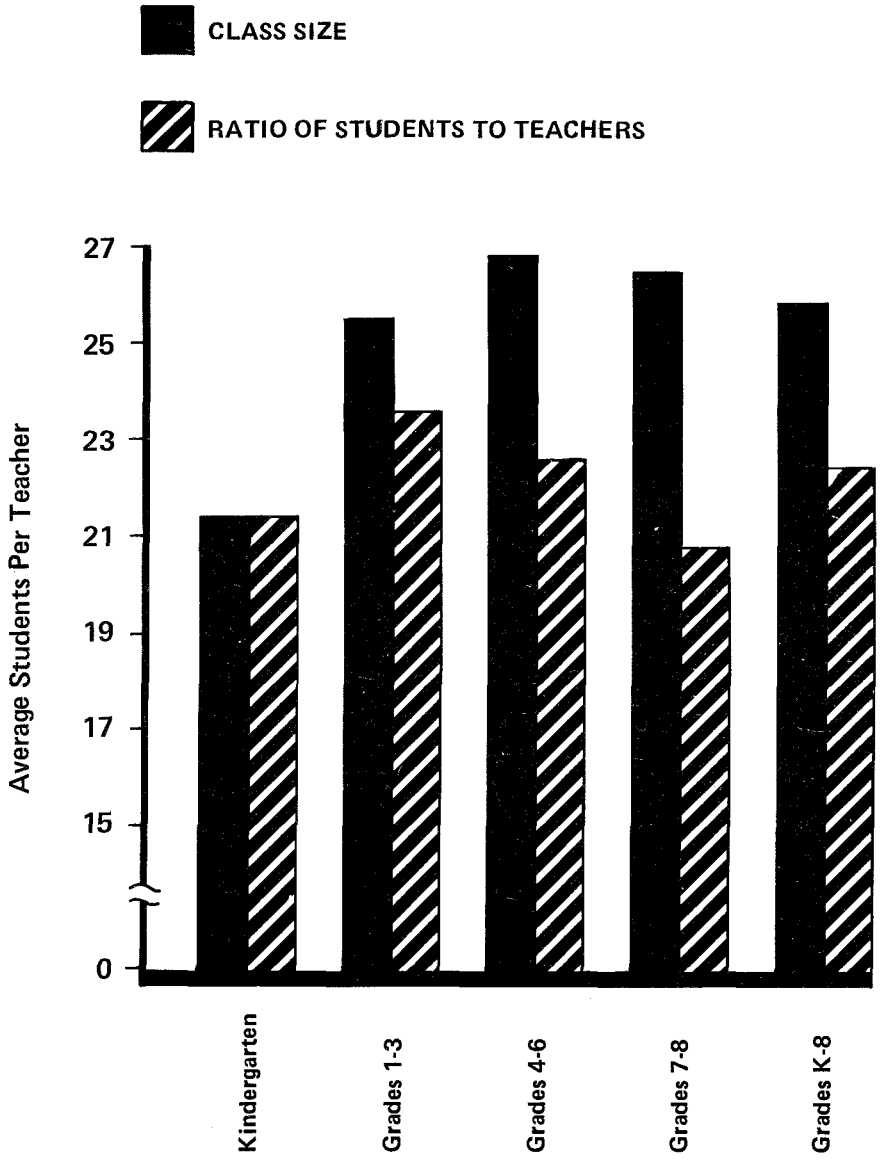


CHART 3

COMPARISON OF ELEMENTARY AVERAGE CLASS SIZE FOR REGULAR TEACHERS AND RATIO OF FTE STUDENTS TO FTE TEACHERS BY GRADE LEVEL: 1977-78



does not keep pace. To compensate for the difference, districts utilize more instructional staff in the higher elementary grades. The net effect is a reduction in the FTE student/teacher ratios. The second major contributor to the lower ratios is more intensive use of specialized teachers for fine arts, physical education, industrial arts and home economics in grades 4 and up. Smaller class sizes, fewer teacher contact hours or both for the specialized teachers contribute to the use of more teacher staff at these grade levels (see Appendix Table C-3). Again, the net effect is to reduce the FTE student/teacher ratios in the higher elementary grades.

Elementary General Fund Expenditures Per Student by Program

To carry the analysis one step further, 1977-78 average expenditures per FTE student for different education programs are presented in Charts 4-A (grade 1-8), 4-B (grades 1-3), 4-C (grades 4-6) and 4-D (grades 7-8).* Accompanying the expenditures are average FTE student/teacher ratios for each program (corresponding Appendix Table is C-4).**

Viewed in total for grades 1-8 (Chart 4-A), program expenditure levels and FTE ratios were quite similar except for industrial arts/home economics and fine arts. In these two programs, the impact of the specialized teachers is clearly observable.

Expenditure levels and FTE ratios in grades 1-3 (Chart 4-B) are reasonably uniform across all program areas.

The overwhelming reason why grades 4-6 exhibit somewhat higher spending levels than grades 1-3 is attributable to expenditures per student for the fine arts program (Chart 4-C). In the areas of language arts, mathematics, social studies and science, spending levels per student and student/teacher ratios for grades 4-6 are nearly identical to the levels for grades 1-3.

For grades 7-8, the elementary system generally expended more per student on language arts, mathematics, social studies and science than it did on grades 1-6. However, the single most important source of the higher expenditure level in this grade group can be traced to spending levels in industrial arts/home economics. At an average FTE student/teacher ratio of 14.2 to one, the resulting expenditure per student in this program accounts for nearly one-third of the overall spending level difference between grades 1-3 and grades 7-8.

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* See Appendix B for a description of what comprises each program area.

** FTE teachers in a program represent the number of teachers that would be required to staff the program if these teachers had instructional responsibilities only in that area. For example, if a school district has 100 full-time teachers assigned to grades 1-3 and if these 100 teachers spend 50 percent of their instructional time in language arts, the district has 50 FTE teachers in the language arts program for grades 1-3.

FTE students in a program represent the number of students in average daily membership (ADM) equivalent to full-time enrollment in the program. For example, if a district has an ADM of 2,000 students in grades 1-3 and if these students average 50 percent of their total instructional time in language arts, the district has 1,000 FTE students in language arts in grades 1-3.

Using these examples, the district would have an FTE student/teacher ratio of 1,000/50 or 20:1 in language arts for grades 1-3.

CHART 4-A

AVERAGE GENERAL FUND EXPENDITURE PER FTE STUDENT AND AVERAGE RATIO OF FTE STUDENTS TO FTE TEACHERS FOR GRADES 1-8 BY PROGRAM: 1977-78

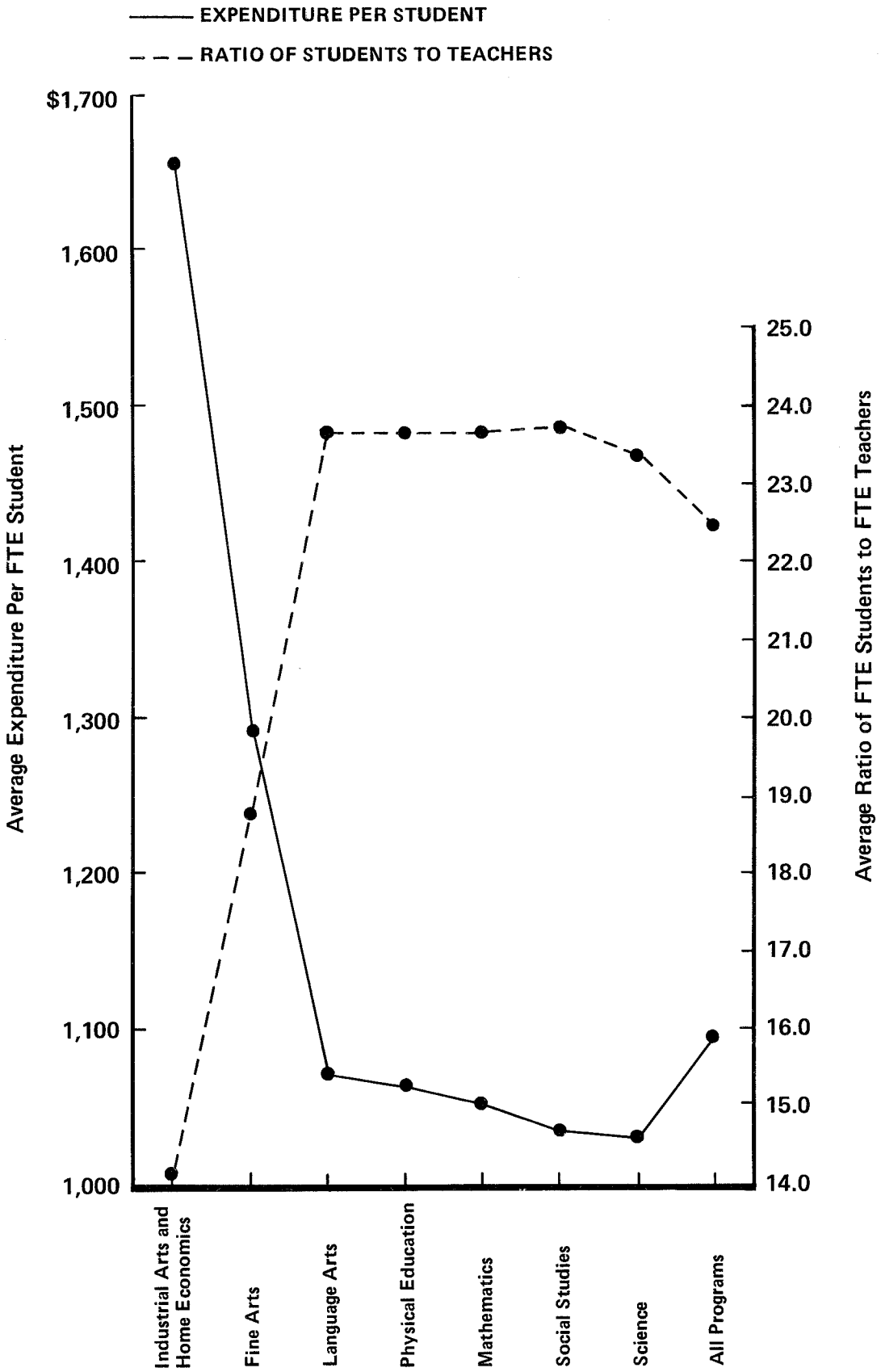


CHART 4-B

AVERAGE GENERAL FUND EXPENDITURE PER FTE STUDENT AND AVERAGE RATIO OF FTE STUDENTS TO FTE TEACHERS FOR GRADES 1-3 BY PROGRAM: 1977-78

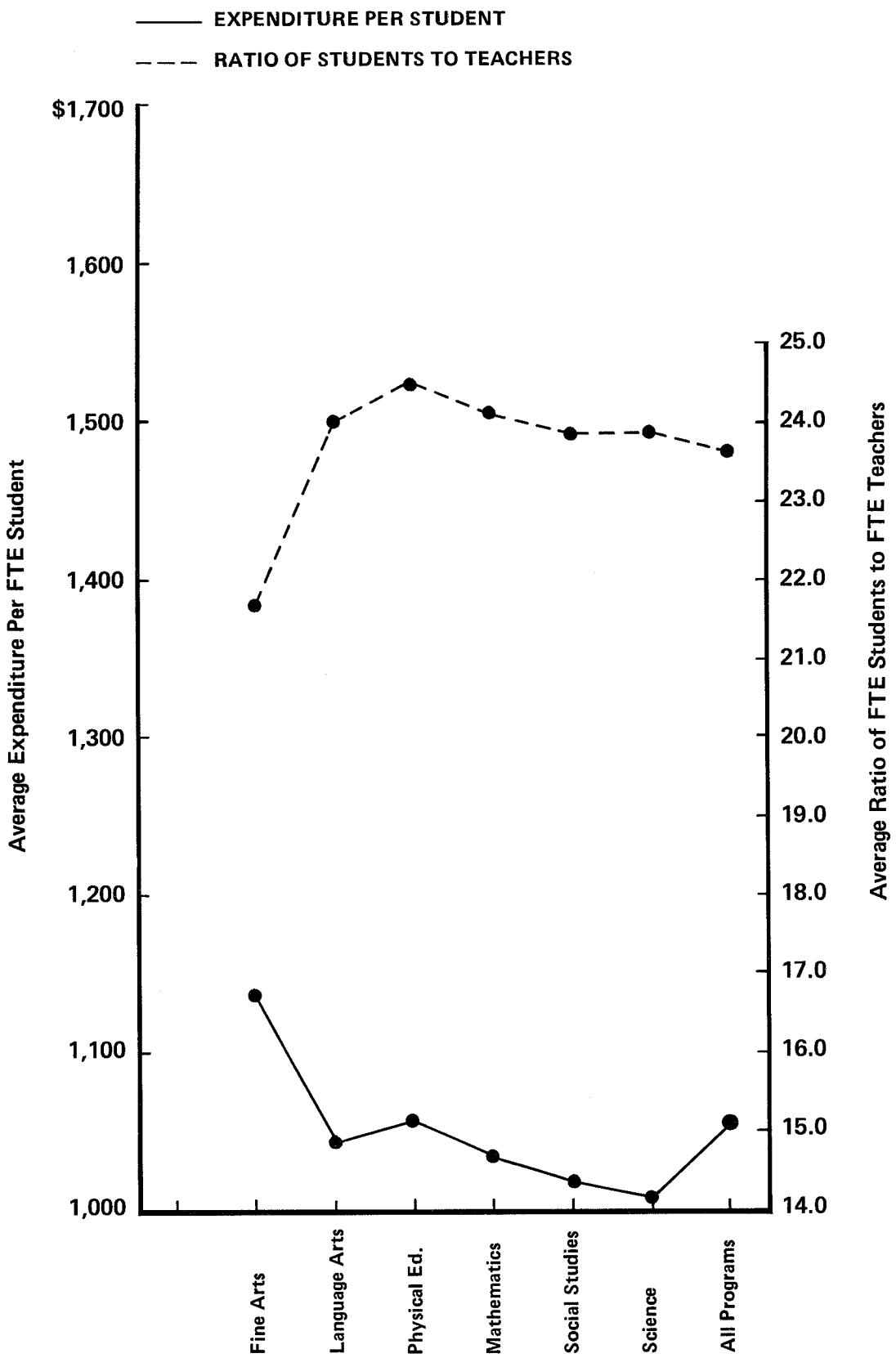


CHART 4-C

AVERAGE GENERAL FUND EXPENDITURE PER FTE STUDENT AND AVERAGE RATIO OF FTE STUDENTS TO FTE TEACHERS FOR GRADES 4-6 BY PROGRAM: 1977-78

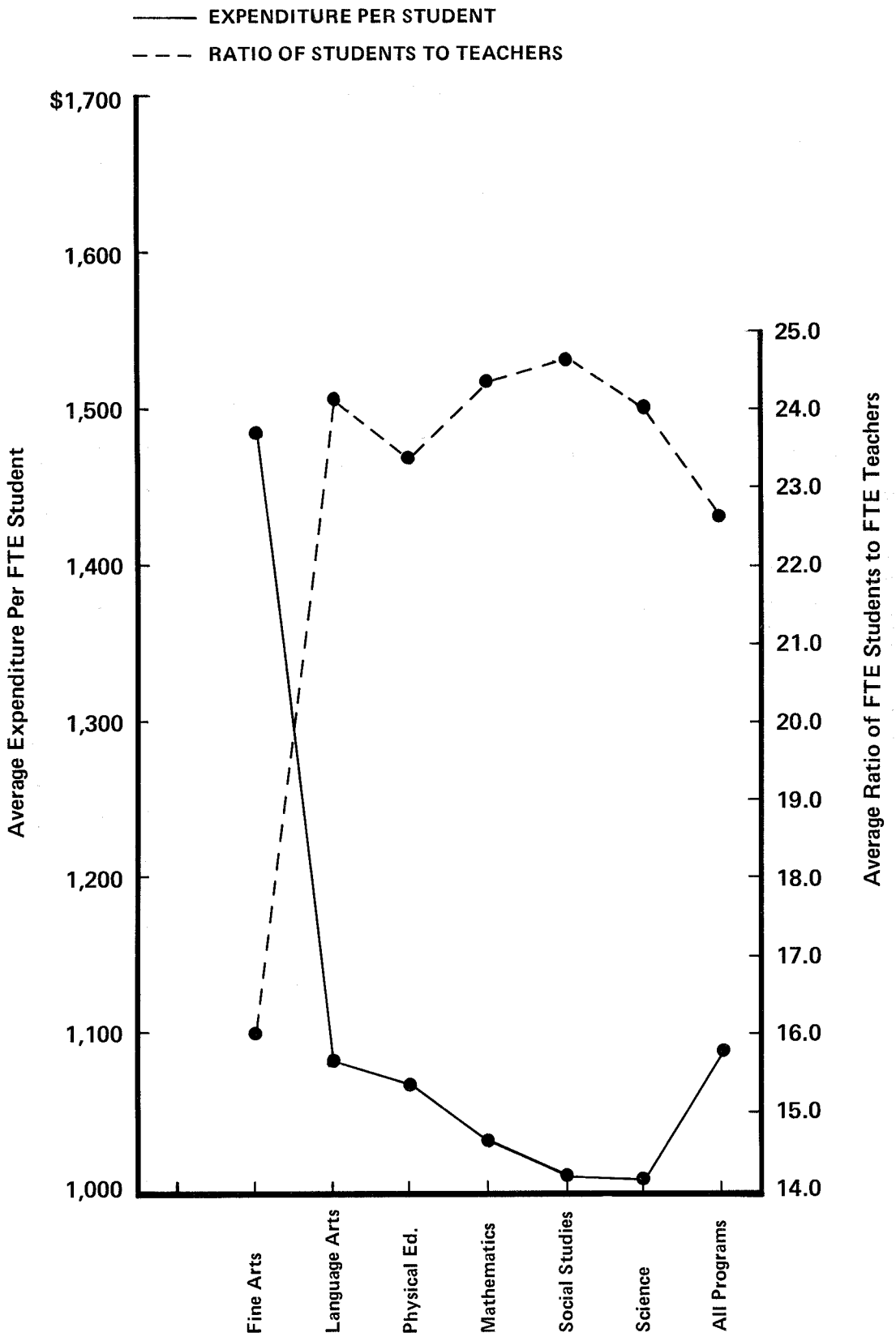
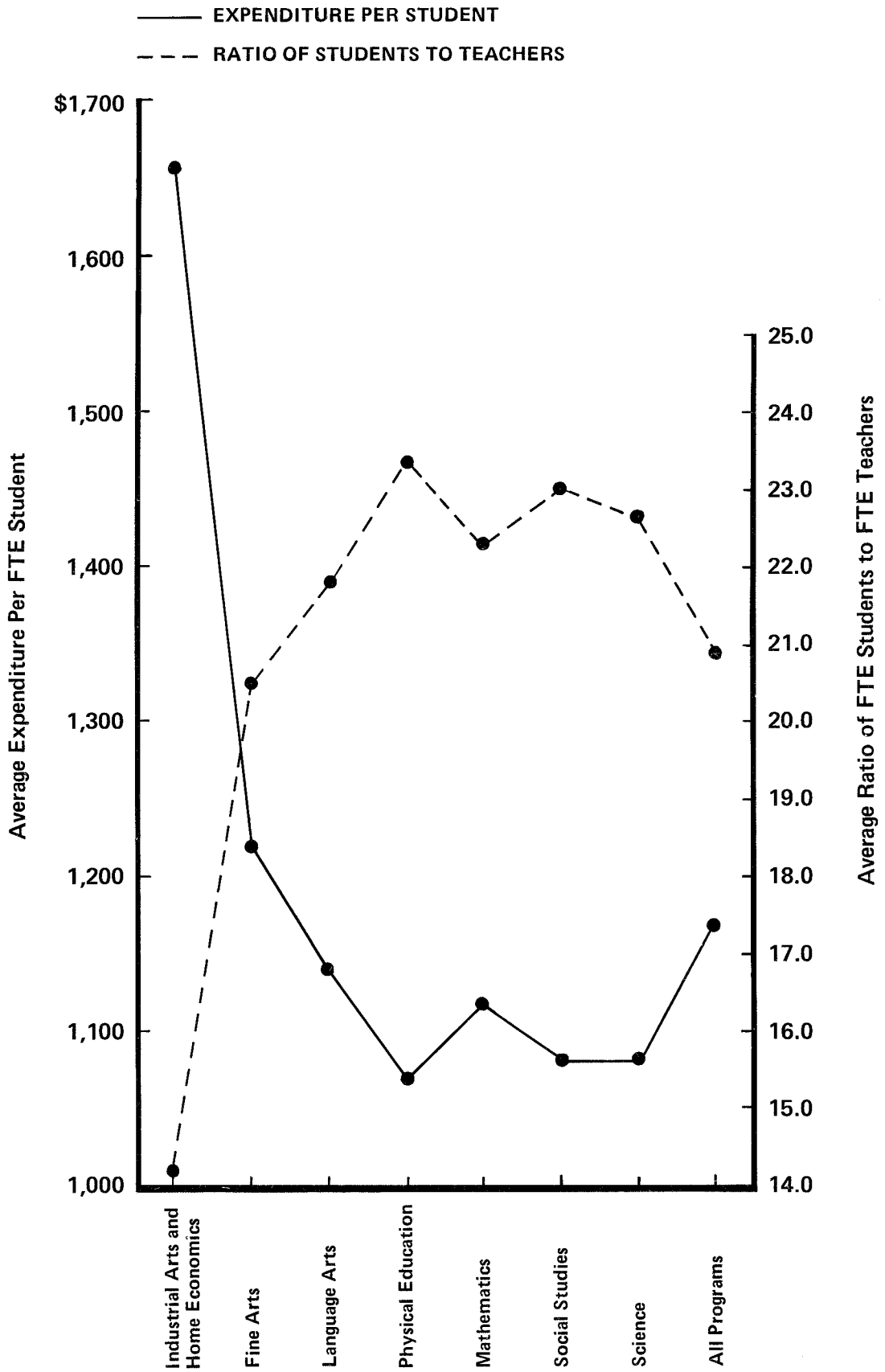


CHART 4-D

AVERAGE GENERAL FUND EXPENDITURE PER FTE STUDENT AND AVERAGE RATIO OF FTE STUDENTS TO FTE TEACHERS FOR GRADES 7-8 BY PROGRAM: 1977-78



Distribution of Elementary General Fund Expenditures Among Programs

The emphasis which the elementary system placed on the different program areas is depicted in Chart 5 (Appendix Table C-5). For those persons who are particularly interested in school district commitment of resources to reading and arithmetic, the information in Chart 5 indicates that about 56 percent of elementary General Fund expenditures in grades 1-8 are allocated to providing the two program areas of language arts and mathematics.

As grade level groups are looked at individually, the emphasis pattern changes. In grades 1-3, language arts and mathematics utilize about 70 percent of the General Fund expenditures on this grade group. In grades 4-6, the emphasis in these two areas declines to about 54 percent. By grades 7-8, 40 percent of expenditures on these grade levels is devoted to language arts and mathematics.

Between the lower and upper elementary grades, a major shift occurs in increased emphasis on social studies and science. In grades 7-8, this shift is substantially amplified by the introduction of industrial arts, home economics and other courses or study hall activity.

It is important to note, however, that while the distribution of expenditures on programs is significantly different among the grade levels, it does not follow that the total hours per week devoted by students follows exactly the same pattern. Based on data compiled during the course of the study, it is estimated that students in grades 7-8 average about five hours more per week in class contact time than do students in grades 1-3. These additional hours in school approximately equal the amount of time spent by the typical 7-8 grade student in industrial arts, home economics and "other" programs.

Elementary General Fund Expenditure Differences Among Districts: The Influence of Education Programs

The question to be addressed here is whether the differences in General Fund expenditures per student within the elementary system can be traced to specific higher cost programs offered by the higher spending districts. To address this question, expenditures per FTE student have been compared for lowest and highest spending districts in the sample.

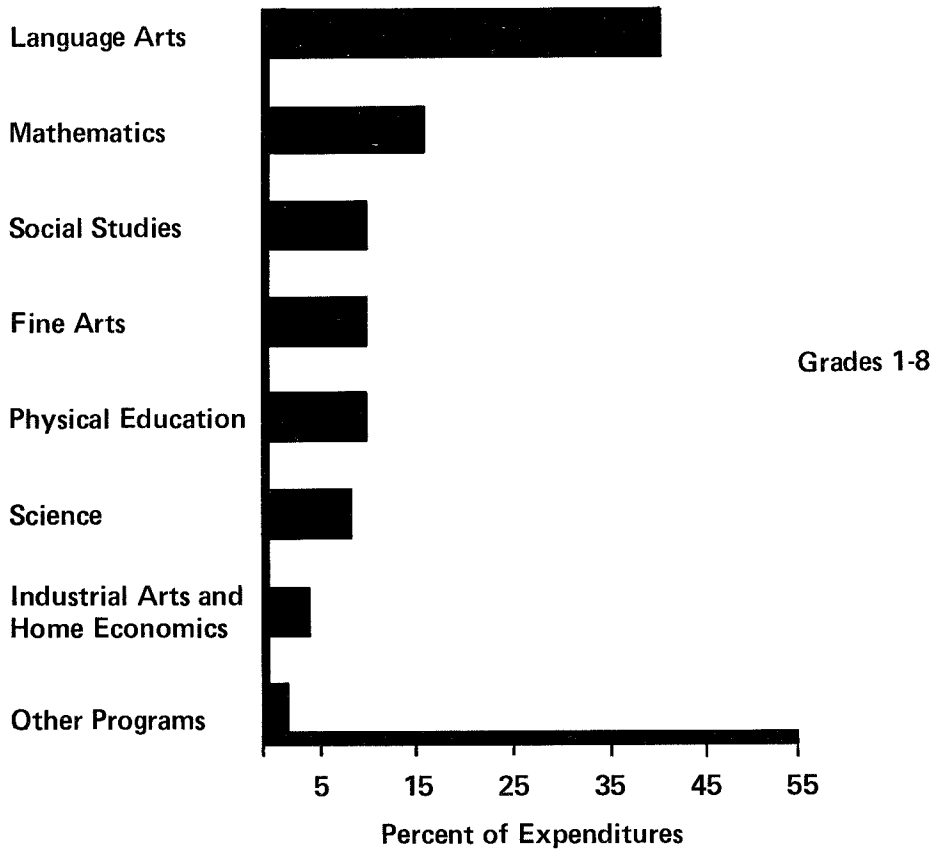
Of the 24 elementary districts in the sample, 20 contained more than 500 students. Recognizing that smaller districts frequently do not have the same characteristics as larger units, the comparison of program spending levels was made among the 20 larger systems.

Average expenditures per student for the five highest spending districts and for the three lowest expenditure districts are compared on Chart 6 (Appendix Table C-6). For the highest group, total General Fund expenditures per student averaged $1,531 in 1977-78. The corresponding level for the lowest group was $944 per student. The difference, $587 per student, places the upper expenditure group 62 percent above the lowest group.

With the exception of one program (physical education), the highest spending group of districts expended 50 to 70 percent more per student across all program areas. What this means is that when districts have substantially higher General Fund expenditures per student than other districts, they generally are higher in all program areas. It cannot be concluded that the major source of the higher spending is traceable to unusual emphasis on specific higher cost programs.

CHART 5

PERCENT DISTRIBUTION OF ELEMENTARY GENERAL FUND EXPENDITURES WITHIN GRADE LEVEL BY PROGRAM 1977-78



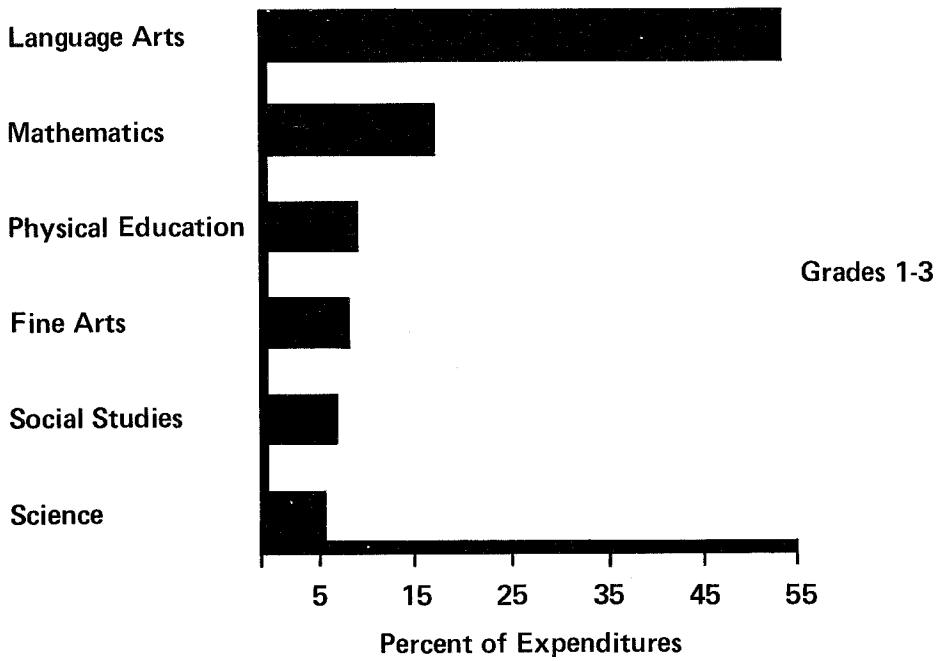
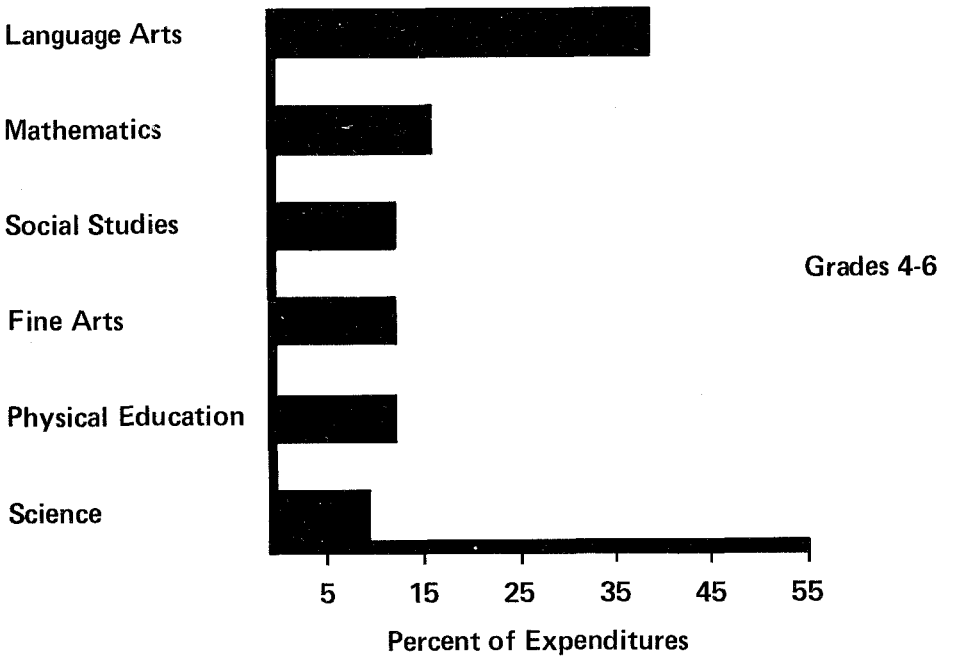


CHART 5 (continued)



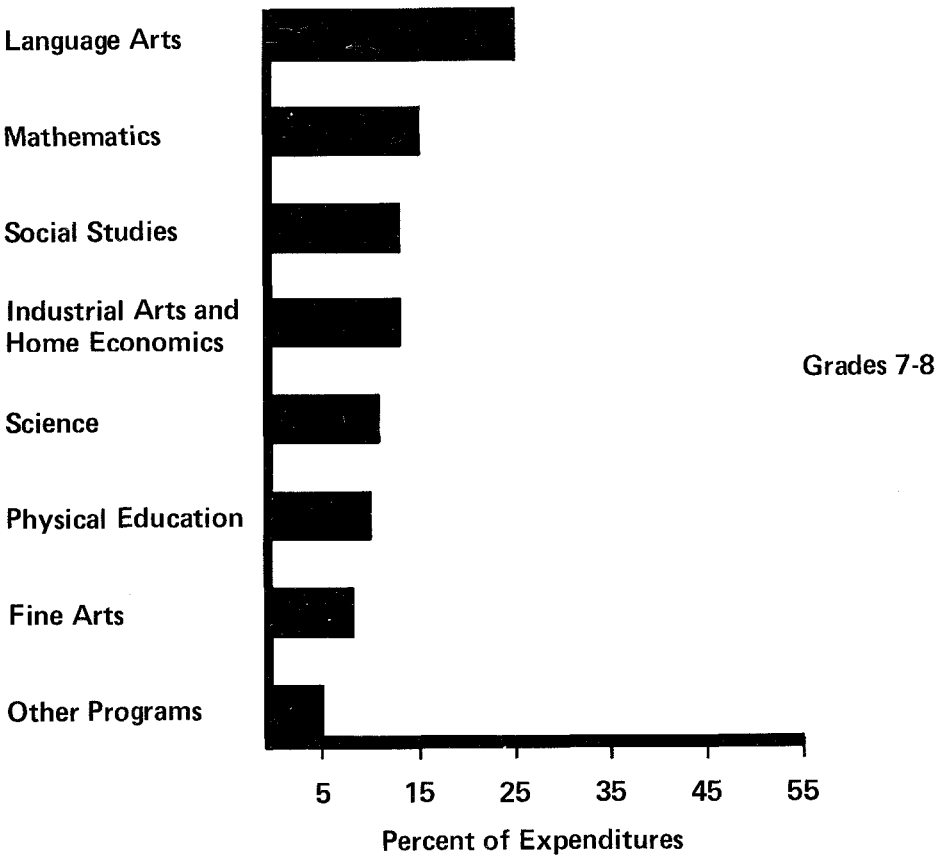
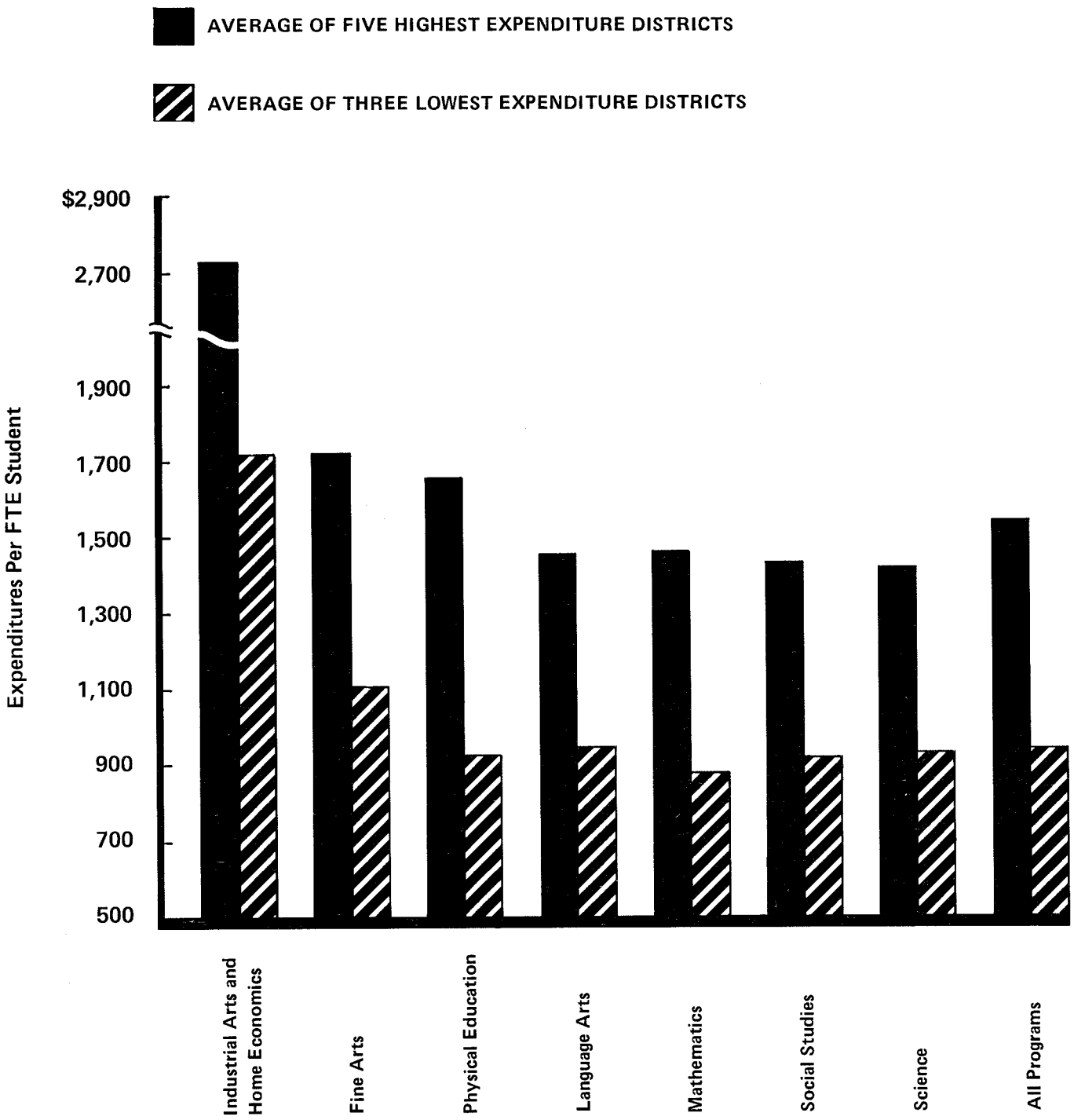


CHART 6

ELEMENTARY GENERAL FUND EXPENDITURES PER FTE STUDENT BY PROGRAM FOR LOWEST AND HIGHEST SPENDING DISTRICTS: 1977-78



If upper expenditure districts are higher in all program areas, then the related question is whether FTE student/teacher ratios or class size for the districts as a whole will explain most of the spending level differences. Student/teacher ratios and class sizes for the five highest and three lowest expenditure districts are shown in Table 1.

TABLE 1

AVERAGE STUDENT/TEACHER RATIOS AND AVERAGE CLASS SIZES FOR LOWEST AND HIGHEST SPENDING ELEMENTARY DISTRICTS: 1977-78

Item	Average of 5 Highest Expenditure Districts	Average of 3 Lowest Expenditure Districts	Ratio of Low Expend. Districts to High Expend. Districts
Student/Teacher Ratio	19.0	22.2	1.17
Regular Teacher Class Size	22.9	25.7	1.12

What is of most importance in these data are the relatively small differences in student/teacher ratios and class sizes when compared with the overall variation in General Fund expenditure per student. If all other spending characteristics by the highest and lowest expenditure groups were the same, the student/teacher ratio difference by itself would suggest that the higher spending group of districts should have had expenditures per student of approximately 17 percent more than the lowest group. In fact, as discussed above, the difference was about 62 percent.

The conclusion to be drawn is that most of the difference in expenditures per student is attributable to factors other than direct instructional staffing levels. What these factors are is a major subject which will be discussed later.

SECTION IV

HIGH SCHOOL EXPENDITURES BY PROGRAM

The expenditure levels for the major high school programs are presented in this section. General Fund spending on the various areas of vocational education are discussed. High school teacher class size and ratio of FTE students to FTE teachers are shown and, in turn, compared with elementary class sizes and student/teacher ratios. Whether higher cost program emphasis explains the spending levels of the higher expenditure high school districts is analyzed.

High School General Fund Expenditures Per Student by Program

The average high school expenditures per FTE student for different education programs are presented in Chart 7 (Appendix Table C-7). For comparison, the average FTE student/teacher ratios are also shown for each program.

Over a broad array of programs, high school expenditures per FTE student fall within a $100 range. The exceptions to this pattern occur in industrial arts and foreign language on the high side and in social studies and physical education on the low side. The middle group of programs that falls within the $100 spending range, however, accounts for more than 60 percent of high school General Fund expenditures (see Chart 8 and Appendix Table C-8). When compared with the elementary system, high school programs exhibit less disparity both in expenditure levels per student and in FTE student/teacher ratios.

As with the elementary system, however, FTE student/teacher ratios are not the same as class size. Average high school class size for regular programs was 25.2 to one compared to an FTE student/teacher ratio for General Fund teachers of 23.8 to one. The main factor causing a difference was the variation between average classroom hours of teachers and average classroom hours of students.

For a quick comparison of elementary and high school student/teacher ratios and class sizes, the 1977-78 averages for the two systems are shown in Table 2.

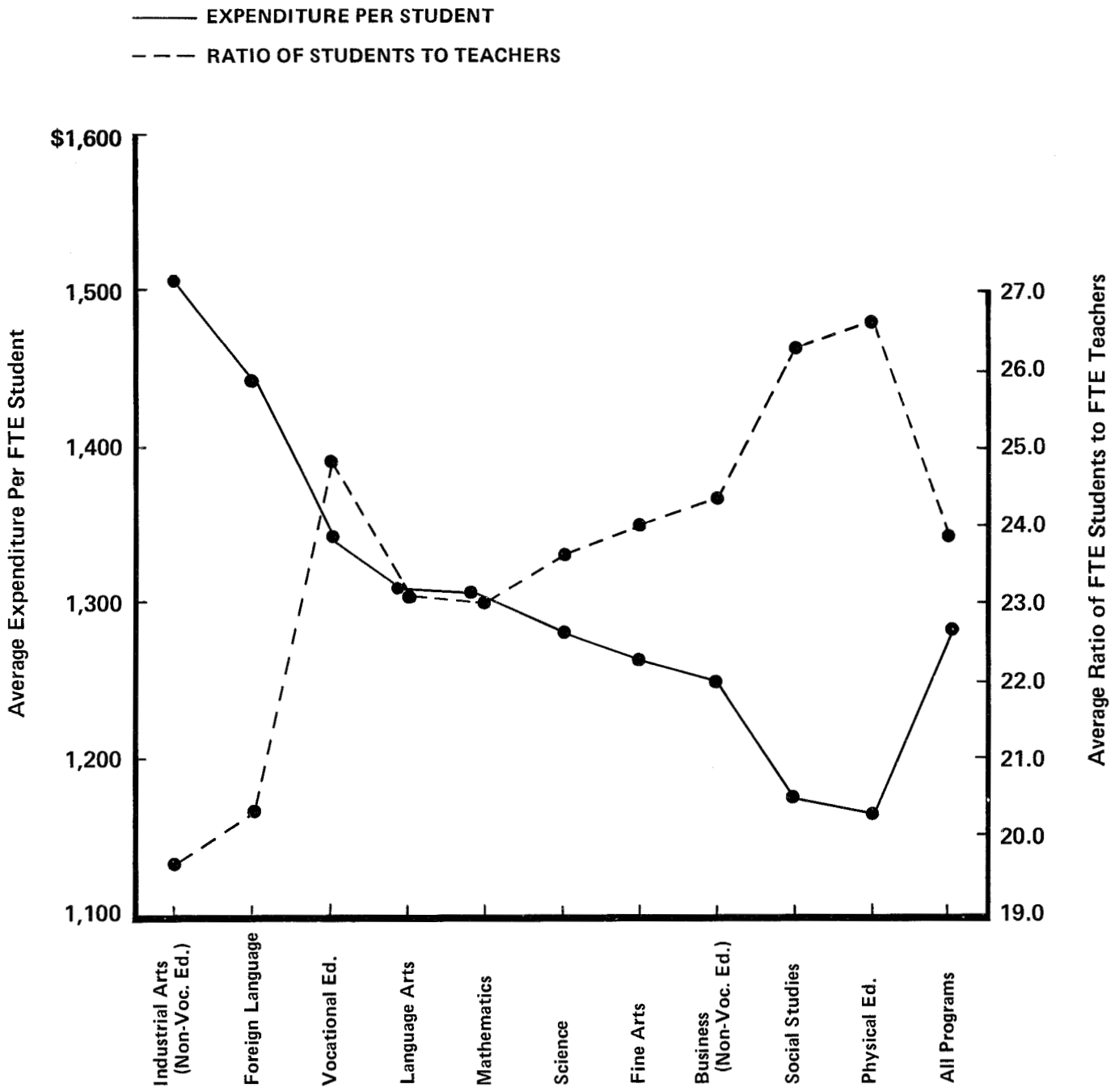
TABLE 2

COMPARISON OF AVERAGE ELEMENTARY AND HIGH SCHOOL REGULAR TEACHER CLASS SIZES AND FTE STUDENT/TEACHER RATIOS: 1977-78

Item	Elementary	High School
Regular Teacher Average Class Size	25.9	25.2
FTE Student/Teacher Ratio	22.4	23.8

CHART 7

AVERAGE GENERAL FUND EXPENDITURE PER FTE STUDENT
AND AVERAGE RATIO OF FTE STUDENTS TO FTE TEACHERS
FOR HIGH SCHOOL BY PROGRAM: 1977-78



Distribution of High School General Fund Expenditures Among Programs

The way in which the high school system as a whole distributed its General Fund expenditures among education programs is shown in Chart 8 (Appendix Table C-8). The significance of high school resources committed to vocational education and the closely related industrial arts and business programs is readily apparent. These areas absorbed 22 percent of high school General Fund spending. The program areas of language arts, mathematics, social studies, science, fine arts and physical education, along with kindergarten, use 95 percent of the elementary General Fund. The corresponding programs in the high school system account for 71 percent of high school General Fund expenditures.

High School General Fund Expenditures on Vocational Education

Average General Fund expenditures per student for vocational education, industrial arts and all other high school programs in 1977-78 were as follows:

Program	Average General Fund Expenditure Per FTE Student
Vocational Education	$1,340
Industrial Arts	1,501
All Other Programs	1,263
Total High School Programs	$1,282

The average expenditure of $1,340 per FTE student for all areas of vocational education was $77 more than the average for the regular (All Other) programs. This amount represents a spending level which is six percent above the regular programs. The impact of vocational education and industrial arts combined adds $19 per student to the regular program cost of $1,263 per student to produce an overall average of $1,282 per student for all high school programs. Of this $19, vocational education accounts for $7 and industrial arts adds the remaining $12 per student.

Within the broad area of vocational education, however, there are substantial differences in spending levels among the programs that comprise vocational education as now defined. Presented in Table 3 are the average General Fund expenditures per FTE student in the various vocational education programs. Included in the table is the percentage distribution of total vocational FTE enrollment among the programs.

CHART 8

PERCENT DISTRIBUTION OF HIGH SCHOOL GENERAL FUND EXPENDITURES BY PROGRAM: 1977-78

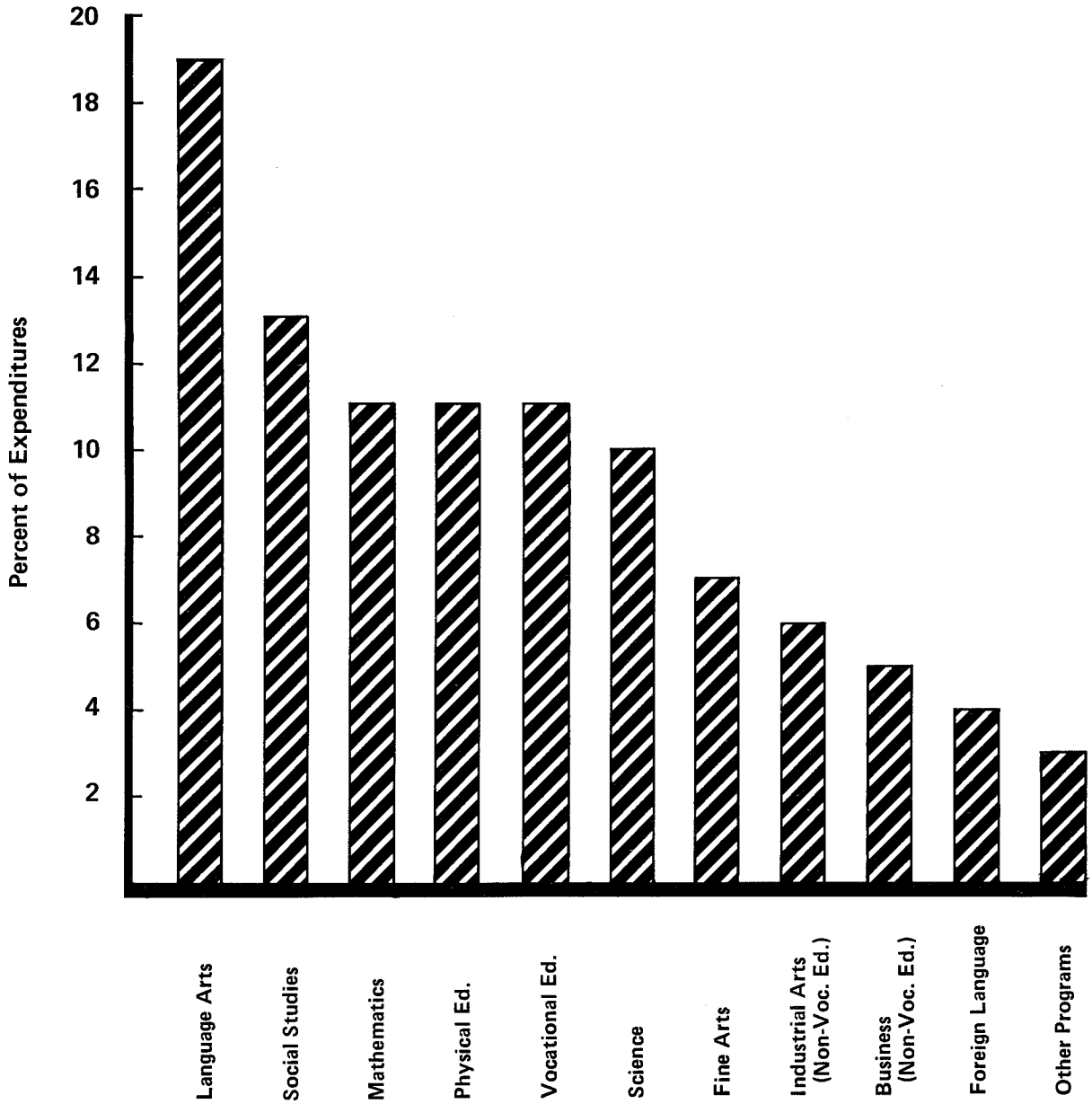


TABLE 3

AVERAGE HIGH SCHOOL GENERAL FUND EXPENDITURES PER FTE STUDENT AND PERCENTAGE DISTRIBUTION OF FTE STUDENTS BY VOCATIONAL EDUCATION PROGRAM: 1977-78

Vocational Education Program	Average General Fund Expenditure Per FTE Student	Percent of Vocational Education FTE Students
Distributive Education	$1,184	9.4
Home Economics	1,244	37.3
Office Education	1,254	24.4
Trades and Industry	1,563	23.4
Agriculture	1,567	3.1
Health	2,503	1.0
Other Vocational Education	1,318	1.4
Total Vocational Education	$1,340	100.0

Expenditures per student in the agriculture and trades and industry groups are substantially above spending in the regular high school programs. The small health occupations program is even higher. Distributive education, home economics and office education, however, exhibit expenditure levels below the regular programs. Because these three programs account for about 70 percent of the vocational education FTE students, they have the effect of largely offsetting the higher spending levels in agriculture and trades and industry.

It must be emphasized that these General Fund expenditures are exclusive of additional spending which is funded by federal allocations for vocational education. When the effects of federal funding are added to district general funds, average expenditures on vocational education are about $1,609 per FTE student. The overall FTE student/teacher ratio for vocational education becomes 19.5 to one when federally funded teachers are included in the computation.

The conclusion to be drawn is that operating costs of vocational education are higher than regular programs, but it is the addition of federal categorical funds which largely accounts for why the combined General Fund and federal fund spending per FTE student in vocational education is significantly above the regular programs.

High School General Fund Expenditure Differences Among Districts: The Influence of Education Programs

As was done with the elementary system, the question addressed here is whether the differences in General Fund expenditures per student within the high school system can be traced to specific higher cost programs offered by the higher spending districts. Of the 13 high school districts in the sample, 11 housed more than 500 students. The comparisons are made between the highest and lowest expenditure groups within these 11 districts.

Average expenditures per student for the two highest spending districts and for the five lowest expenditure districts are compared on Chart 9 (Appendix Table C-9). For the highest group, expenditures per student averaged $1,558 in 1977-78. The lowest group expended $1,140 per student. The difference, $418 per student, represents a high group expenditure level which is 37 percent above the lowest group.

As was true for the elementary system, the pattern of expenditures per student among programs does not point to specific concentration on higher cost programs by the higher spending districts. The districts with higher overall General Fund expenditures per student are just generally more costly in all program areas.

The differences in overall FTE student/teacher ratios and average class sizes for highest and lowest expenditure districts are shown in Table 4.

TABLE 4

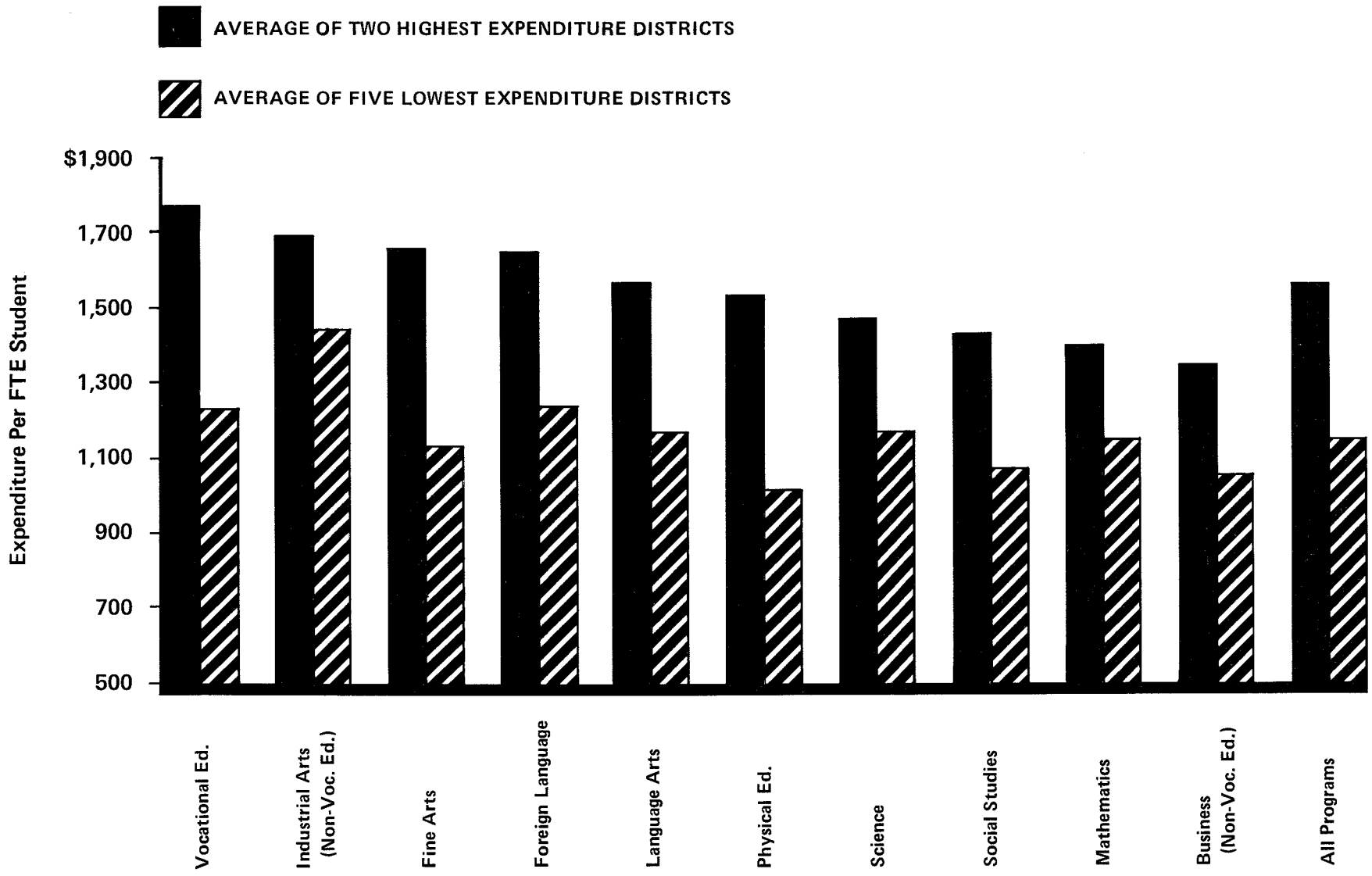
AVERAGE STUDENT/TEACHER RATIOS AND AVERAGE CLASS SIZES FOR LOWEST AND HIGHEST SPENDING HIGH SCHOOL DISTRICTS: 1977-78

Item	Average of 2 Highest Expenditure Districts	Average of 5 Lowest Expenditure Districts	Ratio of Low Expend. Districts To High Expend. Districts
Student/Teacher Ratio	20.7	24.8	1.20
Average Teacher Class Size	21.6	25.2	1.17

Based on the student/teacher ratios, it could be expected that the highest expenditure group would have expended 20 percent more per student than the lowest spending group, if all other cost characteristics were the same. A somewhat larger proportion of spending variation among high school districts is attributable to teacher staffing levels than is true for the elementary system. Nevertheless, significant amounts of expenditure differences are caused by factors other than direct instructional staffing levels.

CHART 9

HIGH SCHOOL GENERAL FUND EXPENDITURES PER FTE STUDENT BY PROGRAM FOR LOWEST AND HIGHEST SPENDING DISTRICTS: 1977-78



SECTION V

SOURCES OF EXPENDITURE VARIATION AMONG ELEMENTARY AND HIGH SCHOOL DISTRICTS

This section is devoted to an analysis of the characteristics of the sample districts which contribute to variations in expenditures per student. As discussed in the previous sections, neither differences in program emphasis nor overall student/teacher ratios can adequately explain the different spending levels. To get at the major sources of variation it is necessary to analyze the functional activities (administration, instruction, instructional support and operations) of the school districts.

Elementary Districts: Major Sources of General Fund Expenditure Variations

Among the sample elementary districts, General Fund expenditures per student ranged from $930 to $1,545 for the 20 districts with more than 500 students. As noted earlier, the elementary system averaged $1,102 of General Fund spending per student in 1977-78. Eight of the elementary districts in the sample had expenditure levels within approximately $50 on either side of this average. These eight districts as a group can be viewed as representing the "normal" or "typical" elementary operation in the state.

The 1977-78 General Fund expenditures per student by the typical group of districts are presented in Column (1) of Table 5. (Column (2) will be used later when discussing the high school variations.) Total General Fund expenditure per student for the typical district averaged $1,084. The instruction function accounted for $701 or 65 percent of the total. Classroom teacher compensation alone amounted to 61 percent of the total.

Staff compensation for all functions represented $967 or 89 percent of the total. It is quite obvious, therefore, that the source of major differences in spending levels among the districts should be traceable to variations in staff compensation among some or all of the functions. Staff compensation, in turn, will differ because of variations in student/staff ratios and differences in salary levels.

To establish why districts vary from each other in General Fund spending per student, each of the elementary districts in the sample has been compared with the typical elementary district in Table 5. For the 20 larger elementary districts in the sample, the summary results of this analysis are shown on Chart 10 (Appendix Table C-10).

The 20 districts have been placed into groups which represent different levels of expenditure per student both above and below the typical district. Group 1, for example, is comprised of three districts which had General Fund expenditures per student in excess of $1,335. This group averaged a level of spending which was $457 per student greater than the typical district. Group 7, on the other hand, is composed of three districts within a spending range of $884 to $983 per student. As a group, these districts averaged a spending level per student which was $140 less than the typical district.

Group 2 and Group 4 represent districts which have been separately identified because of their declining enrollment. In total spending levels, Group 2 is comparable to Group 1 and Group 4 is comparable to Group 5. As will be noted below, however, the declining enrollment

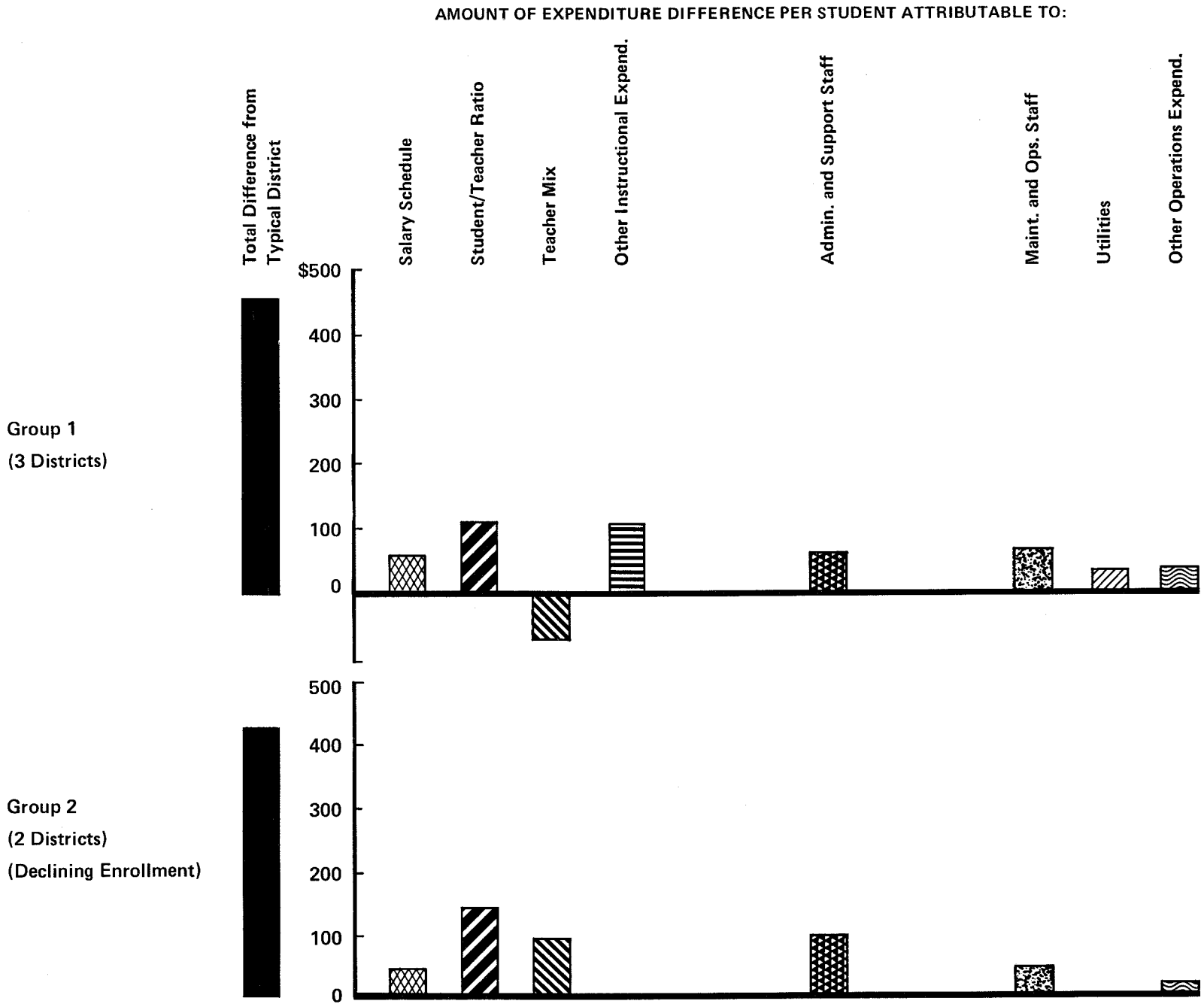
TABLE 5

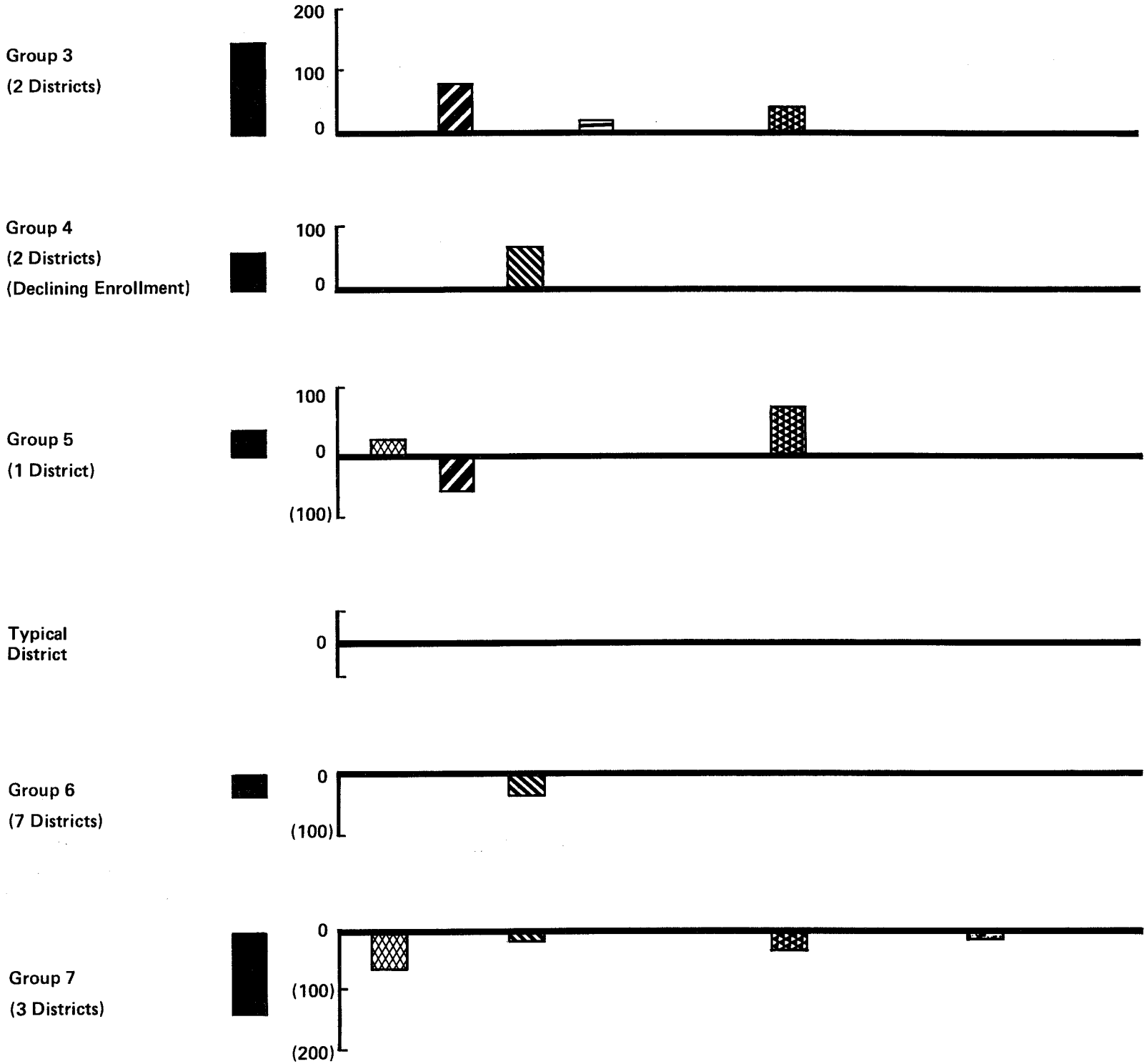
TYPICAL GENERAL FUND EXPENDITURES
PER STUDENT: 1977-78

Function/Type of Expenditures	(1) Typical Elementary Expenditure Per Student	(2) Typical Elementary Modified for High School
Instruction		
Classroom Teacher Compensation	$ 661	$ 661
Instructional Aides	14	14
Other Expenditures	26	26
Total Instruction	$ 701	$ 701
Administration		
Education Services		
Staff Compensation	$ 19	$ 19
Other Expenditures	3	3
Principal's Office		
Staff Compensation	79	79
Other Expenditures	3	3
Other Administrative Functions		
Staff Compensation	33	33
Other Expenditures	4	4
Total Administration	$ 141	$ 141
Instructional Support		
Guidance and Psychological Services		
Staff Compensation	$ 9	$ 51
Library		
Staff Compensation	33	33
Other Expenditures	2	2
Interscholastics	2	29
Other Instructional Support Functions		
Staff Compensation	19	19
Other Expenditures	3	3
Total Instructional Support	$ 68	$ 137
Operations		
Physical Plant Maintenance		
Staff Compensation	$ 91	$ 129
Other Expenditures	21	21
Utilities	44	64
Other Operations Functions		
Staff Compensation	9	17
Other Expenditures	9	9
Total Operations	$ 174	$ 240
GENERAL FUND TOTAL	$1,084	$1,219

CHART 10

MAJOR SOURCES OF VARIATION IN ELEMENTARY DISTRICT GENERAL FUND EXPENDITURES PER STUDENT FROM TYPICAL ELEMENTARY LEVEL




Group 3
(2 Districts)
200
100
0
Group 4
(2 Districts)
(Declining Enrollment)
100
0
Group 5
(1 District)
100
0
(100)
Typical
District
0
Group 6
(7 Districts)
0
(100)
Group 7
(3 Districts)
0
(100)
(200)

districts exhibit particular cost characteristics which make them dissimilar to comparable expenditure level districts.

The primary purpose of Chart 10 is to identify the major functions or characteristics which will explain most of the total difference by which the groups of districts either exceed or fall below the typical district expenditure level. The first four sources (salary schedule, student/teacher ratio, teacher mix and other instructional expenditures) relate to expenditure variations in the instruction function. Administration and support staff pertains to the administration and instructional support functions combined. The last three sources (maintenance and operations staff, utilities and other operations expenditures) cover the operations function. Each of these sources of expenditure variation are more specifically defined as follows:

1. Salary Schedule:

2. Student/Teacher Ratio:

3. Teacher Mix:

   These three sources of expenditure difference relate to teacher compensation. They reflect the basic reasons why districts will differ in their teacher compensation expenditures per student. High salary schedules for certified teachers have the effect of producing higher teacher compensation expenditures per student. Lower district FTE student/teacher ratios push teacher compensation expenditures up. Teacher mix is a source that reflects where teachers are located on a district's salary schedule. Two districts with the same teacher salary schedule, for example, could have substantially different teacher compensation expenditures. If in one district there is a large proportion of the teaching staff that is junior in terms of years of experience and academic training, salaries for these persons will be paid on the lower portion of the salary schedule. In another district with just the opposite characteristics, there will be a heavy concentration of teachers paid on the upper portion of the salary schedule. The teacher mix source identifies the extent to which this factor affects teacher compensation per student.

4. Other Instructional Expenditures:

   This source reflects differences in expenditure levels for teacher aides and instructional supplies.

5. Administration and Support Staff:

   This source summarizes the net expenditure variations attributable to staffing levels and average staff compensation for all areas of the administration and instructional support functions (except interscholastics) of the General Fund. (See Table 5 for the various functions that make up administration and instructional support.)

6. Maintenance and Operations Staff:

   This area covers the net expenditure variations attributable to staffing levels and average staff compensation for physical plant maintenance personnel and other types of staff charged against the operations function.

7. Utilities:

   This source represents heating, cooling and lighting expenses along with charges for telephone and other communications.

8. Other Operations Expenditures:

   This source includes all other expenditures such as building and maintenance supplies or plant maintenance and other operations services received on a contracted basis.

As an example of what Chart 10 and Appendix Table C-10 say, consider the Group 2 and Group 6 districts. Group 2 exceeded the typical district General Fund expenditures per student by $436. Group 6 was $40 per student less than the typical district. The single most important reason why the Group 6 districts fall below the typical level is the teacher mix. In general, the seven districts that make up this group are staffed with teachers concentrated more heavily in the lower portion of their salary schedules than is true for the typical district. In the other areas, Group 6 does not significantly differ from the typical district.

For Group 2, on the other hand, there are several significant sources of variation which contribute to the total difference of $436 per student above the typical level. The certified teacher salary schedules for these districts were at a higher average level than for the typical district. This characteristic contributed $36 per student toward the total difference. Lower student/teacher ratios added another $135. The teacher mix impact, unlike Group 6, added $94 per student. These declining enrollment districts are faced with a sizable concentration of senior teaching staff paid on the higher portions of the salary schedule. More administrative, instructional support and maintenance staff, relative to the number of students, accounted for most of the remaining sources of higher expenditures per student.

Viewed in total, the range in General Fund expenditures from the lowest to the highest groups is nearly $600 per student. The significance of the individual sources of variations in explaining this range can be summarized as follows:

1. Differences in teacher salary schedule levels alone can amount to $120 per student. For the lowest expenditure group (Group 7), relatively low salary schedules accounted for about 50 percent of this group's total difference from the typical district.

2. The student/teacher ratio effect accounts for another $110-$130 per student between the lowest and two highest spending groups. The student/teacher ratio, however, does not become a significant explainer of higher expenditures until General Fund expenditures exceed the typical district by more than $100 per student.

   The primary explanation for this lack of significance is that regular teacher class size for the lowest expenditure group is not much different from the typical district (about 26 to one).

   For the top two spending groups, regular teacher class size averages approximately 23 to one. The difference in class size levels is not substantial enough to cause the student/teacher ratio source to be the single most important explainer of total expenditure variation.

3. The teacher mix effect, particularly with respect to declining versus non-declining enrollment districts, is clearly apparent. Similar to the student/teacher ratio effect, the impact of teacher mix accounts for $110-$130 per student between the two lowest expenditure groups and Group 2.

   Interestingly, the teacher mix effect alone explains the total deviation of one declining enrollment group (Group 4). It also singlehandedly accounts for why Group 6 (almost exclusively non-declining districts) is somewhat less than the typical district in its expenditures per student. Even for Group 2 (two higher expenditure districts with declining enrollment), the teacher mix effect explains 20 percent of the total spending variation from the typical level.

4. The difference attributable to other instructional expenditures is of significance only for the Group 2 districts. In fact it is confined to one district within that group, which expended about $180 per student on teacher aides. That situation is unique among the sample elementary districts.

5. Expenditure differences on administration and instructional support staff account for $100-$130 per student between the lowest group and the highest two groups.

6. Maintenance staff and other operating expenditures are substantial contributors to spending differences only for the higher expenditure districts.

Overall, some general conclusions can be drawn concerning the sources of variation in General Fund expenditures among the elementary districts. It can be argued that most of the $600 range in expenditures per student is attributable to functional spending which has little, if anything, to do with the *direct* delivery of education programs in the classroom. Most of the variation can be traced to a combination of differences in salary schedules, teacher mix and administrative, support and maintenance staff levels. Even that portion which is attributable to student/teacher ratios represents a very limited range in regular teacher class size from an average of 23 to one for the higher spending districts to 26 to one for the lower expenditure districts.

High School Districts: Major Sources of General Fund Expenditure Variation

The high school portion of the system has clearly been observed to have higher expenditures per student for guidance and psychological services (counselors), interscholastics, plant maintenance and utilities. Using the same approach as was applied to the elementary system but recognizing these additional high school costs, the characteristics of the typical or normal elementary district were modified.

Column (2) of Table 5 contains this modification. Typical elementary expenditures per student were increased by a total of $135 in instructional support and operations to establish a "typical" level for the high school system. Instruction and administration expenditures were kept the same as for the typical elementary district because average high school spending per student was similar to the elementary levels in these functions (see Chart 1-A).

Against this modified elementary set of expenditures, each of the 11 sample high school districts housing more than 500 students has been compared. The process of comparison is the same as the one used for the elementary system. The summary results of this analysis are presented in Chart 11 (Appendix Table C-11).

The total range in expenditures from the lowest to the highest groups is about $500 per student. The significance of the individual sources of variation in explaining this range can be summarized as follows:

1. For the most part, differences in the general level of teacher salary schedules are not a major contributor to spending level variations. Within the high school portion of the sample, there is greater similarity among salary schedules than is true for the elementary system. The one notable exception is the lowest spending district (Group 5) where a relatively low salary schedule accounted for nearly 33 percent of the district's total difference from the typical level.

2. The student/teacher ratio effect accounted for $110-$115 per student between the two lowest and the highest expenditure groups. Average teacher class size is generally at a level of 24-25 per teacher over much of the spending range. Only at the extremes do class sizes differ enough (about 22 for the highest spending group and 27 for the lowest group) to have a noticeable effect on student/teacher ratios.

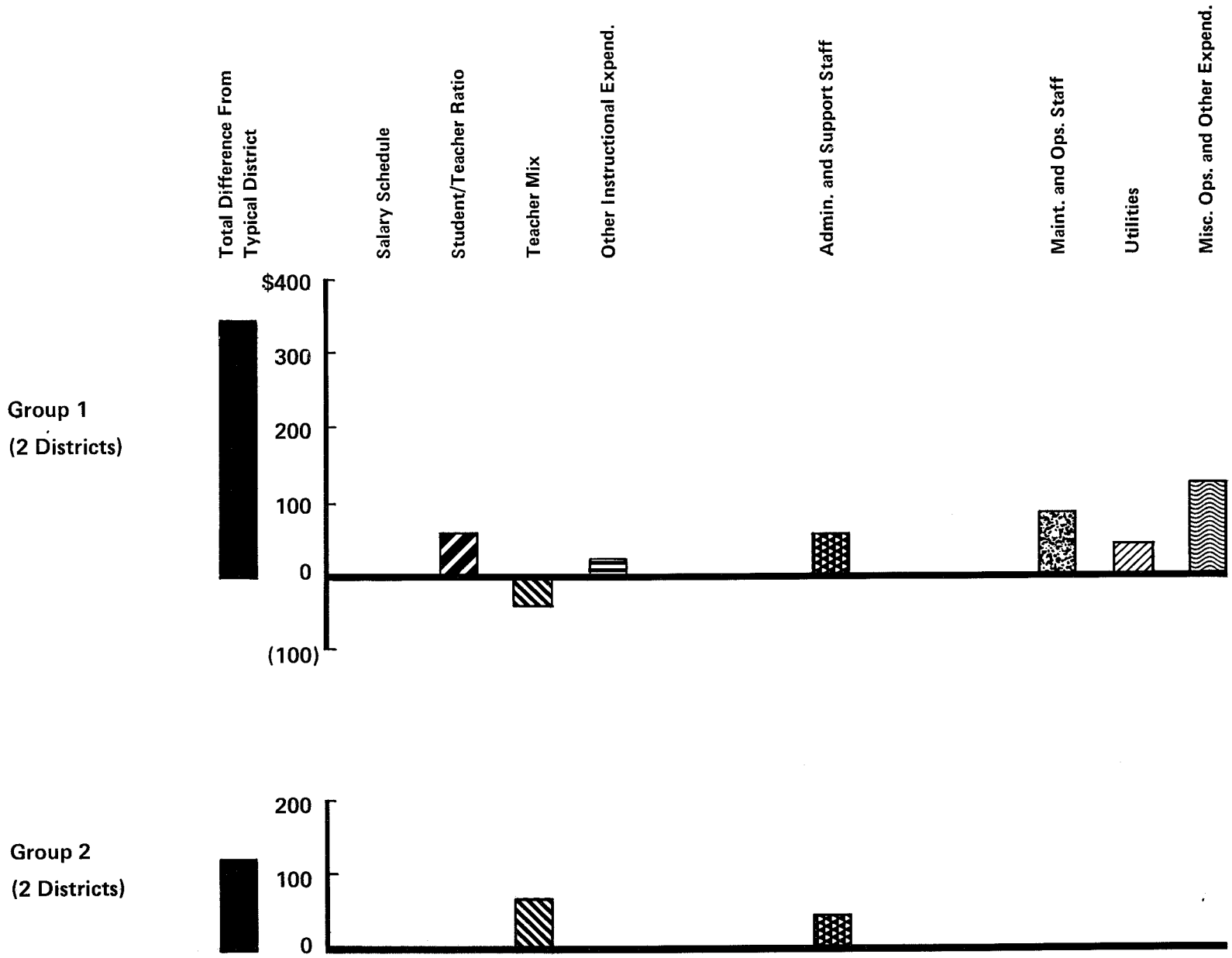
3. The teacher mix effect is difficult to generalize. For the high school system, teacher mix impact is not as systematic as at the elementary level. It is not directly related to long-standing declining enrollment. For whatever reason, however, it does exist. The teacher mix variation among the districts can account for well over $100 difference in expenditure levels among the districts. In this sense, teacher mix is nearly as significant a source of variation as is true within the elementary system.

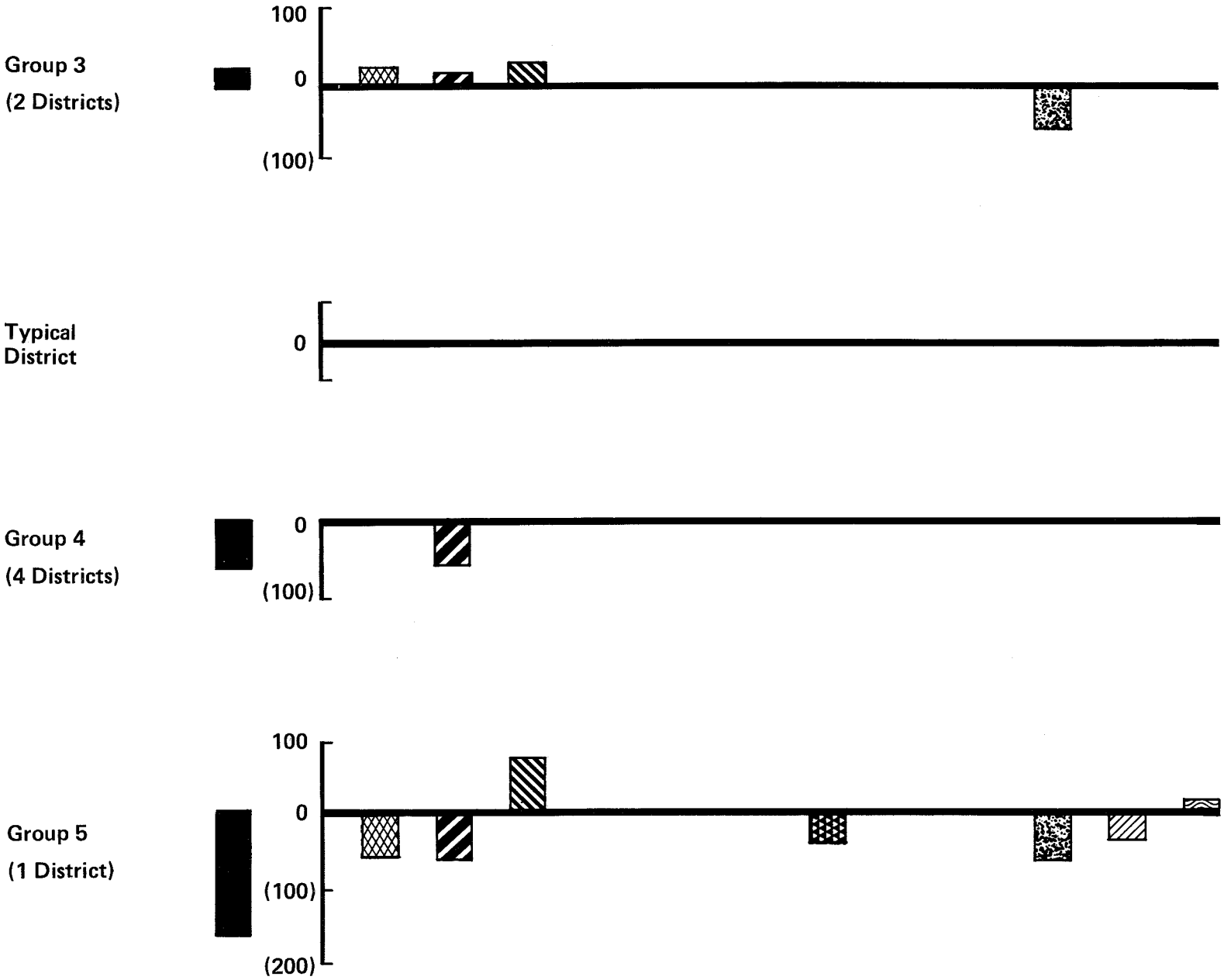
4. A fairly clear pattern does emerge with respect to administrative, support, maintenance and other operations expenditures. Except at the extreme ends of the spending range, these functional areas, for the most part, do not explain much of the spending differences among the districts. They do, however, account for a major portion of the variation between the lowest and highest expenditure groups. In fact, for the highest expenditure group (Group 1), these functions account for 90 percent of the total variance of this group from the typical level.

In very broad terms, the range in high school General Fund spending per student is not largely explained by those factors (salary schedule, student/teacher ratio and teacher mix) which affect instructional costs per student. Most of the overall high school variation is rather explained by differences in administrative, support and maintenance staff and by other non-instructional expenditures. Within the overall spending range, however, teacher mix can have a sizable impact from district to district.

CHART 11

MAJOR SOURCES OF VARIATION IN HIGH SCHOOL DISTRICT
GENERAL FUND EXPENDITURES PER STUDENT
FROM TYPICAL HIGH SCHOOL LEVEL




Group 3
(2 Districts)
100
0
(100)
Typical
District
0
Group 4
(4 Districts)
0
(100)
Group 5
(1 District)
100
0
(100)
(200)

SECTION VI

ELEMENTARY AND HIGH SCHOOL BENCHMARK DISTRICTS: 1977-78

If there is one overriding characteristic which permeates both the elementary and high school systems, it is that the number of school district staff and their compensation levels dictate General Fund expenditures per student. The existing school finance provisions combined with the state statutes of the past and district management decisions have led to the expenditure levels discussed throughout the report. These expenditure levels, in turn, are largely a reflection of how the school districts staff their various functions (administration, instruction, etc.) and at what salary levels.

Noted throughout the report has been the variation in expenditure levels among the districts. Spending characteristics for a "typical" elementary district have been used to explain the major sources of expenditure variations among the elementary districts. This typical elementary pattern was modified for performing the same analysis of the high school system. As a final step in detailing what lies behind the overall General Fund expenditure per student in the elementary and high school systems, an attempt has been made to establish the characteristics of benchmark districts for 1977-78. These benchmark characteristics are primarily aimed at student/staff ratios, average compensation levels and corresponding expenditures per student for the various school district functions.* They are intended to be representative of the elementary system and the high school system as they actually existed in 1977-78.

Elementary Benchmark

The characteristics of an elementary benchmark district for 1977-78 are displayed in Table 6. As applicable, the ratio of FTE students to FTE staff is shown for each staff compensation area within a function. The average compensation level (salaries and benefits) is also presented for each staff area. The student/staff ratios are then converted to total staff requirements per 1,000 students. In the last column, the resulting expenditure per student is noted.

The average compensation for classroom teachers requires some definitions. The $14,870 shown in Table 6 is a combination of salary, employee benefits and payment for substitute teachers. The salary portion is about $14,000. This amount represents the midpoint between the beginning and top salaries on the adopted salary schedules of the eight elementary districts used to establish the typical expenditure level. This salary in 1977-78 was characteristic of a classroom teacher with an M.A. degree and nine years of allowable experience in the district. The remaining portion ($870) of the average compensation level represents employee benefits and payment for substitute teachers.

Thus, the benchmark elementary district in 1977-78 utilized one FTE classroom teacher for every 22.5 students. The average teacher compensation was $14,870. At this student/staff ratio, 44.4 teachers were required for every 1,000 students. Teacher compensation cost per student equaled $661.

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* The reader is again reminded that county funded contributions for state retirement and Social Security for district certified staff are not included in the General Fund staff compensation levels.

TABLE 6

CHARACTERISTICS OF AN ELEMENTARY BENCHMARK DISTRICT
GENERAL FUND: 1977-78

Function/Type of Expenditure	BENCHMARK CHARACTERISTICS Ratio of FTE Students to FTE Staff	Average Staff Compensation	Number of Staff Per 1,000 Students	Expenditure Per Student
Instruction				
Classroom Teacher Compensation	22.5:1	$14,870	44.4	$ 661
Instructional Aides	400:1	5,500	2.5	14
Other Instructional Expend.				26
Total Instruction	21.3:1	$14,370	46.9	$ 701
Administration				
Education Services				
Certified Staff	2,000:1	$25,600	.5	$ 13
Classified Staff	2,300:1	12,000	.4	6
Other Expenditures				3
Principal's Office				
Certified Staff	450:1	24,200	2.2	55
Classified Staff	360:1	8,600	2.8	24
Other Expenditures				3
Other Administrative Functions				
Certified Staff	3,300:1	32,900	.3	10
Classified Staff	550:1	12,500	1.8	23
Other Expenditures				4
Total Administration	125:1	$15,910	8.0	$ 141
Instructional Support				
Guidance and Psychological Svcs.				
Certified Staff	2,000:1	$17,000	.5	$ 9
Library				
Certified Staff	650:1	15,400	1.5	23
Classified Staff	770:1	7,500	1.3	10
Other Expenditures				2
Interscholastics				2
Other Instructional Support Functions				
Classified Staff	600:1	11,500	1.6	19
Other Expenditures				3
Total Instructional Support	200:1	$12,200	4.9	$ 68

TABLE 6 (continued)

Function/Type of Expenditure	BENCHMARK CHARACTERISTICS			
	Ratio of FTE Students to FTE Staff	Average Staff Compensation	Number of Staff Per 1,000 Students	Expenditure Per Student
Operations				
Physical Plant Maintenance				
Classified Staff	115:1	$10,300	8.8	$ 91
Other Expenditures				21
Utilities				44
Other Operations Functions				
Classified Staff	1,450:1	13,400	.7	9
Other Expenditures				9
Total Operations	105:1	$10,530	9.5	$ 174
Total District				
Staff Compensation	14.4:1	$13,950	69.3	$ 967
Other Expenditures				117
Total District	14.4:1	$13,950	69.3	$1,084

As another example, the benchmark district employed a certified staff person (principal, assistant principal or other certified staff) in the office of the principal for every 450 students. Average compensation for these staff members was $24,200 (salary plus benefits). At a student/staff ratio of 450 to one, certified staff in the principal's office amounted to 2.2 FTE personnel for every 1,000 students at a cost of $55 per student.

Overall, the benchmark elementary district employed 69.3 FTE personnel for every 1,000 students. Average annual compensation (salary plus benefits) was $13,950. This staff level provided one FTE employee for every 14.4 students at a total General Fund expenditure per student of $1,084.

Of this $1,084, staff compensation comprised $967 or 89 percent of the total. Classroom teachers, principal's office staff and physical plant maintenance staff constituted 84 percent of the total staff.

Non-staff expenditures amounted to $117 per student. Of this amount, $91 (about 78 percent) was expended on utilities, maintenance supplies or contracted services and instructional supplies.

High School Benchmark

The characteristics of a high school benchmark district for 1977-78 are shown in Table 7. The administration function is identical to the elementary benchmark. Instructional support characteristics differ from elementary in the guidance and psychological services and interscholastics functions. The operations characteristics are higher than elementary in nearly every area.

The establishment of the high school benchmark for instruction requires further explanation. Classroom teacher compensation is based on a student/teacher ratio of 23.8 to one. This ratio was the high school average in 1977-78. Average teacher compensation was set at the same level as the elementary benchmark. As such, the high school benchmark presumes the same salary schedule as the elementary. It also presumes the same average mix of teachers on the salary schedule. The resulting expenditure per student for teacher compensation is $625.

Actual high school teacher compensation per student averaged $690 in 1977-78. The $65 difference between the benchmark and the actual was due in part to slightly higher salary schedules at the high school level. Primarily, however, it was due to a different mix of teachers on the salary schedules. This will be discussed further when the benchmark districts are reconciled with the average elementary and high school General Fund expenditures per student.

In total, the benchmark high school district employed a staff of 71.5 for every 1,000 students. Average annual compensation was $14,220. One FTE staff person existed for every 14.0 students. Total benchmark district expenditure was $1,191 per student.

Staff compensation was $1,017 or 85 percent of the total. Classroom teachers, principal's office staff, guidance personnel and plant maintenance staff accounted for 88 percent of total staff compensation.

Other district expenditures amounted to $174 per student. Of this amount, $140 (about 80 percent) was attributable to instructional supplies, interscholastics, utilities and maintenance supplies or contracted services.

TABLE 7

CHARACTERISTICS OF A HIGH SCHOOL BENCHMARK DISTRICT
GENERAL FUND: 1977-78

Function/Type of Expenditure	BENCHMARK CHARACTERISTICS Ratio of FTE Students to FTE Staff	Average Staff Compensation	Number of Staff Per 1,000 Students	Expenditure Per Student
Instruction				
Classroom Teacher Compensation	23.8:1	$14,870	42.0	$ 625
Instructional Aides	900:1	5,500	1.1	6
Other Instructional Expend.				26
Total Instruction	23.2:1	$14,630	43.1	$ 657
Administration				
Education Services				
Certified Staff	2,000:1	$25,600	.5	$ 13
Classified Staff	2,300:1	12,000	.4	6
Other Expenditures				3
Principal's Office				
Certified Staff	450:1	24,200	2.2	55
Classified Staff	360:1	8,600	2.8	24
Other Expenditures				3
Other Administrative Functions				
Certified Staff	3,300:1	32,900	.3	10
Classified Staff	550:1	12,500	1.8	23
Other Expenditures				4
Total Administration	125:1	$15,910	8.0	$ 141
Instructional Support				
Guidance and Psychological Svcs.				
Certified Staff	330:1	$17,000	3.0	$ 51
Classified Staff	1,670:1	10,400	.6	6
Library				
Certified Staff	650:1	15,400	1.5	23
Classified Staff	770:1	7,500	1.3	10
Other Expenditures				2
Interscholastics				29
Other Instructional Support Functions				
Classified Staff	600:1	11,500	1.6	19
Other Expenditures				3
Total Instructional Support	125:1	$13,560	8.0	$ 143

TABLE 7 (continued)

Function/Type of Expenditure	BENCHMARK CHARACTERISTICS			
	Ratio of FTE Students to FTE Staff	Average Staff Compensation	Number of Staff Per 1,000 Students	Expenditure Per Student
Operations				
Physical Plant Maintenance				
Classified Staff	90:1	$11,700	11.1	$ 129
Other Expenditures				21
Utilities				64
Other Operations Functions				
Classified Staff	800:1	13,400	1.3	17
Other Expenditures				19
Total Operations	80:1	$11,880	12.4	$ 250
Total District				
Staff Compensation	14.0:1	$14,220	71.5	$1,017
Other Expenditures				174
Total District	14.0:1	$14,220	71.5	$1,191

Reconciliation of Benchmarks with Elementary and High School Average Expenditures:

In 1977-78, elementary and high school General Fund expenditures per student averaged $1,102 and $1,282, respectively. The corresponding elementary and high school benchmark expenditures are $1,084 and $1,191. Reconciliation of the benchmark levels with the system averages is provided in Table 8.

Because the elementary benchmark was constructed from the eight sample districts used to establish the "typical" elementary spending level, there is only a minor difference between the benchmark total and the elementary average. Most of the difference that does exist is in instructional support. Differences in the other functions are very small.

High school average expenditures exceeded the benchmark level by $91 per student. Of this total difference, $63 is attributable to salary schedules and teacher mix. Once again, the significance of teacher mix in explaining variations is apparent. Even if the high school system had used the same salary schedule as the elementary benchmark, the fact that a larger proportion of high school teachers are paid on the upper segment of the salary schedule would about offset the higher student/teacher ratio that characterizes the high school benchmark. If allowance is made for the teacher mix effect, the high school benchmark expenditure for teacher compensation would increase by $46 to $671 per student. This level is quite similar to the elementary benchmark level of $661 for teacher compensation.

Most of the remaining difference between the high school benchmark and system average is in the category "other instructional support." The $19 variance, however, is largely attributable to an unusually high expenditure in this category by one high school district in the sample.

Use of the Benchmark Districts

The establishment of benchmark districts is not intended to suggest that the characteristics of these districts represent some ideal or desired pattern for the elementary and high school systems. Rather, they are presented in order to provide users with a picture of how an "average" or "typical" school district was structured and staffed and how it utilized its General Fund in 1977-78.

It is suggested that issues surrounding the establishment of expenditure levels to be supported by state aid can be more clearly deliberated and understood if there is a reference point or benchmark to bring to bear on the issues. For example, consider the question of what the support level used in determining entitlement to state aid for elementary districts actually supports. In 1977-78 the elementary state aid support level was $977 per student. Reference to the elementary benchmark indicates that the support level was about equivalent to total staff compensation per student. For all practical purposes, non-staff expenditures of $117 per student were unsupported by the present state aid formula.

The issues surrounding budget or expenditure control for school districts can be more clearly understood and potential implications of control proposals can be more clearly estimated by reference to the benchmark districts. It is quite obvious that the primary impact of control provisions must largely be translated into changes in staff ratios, average compensation or both. The benchmark districts can be used to give an approximate indication of how various control proposals would impact on school districts.

TABLE 8

RECONCILIATION OF BENCHMARK DISTRICT EXPENDITURES PER STUDENT WITH ELEMENTARY AND HIGH SCHOOL GENERAL FUND AVERAGE EXPENDITURES: 1977-78

ELEMENTARY

Benchmark Expend. Per Student		$1,084
Adjustments For:		
Instruction	$ 2	
Administration	3	
Instructional Support	10	
Operations	3	
Total Adjustments		18
Equals: Average Elementary Expenditures		$1,102

HIGH SCHOOL

Benchmark Expend. Per Student		$1,191
Adjustments For:		
Instruction:		
Average Salary Schedule Level	$17	
Teacher Mix	46	
Other Instructional Expense	1	
Administration	3	
Instructional Support:		
Guidance and Psychological Services	3	
Library	(1)	
Other Instructional Support	19	
Operations	3	
Total Adjustments		91
Equals: Average High School Expenditures		$1,282

APPENDIX A

SCHOOL DISTRICT SAMPLE

ELEMENTARY

District	County	District	County
Alhambra	Maricopa	Oracle	Pinal
Amphitheater	Pima	Osborn	Maricopa
Balsz	Maricopa	Phoenix	Maricopa
Catalina Foothills	Pima	Roosevelt	Maricopa
Eloy	Pinal	Salome	Yuma
Glendale	Maricopa	Sierra Vista	Cochise
Kingman	Mohave	Washington	Maricopa

HIGH SCHOOL

District	County
Glendale	Maricopa
Marana	Pima
Phoenix	Maricopa
Sierra Vista	Cochise

UNIFIED

District	County	District	County
Flagstaff	Coconino	Prescott	Yavapai
Globe	Gila	Santa Cruz Valley*	Santa Cruz
Joseph City	Navajo	Scottsdale	Maricopa
Mesa	Maricopa	Tucson	Pima
Page	Coconino	Window Rock**	Apache

*Elementary portion only.

**Elementary district teaching high school.

APPENDIX B

REGULAR INSTRUCTIONAL PROGRAM AREAS*

A. Language Arts (X)
   1. English
   2. Composition
   3. Language
   4. Literature
   5. Reading
   6. Handwriting
   7. Spelling

B. Communications (X)
   1. Speech
   2. Debate
   3. Journalism
   4. Media

C. Mathematics (X)

D. Social Studies (X)
   1. History
   2. Government
   3. Geography
   4. Free Enterprise
   5. Economics
   6. Humanities
   7. Anthropology
   8. Sociology
   9. Civics
   10. Other

E. Science (X)
   1. Chemistry
   2. Biology
   3. Physics
   4. Astronomy
   5. Earth Science
   6. General Science
   7. Other

F. Foreign Language (X)

G. Business (Non-Vocational Education) (X)
   1. All business type courses not classified as Business and Office Education-Vocational Education.

H. Home Economics (Non-Vocational Education) (X)
   1. All home economics courses not classified as Home Economics Consumer and Homemaking or Home Economics Occupational-Vocational Education.

APPENDIX B (continued)

I. Industrial Arts (Non-Vocational Education) (X)
   1. All industrial arts type courses not classified as Trades and Industries-Vocational Education.

J. Physical Education (X)
   1. Physical Education
   2. Sports
   3. Dance
   4. Gymnastics
   5. Swimming
   6. Other

K. Music (X)
   1. Music
   2. Band
   3. Chorus
   4. Orchestra
   5. Other

L. Art (X)
   1. Art
   2. Crafts
   3. Photography
   4. Drawing
   5. Design
   6. Graphics
   7. Sculpture
   8. Other

M. Dramatic Arts (X)
   1. Drama
   2. Acting
   3. Filmmaking

N. Vocational Education
   1. Agriculture (X)
   2. Distributive Education (X)
   3. Health Occupations (X)
   4. Home Economics (X)
   5. Business and Office Education (X)
   6. Trades and Industry (X)
   7. Diversified Occupations (X)

O. Other Programs (X)**

* Generally, teacher staff and student enrollment hours were developed for the broad instructional programs marked with an (X). Exceptions include combining Music, Art, and Dramatic Art into a Fine Arts category and combining Home Economics and Industrial Arts for the elementary grades.

** Specifically identified as encountered; e.g., Driver Education, Junior ROTC, special district funded remedial programs.

APPENDIX C

Table		Page
C-1	Average General Fund Expenditures Per Student: 1977-78 Elementary and High School	52
	Significant Areas of Expenditure Difference	52
C-2	Average Elementary General Fund Expenditures and Student/Teacher Ratios by Grade Level: 1977-78	53
C-3	Comparison of Average Elementary Regular Teacher Class Size With Average Ratio of FTE Students to FTE Teachers by Grade: 1977-78	54
C-4	Average Elementary General Fund Expenditures Per FTE Student by Grade and Program: 1977-78	55
	Average Elementary Ratios of FTE Students to FTE Teachers by Grade and Program: 1977-78	55
C-5	Average Elementary Percent of Student Instructional Time and Percent of General Fund Expenditures by Grade and Program: 1977-78	56
C-6	Average General Fund Expenditures Per Student by Lowest and Highest Spending Elementary Districts: 1977-78	57
C-7	Average High School General Fund Expenditures and Ratios of FTE Students to FTE Teachers by Program: 1977-78	58
C-8	Average High School Percent of Student Instructional Time and Percent of General Fund Expenditures by Program: 1977-78	59
C-9	Average General Fund Expenditures Per Student by Lowest and Highest Spending High School Districts: 1977-78	60
C-10	Major Sources of Variation in Elementary District General Fund Expenditures Per Student from Typical Elementary Level: 1977-78	61
C-11	Major Sources of Variation in High School District General Fund Expenditures Per Student from Typical Elementary (Modified) Level: 1977-78	62

TABLE C-1

AVERAGE GENERAL FUND EXPENDITURES
PER STUDENT: 1977-78

ELEMENTARY AND HIGH SCHOOL

Function	AVERAGE EXPENDITURE PER STUDENT		
	Elementary	High School	Difference
Administration	$ 144	$ 144	$ –
Instruction	703	721	18
Instructional Support	78	164	86
Operations	177	253	76
TOTAL	$1,102	$1,282	$180

SIGNIFICANT AREAS OF EXPENDITURE DIFFERENCE

Subfunction	AVERAGE EXPENDITURE PER STUDENT		
	Elementary	High School	Difference
Instructional Support			
Guidance and Psychological Services	$ 12	$ 60	$48
Interscholastics	2	29	27
Operations			
Utilities	44	64	20
Plant Maintenance	115	155	40

TABLE C-2

AVERAGE ELEMENTARY GENERAL FUND EXPENDITURES
AND
STUDENT/TEACHER RATIOS BY GRADE LEVEL: 1977-78

Grade	Average Expenditures Per Student	Average Ratio of FTE Students to FTE Teachers
Kindergarten	$1,156	21.4:1
1 - 3	1,052	23.6:1
4 - 6	1,092	22.6:1
7 - 8	1,174	20.9:1
K - 8	$1,102	22.4:1

TABLE C-3

COMPARISON OF AVERAGE ELEMENTARY REGULAR TEACHER CLASS SIZE WITH AVERAGE RATIO OF FTE STUDENTS TO FTE TEACHERS BY GRADE: 1977-78

		LESS EFFECTS OF:		EQUALS:
Grade	Regular Teacher Average Class Size	Teacher vs. Student Contact Hours	Specialized Teachers	Average Ratio of Students to Teachers
Kindergarten	21.4	–	–	21.4
1 - 3	25.4	(1.4)	(.4)	23.6
4 - 6	26.8	(2.4)	(1.8)	22.6
7 - 8	26.5	(4.0)	(1.6)	20.9
K - 8	25.9	(2.5)	(1.0)	22.4

TABLE C-4

AVERAGE ELEMENTARY GENERAL FUND EXPENDITURES
PER FTE STUDENT BY GRADE AND PROGRAM: 1977-78

Grade	Ind. Arts Home Econ.	Fine Arts	Language Arts	Physical Education	Math	Social Studies	Science	TOTAL
1 - 3	S –	$1,137	$1,047	$1,052	$1,031	$1,022	$1,006	$1,052
4 - 6	–	1,485	1,078	1,070	1,031	1,008	1,006	1,092
7 - 8	1,655	1,220	1,143	1,073	1,120	1,077	1,077	1,174
1 - 8	$1,655	$1,289	$1,074	$1,066	$1,053	$1,036	$1,031	$1,099

AVERAGE ELEMENTARY RATIOS OF FTE STUDENTS TO
FTE TEACHERS BY GRADE AND PROGRAM: 1977-78

Grade	Ind. Arts Home Econ.	Fine Arts	Language Arts	Physical Education	Math	Social Studies	Science	TOTAL
1 - 3	–	21.6	24.0	24.5	24.1	23.8	23.8	23.6
4 - 6	–	16.0	24.2	23.4	24.4	24.6	24.0	22.6
7 - 8	14.2	20.5	21.8	23.4	22.3	23.0	22.6	20.9
1 - 8	14.2	18.8	23.7	23.7	23.7	23.8	23.4	22.5

TABLE C-5

AVERAGE ELEMENTARY PERCENT OF STUDENT INSTRUCTIONAL TIME AND PERCENT OF GENERAL FUND EXPENDITURES BY GRADE AND PROGRAM: 1977-78

Program	Grades 1 - 8		Grades 1 - 3		Grades 4 - 6		Grades 7 - 8	
	% of Student Time	% of Expend.	% of Student Time	% of Expend.	% of Student Time	% of Expend.	% of Student Time	% of Expend.
Language Arts	41	40	53	53	39	38	25	25
Mathematics	17	16	17	17	17	16	16	15
Social Studies	11	10	7	7	13	12	15	13
Fine Arts	9	10	8	8	9	12	8	8
Physical Educ.	10	10	9	9	12	12	11	10
Science	9	8	6	6	10	9	12	11
Indust. Arts and Home Economics	2	4	–	–	–	–	9	13
Other	1	2	–	–	–	–	4	5
TOTAL	100	100	100	100	100	100	100	100

TABLE C-6

AVERAGE GENERAL FUND EXPENDITURES PER STUDENT BY LOWEST AND HIGHEST SPENDING ELEMENTARY DISTRICTS: 1977-78

Program	EXPENDITURES PER FTE STUDENT		
	Average of Five Highest Expenditure Districts	Average of Three Lowest Expenditure Districts	Ratio of High to Low
Industrial Arts and Home Economics	$2,717	$1,714	1.59
Fine Arts	1,714	1,101	1.56
Physical Education	1,655	917	1.80
Language Arts	1,459	944	1.55
Mathematics	1,459	876	1.67
Social Studies	1,429	913	1.57
Science	1,404	931	1.51
ALL PROGRAMS	$1,531	$ 944	1.62

TABLE C-7

AVERAGE HIGH SCHOOL GENERAL FUND EXPENDITURES
AND RATIOS OF FTE STUDENTS TO FTE TEACHERS
BY PROGRAM: 1977-78

Program	Average Expenditure Per FTE Student	FTE Student/ Teacher Ratio
Industrial Arts (Non-Voc. Ed)	$1,501	19.6
Foreign Language	1,449	20.3
Vocational Education	1,340*	24.8*
Language Arts	1,310	23.1
Mathematics	1,307	23.0
Science	1,276	23.6
Fine Arts	1,261	24.0
Business (Non-Voc. Ed.)	1,249	24.4
Social Studies	1,175	26.3
Physical Education	1,167	26.6
ALL PROGRAMS	$1,282	23.8

*Does not reflect vocational education teachers who are funded by Federal/State vocational education funds.

TABLE C-8

AVERAGE HIGH SCHOOL PERCENT OF STUDENT INSTRUCTIONAL TIME AND PERCENT OF GENERAL FUND EXPENDITURES BY PROGRAM: 1977-78

Program	Percent of Student Time	Percent of Expenditures
Language Arts	19	19
Social Studies	15	13
Mathematics	11	11
Physical Education	12	11
Vocational Education	10	11
Science	10	10
Fine Arts	7	7
Industrial Arts (Non-Voc. Ed.)	5	6
Business (Non-Voc. Ed.)	5	5
Foreign Language	3	4
Other Programs	3	3
TOTAL	100	100

TABLE C-9

AVERAGE GENERAL FUND EXPENDITURES PER STUDENT BY LOWEST AND HIGHEST SPENDING HIGH SCHOOL DISTRICTS: 1977-78

	EXPENDITURES PER FTE STUDENT		
Program	Average of Two Highest Expenditure Districts	Average of Five Lowest Expenditure Districts	Ratio of High to Low
Vocational Education	$1,780	$1,226	1.45
Industrial Arts (Non-Voc. Ed.)	1,698	1,443	1.18
Fine Arts	1,651	1,117	1.48
Foreign Language	1,646	1,239	1.33
Language Arts	1,571	1,177	1.33
Physical Education	1,524	1,008	1.51
Science	1,466	1,179	1.24
Social Studies	1,418	1,067	1.33
Mathematics	1,396	1,143	1.22
Business (Non-Voc. Ed.)	1,336	1,051	1.27
ALL PROGRAMS	$1,558	$1,140	1.37

TABLE C-10

MAJOR SOURCES OF VARIATION IN ELEMENTARY DISTRICT GENERAL FUND EXPENDITURES PER STUDENT FROM TYPICAL ELEMENTARY LEVEL: 1977-78

	Average Expenditures Per Student	Difference in Expend. Per Student from "Typical" District	AMOUNT OF EXPENDITURE DIFFERENCE PER STUDENT ATTRIBUTABLE TO: District Salary Schedule Level	Student/ Teacher Ratio	Teacher Mix	Other Instr. Expenditure	Administration and Instr. Support Staff	Maintenance and Other Ops. Staff	Utilities	Other Ops. Expend.
Districts Above Typical Level										
Group 1:	Expend. of More than $1,335 (3 Districts)	$457	$60	$108	($63)	$102	$65	$69	$37	$39
Group 2:	Expend. of More than $1,335* (2 Districts)	436	36	135	94		95	38		17
Group 3:	Expend. equal $1,184 - $1,334 (2 Districts)	149		78		19	39			
Group 4:	Expend. equal $1,084 - $1,183* (2 Districts)	53			64					
Group 5:	Expend. equal $1,084 - $1,183 (1 District)	37	23	(55)			62			
Typical District:	Expend. equal $1,084	—								
Districts Below Typical Level										
Group 6:	Expend. equal $984 - $1,083 (7 Districts)	(40)			(40)					
Group 7:	Expend. equal $884 - $983 (3 Districts)	(140)	(67)		(19)		(33)	(15)		

*Declining enrollment groups

TABLE C-11

MAJOR SOURCES OF VARIATION IN HIGH SCHOOL DISTRICT GENERAL FUND EXPENDITURES PER STUDENT FROM TYPICAL ELEMENTARY (MODIFIED) LEVEL: 1977-78

	Average Expenditures Per Student	Difference in Expend. Per Student from "Typical" District	AMOUNT OF EXPENDITURE DIFFERENCE PER STUDENT ATTRIBUTABLE TO: District Salary Schedule Level	Student/ Teacher Ratio	Teacher Mix	Other Instr. Expenditure	Administration and Instr. Support Staff	Maintenance and Other Ops. Staff	Utilities	Misc. Ops. & Other Exp.
Districts Above Typical Level										
Group 1:	Expend. equal More than $1,470 (2 Districts)	$340		$56	($44)	$20	$52	$84	$43	$126
Group 2:	Expend. equal $1,320 - $1,469 (2 Districts)	128			69		49			
Group 3:	Expend. equal $1,220 - $1,319 (2 Districts)	23	$23	17	30			(53)		
Typical District:	Expend. equal $1,219									
Districts Below Typical Level										
Group 4:	Expend. equal $1,120 - $1,219 (4 Districts)	(58)		(54)						
Group 5:	Expend. equal $1,020 - $1,119 (1 District)	(164)	(52)	(59)	78		(44)	(62)	(34)	14