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ABSTRACT

Current school funding systems established by many states are resulting in widespread disparities in expenditures across districts, and current comparability measures providing adequate guarantees for equity among schools are being questioned. This study, involving 95 elementary schools and 25 high schools in 30 school districts across 5 states, examines resource availability and allocation for schools located in high and low revenue districts. Key findings from interviews and site visits are reported for base resource differentials (the school-level resources purchased by funding sources other than Chapter 1), what Chapter 1 adds to these base levels of resources, and Chapter 1 comparability standards in the sample schools across districts. This report contains six sections, including an introduction and discussions of the base level of resources for Chapter 1 and non-Chapter 1 elementary schools, the base level of resources in terms of district revenue and school poverty, how Chapter 1 and base resources combine to meet student needs, the high school analysis, and implications of the findings for Chapter 1 reauthorization. Variations in the resource base upon which Chapter 1 builds are driven primarily by differences in district revenue, suggesting the increased targeting of Chapter 1 funds solely on poverty criteria may still deny truly supplemental services to students from high poverty schools in low revenue districts. (Contains 48 tables, 8 figures, and 118 references.) (GLR)

Translating Dollars into Services:

Chapter 1 Resources in the Context of State and Local Resources for Education

Final Report
April 30, 1993

Contract No. [illegible]

Prepared for the U.S. Department of Education under contract by
American Institutes for Research, Palo Alto, California

Translating Dollars into Services:

Chapter 1 Resources in the Context of State and Local Resources for Education

Final Report
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SON TO FATHER

Well, Father,
I'll tell you
School for me ain't been no amusement park
Its had clocks in it and ringing bells
And blackboards filled with chalk dust
And places with no desks lined up on the floor.
But most of the time I'se been failing, and
Teachers calling my home
And turning in progress reports
And sometimes writing deficiencies
Where there ain't been no yellow copies
So Dad, don't you put me out the house
When you find I've been suspended,
Don't you set down on the school steps
Waiting for me.
Please don't bring no chain wrapped around your hand,
For I'se still trying, Dad,
And I'se still punching and jabbing
And school for me ain't been no Six Flags.

— *Written in a Chapter 1 class*
by a student in a 100% poverty high school

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The views expressed are those of the authors and do not necessarily represent the views of the U.S. Department of Education or of the American Institutes for Research, the principal contractor for this study.

Executive Summary

■ Life in a Low Poverty School in a High Revenue District

Oak Elementary is in an affluent suburban district. Most parents are professionals, with many working at a nearby prominent university; fewer than 1% of students qualify for free or reduced price lunch. The school has few problems: it enjoys low absenteeism (about 2%), low mobility (7%), and high test scores (e.g., third grade achievement is at the 87th percentile). The learning environment is rich. Class sizes are moderate (about 23) with parttime aides. Five teachers provide instruction in music, art, and physical education with fulltime specialists also providing reading, math, and gifted programs. The school offers field trips throughout the year and brings in performers, authors, scientists, and others for lectures and performances.

■ Life in a High Poverty School in a Low Revenue District

King Elementary is in a poor section of a large city. Most students are from poor families (e.g., 82% qualify for free or reduced priced lunch). About 75% of the students are also limited-English proficient. The student population is almost entirely minority: 77% Hispanic, 12% Asian, and 10% African American. Only three students are white. Tensions in the neighborhood clearly affect the children's ability to learn. After riots took place close to the school, teachers helped reduce student fears by stimulating discussion about their community and its problems. The school is crowded, with about 30 students in each class. Students do get extra attention from half-time bilingual aides or teacher assistants, mostly funded by Chapter 1, state compensatory education, or bilingual education funds. There is one curriculum coordinator for all special enrichment programs; there are no other music, art, or physical education teachers. What is most striking about King school is that the entire school facility is housed in portables.

These two extremes describe the stark contrasts in America's schools. Differences between rich and poor districts, schools, and children have been

documented and acknowledged for decades.[1] The Great Society programs of the 1960s, the school finance equalization movement of the 1970s, and the school reform movements of the 1980s all attempted to address issues related to differences in the resources available to schools of varying circumstances. The quantitative data gathered for this study provide a somewhat different perspective on this problem. Rather than analyzing differences in the dollars going to districts, we actually visited 120 schools to examine the impact of these dollar differentials at the school level. While the extremes described above are not typical of most schools, or even of all of the schools at the extremes of our sample, the data presented in this report do show significant and meaningful differences in the resources and school contexts between rich and poor districts and schools.

Study Purpose

Federal Chapter 1 funding is the largest single federal education program. More than six billion dollars are distributed among 52,000 schools in 15,000 school districts. Well over five million students are served by Chapter 1 funds. The Chapter 1 allocation amounts to about $900 per eligible student and is directed to students who exhibit above-average educational needs (usually based on student achievement test scores) and who attend schools that serve the largest number of students from poorer families. The purpose of this funding is to supplement existing state and local funds for educational services to provide for the additional needs of these economically and educationally disadvantaged children.

The current school funding systems established by many states result in widespread disparities in expenditures across districts. The school finance literature has suggested that inequitable state funding systems inflict disproportionate harm on minority and poor students and that the educational resources that these students need in school are simply not forthcoming. The long-standing controversy over the equity of state school finance systems challenges a major assumption underlying federal Chapter 1 funding—that Chapter 1 is added to a base level of educational resources and

[1]See, for example, Jonathan Kozol (1991), Arthur Wise (1968). These books were written 23 years apart and the story is still somewhat the same.

services that is comparable to the educational base provided in non-Chapter 1 schools.

Current law requires that Chapter 1 and non-Chapter 1 schools *within the same district* receive comparable resources before Chapter 1 funds are added. Some observers have questioned whether current comparability measures, which focus on per-pupil expenditures and student-staff ratios, provide an adequate guarantee of equity among schools. Broader concern relates to disparities in the funds available to school districts from state and local sources. While Chapter 1 comparability requirements focus on resource distribution within districts, some analysts argue that comparability *across districts* is even more critical to achieving the goals of the Chapter 1 program. If Chapter 1 funds are used to provide services in poor districts that wealthy districts routinely provide through regular funds, then the federal money may be ineffective in helping to close the achievement gap between high and low poverty schools.

This exploratory study was designed to probe these issues through an intensive examination of resource availability and allocation in high and low poverty schools located in high and low revenue districts. Major study questions include:

- Are Chapter 1 schools comparable to non-Chapter 1 schools within the same district when measured by a comprehensive set of resources and services? Do current comparability measures appear adequate for assuring the comparability of resources within districts?

- How do high and low poverty schools differ in the availability and quality of resources? How do differences in district revenues from state and local sources translate into differences in educational resources and services at the school site?

- Does Chapter 1 provide resources and services in poor districts that wealthy districts routinely provide to all students through regular funds?

- How do variations in resources relate to differences in student needs?

These issues are examined by asking the questions,

1) *What is the base level of resources on which Chapter 1 builds?* and

2) *What does Chapter 1 add?*

Base level resources are those educational resources provided *before adding Chapter 1 funds*, including staff, instructional materials, equipment, and school facilities. The analysis focuses on differences in quality as well as quantities, comparing a wide variety of base-level resources in Chapter 1 and non-Chapter 1 schools, high and low poverty schools, and schools in high and low revenue districts. The study then turns to the question of how Chapter 1 funds are used and how services vary across schools with different poverty levels and across districts with different fiscal resources.

The Study Design

Fair and accurate comparisons of resources across schools and districts are a complex undertaking. Dollar levels are not synonymous with resources because dollars translate into differing levels of resources depending on local resource prices (e.g., salaries and wages of personnel). Consequently, this exploratory study uses a bottom-up approach, collecting data at the school site on a wide variety of actual resources, including numbers of staff, teacher training and experience, instructional materials, equipment, and school facilities.

Because the purpose of the study is to explore the impact of extreme differences in school resources, the study used a purposively selected sample of high and low poverty schools located in high and low revenue districts, rather than a random sample that would be representative of the nation as a whole. In order to conduct an in-depth examination of how resource availability and use differ in these kinds of schools, site visits and surveys of teachers and principals were conducted in 95 elementary schools (61 of which were Chapter 1 schools) and 25 high schools (15 of which were Chapter 1 schools) in 30 districts across five states. The highest poverty Chapter 1 elementary school and the lowest poverty non-Chapter 1 elementary school were selected in each district. A similar procedure was followed for the 10 districts in which high schools were selected. In addition, in some

districts, a third elementary or high school was selected: this third school was the lowest poverty Chapter 1 school at the corresponding level in the district.

This approach yielded a wealth of detail about differences in the quantity and quality of resources available in the schools visited. However, because these schools were purposively sampled, *these findings are not conclusive or nationally representative and should not be generalized beyond this sample.* These findings may suggest testable hypotheses about the types and magnitudes of differences among these schools.

Unless otherwise indicated, the dollar figures presented in this report are adjusted by a cost-of-education index constructed for this study. *The importance of using cost-adjusted figures is to allow comparisons of real educational services across schools and districts in the sample.* Variations in the cost-adjusted dollar figures are a result of the variation in the quantities and qualities of resources available to students, and they exclude variations that regional differences in the cost-of-living and other labor markets factors outside local control.[2]

Key Findings

This section is divided into eight parts. The first four parts report findings relating to base resource differentials. These are the school-level resources purchased by funding sources *other than* Chapter 1. In the first of these parts, Chapter 1 and non-Chapter 1 schools are compared. However, because most of the nation's public elementary schools are Chapter 1 schools (71%), and because Chapter 1 programs are found in low poverty as well as high poverty schools and in high revenue as well as low revenue districts, Chapter 1 and non-Chapter 1 schools are fairly comparable in terms of base resources. However, because this relative comparability may obscure more serious disparities among schools at the extremes of funding and poverty, we

[2]The cost-adjusted value is based on an estimated cost-of-education index (CEI) that reflects the relative purchasing power of the educational dollar in the sample districts and was developed using techniques similar to those used to develop CEI for state school finance adjustments (see Chambers 1980, 1981). Variations in salaries were analyzed for teachers, administrators, aides, and other noncertificated personnel. The analysis used multivariate regression techniques to isolate the impact of factors beyond local control on variations in the cost of personnel. The equations used to create this cost-of-education index are available on request from AIR. Included among the regional characteristics was an estimate of the variation in the cost-of-living developed by McMahon and Chang (1991).

follow this analysis with an examination of how school characteristics, student needs, and resource levels differ among schools with different poverty levels and in low and high revenue districts. In the fourth part, these two types of analyses are combined into a comparison of high and low poverty schools in low revenue districts versus high and low poverty schools in high revenue districts. The fifth part of this section presents findings regarding what Chapter 1 adds to these base levels of resources. Next, Chapter 1 comparability standards in the sample schools *across* districts are examined. The seventh set of findings looks at how these variations in resources relate to variations in student needs. The final part in this section presents findings from the high school analysis.

■ Base Resource Differentials: Chapter 1 Versus Non-Chapter 1 Schools

Chapter 1 and non-Chapter 1 schools are fairly comparable in terms of base *resources*. However, there were some important differences in student *needs* between the Chapter 1 and non-Chapter 1 schools in the sample.

- Chapter 1 schools enrolled more poor, minority, and state compensatory education students.
- Principals in these schools were more likely to report moderate or serious problems with student absenteeism, mobility, health, and discipline.
- Students in Chapter 1 schools scored approximately 20 percentile points below students in non-Chapter 1 schools on standardized tests.
- Chapter 1 schools enrolled more than twice as many limited-English proficient students, but about two-thirds as many gifted students as the non-Chapter 1 schools.

School districts in this sample had, for the most part, achieved within-district comparability on most measurable aspects of educational program: (a) cost per student; (b) number of staff; (c) average class size; (d) teaching experience and degree level of teachers; and (e) availability of instructional materials and equipment.

- The Chapter 1 schools tended to show slightly greater quantities of staff, but these staff were paid somewhat lower salaries and exhibited only slightly less experience and education.

- These results suggest that the "comparability" requirements of the Chapter 1 program are working. These regulations require that before Chapter 1 funds are added, the potential recipient schools must have "a policy to ensure equivalence among schools" in staffing and other resources (Chapter 1 Policy Manual, 1990, page 101). The results of our analysis indicate that the districts included in this sample are meeting the "comparability" requirements of Chapter 1.

■ Base Resource Differentials: High and Low Poverty Schools

Although the high poverty schools in the sample had substantially greater student *needs*, most *resource* measures showed small differences between the high and low poverty schools (Table 1). School poverty across all schools is measured by the percent of students eligible for the free and reduced price lunch program. For the purpose of this study, high poverty is a poverty rate greater than 50%, while low poverty is defined by a poverty rate of less than 20%. The average high poverty school had a poverty rate of 75%, while the average low poverty school had a poverty rate of 10%.

- The greater levels of pupil need in the high versus low poverty schools were reflected in lower achievement scores (43rd percentile vs. 75th percentile), greater percentages of limited-English proficient students (13% vs. 1%), and greater percentages of students served by Chapter 1 (42% vs. 3%).

- A greater percentage of the principals in high versus low poverty schools rated the following as moderate or serious problems: student absenteeism (62% vs. 5%), student mobility (79% vs. 12%), student health (45% vs. 7%), and student discipline (58% vs. 15%).

Differences in resources are reflected in the numbers, qualifications, and behaviors of staff as well as in the availability of equipment and the quality of school facilities.

Table 1
Elementary School Characteristics and Base Resources by School Poverty Level

	Low-Poverty	Mid-Poverty	High Poverty
SCHOOL CHARACTERISTICS			
Number of schools	39	32	24
Student characteristics			
% eligible for free/reduced price lunch	10%	33%	75%
% Chapter 1 participants	3%	16%	42%
% limited-English proficient	1%	5%	13%
% minority	12%	26%	59%
Avg percentile on achievement tests	75%	59%	43%
% principals rating problem as moderate/serious			
Student absenteeism	5%	9%	62%
Student discipline	15%	21%	58%
% of teachers who say they would want their child to attend the school where they teach	94%	80%	47%
SCHOOL RESOURCES			
Funding per pupil			
Cost-adjusted district revenues	$5,318	$5,271	$5,296
Cost-adjusted school personnel expenditures	$3,121	$3,213	$3,352
Numbers of staff (per school of 500 students)			
Certificated	19.3	20.4	19.9
Self-contained classroom teachers	19.3	20.4	19.9
Other certificated	4.4	4.4	4.2
Non-certificated			
Instructional aides-regular program	3.5	3.5	4.5
Classroom teacher characteristics			
Cost-adjusted average teacher salary	$33,855	$33,506	$32,807
Years of experience	15.0	15.2	14.2
% with Master's degree	46%	45%	36%
% principals reporting teacher much above district average	89%	77%	66%
Classroom teacher morale			
% teacher turnover	5%	4%	8%
% who would choose teaching again as a career	88%	84%	74%
Instructional materials			
% teachers reporting adequate textbooks	92%	93%	88%
Capital equipment (per school of 500 students)			
Computers	37.2	30.0	30.7
School facilities			
Total building space per student (square feet)	96	94	106
% of buildings rated as fair/poor	2%	9%	25%

These data exclude resources funded from Chapter 1.
This table is based on a purposive sample of 95 elementary schools in five states.

- The high poverty schools show some advantages and some disadvantages relating to the low poverty schools in respect to staff. Based on a school of 500 students, the high versus low poverty school in our sample employed more regular fulltime equivalent (FTE) classroom teachers (19.9 vs. 19.3); more regular instructional aides (4.5 vs. 3.5); fewer regular resource teachers for reading, music and art (3.0 vs. 3.2); and similar numbers of health service professionals (0.3) and psychologists, social workers, and counselors combined (0.9).

- There were only slight differences in the characteristics of teachers with respect to experience. High versus low poverty schools employed teachers with an average experience of 14.2 vs. 15 years and with fewer Master's degrees (36% vs. 46%).

- Turnover rates of teachers in high poverty schools were 8% versus 5% in low poverty schools.

- High poverty schools had about 18% fewer computers per student.

- The higher poverty schools tended to have larger, though older, school facilities that were less likely to be in good condition. Site visitors rated building conditions as fair to poor in 25% of the high poverty schools, compared to only 2% of the low poverty schools.

These results indicate that the high poverty schools were not concentrated in the low revenue districts. The correlation between school poverty and district revenue in the sample is virtually zero.[3] Moreover, the data in Table 1 show a virtually identical level of total district revenues (cost-adjusted) per pupil between the average high and low poverty schools in the sample ($5,296 vs. $5,318 per pupil).

In summary, while few differences could be found between the low and high poverty schools in the resources that can most easily be counted (e.g., the

[3] This finding is consistent with the finding of Schwartz and Moskowitz (1988) that district poverty and revenues were *positively* correlated in 33 states, indicating that high poverty districts tend to have higher revenues.

number of teachers), the high poverty schools appeared substantially worse on a number of quality indicators that are intangible. These included lower teacher ratings by principals, lower staff morale, a much higher percentage of buildings rated as fair to poor and a much lower percentage of teachers who would be willing to send their own children to the school.

■ Base Resource Differentials: Schools in High and Low Revenue Districts

District revenue levels drive differences in resources. But specifically how do these revenues get translated into resources? For the purpose of this analysis, the 30 districts are divided approximately into thirds.[4] The schools in low revenue districts exhibit somewhat greater needs and lower levels of resources than the schools in high revenue districts (see Table 2).

- The schools in high versus low revenue districts have comparable numbers of poor students (34% vs. 37% of the students eligible for subsidized school lunches), participants in Chapter 1 and state compensatory education (18% vs. 19%), and limited-English proficient students (7% vs. 8%), although schools in the low revenue districts had somewhat fewer minority students (32% vs. 39%).

- Students in the high revenue districts scored higher on standardized achievement tests (at the 70th percentile vs. 58th percentile in the low revenue districts).

- Principals in the low versus high revenue districts were more likely to perceive moderate to serious problems with student absenteeism (28% vs. 12%), student mobility (51% vs. 39%), student health (25% vs. 15%), and student discipline (34% vs. 18%).

[4] The districts were organized by revenue levels by 1) adjusting the total state and local revenues for variations in the cost-of-education; 2) sorting the 30 districts by cost-adjusted revenue levels and dividing them into thirds (low, middle, high); and 3) including the districts next to division points (11th and 20th) with the most logical category, (i.e., making breaks around these points where natural gaps in the data occur). Thus, the lowest and highest revenue classes each include 11 districts, while the middle revenue class includes eight districts. The ranges for the low, middle, and high revenue districts are as follows: the low revenue districts range from $3,095 to 4,412; the middle revenue districts range from $4,827 to $5,693; and the high revenue districts range from $5,823 to $8,430.

Table 2
Elementary School Characteristics and Base Resources by District Revenue Levels

	Low Revenue	Mid Revenue	High Revenue
SCHOOL CHARACTERISTICS			
Number of schools	35	27	33
Student characteristics			
% eligible for free/reduced price lunch	37%	30%	34%
% Chapter 1 participants	19%	12%	18%
% limited-English proficient	8%	0%	7%
% minority	32%	13%	39%
Avg percentile ranking on achievement tests	58%	62%	70%
% principals rating as moderate/serious			
Student absenteeism	28%	22%	12%
Student discipline	34%	33%	18%
% of teachers who say they would want their child to attend the school where they teach	76%	80%	77%
SCHOOL RESOURCES			
Funding per pupil			
Cost-adjusted district revenues	$4,025	$5,199	$6,725
Cost-adjusted school personnel expenditures	$2,791	$3,398	$3,502
Numbers of staff (per school of 500 students)			
Certificated			
Self-contained classroom teachers	19.9	19.1	20.4
Other certificated	3.0	5.9	4.6
Non-certificated	0.7	2.1	1.2
Instructional aides-regular program	5.7	1.9	3.3
Staff characteristics (classroom teachers)			
Cost-adjusted average teacher salary	$31,063	$33,506	$35,949
Years of experience	12.7	16.5	15.8
% with Master's degree	40%	31%	56%
% principals reporting teacher "much above district average"	71%	77%	90%
Staff morale			
% teacher turnover	10%	2%	4%
% who would choose teaching again as career	82%	83%	84%
Instructional materials			
% teachers reporting adequate textbooks	91%	94%	89%
Capital equipment (per school of 500 students)			
Computers	24.5	38.5	38.5
School facilities			
Total building space per student (square feet)	79	106	111
% buildings rated as fair/poor	20%	0%	9%

These data exclude resources funded from Chapter 1.
This table is based on a purposive sample of 95 elementary schools in five states.

Elementary schools in the high revenue districts exhibited more than 25% higher cost-adjusted expenditures on school personnel. The analysis also suggests that more than half of this variation was due to differences in the cost-adjusted salaries paid to school personnel. The remaining half of the difference in resources was accounted for by differences in the quantities of personnel.

- The higher revenue districts were able to employ personnel with greater levels of experience and higher levels of training, and were able to pay higher salaries, above and beyond those necessary to compensate personnel for their experience and training. For example, teachers in schools in high versus low revenue schools had more than three additional years of experience, were more likely to have a Master's degree (56% vs. 40%), and were paid approximately 15.7% more (with an average cost-adjusted salary of $35,949 vs. $31,063).

- For every 500 students enrolled in the school, the schools in higher revenue districts employed an additional 0.5 FTE regular classroom teacher, 1.3 FTE regular resource teachers (e.g., for reading, music, and art), and 0.4 FTE health service personnel. However, the schools in the low revenue districts employed 2.4 FTE more regular education aides than their high revenue counterparts. In other words, schools in low revenue districts substituted more non-certificated for certificated instructional staff.

- The schools in high revenue districts had approximately 50% more computers and printers than their low revenue counterparts. These schools also had 40% more square feet per pupil and were located in buildings that were less likely to be in fair or poor condition.

■ Base Resource Differentials: The Interaction Between District Revenues and School Poverty

For this analysis, the 95 sample elementary schools were divided into the nine categories created by the interaction of the poverty and revenue analyses presented above. The schools at the extremes (i.e., the low and high poverty schools in low revenue districts and the low and high poverty schools in high revenue districts) were retained for these comparisons. This includes 44 of

the 95 sample elementary districts. This analysis shows that in the low revenue districts, the high poverty schools outspent the low poverty schools by 5.4%, while in the high revenue districts, the low poverty schools outspent the high poverty schools by about 0.5% (see Table 3). While these differences are not large, they do suggest the possibility that in certain instances, high and low revenue districts may allocate resources differently between high and low poverty schools.

- In the low revenue districts, the high poverty schools employed one more FTE teacher than the low poverty schools, while in the high revenue districts the difference was one-tenth of an FTE teacher.

- However, in the low revenue districts, the high poverty schools employed 1.8 more FTE aides than the low poverty schools, while in the high revenue districts the high poverty schools employed 0.8 *less* FTE aides than the low poverty schools.

- In the low revenue districts, the percent of teachers with a Master's degree was almost the same in the low versus high poverty schools (40% vs. 37%), while in the high revenue districts, the teachers in the low poverty schools were considerably more likely to have a Master's degree (66% vs. 45%).

- While the number of teachers reporting an adequate supply of textbooks was slightly higher in the low revenue districts, the number of computers per student was much higher in the high revenue districts. Building space per student was also higher in the high revenue districts, and buildings were much more likely to be rated fair to poor in the high poverty schools.

Table 3
Elementary School Characteristics and Base Resources by District Revenue and School Poverty Combined

	Low Revenue Districts		High Revenue Districts	
SCHOOL CHARACTERISTICS	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Number of schools	13	10	13	8
Student characteristics				
% Eligible for free/reduced price lunch	11%	79%	9%	72%
% Chapter 1 participants	2%	46%	3%	46%
% Limited-English proficient	3%	20%	1%	12%
% Minority	19%	68%	11%	75%
Avg percentile on achievement tests	70%	42%	81%	54%
% principals rating problem as moderate/serious				
Student absenteeism	15%	50%	0%	50%
Student discipline	15%	70%	15%	37%
% of teachers who say they would want their child to attend the school where they teach	91%	48%	97%	46%
SCHOOL RESOURCES				
Funding per pupil				
Cost-adjusted district revenues	$4,034	$3,849	$6,769	$7,126
Cost-adjusted school personnel expenditures	$2,681	$2,825	$3,542	$3,525
Numbers of staff (school of 500 students)				
Self-contained classroom teachers	19.0	20.0	20.0	19.9
Other certificated	3.1	2.5	5.5	3.8
Instructional aides-regular program	4.6	6.4	3.6	2.8
Staff characteristics (classroom teachers)				
Cost-adjusted average teacher salary	$31,063	$30,714	$35,600	$36,298
Years of experience	13.4	13.2	14.5	15.9
% with Masters degree	40%	37%	66%	45%
% principals reporting teachers "much above district average"	76%	50%	100%	100%
Staff morale				
% teacher turnover	10%	13%	4%	7%
% who would choose teaching again as a career	83%	78%	92%	75%
Instructional materials				
% teachers reporting adequate textbooks	95%	90%	88%	84%
Capital equipment (school of 500 students)				
Computers	28.2	19.8	44.7	37.6
School facilities				
Total bldg space per student (square feet)	278	76	117	111
% buildings rated as fair/poor	7%	30%	0%	37%

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

■ What Chapter 1 Adds

This analysis summarizes what Chapter 1 adds at selected Chapter 1 schools from the total sample of 95 elementary schools. Similar to the prior analysis of base resources, this summary is based on the interactive effect of school poverty and district revenues on Chapter 1 resources. In order to focus attention on this interaction at the extremes of the sample, this analysis focuses on mid and high poverty schools in low and high revenue districts, and includes 37 of the 61 Chapter 1 elementary schools. Because the average poverty level for the low poverty Chapter 1 schools was much higher than for the overall sample, Chapter 1 schools in the *mid* poverty range are compared to Chapter 1 schools in the high poverty range.

- For the purposes of these analyses, the mean levels of mid poverty range from 31% to 37% of students eligible for free or reduced lunch, and the mean levels of high poverty range from 79% to 72%. The low revenue districts received an average of $4,210 to $3,849 per student in non-federal funds, and the high revenue districts received an average ranging from $6,311 to $7,126. Overall, the additional cost-adjusted Chapter 1 personnel expenditures funded by Chapter 1 ranged from $993 to $1,194 and were lowest in the high poverty schools in the low revenue districts, precisely the schools one would expect to have the greatest need.

- The mid poverty schools from the low revenue districts show 1.8 fulltime equivalent (FTE) Chapter 1 resource teachers compared to 2.8 at the high poverty schools in high revenue districts at a standardized elementary school of 500 students. Conversely, the number of Chapter 1 aides was highest at the high poverty schools from the low revenue districts.

- Small numbers of regular education teachers were funded by Chapter 1 at all four poverty/revenue groups. Similarly, only small numbers of school administration and support personnel were funded by Chapter 1.

Table 4
Chapter 1 Elementary School Characteristics and Chapter 1 Resources by District Revenue and School Poverty Combined

	Low Revenue Districts		High Revenue Districts	
	Mid Poverty Schools	High Poverty Schools	Mid Poverty Schools	High Poverty Schools
SCHOOL CHARACTERISTICS				
Number of schools	10	10	9	8
% Students eligible for free/reduced price lunch	31%	79%	37%	72%
SCHOOL RESOURCES				
Funding per pupil				
Cost-adjusted district revenues	$4,210	$3,849	$6,311	$7,126
Cost-adjusted personnel expenditures	$1,194	$993	$1,076	$1,194
Numbers of staff (school of 500 students)				
Certificated				
Compensatory education resource teachers	1.8	2.0	1.4	2.8
Regular education teachers	0.2	0.1	0.4	0.3
Other certificated	0.0	0.2	0.1	0.2
Non-certificated				
Instructional aides-compensatory education	0.9	3.6	0.3	0.8
Staff characteristics (Chapter 1 teachers)				
Years of experience	19.3	18.3	17.8	18.9
% with Master's degree	73%	50%	92%	84%
Capital equipment (school of 500 students)				
Computers	7.5	17.6	3.0	2.9

These data only include resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 61 Chapter 1 elementary schools in four states.

- Comparisons of Chapter 1 teachers on the number of years of experience do not reveal any clear patterns of variation by school poverty or district revenue. The percentage of Chapter 1 teachers with Master's degrees is highest in the schools from the high revenue districts.

- Considerably more computers, purchased with Chapter 1 fund, were found at school in the low revenue districts.

■ Considering Chapter 1 Comparability Standards *Across* Districts

In their analysis of the Chapter 1 program, Taylor and Piche (1990) raise two important points that are fundamental to the research in this study.

> *Fiscal inequity in the states thwarts the Federal Government in carrying out its role of assisting in meeting the special needs of disadvantaged students...Federal policy is premised on the belief that educational programs and services provided to students with state and local funds are "comparable," and that Federal funds are a supplement to meet special needs...in many states...Federal funds are used in property-poor districts to meet needs that are routinely met through state and local expenditures in other districts. (p. x)*

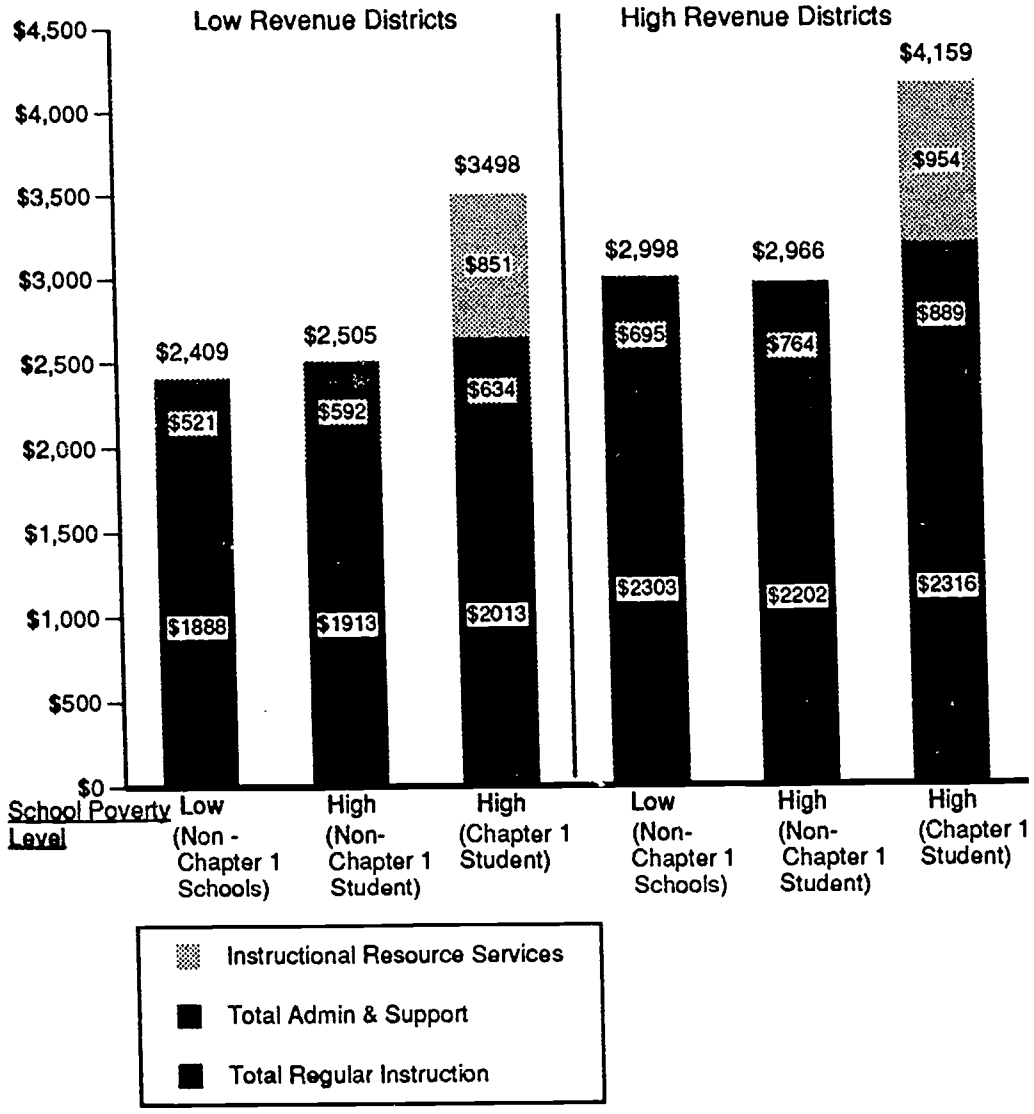
A second, related contention is:

> *The value of Chapter 1 funds is often severely impaired in property-poor districts because the assistance can be used only to fund one important service while funds are not available to provide other vital services that are interdependent. (p. x)*

Figure 1 illustrates this first point within the context of this purposive sample of schools and districts. It compares base resources for regular instruction and administrative and support services in the low and high poverty schools from the low and high revenue districts. Comparisons of *low*, rather than *mid*, poverty schools are most relevant to this discussion because the main focus is on comparisons at the extremes between high and low poverty Chapter 1 and non-Chapter 1 schools.

The numbers presented in Figures 1-4 differ from those shown earlier in this Executive Summary because only the non-Chapter 1 schools are counted with the low poverty schools included in Figures 1 through 4. The purpose of these figures is to compare resource allocation patterns in relation to indicators of student need in low poverty, non-Chapter 1 schools to high poverty, Chapter 1 schools in low and high revenue districts.

Figure 1
Total Cost-Adjusted Personnel Expenditures Per Student By School Poverty and District Revenue: Elementary Schools



This figure is based on selected revenue and poverty cells representing 37 schools from a purposive sample of 95 elementary schools in five states.

The remaining discussion in this section focuses on the resources ($3,498 per pupil) received by Chapter 1 students in high poverty schools in low revenue districts as compared to those received by all students in low poverty schools in high revenue districts ($2,998 per pupil). Thus, this comparison is between the middle two bars in Figure 1. The expenditures per pupil presented throughout the report only include cost-adjusted, school-based, personnel expenditures. This not only limits these comparisons to differentials in *base* resources, but allows personnel base expenditure differentials to be measured more reliably. These two points become the focus of discussion because they represent the points of comparison raised above (i.e., Chapter 1 students in low revenue [poor] districts as compared to the average student in high revenue [rich] districts).

- Even with the addition of Chapter 1 funds, the personnel expenditures for regular instructional services were nearly 15% larger in the low poverty schools ($2,303) than in the high poverty schools ($2,013). Also, even after the addition of Chapter 1 funds to administrative and support services, the levels of these services were still higher in the low poverty schools from the high revenue districts ($695 vs. $634).

- The major portion of Chapter 1 funds in these high poverty schools were expended on supplementary services provided by Chapter 1 resource teachers. This allocation of $851 per Chapter 1 student for the high poverty schools in the low revenue districts results in a total expenditure per Chapter 1 student that is 17% higher than for all students at the low poverty schools from the high revenue districts.

- Based on the data from the elementary schools in our sample, Chapter 1 schools in low revenue districts used only about 14% of these federal funds to bolster areas that receive more support through state and local funding in the high revenue schools. The remainder of these funds (86%) was allocated to compensatory education resource services that were not provided in the low poverty schools in high revenue districts ($3,498 vs. $2,998).

- Despite varying quantities of base-level resources at the sample elementary schools, for the most part Chapter 1 funds are used to provide services that are supplemental to the

base-level program. Based on these findings, there does not seem to be a conflict between the goal of Chapter 1 to provide supplemental services in high poverty schools and the uneven levels of base resources found across districts.

■ Resource Differentials in Relation to Student Need

The second major point raised above is more complex. That is, the value of Chapter 1 funds may be severely impaired in low revenue districts if they are used primarily to fund one service (i.e., remedial instruction) and are not available to provide other vital services that are interdependent with these remedial services in meeting the overall goals of the Chapter 1 program.

This section takes a closer look at the resources received by Chapter 1 students in the high poverty schools in low revenue districts as compared to all students in the low poverty schools in high revenue districts, in relation to selected indicators of student need for services. With the addition of Chapter 1 funds, the overall level of resources flowing into the high poverty schools from the low revenue districts, *per Chapter 1 student*, was greater than for students in the low poverty, high revenue schools. The difference, however, was due almost exclusively to the addition of Chapter 1 compensatory education resource services for Chapter 1 students.

Are other vital services that are interdependent with compensatory resource services provided at substantially lower levels at schools in low, versus high, revenue districts? To fully assess this point, it is necessary to compare the *needs* of the students in the two types of schools.

Chapter 1 is just one of a number of programs that try to address the special needs of students; other programs include state compensatory education, special education, and programs for limited-English proficient (LEP) students. Because these programs often serve similar students, or even the same students, these services are interdependent with Chapter 1 services. If the services are provided at lower levels in high poverty schools, then the supplemental benefits of Chapter 1 in these schools may be offset by the lower levels of support for these programs seeking to address similar needs.

Exceptional student needs are also acknowledged through gifted and talented programs. Some advocates have argued that economically disadvantaged

students tend to be under-identified for these programs, although they would receive important benefits from the high-level learning opportunities and enrichment activities that these programs offer. To the extent that gifted and talented programs receive lower levels of support in high poverty schools, these disparities could offset the benefits of Chapter 1 and other special needs programs based on low achievement.

- Comparing the percent of students identified for special program services to the level of expenditures per student served shows a dramatic contrast between high poverty Chapter 1 schools in low revenue districts and low poverty non-Chapter 1 schools in high revenue districts (see Figure 2).

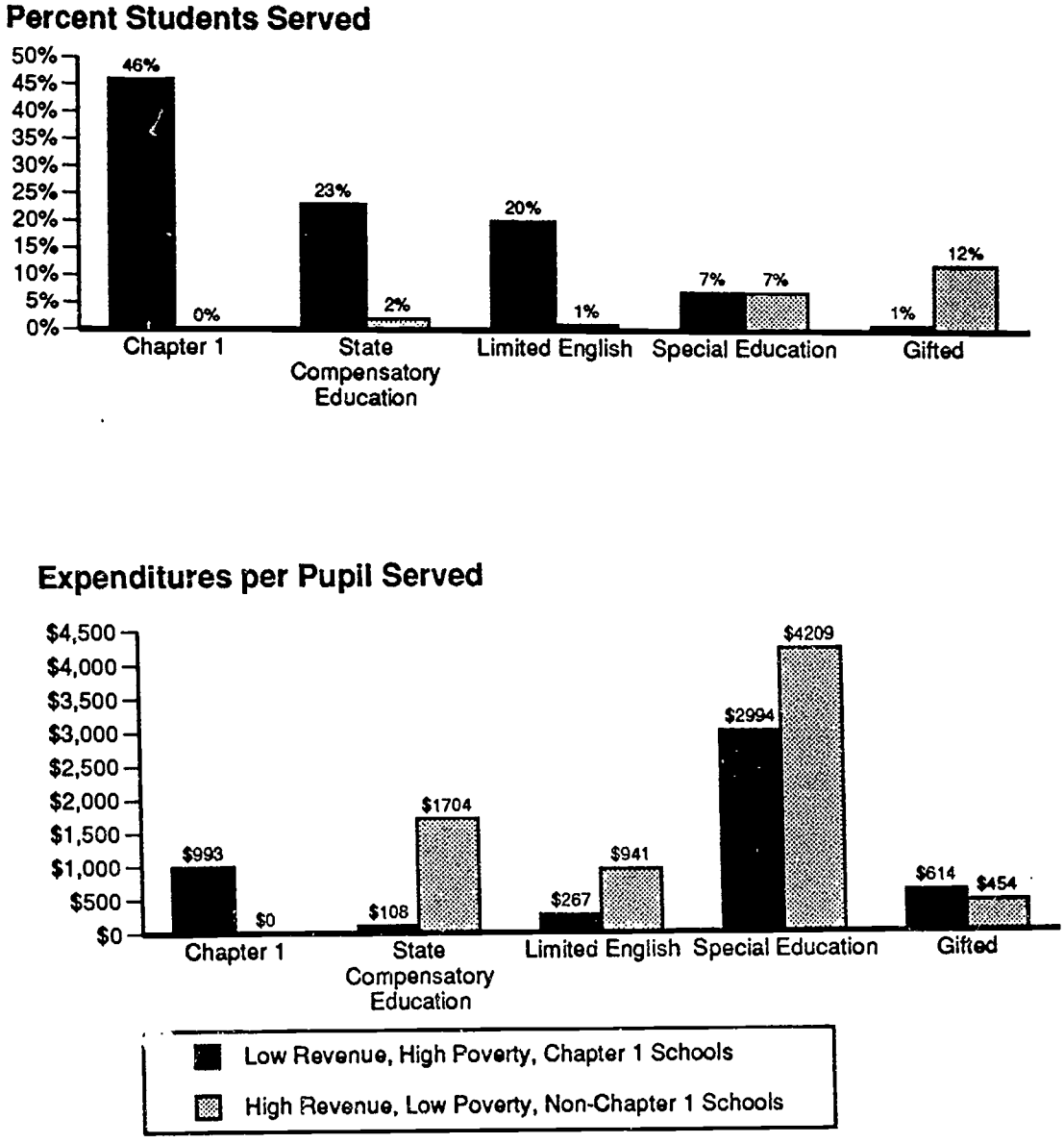
- In the high poverty schools in low revenue districts, students were more likely to be served in Chapter 1 (46%), state compensatory education (23%), and LEP programs (20%); the low poverty non-Chapter 1 schools served only a small percentage of their students in these programs.

- Students in the high and low poverty schools were equally likely to receive special education services (7%), but students in the high poverty schools were much less likely to participate in gifted and talented programs (1% vs. 12%).

For most of these programs, the level of funding per student served was considerably *lower* in the high poverty schools from the low revenue districts (see Figure 2). Other than Chapter 1, the allocation per student was considerably smaller at the high poverty schools in low revenue districts for three of the four special need programs.

- These differences include allocations per student that were nearly 16 times smaller for state compensatory education students ($108 vs. $1,704), less than one-third the size for limited-English proficient services ($267 vs. $941), and 40% smaller for special education ($2,994 vs. $4,209).

Figure 2
Special Categorical Program Enrollments and Expenditures Per Student in Sample Low Revenue, High Poverty Chapter 1 and High Revenue, Low Poverty Non-Chapter 1 Elementary Schools



This figure is based on selected revenue and poverty cells representing 18 schools from a purposive sample of 95 elementary schools in five states.

- In the case of the gifted and talented programs, with only one-twelfth the number of students identified as gifted in the high poverty schools in the low revenue districts, the allocation per student served was *larger* (35%) in the high poverty schools in the low revenue districts.

To the extent that larger Chapter 1 allocations per student served in high-need schools are accompanied by lower levels of support in other special programs serving similar students, the Chapter 1 program may not be achieving its goals of supplementing a comparable base of resources and services.

Perhaps the most striking example of the disparity observed in special program funding between the low and high poverty schools is in the contrast between Chapter 1 and state compensatory education expenditures per pupil.

- The average compensatory education Chapter 1 student in a high poverty school from a low revenue district received $993 in compensatory services from Chapter 1, compared to a state compensatory education student in a low poverty school from a high revenue district, who received an average of $1,704 in supplemental services from state compensatory education funding (see Figure 2).

- Even assuming that the same compensatory education student from the high poverty school may have received the $993 in supplemental services from Chapter 1 as well as $108 in supplemental services from state compensatory education funding, *the supplemental allocation per compensatory education student is still 55% larger in the low poverty schools.*

- While this comparison is based on a limited number of observations, *overall* across the full sample of elementary schools, state compensatory education expenditures per pupil in the low poverty schools were nearly seven times greater than in the high poverty schools.

Administration and support services are also interdependent with remedial education services in meeting the overall goal of the Chapter 1 program to improve the educational performance of underachieving students in high poverty schools. For example, attendance, counseling, social and health

services seem to be important elements in providing an environment in which low-achieving students can succeed in high poverty schools.

As discussed earlier (see Figure 1), the total administration and support allocation per student was smaller in the high poverty schools in the low revenue districts than in the low poverty schools in high revenue districts before Chapter 1 funds were added ($592 vs. $695). With the Chapter 1 allocation, the gap in the levels of these services is somewhat narrowed ($634 vs. $695).

However, these administrative and support allocations are better understood in relation to the *needs* of the students enrolled in these two types of schools.

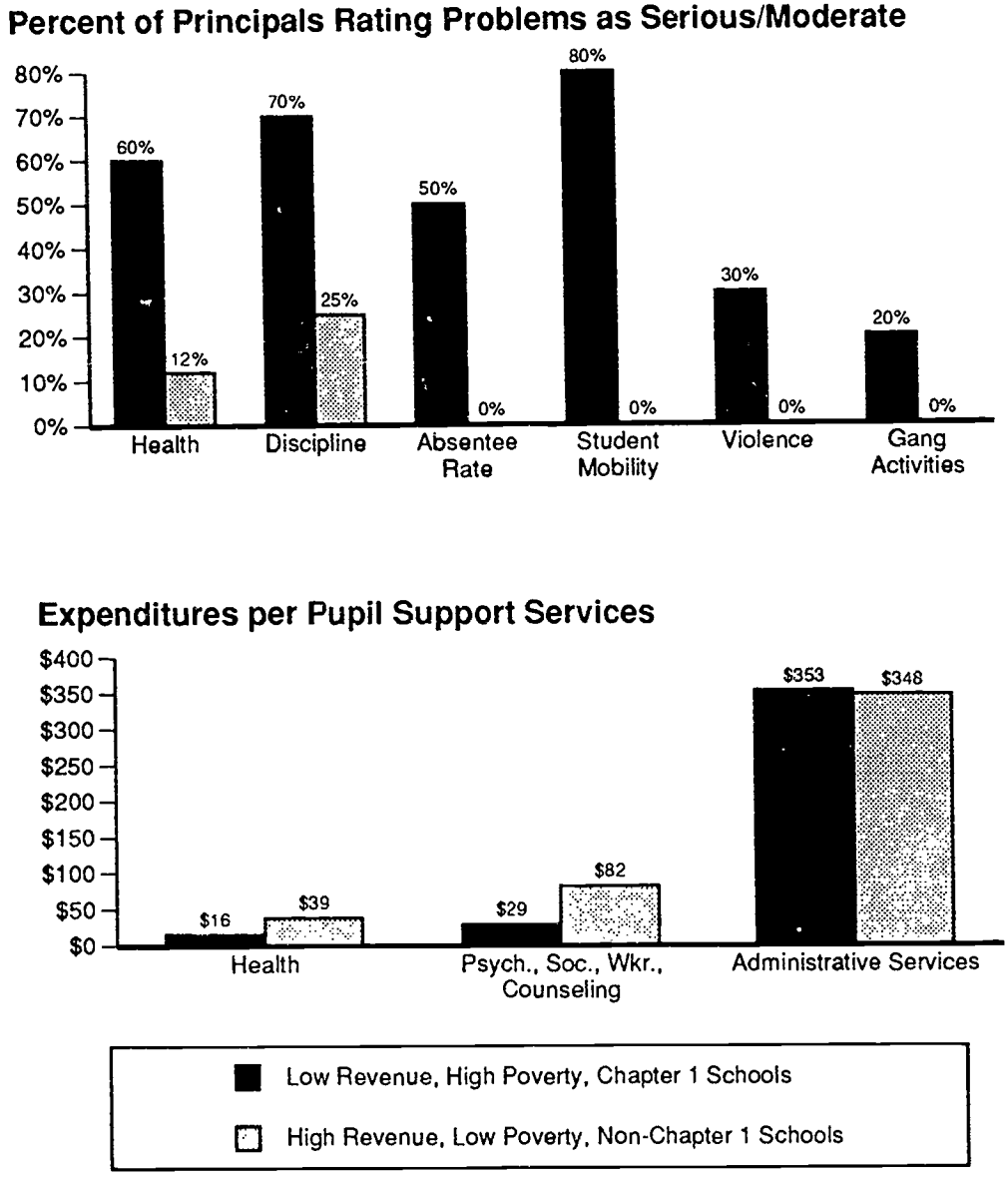
- The percent of principals rating problems of health, discipline, absenteeism, student mobility, violence and gang activities as moderate to serious was markedly pronounced in the high poverty Chapter 1 schools in the low revenue districts (see Figure 3).

- Despite the much greater severity of such problems, expenditures on support services to address them (i.e., psychologists, social workers, and counselors) were only one-third as great at the high poverty schools in the low revenue districts as compared to the low poverty schools in the high revenue districts ($29 vs. $82).

- Although 60% of the principals indicated that health problems were moderate to serious in the high poverty schools in the low revenue districts versus 12% of the principals in the low poverty schools from the high revenue districts, expenditures per student for these services were less than one-half as great in these high poverty schools.

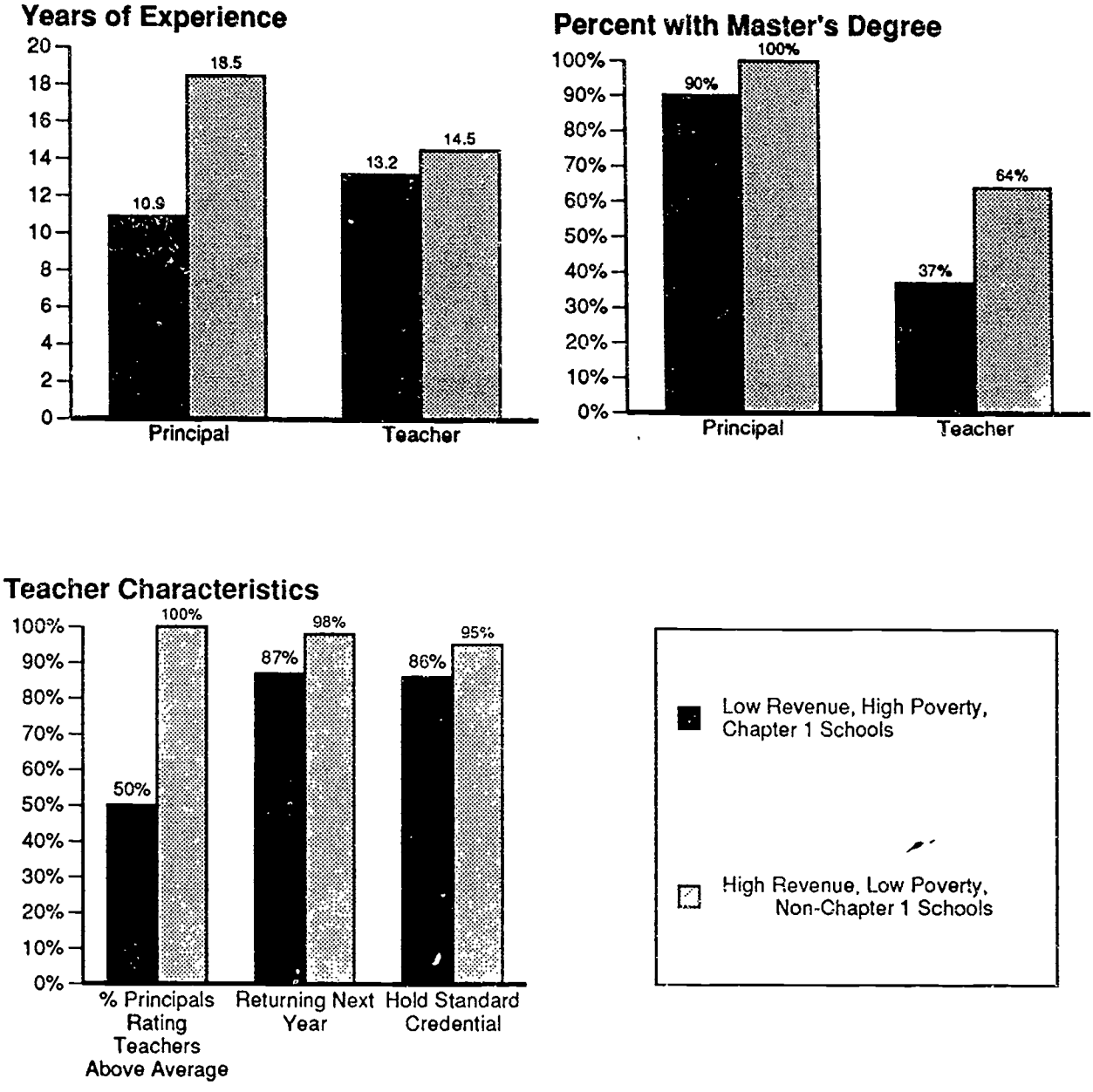
Selected principal and teaching staff characteristics also shed light on the comparability of resources between high and low poverty schools from low and high revenue districts (see Figure 4). Despite greater academic need, as evidenced by average percentile ranking (42% vs. 81%) on standardized achievement tests, staff from the low poverty schools from the high revenue districts appear to be of higher quality.

Figure 3
Problem Ratings and Support Service Expenditures Per Student in Sample Low Revenue, High Poverty Chapter 1 and High Revenue, Low Poverty Non-Chapter 1 Elementary Schools



This figure is based on selected revenue and poverty cells representing 18 schools from a purposive sample of 95 elementary schools in five states.

Figure 4
Principal and Teacher Characteristics in Low Revenue, High Poverty Chapter 1 and High Revenue, Low Poverty Non-Chapter 1 Elementary Schools



This figure is based on selected revenue and poverty cells representing 18 schools from a purposive sample of 95 elementary schools in five states.

- Principals and classroom teachers from the high poverty schools in low revenue districts were less experienced and less well educated than their counterparts from low poverty schools in high revenue districts.

- Principals at high poverty schools in low revenue districts were much less likely to rate their teachers as being above the district average (50% vs. 100%). While 13% of the teachers at high poverty schools from the low revenue districts indicated that they would not be returning next year, the turnover rate for the low poverty schools in the high revenue districts was only about 2%. Finally, 14% of the teachers in the high poverty schools from the low revenue districts did not hold a standard teaching credential, as compared to 5% at the wealthier schools.

In summary, it has been argued that the Chapter 1 program may be impeded in meeting its goals in low revenue districts because Chapter 1 funds tend to be used to provide only remedial instruction, while funding is not available for other vital and related services (e.g., LEP and special education programs; attendance and health services). These types of services are interdependent with compensatory education services in meeting the overall goal of the Chapter 1 program to improve the educational performance of underachieving students in high poverty schools. Our data comparing resources per student and student needs at the high poverty schools in low revenue districts and the low poverty schools in high revenue districts *support this contention.*

■ The High School Analysis

To what extent are the findings from these analyses of the elementary school data supported by the conclusions from the high school analysis? Although, as expected, the overall levels of expenditure per high school pupil are consistently higher, *the relationships between the available resources and the total expenditures are comparable for the elementary and high school samples.* Higher cost-adjusted expenditures are shown in the high poverty schools and for the high revenue districts.

Again, the revenue effect is stronger than the poverty effect; the low poverty schools from the high revenue districts show greater expenditures than the

high poverty schools from the low revenue districts. These basic relationships are also true for each educational component—regular instruction; administration and support; and special programs—the one exception being total regular instruction in the low revenue districts.

In both elementary and high schools, the base resource allocation patterns appear to comply with the Chapter 1 *intradistrict comparability* standard. However, the evidence also supports the contention that Chapter 1 funds are being used to supplement an *uneven* resource base *across* districts.

In response to the specific question of whether Chapter 1 funds provide services in low revenue districts that are a part of the basic program in high revenue districts, the elementary and high school findings differ somewhat. In the elementary school analysis, Chapter 1 funds were *not* shown to support services routinely provided in high revenue districts through state and local funds. Rather, Chapter 1 funds were being used predominantly to provide compensatory education resource services—services that are not part of the base program in schools from high revenue districts.

However, for the high school sample, Chapter 1 funds were less likely to be used for a single type of service such as compensatory education. In fact, the predominant Chapter 1 expenditure was for regular education services (e.g., departmentalized courses). However, even with the inclusion of Chapter 1 funds, expenditures at the high poverty Chapter 1 schools from low revenue districts were nearly 20% lower than for their low poverty, high revenue counterparts. *Thus, unlike the finding from the elementary school sample, in the high school analysis Chapter 1 funds do appear to provide services that are part of the base program in low poverty, high revenue schools.*

Implications of Findings for the Reauthorization of Chapter 1

The findings from this study can be used to inform the discussion of five specific issues relating to the reauthorization of Chapter 1: (1) inter and intradistrict resource equalization; (2) intrastate distribution of Chapter 1 resources; (3) the use of Chapter 1 resources to meet the academic and nonacademic needs of Chapter 1 students; (4) staff training; and (5) access to health and social services.

■ Intradistrict Comparability

Data from this study do not support the call for expanded intradistrict comparability measures. For the most part, districts in the study sample have achieved intradistrict comparability on most measures of educational program: (1) cost per student; (2) number of staff; (3) average size of self-contained classrooms; (4) teaching experience and degree attainment of classroom teachers; and (5) availability of instructional materials and equipment. Differences in many of these measures generally favored the high poverty schools.

■ Interdistrict Comparability

While the current resource-based requirements for intradistrict comparability may have been achieved, there are clear and major disparities in educational programs related to district revenue. This study found that in the higher revenue districts all schools, regardless of poverty level, had 1) more art/music/gifted and talented staff, 2) teachers with more teaching experience, more formal education, higher salaries, and higher ratings by their principals, 3) smaller elementary school classes, 4) more health services, 5) more instructional equipment, and 6) larger facilities than schools in the low revenue districts. Schools in the high revenue districts also reported fewer problems with student absenteeism, student health problems, and discipline. Thus, Chapter 1 builds on a significantly stronger educational resource base in high revenue districts.

If a system of interdistrict comparability standards were to be developed, how might such a system be defined and monitored? One possibility would be to concentrate on a limited set of selected resources that are considered essential to the provision of adequate base-level instructional services. At a minimum, this might include required ratios of such key school-based staff as regular instruction teachers and aides and administration and support personnel. Standards for key resources other than personnel, as identified in this report, might also be established. These might include specifications for required levels of access to computers and other labs, as well as for the availability of textbooks and other key educational supplies and materials. In addition, based on the premise that higher salaries buy better quality staff, certain standards might be set for teacher compensation.

Although such a resource-based approach to the derivation of interdistrict equalization standards has some important advantages over more traditional dollar-based comparisons across districts, other difficulties may arise. For example, if the lower revenue districts in a state are required to meet statewide standards on selected resource measures, without supplemental funding, they may be forced to invest a disproportionate share of their limited resources in these specified areas to the detriment of all of the other services that have not been targeted. Thus, an important limitation to resource-based equity standards, that are imposed in the absence of overall standards of adequate funding for all of the districts in the state, is that they could punish the very districts, and students, that they are designed to protect.

For this reason, to be most effective, it would seem that such a limited resource-based monitoring system would have to be combined with other statewide provisions to ensure funding levels that would be adequate to meet these basic service standards in all of the districts of the state. The political issues associated with these problems will be the most difficult to solve. Can a federal program of the relatively modest size of Chapter 1 establish uniform resource allocation patterns across a massive state and local educational system? What sanctions would be associated with such a system, and how would the cost of administration and compliance be supported? The administrative issues, such as setting resource standards and collecting the data that would be needed to monitor compliance, are also difficult but may be more manageable. Although it is not easy to assess exactly what levels of service should be considered adequate for students with varying needs for special services, comparative analyses, such as those conducted for this study, could be used to indicate inequities in base instruction, in special needs programs, and in administrative and support services.

■ Intrastate Allocation of Chapter 1 Funds

Findings from this study suggest that for Chapter 1 to be most effective in targeting supplemental funding to low income students with both the greatest resource needs and academic needs, intrastate allocation formulas may need to find ways to account for districts with low revenues as well as high poverty in targeting Chapter 1 funds.

■ Use of Chapter 1 Resources

This study has shown that, at the elementary school level, Chapter 1 primarily adds compensatory education resource services, regardless of school poverty or district revenue. In some cases, Chapter 1 funds were also used to provide preschool and extended-day kindergarten, but they were not used for the educational services that differentiate high and low revenue districts, such as supplemental regular education teachers, more experienced staff, smaller class sizes, or additional administrative and support services. As required by law, Chapter 1 provides *supplemental instructional services*, but these were found to be layered on an inequitable program base between low and high revenue districts.

■ Student Health and Social Services

Although principals in many high poverty Chapter 1 schools discussed the inadequacy of health and social services in their buildings, Chapter 1 funds were rarely used for these services. Perhaps the most efficient use of Chapter 1 funds would be to manage and coordinate the relocation of public and private health and counseling services at the school site. This could result in enhanced health services at high poverty schools that would be paid for and provided by public and private health agencies.

Conclusion

Although findings from this study are based on a purposive sample, they raise important policy questions relating to recommendations being considered for the reauthorization of Chapter 1. Perhaps the finding of foremost relevance is that variations in the resource base upon which Chapter 1 builds appear to be driven primarily by differences in district revenue. This suggests that the increased targeting of Chapter 1 funds solely on poverty criteria may still deny truly *supplemental* services to students from high poverty schools in low revenue districts.

Thus, an overriding issue in the reauthorization of Chapter 1 is the appropriate role of this program in addressing these inequities. Can the reform of Chapter 1 succeed if the base program is inequitable? What are the responsibilities of states to equalize this base? Should the Chapter 1 allocation formula consider the base levels of resources available to students

as well as levels of poverty? What mechanisms can or should the federal government use to foster more equalized resource allocation at all levels of educational governance? Are there enough Chapter 1 dollars to address student learning, education restructuring, staff development, and student health and social problems?

Resolution of this problem clearly seems to involve general school finance as well as Chapter 1 policy reform. The need to reform state school finance allocation formulas to ensure that Chapter 1 is truly a supplement *across* districts complicates the possible policy solutions. Perhaps the overriding question is whether the Chapter 1 program, at $6.7 billion, can effectively be used as a vehicle for reforming a $265 billion, nonfederal, public education system.

I. Introduction

Life in a Low Poverty School in a High Revenue District

Oak Elementary is in an established neighborhood in an affluent suburban district. Parents of most students are professionals, with many working at a nearby prominent university; fewer than 1% of the students qualify for free or reduced-price lunch. This is a school with few problems; it has low absenteeism (about 2%), low student mobility (7%), and high test scores (e.g., the mean score of third graders on a standardized math test was the 87th percentile).

Learning experiences for all students at the school are rich. Class sizes are moderate (about 23). Parttime aides assist teachers in classes and with clerical work. As fulltime resources for teachers, the school has two music, one art, and two physical education teachers and reading, math, and gifted specialists. In addition to students' regular classroom experiences, there are field trips throughout the year, and the school brings in performers, authors, and scientists for lectures and performances.

The principal sets extremely high standards for the school. Teachers, as well as students, are expected to "give their all." Faculty often work long hours and on weekends. Any student who scores below the 50th percentile on a standardized test or seems to be having difficulty with any subject receives considerable individualized attention. Depending on the difficulty, the student may be served by the reading or math specialist, or by the fulltime state compensatory education teacher.

The school has abundant materials and equipment and excellent facilities. Last year each teacher received $2,000 in discretionary funds. The library and reading and math centers contain a wealth of books and other materials. There were 38 computers and two CD ROMS in the school, and over the summer, additional computers and other equipment were added with a $78,000 grant from the district. Because of rapid district growth, the facilities were somewhat cramped; however, a new addition to the building that will more than accommodate the student body was just being completed.

The playground had a large, new jungle gym purchased with $60,000 donated by parents.

Life in a High Poverty School in a Low Revenue District

King Elementary is in a poor section of a large city. Most students are from poor families; approximately 82% qualify for free or reduced-price lunch. About three-fourths of the students are also limited-English proficient. The student population is almost entirely minority: 77% Hispanic, 12% Asian, and 10% African American. Only three students are white. The neighborhood affects children's ability to learn. After recent racially motivated riots took place close to the school, students were tense. To stimulate discussion and to help students understand news about their community, teachers wrote words such as "arson," "justice," and "loot" on blackboards.

The school is crowded, with about 30 students in each class. Students get extra attention, however, from halftime bilingual aides or teacher assistants, most of whom are funded by Chapter 1, state compensatory, or bilingual education funds. There is only one teacher responsible for helping classroom teachers with music, art, and physical education; there are no specialists in those fields.

What is most striking about King School is that the entire school facility is housed in portables which were transported from a high school in 1966. There is only one restroom each for the girls and boys in the school, and 54 adults share a third restroom. The school has no area to accommodate large gatherings; assemblies and other ceremonies are held at the recreation center down the block. Students walk the distance carrying their chairs. For some time, a new facility has been scheduled to be built for King School. Although the ground has been cleared for the new site, construction is on hold because of district budget problems.

These are two extremes describing stark contrasts that can be found across schools in the United States. Differences between rich and poor districts, schools, and children have been documented and acknowledged for years.[1] The Great Society programs of the 1960s, the school finance equalization movement of the 1970s, and the school reform movements of the 1980s have all attempted to address the issues that underlie these differences. This report is a quantitative attempt to document aspects of the problem. The quantitative data gathered for this study provide one picture of the problem,

[1]See, for example, Jonathan Kozol (1991), Arthur Wise (1968). These books were written 23 years apart and the story is still somewhat the same.

but nothing takes the place of visiting these scenes and observing first hand the impact of variations and inequities in the way children are served by the education system. While the extremes cited in the examples above may not be typical, the data presented in this report do show some significant and meaningful differences in the resources and school contexts between rich and poor districts and schools.

Overview of the Chapter 1 Program

Federal Chapter 1 funding is the largest single federal education program. More than six billion dollars are distributed among 52,000 schools in 15,000 school districts. Well over five million students are served by Chapter 1 funds. The Chapter 1 allocation amounts to about $900 per eligible student and is directed to students who exhibit above average educational needs (usually based on student achievement test scores) and who attend schools that serve the largest number of students from poorer families. The purpose of this funding is to supplement existing state and local funds for educational services to provide for the additional needs of these economically and educationally disadvantaged children.

The current school funding systems established by many states result in widespread disparities in expenditures across districts. Literature in school finance has suggested that inequitable state funding systems inflict disproportionate harm on minority and poor students and that the educational resources that these students need in school are simply not forthcoming. The long-standing controversy over the equity of state school finance systems challenges a major assumption underlying federal Chapter 1 funding—that Chapter 1 is added to a base level of educational resources and services that is comparable to the educational base provided in non-Chapter 1 schools.

Current law requires that Chapter 1 and non-Chapter 1 schools *within the same district* receive comparable resources before Chapter 1 funds are added. Some observers have questioned whether current comparability measures, which focus on per pupil expenditures and student-staff ratios, provide an adequate guarantee of equity among schools. An even broader concern relates to disparities in the funds available to school districts from state and local sources. While Chapter 1 comparability requirements focus on resource

distribution within districts, some analysts argue that comparability *across districts* is even more critical to achieving the goals of the Chapter 1 program. If Chapter 1 funds are used to provide services in poor districts that wealthy districts routinely provide through regular funds, then the federal money may be ineffective in helping to close the achievement gap between high and low poverty schools.

Purpose of the Present Study

This exploratory study was designed to probe these issues through an intensive examination of resource availability and allocation in high and low poverty schools in high and low revenue districts. Major study questions include the following:

- Are Chapter 1 schools comparable to non-Chapter 1 schools within the same district when measured by a comprehensive set of resources and services? Do current comparability measures appear adequate for assuring the comparability of resources within districts?

- How do high and low poverty schools differ in the availability and quality of resources? How do differences in district revenues from state and local sources translate into differences in educational resources and services at the school site?

- Does Chapter 1 provide resources and services in poor districts that wealthy districts routinely provide to all students through regular funds?

We addressed these questions by examining the interactions between federal Chapter 1 funding and state school finance equalization.

State school finance systems encompass a wide variety of formulas that determine the combination of state and local funding for local school districts. To a greater or lesser degree, however, state school finance systems distribute state funds taking into account the wealth of local communities and other factors affecting taxpayers' willingness and ability to spend on educational services. The concept of *horizontal equity* underlies these state systems; that is, similar students should be treated similarly.

But not all students are identical. Some have special needs. Thus, in addition to general state aid, some states provide categorical funds to meet the needs of special student populations, including low-income (e.g., through state compensatory education programs), specially challenged, and limited-English proficient students. This funding is based on the concept of *vertical equity;* that is, students with different needs should be treated in systematically different ways. The Chapter 1 program among others then provides additional resources to meet those different needs.

With these concepts in mind, this study set out during the 1991-92 school year to gather data that would provide some insight into the interactions between state school finance systems and Chapter 1 funding. Two primary questions guide the presentation of the results of this study. Each of these questions is discussed briefly below.

■ What is the base level of resources on which Chapter 1 builds?

The *base level* of resources refers to those educational resources provided before adding Chapter 1 funding. Excluding Chapter 1 funds, do students in Chapter 1 schools receive similar services to those provided in non-Chapter 1 schools? Does comparability exist between Chapter 1 and non-Chapter 1 schools within districts? How does the mix of services and resources vary across schools serving students with differing levels of family poverty? How do these services and resources vary across schools in districts with varying levels of state and local revenues? How do state and local revenues translate into services and resources in local schools?

The analysis will focus on differences in:

- staff-pupil ratios
- the qualifications of staff
- the kinds and levels of support services (e.g., health and social services)
- instructional equipment and materials
- the characteristics of school facilities

■ What does Chapter 1 add?

This second question directs attention to *what Chapter 1 adds* to the base level of services. Do Chapter 1 funds truly provide additional services to economically and educationally disadvantaged children? How are Chapter 1

funds used? How do services vary across schools with differing poverty levels and across districts with differing fiscal resources?

The analysis examines the extent to which Chapter 1 funds were used for:

- instructional, administrative, or support services
- reducing class sizes or increasing resource teacher service

The analysis also explores the interactions between what Chapter 1 funds add and the levels of services for other special needs students. How are Chapter 1 revenues translated into services and resources in local schools?

The role of the Chapter 1 program in school finance equity will be examined by combining the analysis of *what Chapter 1 adds* with the analysis of *variations in the base level of services*.

Methodology

This project was designed to study the use of Chapter 1 funds within the context of state and local resources for education. The school is the unit of analysis. The school receives allocations of resources from the local school district based on the grade levels covered or the special needs of the children being served. The federal government allocates categorical funding through Chapter 1 (among other programs) to provide additional resources to meet the needs of economically or educationally disadvantaged children in local schools. The focus of this study is to examine the relationship between the levels and use of educational resources at the school, and the poverty levels of the students served at the school.

The allocations of resources to schools are in turn contingent upon the overall availability of resources to the local education agencies (LEAs) within which the schools are located. These agencies receive revenues from a combination of local taxes and distributions of state aid. To varying degrees, state school finance systems attempt to account for the variations in local resources when determining the state aid allocations to LEAs. From state to state, equality in distributing educational resources to LEAs varies considerably and has been the subject of considerable research.[2] In addition, states usually award

[2]Robert Berne and Leanna Stiefel (1984) have written the definitive book on the topic of measuring school finance equity.

resources to LEAs for special student populations (e.g., economically or educationally disadvantaged children, specially challenged populations, limited-English proficient, or gifted and talented students).

Simply put, this study examines the allocations of resources to local schools within the context of state and local revenues for LEAs, and the allocations of these revenues within LEAs to local schools according to the student poverty levels. The analysis explores the patterns of utilization of these base allocations for educational resources and examines how Chapter 1 funding builds on this base. It will ultimately address the question,

> *How do revenues to LEAs translate into educational resources and services at the school site?*

The following sections describe the sample selection, data collection, and analytical procedures.

■ Sample Selection

The samples of schools and districts for this study are purposive. They are *not* random samples. Schools and districts were intentionally included to reflect, to the extent possible, the extremes of the distribution of schools and districts with respect to district revenue and school poverty. The districts were selected from five states. While not intended to be representative, these states were selected from the western, southern, northeastern, and midwestern regions of the United States.

The States. When the five states were selected, two specific policy dimensions were considered: (1) the presence or absence of state compensatory education programs and (2) the level of school finance equalization attained in the state. Each of the 50 states was classified according to the existence of a state compensatory education program and the degree of state school finance equalization (i.e., high, medium, and low). High levels of finance equalization within a state were associated with such measures as low coefficient of variation of expenditures, a small range of variation, and low correlations between expenditures and district wealth.[3]

[3]The degree of state school finance equalization was determined on the basis of an analysis conducted by Berne and Stiefel and presented in Berne, Chambers, Parrish & Stiefel (1992).

Three of the states selected have state compensatory education (SCE) programs, while two of the states do not. Of the three states with SCE programs, one state was selected in each of the categories of school finance equalization: high, medium, and low. One of the non-SCE states was selected from the low equalization category, while the other non-SCE state was selected from the high equalization category. Table I-1 displays the states selected for this study according to the cells defined by the two policy dimensions.

Table I-1
State Sample by Equalization and Compensatory Education Programs

	State Equalization Levels		
State Compensatory Education Programs	High	Medium	Low
Yes	CALIFORNIA	GEORGIA	NEW YORK
No	IOWA		COLORADO

The Districts. Six districts were selected from each state, based on the level of state and local revenues per pupil received by the district. The original plan was to select two low revenue, two medium revenue, and two high revenue districts. Low, medium, and high were defined according to the terciles in the distribution of state and local revenues per pupil within each state. An effort was made to select the high and low revenue districts from above the 90th and below the 10th percentile, and the medium revenue district from as close to the 50th percentile as possible. In selecting the high school sample, at least some of the districts needed to include one Chapter 1 and one non-Chapter 1 high school. In addition, the plan called for selecting two urban, two suburban, and two rural districts within each state. Finally, selected districts had to include a minimum of two Chapter 1 elementary schools and one non-Chapter 1 elementary school. (See Table I-2).

Table I-2
Description of the District Sample

State	State & Local Revenue/Pupil	Community	Elementary Schools		High Schools	
			Ch. 1	Non-Ch.1	Ch. 1	Non-Ch.1
California	$3,039	Small town/rural	1	1	1	1
	$3,320	Small town/rural	1	1	1	1
	$2,544	Suburban	1	1	1	1
	$5,314	Suburban	2	1	0	0
	$4,307	Urban	2	1	2	1
	$3,826	Urban	2	1	2	1
Colorado	$4,014	Small town/rural	3	1	0	0
	$4,187	Urban	3	1	0	0
	$4,697	Small town/rural	2	2	0	0
	$4,464	Suburban	2	1	0	0
	$7,489	Urban	2	1	2	1
	$7,297	Small town/rural	2	1	0	0
Georgia	$3,297	Small town/rural	2	1	0	0
	$3,631	Small town/rural	2	1	0	0
	$4,068	Suburban	2	2	0	0
	$3,745	Suburban	2	2	0	0
	$3,579	Urban	3	1	0	0
	$6,477	Urban	2	1	2	1
Iowa	$4,581	Small town/rural	2	1	0	0
	$4,304	Small town/rural	2	1	0	0
	$4,563	Urban	2	2	0	0
	$4,625	Small town/rural	2	1	0	0
	$4,964	Urban	2	2	0	0
	$5,144	Small town/rural	2	1	0	0
New York	$6,102	Small town/rural	3	1	0	0
	$6,223	Urban	3	1	0	0
	$6,769	Small town/rural	1	1	1	1
	$6,477	Suburban	1	1	1	1
	$8,059	Urban	2	1	2	1
	$7,092	Suburban	2	1	0	0

However, it was not possible to satisfy all of the criteria. The requirement for the minimum number of schools eliminated many small districts from consideration. In order to include some districts with the minimum number of high schools, it was necessary to select the majority of the high school

sample from states with districts of sufficient size.[4] The sample includes a total of 30 districts. Table I-2 describes the sample districts by state, level of state and local revenues per pupil, the community in which the district is located, and the numbers of schools selected by level and Chapter 1 status.

The Schools. Three to six schools were selected within each district. Because most Chapter 1 resources are focused in elementary schools, the school sample consists predominantly of elementary schools. Ninety-five elementary schools and 25 high schools were selected from the 30 total districts. A minimum of two and a maximum of four elementary schools were selected in each district and two or three high schools were selected in 10 of the districts. Based on data provided by the districts, schools were ranked within each district by the poverty measure used by the district to classify schools for Chapter 1 eligibility. After schools were separated into elementary and high school groupings, the schools serving the lowest and highest poverty student populations were selected for the sample. When a third school was selected in a district, we chose the lowest poverty Chapter 1 school in the district.

The Case Study Sites. In addition to the larger school sample, a subsample of 25 school sites was selected for more intensive study. Site visit teams interviewed staff and parents at Chapter 1 and non-Chapter 1 schools to produce case studies of those 25 sites. Examples from the case studies are used throughout this report to augment the cost and the survey data.

Description of the School Sample. Table I-3 provides a general picture of the sample schools, classifying schools according to Chapter 1 status and three levels of school poverty. School poverty across all schools is measured by the percent of students in the school eligible for the free and reduced price lunch program. In most of the sample districts, this measure of poverty was used to determine whether or not the school would receive Chapter 1 funding. Other districts used Aid to Families with Dependent Children (AFDC) or a combination of both measures. Of the 95 elementary schools in the sample,

[4]For example, only California and New York had more than one district with both Chapter 1 and non-Chapter 1 high schools. In addition, as New York has relatively few districts meeting this criterion, the range of state and local revenue per pupil from which the New York sample could be drawn was quite limited.

61 enrolled students in Chapter 1 programs, while 15 of the 25 high schools in the sample offered Chapter 1 services to students.

Table I-3 shows that Chapter 1 schools are included in all poverty groups. Even the lowest poverty group includes some schools serving Chapter 1 students. The percentage of students eligible for Chapter 1 services would, of course, be substantially lower in the lowest poverty schools than in the highest poverty schools. Moreover, within each poverty group, the average poverty of the non-Chapter 1 schools is only slightly lower than the average poverty of the Chapter 1 schools. However, the highest poverty group has *no* non-Chapter 1 schools.

Table I-3
Average State and Local Revenues Received by Districts by School Poverty Levels

	Non-Chapter 1 Schools		Chapter 1 Schools		
	% Eligible Free/Reduced Price Lunch		% Eligible Free/Reduced Price Lunch		
	0-20%	20%-50%	0-20%	20%-50%	>50%
Elementary Schools					
Number of schools	28	6	11	26	24
Average rate of school poverty	9%	27%	12%	34%	75%
State and local revenue per pupil					
Actual value	$4,950	$5,496	$5,564	$4,923	$5,165
Cost-adjusted	$5,196	$5,494	$5,600	$5.178	$5,276
High Schools					
Number of schools	8	2	4	6	5
Average rate of school poverty	9%	31%	10%	34%	70%
State and local revenue per pupil					
Actual value	$5,482	$7,462	$6,162	$5,712	$6,782
Cost-adjusted	$5,313	$7,328	$6,028	$5,330	$6,765

* The average rate of school poverty is measured by the percent of students in the school eligible for the federal subsidized school lunch program.

Dollar Values and the Use of Cost-Adjustments. There are two figures for average level of state and local revenue received by districts: one is actual and the other is cost-adjusted. The first figure is the actual dollar value of state and local revenue per pupil received by the district. For the sample schools, the variation in district revenue by school poverty is relatively small.

The second figure is a cost-adjusted value ot state and local revenue per pupil. *Cost-adjusted figures allow comparisons of the real levels of educational resources available across schools and districts in the sample.* Differences in the cost-adjusted dollar figures reflect the variation in the quantities and qualities of resources available to students and exclude variations associated with regional differences in cost-of-living and other labor market factors outside the control of district decision-makers.

The cost-adjusted value is based on an estimated cost-of-education index (CEI). This index reflects the relative purchasing power of the educational dollar in the different districts in the sample. The index was developed using techniques similar to those applied in numerous studies to develop the CEI for state school finance adjustments (see Chambers 1980, 1981). Variations in salaries were analyzed for teachers, administrators, aides, and other noncertificated personnel. The analysis used multivariate regression techniques to isolate the impact of factors beyond local control on the variations in the salaries of school personnel. These variations provide the basis for the development of the CEI.[5] This analysis underlies the educational cost-adjustments used throughout the remainder of this report for presentation of dollar figures.

■ Data Collection

This report reflects the results of three data collection methods:

- *The School, Teacher, and Aide Surveys*
- *The Resource Allocation Forms*
- *The Case Studies*

[5]The impact of factors beyond local control on salaries underlies the estimates of variations in the cost-of-education and hence the purchasing power of the educational dollar. Although strongly associated with the costs of living, variations in cost-of-education consider the attractiveness of the district and region as a place to work and live. The more attractive a location, the lower pay required to recruit and employ comparable school personnel, thereby reducing the cost-of-education. The actual equations used to create the cost-of-education index for this study are available on request from AIR. Included among the regional characteristics was an estimate of the variation in the cost-of-living developed by McMahon and Chang (1991).

Data collection was conducted in two phases to minimize the burden on respondents.[6] The first phase involved telephone contacts followed by mail surveys sent to district and school staff prior to site visits. The *School Background Questionnaire* was used to collect background information (e.g., student characteristics, school and district policies, and programs offered) to develop profiles of the participating schools. At least one regular classroom teacher per grade level in elementary schools and a minimum of a 15% sample of classroom teachers from each of eight selected departments at the secondary level also received questionnaires. Finally, all of the Chapter 1 teachers and up to four of the Chapter 1 aides (selected at random) were also asked to complete a questionnaire. These staff questionnaires gathered data on staff characteristics, access to supplies and materials, and decisionmaking.

Along with the mail surveys, AIR sent a series of requests to designated district and school officials for hardcopy reports and/or computerized data files containing specific fiscal, student, staffing, or programmatic data. By encouraging respondents to gather this basic information in advance, we greatly reduced the amount of time needed for face-to-face interviews while on site. The four types of surveys used in the study, the numbers distributed for each, and the response rates are shown in Table I-4.

Table I-4
Chapter 1 Resource Allocation Study Survey Response Rates

Surveys:	Surveys Distributed	Surveys Returned	Response Rate
School background	120	120	100%
Classroom teacher	816*	803	98.4%**
Chapter 1 teacher	190*	185	97.3%**
Chapter 1 aide	97*	93	95.7%**

* Because surveys were distributed on-site at some schools, this is an estimate of the number distributed.

** Based on the estimated number distributed and the number known to be returned.

The second phase involved on-site data collection using a set of *Resource Allocation Forms* and *Interview Guides* for the case study schools. The resource

[6]Samples of all of the data collection instruments will be made available on request from AIR.

allocation forms were designed to gather quantitative data that describe the context and patterns of resource allocation within schools and districts. Information on staffing patterns, certain non-personnel resources, quantities of instructional equipment, and the size and quality of school facilities was gathered using the *Resource Allocation Forms*. The *Interview Guides* were used at non-case study sites to collect descriptive data about resources and services from district and school staff. A second set of *Interview Guides*, used only at the case study sites, included additional questions about issues such as resource use and decision-making. The site visits began in late March of 1992 and were completed by mid-June of the same year.

■ The Resource Cost Methodology

Traditionally, studies of educational resources focused on educational expenditures. Many such studies relied on standard fiscal reports provided by school business officials to obtain information about school resource levels. Because of the lack of standardized accounting procedures (often even within states), reliance on such fiscal data for the measurement of educational resources reduces the ability to make comparisons across districts or states. Therefore, uniform procedures must be used for collecting and organizing information.

The resource cost methodology is a bottom-up approach to gathering data on resources. As much as possible, this approach focuses the attention of the data collector and the analyst on measures of physical resources as the foundation for cost analysis. Initially, this was referred to as the "ingredients" approach by Levin (1983) because of its focus on the physical ingredients of interventions. As this methodology has been utilized and enhanced by Chambers and Parrish (1982, 1984, 1993) over the years, it has come to be known as the Resource Cost Model (RCM) methodology.

The importance of this methodology is both in the way resources are measured (i.e., by the physical ingredients) and in the way the information is organized. Resources are organized according to the way services are delivered to clients (or students in the case of schools). For example, instead of gathering data on the total dollars expended for teachers' services, the resource cost methodology gathers information on the fulltime equivalent (FTE) number of teachers and organizes the counts by assignment to self-

contained classrooms, departmentalized classrooms, or the provision of resource services.

Determining the levels of non-personnel resources presents a greater problem. School level data are sometimes impossible to obtain since accounting records are not tracked to the school level. Moreover, records that can be tracked to the school level often vary by program (e.g., categorical versus general fund moneys). For these reasons, the non-personnel resources data from district accounting records are not as reliable as data about staff. Since personnel account for well over 90% of educational resources at the school level and are the most important educational resource provided to students, the lack of completely reliable non-personnel expenditure data does not represent a significant loss of information.

Organization of the Report

This report is organized around the analyses of the elementary and high schools in the sample. Since Chapter 1 funds are more heavily concentrated in elementary schools, the elementary school analysis is emphasized. Because the high school sample is smaller, more care must be taken in reviewing the results. The elementary school analysis is presented in Chapters II, III, and IV. The high school analysis is presented in Chapter V.

Chapters II and III address the first question raised in the discussion of the purpose of this study:

What is the base level of resources on which Chapter 1 builds?

Chapter II examines the average differences in this base level of resources between Chapter 1 and non-Chapter 1 elementary schools. Chapter III examines the variations in the base level of resources across the sample schools in relation to the level of state and local revenue per pupil and the poverty level of enrolled students. This chapter explores how state and local revenues are translated into resources and services at the school site.

Chapter IV then presents an analysis of the second question listed under the purpose of this project:

What does Chapter 1 add?

Chapter IV shows what Chapter 1 funds add to the elementary schools and how these additional funds are used. It examines the extent to which Chapter 1 funds in some poorer districts provide what richer districts are able to purchase with state and local funds.

Chapter V presents an analysis of the same two questions for high schools. How does the base level of resources differ between Chapter 1 and non-Chapter 1 high schools? How does the base level of resources vary according to district revenue and school poverty levels? And finally, what does Chapter 1 funding add to the high schools in the sample?

The final chapter in this volume presents a discussion of significant policy issues related to the reauthorization of the Chapter 1 program by Congress. Chapter VI discusses the implications of this study's findings for the policy guidelines and for the reauthorization of the Chapter 1 program.

II. Base Level of Resources: Chapter 1 and Non-Chapter 1 Elementary Schools

What is the base level of resources upon which the Chapter 1 program builds? How do Chapter 1 and non-Chapter 1 schools differ with respect to this base level of resources? This chapter addresses these two questions for the sample of 95 elementary schools in this study. The base level of resources includes all resources or services other than those funded by Chapter 1. All resources or services funded by Chapter 1 are excluded from this analysis and will be discussed in Chapter IV.

The tables in this chapter compare the characteristics and the levels of resources and services between Chapter 1 and non-Chapter 1 schools. Each row in the tables presents an item that describes the context or levels of resources not supported by Chapter 1 funding in these two types of schools.

The remainder of this chapter explores the differences between Chapter 1 and non-Chapter 1 schools with respect to the school context, school expenditures, staffing patterns, capital equipment, and school facilities.

The School Context

Together, Tables II-1 and II-2 generally reveal the greater levels of student need that characterize the Chapter 1 school relative to the non-Chapter 1 school. Both the Chapter 1 and non-Chapter 1 schools are of comparable size: both Chapter 1 and non-Chapter 1 elementary schools in the sample enrolled just over 500 students. In the Chapter 1 schools, 27% of the

students were served by Chapter 1 funded programs. Since the likelihood of a school being eligible to receive Chapter 1 funds is based on the percentage of poor students, it is not surprising to find that the Chapter 1 schools in this sample reported that a greater percentage of their students was eligible for the free and reduced price lunch program (47% vs. 12%).

Table II-1
Elementary School Characteristics: Enrollment and Student Composition

	Chapter 1 Schools	Non-Chapter 1 Schools
Number of schools	61	34
Average school enrollment	502	525
% eligible for free/reduced price lunch	47%	12%
% minority	37%	15%
% Chapter 1 participants	27%	0%
% state compensatory education	10%	1%
% limited-English proficient	7%	2%
% gifted education	5%	11%
% special education	8%	7%

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

The Chapter 1 schools enrolled a greater percentage of minority pupils (37% vs. 15%) and served a greater percentage of pupils in state compensatory education (SCE) programs (10% vs. 1%) and bilingual or English as a second language (ESL) programs (7% vs. 2%). The difference in special education enrollments in Chapter 1 schools versus non-Chapter 1 schools was fairly small (8% vs. 7%). Non-Chapter 1 schools enrolled higher percentages of students in gifted and talented education (GATE) programs.

Table II-2
Student Needs/School Climate: Elementary Schools

	Chapter 1 Schools	Non-Chapter 1 Schools
Average percentile on achievement tests	55	74
% principals rating problem as moderate/serious		
Student absenteeism	31%	2%
Student mobility	59%	8%
Student health	26%	5%
Student discipline	34%	17%
Student drug/alcohol abuse	11%	0%
Student violence	11%	2%
% of teachers who say they would want their child to attend the school where they teach	68%	94%

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

Table II-2 reveals that the students attending Chapter 1 schools scored well below those attending non-Chapter 1 schools on achievement tests. The average percentile ranking of students on achievement test scores was 55 in Chapter 1 versus 74 in non-Chapter 1 schools. The principals of Chapter 1 schools also reported greater problems than non-Chapter 1 school principals with student absenteeism, student mobility, student health, and student discipline.

Based on responses from school principals, 31% of the Chapter 1 schools and only 2% of the non-Chapter 1 schools reported student absenteeism as a moderate or serious problem. Fifty-nine percent of the Chapter 1 schools and only 8% of the non-Chapter 1 schools reported student mobility to be a moderate or serious problem. Twenty-six percent of the Chapter 1 schools and only 5% of the non-Chapter 1 schools reported student health as a moderate or serious problem.

Tables II-1 and II-2 together suggest that students attending the Chapter 1 schools had greater economic disadvantage, were more likely to be enrolled in special need programs, scored lower on achievement tests, and exhibited more problems related to absenteeism, health, transiency, and discipline.

School Personnel Expenditures

In the conduct of a resource cost analysis, it is important to distinguish between differences across schools both in the quantities and the qualities of resources. Table II-3 presents four different measures of total expenditures on school personnel for Chapter 1 and non-Chapter 1 schools: actual, standardized, adjusted for experience and education, and adjusted for cost-of-education differences. Each of these expenditure figures is based on the *actual* FTE counts of staff at each school. The differences between these figures are in the way employee compensation (salary and benefit) levels are calculated. The methods for calculating employee compensation levels are described below for each measure of total personnel expenditure.

- **Actual:** Employee compensation is equal to *actual* salaries and benefits paid to individual staff members at these schools.

- **Standardized:** Employee compensation is equal to *the sample-wide averages by job title*, e.g., the number of FTE classroom teachers is multiplied by the same average salary and benefit level for all schools in the sample.

- **Experience-Education-Adjusted:** Employee compensation is equal to *the sample-wide averages by job title adjusted to include the impact of variations in the actual level of experience and education of certificated staff at the school.* For example, teachers with greater levels of experience and education will have a higher salary level.

- **Cost-Adjusted:** Employee compensation is based on the actual salaries and benefits paid to staff members at the schools *adjusted for variations in salaries and benefits related to costs of living and differences in the attractiveness of the districts and regions as places to work and live.* For example, the extent to which teacher salaries are higher in one region because of costs-of-living differences has been removed from the salary figures. However, the extent to which one district is able to pay higher teachers' salaries to attract "better" staff is reflected in the salary figures.

Variations in the *standardized* expenditure figures across schools reflect only differences in the quantities (FTEs) and composition of staff (e.g., the mix of

teachers and aides providing services). Variations in the *experience-education-adjusted* expenditures reflect differences in the levels of experience and education of staff, as well as in the quantities and composition of staff. Variations in the *cost-adjusted* expenditure figures reflect variations in all elements of the standardized and experience-education-adjusted expenditures, as well as differences in the level of salaries and benefits beyond those necessary to compensate teachers for additional education and experience. These additional variations in salaries reflect the opportunity that the schools and districts have to recruit and employ "better" teachers or to compensate teachers for more difficult working conditions.

Table II-3
Actual and Adjusted Expenditures Per Student for Elementary School Personnel

	Chapter 1 Schools	Non-Chapter 1 Schools
Expenditures per student		
Actual	$3,104	$3,011
Standardized	$3,232	$3,059
Experience & education-adjusted	$3,209	$3,065
Cost-adjusted	$3,247	$3,145

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

Table III-3 shows that regardless of which measure of expenditure is used, the average Chapter 1 school in the sample spends more on school personnel than the average non-Chapter 1 school.[7] However, the differences are small (in all cases less than 6%).

What is most interesting about these results is that the standardized expenditure figure shows the greatest relative difference between Chapter 1 and non-Chapter 1 schools. Chapter 1 schools show a standardized expenditure advantage of about 5.7%, while the experience-education-adjusted expenditure and the cost-adjusted expenditure figures show a 4.7% and 3.2% relative advantage respectively. Recall that the standardized

[7]The actual expenditure figures are uniformly lower than the alternative measures of expenditure because the average district in the sample exhibits a cost index below 1.00. This difference reflects scaling and has no significant implications for differences.

expenditure figure reflects only differences in the quantities of resources, while the other adjusted figures include differences in pay rates for school personnel. These results suggest that Chapter 1 schools have greater quantities of personnel resources than their non-Chapter 1 counterparts, but their pay rates are somewhat lower than the non-Chapter 1 schools. The non-Chapter 1 schools employ certificated personnel with slightly more experience and education. Moreover, the teacher pay rates in non-Chapter 1 versus Chapter 1 schools exceed those differences associated with the higher levels of experience and education.

Figure II-1 shows that the differences in instructional and administrative services between the Chapter 1 and non-Chapter 1 schools in the sample are small. Regular instructional expenditures include self-contained classroom teachers and other subject matter specialists who provide supplemental art, music, physical education, reading, or math.[8] Administration and support services include general administrative, library, psychological, social, health, custodial, and security services. Differences in regular instructional expenditures between Chapter 1 and non-Chapter 1 schools were less than 1%, while differences in the administrative and support services amounted to just under 8% ($683 vs. $633) favoring the Chapter 1 schools.

The pupil expenditures for special programs were more than 17% higher for Chapter 1 schools than non-Chapter 1 schools. Special programs include self-contained classroom teachers for special education and resource teachers for limited-English proficient programs, compensatory education, GATE programs, and special education.[9] A more thorough analysis of these differences in special program expenditures is presented in Chapter IV.

Though not shown directly in Figure II-1, the data from the sample schools show that Chapter 1 schools were more likely to provide preschool programs, full-day kindergarten, and before and after-school instructional programs than were the non-Chapter 1 schools.

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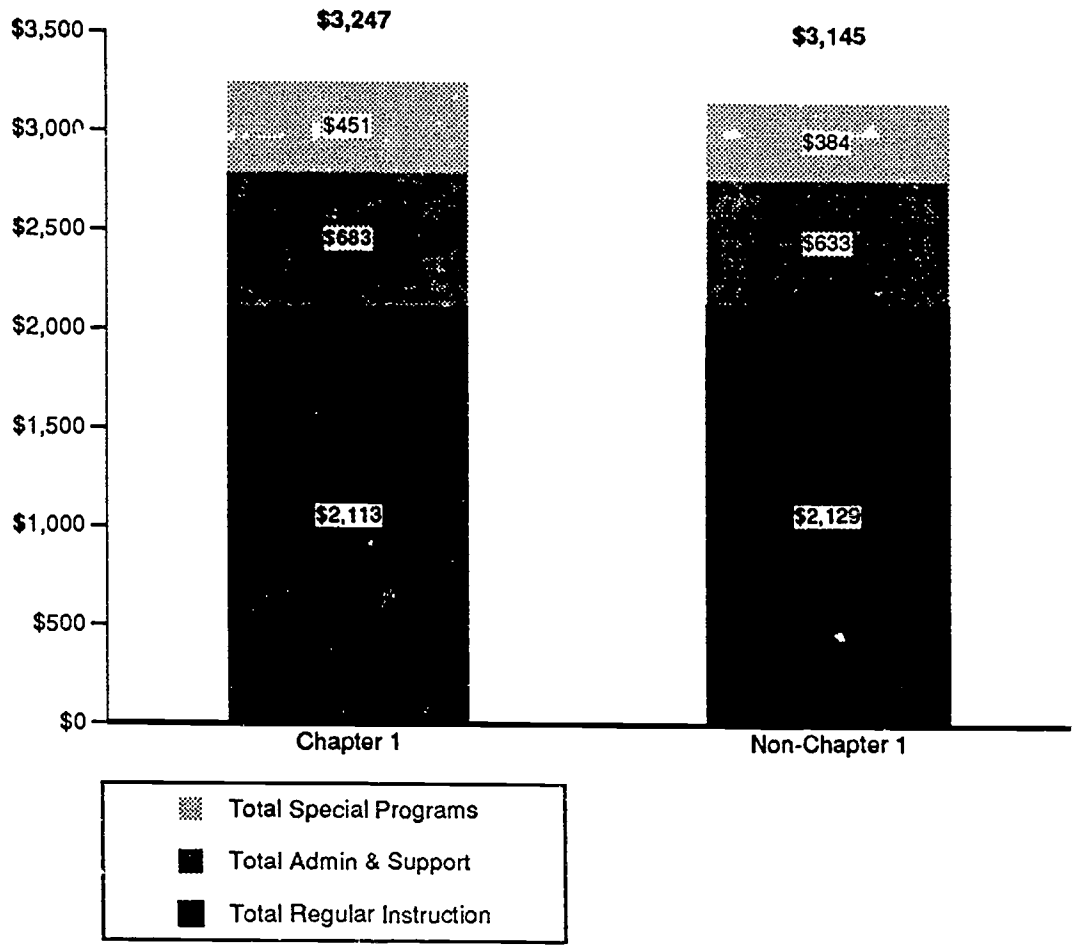
[8]Bilingual self-contained classes are included under regular instruction since they provide regular instruction to limited-English proficient students in their native language, using class sizes and combinations of resources similar to those in any self-contained class.

[9]Special education self-contained instruction is separated from the regular self-contained instruction because it is generally provided in significantly smaller classes (e.g., 10 vs. 25 students).

Figure II-1
Base Level Cost-Adjusted Personnel Expenditures Per Student at Chapter 1 and Non-Chapter 1 Elementary Schools



These data exclude resources funded from Chapter 1.
This figure is based on a purposive sample of 95 elementary schools in five states.

Staffing Patterns

Based on the sample data, Table II-4 reports the fulltime-equivalent (FTE) quantities of various categories of staff that would be found in a hypothetical Chapter 1 and a non-Chapter 1 school of approximately 500 students. Using this standardized enrollment figure of 500 students, which is close to the average enrollment level of the elementary schools in the sample, allows for comparing the levels of staffing across Chapter 1 and non-Chapter 1 schools. The staffing categories listed in this table represent those in the regular instructional program and in associated administrative and support services.

Table II-4
Staffing Patterns Based on Fulltime Equivalents Per School of 500 Students

	Chapter 1 Schools	Non-Chapter 1 Schools
Certificated		
Self-contained classroom teachers	19.9	19.6
Regular resource teachers	3.1	3.1
Staff receiving stipends	1.7	1.7
School administrators	1.6	1.4
Library personnel	0.7	0.7
Psychologists/social workers/counselors	0.9	0.9
Health personnel	0.3	0.3
Other certificated	0.2	0.3
Non-certificated		
Instructional aides/regular program	3.9	3.6
Clerical, custodial, security & other support personnel	6.1	5.5
Other paraprofessionals (library, health & admin aides)	1.6	1.2
Volunteers	1.0	0.7

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

These data indicate that the Chapter 1 schools employed greater quantities of staff in several categories, including regular self-contained classroom teachers, regular instructional aides, school administrators, and other paraprofessionals working in support functions (e.g., the library and health services). However, none of the differences were large in magnitude.

Differences were minimal between Chapter 1 and non-Chapter 1 elementary schools in the numbers of paid student support staff. For "other non-certified staff" (non-instructional aides), however, the lack of difference is deceptive, masking the range between low and high poverty Chapter 1 schools. The low poverty Chapter 1 schools had the lowest FTEs of this type of staff (.4), while the high poverty Chapter 1 schools had the highest levels (1.8). These differences in FTEs do not necessarily reflect a difference in the number of actual people working as aides in the school. In the high poverty schools, instructional aides often doubled as noninstructional aides (working as bus monitors or on noon yard duty), while in the low poverty schools with Chapter 1 and non-Chapter 1, this did not tend to be the case.

In general, there were fairly small differences between Chapter 1 and non-Chapter 1 schools in the years of experience and educational preparation of teachers and principals (see Table II-5). Classroom teachers in the non-Chapter 1 elementary schools had 1.3 more total years of teaching experience (15.7 vs. 14.4), were only slightly more likely to have a Master's degree (44% vs. 43%), and were somewhat more likely to hold a standard teaching certificate (94% vs. 90%). The non-Chapter 1 elementary school principals had more experience (16.6 vs. 11.1 years), but were virtually identical in the likelihood of having a Master's degree (100% with Master's vs. 98%). Principals in non-Chapter 1 schools were more likely to rate their classroom teachers above average (81% vs. 78%). Teacher turnover was slightly higher (7% vs. 4%) in Chapter 1 schools.

The classroom teachers reported relatively small differences in the school climate and teaching atmosphere in Chapter 1 and non-Chapter 1 schools (see Table II-6). The non-Chapter 1 teachers were only slightly more likely to report having sufficient instructional materials (15% vs. 12%). Teachers in the non-Chapter 1 schools received more planning time but somewhat less inservice training than teachers in the Chapter 1 schools. The Chapter 1 teachers were also somewhat less likely (81% vs. 87%) to indicate that they would choose to remain in their current jobs than teachers in non-Chapter 1 schools. There was virtually no difference in the percent of teachers reporting significant influence on school decisionmaking.

Table II-5
Principal and Teacher Characteristics and Attitudes: Elementary Schools

	Chapter 1 Schools	Non-Chapter 1 Schools
Principal		
Years in school as principal	6.3	6.4
Total years as principal	11.1	16.6
% with Master's degree	98%	100%
Classroom teacher		
Cost-adjusted average teacher salary	$33,516	$33,516
Years of experience	14.4	15.7
Years at this school	8.3	8.3
% with Master's degree	43%	44%
% with standard teaching certificate	90%	94%
% principals reporting teachers "much above the district average"	78%	81%
Classroom teacher morale		
% teacher turnover	7%	4%
% who would again choose teaching as a career	81%	87%

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

Table II-6
School Climate/Teaching Atmosphere Reported by Elementary Classroom Teachers

	Chapter 1 Schools	Non-Chapter 1 Schools
% teachers reporting adequate supply of textbooks	90%	92%
% reporting sufficient instructional materials	12%	15%
% receiving at least 1 hour/week plan time	90%	94%
% receiving at least 16 hours inservice training per year	53%	44%
% reporting having influence on school decisionmaking	21%	20%

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

In both the Chapter 1 and non-Chapter 1 schools teachers reported little difference in the type of professional development activity in which they participated. About 85% of the elementary school teachers in the sample reported they participated in district-sponsored workshops and 60%

participated in professional development activities sponsored by professional associations. Although available to most teachers, only 57% of the teachers reported they took college courses in education, and only 20% took college courses in subject fields other than education. Classroom teachers in the Chapter 1 schools, however, spent somewhat more time in staff development activities. About half of the teachers in Chapter 1 schools reported spending 16 or more hours on staff development in the last school year, while 44% of the teachers in non-Chapter 1 schools reported this level of activity. Fewer than 20% of teachers in either type of school reported spending 36 hours or more on staff development in the last year.[10]

About half of the elementary school teachers in our sample reported they received staff development in reading instruction, 38% in math instruction, and less than 20% in the instruction of higher order thinking skills. There was little variation by the Chapter 1 status of the school. Elementary school teachers in Chapter 1 schools were more likely than teachers in non-Chapter 1 schools to report that they received training in the instruction of low-achieving students; only 27% of the teachers surveyed in Chapter 1 schools had participated in this kind of staff development.[11]

Regardless of the Chapter 1 status of the school, classroom teachers gave low marks to their staff development experiences. Only 17% of the elementary school teachers in our sample reported they benefitted greatly from their inservice activities, while 31% of the teachers reported that their staff development did not help them improve their instruction or that it helped only slightly.[12]

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[10]A nationally representative sample of elementary school classroom teachers in Chapter 1 schools reported spending somewhat more time on staff development: 61% spent 16 hours or more (compared to 51% of our sample) and 24% spent 36 hours or more (compared to 18% in our sample) on staff development activities (Abt Associates, 1992).

[11]A much larger percentage of a nationally representative sample of elementary school classroom teachers in Chapter 1 schools reported receiving staff development in the instruction of low-achieving students (44% in the national sample vs. 27% in our sample) and in the instruction of higher-order thinking skills (37% in the national sample vs. 20% in our sample). (Abt Associates, 1992)

[12] The responses of a nationally representative sample of elementary school teachers in Chapter 1 schools were somewhat more positive. About one-quarter of the teachers (26%) reported that they benefitted "greatly" from their staff development activities (compared to 19% of the teachers in Chapter 1 schools in our sample), while only 17% found the training had little

Capital Equipment

Following the patterns found in personnel resources, the Chapter 1 and non-Chapter 1 schools in the sample reported similar quantities of selected items of capital equipment. Table II-7 reports on the quantities of selected items present in the sample average Chapter 1 versus non-Chapter 1 school of 500 students. As discussed in the analysis of staff, this standardized enrollment figure of 500 students permits comparisons of the quantities of capital equipment in the Chapter 1 and non-Chapter 1 schools. Both types of schools had virtually identical numbers of televisions. However, the average Chapter 1 school had more tape recorders and listening centers than the non-Chapter 1 school. In addition to quantities, an average price for each type of equipment was calculated in order to estimate the total value per pupil of all 19 items of equipment.

Table II-7
Capital Equipment: Number of Items Per Elementary School of 500

	Chapter 1 Schools	Non-Chapter 1 Schools
Computers	32.7	33.9
Printers	12.3	14.9
Televisions	9.3	9.3
VCRs	5.5	5.7
Tape recorders	26.5	21.1
Overhead projectors	16.0	15.7
Average value per student for equipment	$196	$216

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

The sum of the standardized capital values provided some indication of the overall investment made in the different types of schools. Non-Chapter 1 schools showed a slightly higher overall investment per pupil in the listed equipment items.

or no value (compared to 29% of the teachers in Chapter 1 schools in our sample). (Abt Associates, 1992)

School Facilities

Overall, the only differences of any magnitude in the physical facilities were that the Chapter 1 schools were housed in somewhat older buildings (approximately six years older), had smaller school grounds by more than 120 square feet per pupil, and were rated by study site visitors as being in poorer condition (see Table II-8). This is not simply a reflection of an urban factor since almost identical percentages of Chapter 1 (37%) and non-Chapter 1 (35%) schools in the sample were in urban districts. Although the differences between Chapter 1 and non-Chapter 1 schools with regard to the physical size of school facilities are small, the site visitors did observe some differences in the average condition of these school facilities favoring the non-Chapter 1 schools.

Table II-8
Elementary School Facilities

	Chapter 1 Schools	Non-Chapter 1 Schools
Characteristics of facility		
Total square feet of building space per pupil	98	97
% classroom space in portables	4%	5%
Age of building (as of 1992)	39	33
Sq. feet land space (excluding buildings) per pupil	755	875
Physical condition of school facilities		
% of buildings rated as fair/poor	16%	0%
% of classrooms rated as fair/poor	3%	2%
% of school restrooms rated as fair/poor	16%	5%
% of school grounds rated as fair/poor	40%	23%
% of schools where the quality of the classroom learning environment is rated as fair/poor	18%	14%

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

Summary

There were significant differences in the level of student needs between the Chapter 1 and non-Chapter 1 schools in the sample. The Chapter 1 schools enrolled more limited-English proficient students, more students in state compensatory education programs, and more poor students. The Chapter 1 schools were more likely to serve higher proportions of minority students and

- slightly more special education students. These schools also reported more problems with absenteeism, student mobility, health, and discipline by relatively large margins. Finally, students in Chapter 1 schools scored almost 20 percentile points below students in non-Chapter 1 schools on standardized tests.

However, there were relatively few differences in the resources between the Chapter 1 and non-Chapter 1 schools in this sample. The Chapter 1 schools tended to show slightly greater quantities of staff, but these staff were paid somewhat lower salaries and exhibited slightly less experience and education.

Since both the Chapter 1 and the non-Chapter 1 schools come from the same sample of districts, this result may not be all that surprising if the "comparability" requirement imposed under the policy guidelines of Chapter 1 law is working. These regulations require that before Chapter 1 funds are added, the districts must have "a policy to ensure equivalence among schools" in staffing and other resources (Chapter 1 Pclicy Manual, 1990, page 101). The results of our analysis suggest that districts are abiding at least by the nominal requirements of comparability. The Chapter 1 schools have more of some resources and less of other types of resources than their non-Chapter 1 counterparts. However, there is no question that these schools have significantly greater needs, some of which Chapter 1 funds are designed to address. But are all of these additional needs being addressed by Chapter 1 funds? Are such funds even sufficient for this purpose? These issues will be explored further in Chapter IV of this report.

III. Base Level of Resources in Relation to District Revenue and School Poverty

This chapter addresses how variations in the levels of district revenues translate into variations in the levels of resources and services at the school site. We provide evidence of what dollar differences in revenues can mean to the quality of the school environment. What do the extra dollars buy? How are the services distributed to students with varying needs? What role does student poverty at the school play in the allocation of resources from the district to the school site? What role does the level of state and local resources play in determining the base level of resources and services available to districts? The analyses in this chapter reveal some significant inequalities in the distribution of resources to children with special needs.

The data analyses for this chapter are organized in three ways. First, the characteristics of schools and the levels of school resources and services are organized according to the poverty levels. Second, these same dimensions are examined according to the revenue levels of the districts in which the schools are located. Finally, a subset of the schools is highlighted to capture the interactions between district revenue levels and school poverty. These combinations of analyses show that the factors reflecting pupil needs vary with student poverty, while the levels of school resources and services vary according to district revenue levels.

Within the sample of schools used for this study, high poverty schools are not exclusively in low revenue districts; many high poverty schools are also located in high revenue districts. In fact, the correlation between the district's poverty rate and the level of state and local revenue is positive

(i.e., 0.28). This finding is consistent with Schwartz and Moskowitz (1988) who found district poverty and revenues to be positively correlated in 33 states. A further analysis of the sample schools indicates that the correlation between district revenue and school poverty was extremely low (0.012). Table III-1 shows the distribution of elementary schools by district revenue levels (divided approximately into thirds) and school poverty (divided into three groups of less than 20%, 20% up to 50%, and greater than 50%).[12] The schools are relatively evenly distributed through the cells.

Table III-1
Numbers of Elementary Schools in Each Revenue and Poverty Class

	% Eligible for Free/Reduced Price Lunch		
	0-20%	20%-50%	> 50%
Low revenue districts	12	10	10
Mid revenue districts	16	10	6
High revenue districts	11	12	8
TOTALS	39	32	24

This table is based on a purposive sample of 95 elementary schools in five states.

States allocate support for educational services to local districts based, in part, on the ability of school districts to raise revenue from local sources. Therefore, the net impact of state school finance systems is reflected in the flow of state and local revenues to the school district. Within districts, internal policies provide guidelines for allocating resources to the schools, considering factors such as grade level (e.g., elementary or high school) and the special needs of the students being served within the school.

The remainder of this chapter examines the variations in the base levels of resources and services in relation to variations in district revenue and school

[12] The districts were organized by revenue levels by 1) adjusting the total state and local revenues for variations in the cost-of-education (see Chambers, 1981), 2) sorting the 30 districts by cost-adjusted revenue levels and dividing them into thirds (low, middle, high); and 3) including the districts next to division points (11th and 20th) with the most logical category. Thus, the lowest and highest revenue classes each include eleven districts, while the middle revenue class includes 8 districts. The ranges for the low, middle, and high revenue districts are as follows: the low revenue districts range from $3,095 to $4,412; the middle revenue districts range from $4,827 to $5,693; and the high revenue districts range from $5,823 to $8,430.

poverty. *All resources or services funded by Chapter 1 are excluded from this analysis.* Chapter IV presents an analysis of what the Chapter 1 program adds to the resource base funded by state and local revenues.

Comparing Schools by Poverty Level

As illustrated in Table III-2, the high poverty schools in the sample exhibit much higher levels of student need. Seventy-five percent of the students in the average high poverty elementary school are eligible for the free or reduced price lunch program, while only 10% of the students in the average low poverty elementary school are eligible.

- In these high poverty elementary schools, students score at the 43rd percentile, on average, on standardized achievement tests, compared to an average percentile ranking of 75 in the low poverty schools.

- Thirteen percent of students in the high poverty schools are limited-English proficient, compared to 1% in the low poverty schools.

- In the high poverty schools, 42% of students participated in Chapter 1, and 18% received state compensatory education services.

- Principals in the high poverty elementary schools are much more likely to perceive a moderate to serious problem with student mobility (79% vs. 12%), student health (45% vs. 7%), student drug and alcohol abuse (16% vs. 2%), and student violence (20% vs. 2%).

Teachers in the high poverty schools are much less likely to perceive their school as a good environment for their own child. In the high poverty schools, only 47% of the teachers indicate that they would want their child to attend the school where they teach, compared to 94% of teachers in the low poverty schools.

Table III-2
Elementary School Characteristics by School Poverty Level

	Low Poverty (0-20%)	Mid Poverty (20-50%)	High Poverty (50-100%)
Number of schools	39	32	24
Student characteristics			
% eligible for free/reduced price lunch	10%	33%	75%
% Chapter 1 participants	3%	16%	42%
% state compensatory education	1%	6%	18%
% limited-English proficient	1%	5%	13%
% special education	7%	8%	9%
% minority	12%	26%	59%
Avg %ile ranking on achievement tests	75%	59%	43%
% principals rating problem as moderate/serious			
Student absenteeism	5%	9%	62%
Student mobility	12%	46%	79%
Student health	7%	12%	45%
Student drug/alcohol abuse	2%	6%	16%
Student violence	2%	6%	20%
Student discipline	15%	21%	58%
% of teachers who say they would want their child to attend the school where they teach	94%	80%	47%

This table is based on a purposive sample of 95 elementary schools in five states.

Although student poverty is positively associated with greater levels of student need, there were relatively small differences in the levels of school resources between high and low poverty schools (Table III-3).

- Both high poverty and low poverty schools are located in districts with comparable levels of state and local funding: cost-adjusted per-pupil revenue levels were $5,296 in the average high poverty elementary school and $5,318 in the average low poverty elementary school.

- The cost-adjusted levels of expenditures on school personnel range from $3,121 in the low poverty schools to $3,352 in the high poverty schools, a difference of about 7.4%.

Table III-3
Elementary School Resources by School Poverty Level

	Low Poverty (0-20%)	Mid Poverty (20-50%)	High Poverty (50-100%)
Funding per pupil			
Cost-adjusted district revenues	$5,318	$5,271	$5,296
Cost-adjusted personnel expenditures	$3,121	$3,213	$3,352
School personnel expenditures as percent of district revenues	59%	51%	63%
Numbers of staff (per school of 500 students)			
Certificated			
Self-contained classroom teachers	19.3	20.4	19.9
Regular resource teachers	3.2	3.1	3.0
School administrators	1.3	1.4	1.9
Library personnel	0.7	0.7	0.7
Psychologists/social workers/counselors	0.9	0.9	0.9
Health personnel	0.3	0.4	0.3
Non-certificated			
Instructional aides/regular program	3.5	3.5	4.5
Other paraprofessionals (library, health & admin aides)	1.4	1.2	1.9
Classroom teacher characteristics			
Cost-adjusted average teacher salary	$33,855	$33,506	$32,807
Years of experience	15.0	15.2	14.2
% with Master's degree	46%	45%	36%
% with standard teaching certificate	92%	92%	89%
% principals reporting teachers "much above the district average"	89%	77%	66%
Classroom teacher morale			
% teacher turnover	5%	4%	8%
% who would again choose teaching as a career	88%	84%	74%
Instructional materials			
% of teachers reporting an adequate supply of textbooks	92%	93%	88%
Capital equipment (per school of 500 students)			
Computers	37.2	30.0	30.7
Printers	16.3	12.0	9.8
Televisions	11.1	6.4	10.3
Overhead projectors	17.0	15.4	14.8
Average total value per student for equipment	$221	$186	$196
School facilities			
Total building space per student (square feet)	96	94	106
Total instructional space per student (square feet)	50	49	48
Age of building (years)	27	43	45
Number of renovations since completion	2.3	2.3	1.8
Physical condition of school facilities:			
% of buildings rated as fair/poor	2%	9%	25%
% of classrooms rated as fair/poor	0%	6%	4%
% of restrooms rated as fair/poor	2%	12%	29%

These data exclude resources funded from Chapter 1.
This table is based on a purposive sample of 95 elementary schools in five states.

- The high poverty schools appear to receive a somewhat larger percentage of district revenues for school staffing costs; school personnel expenditures as a percentage of total district revenues are 63% in the high poverty school and 59% in the low poverty schools.

There are relatively small differences in staffing patterns between the high and low poverty elementary schools in the sample. Using the staff-student ratios from the sample elementary schools, projections of the FTE numbers of staff were estimated for a hypothetical school of 500 students.

- The high poverty schools exhibit a slight advantage over the low poverty schools in number of FTE regular classroom teachers (19.9 vs. 19.3).

- The high poverty schools employ more administrative personnel than low poverty schools (1.9 vs. 1.3 FTE).

- The low poverty schools exhibit a slight advantage over the high poverty schools with respect to regular resource teachers (3.2 vs. 3.0) including subject matter specialists in reading, art, music, and physical education and resource teachers for the gifted and talented programs (0.4 vs. 0.2).

- The high poverty schools also show a slight advantage in the staffing ratios for all types of instructional aides. The high poverty schools employ one additional FTE regular instructional aide (4.5 vs. 3.5 FTE) and one-half additional FTE other paraprofessionals (1.9 vs. 1.4 FTE library, health, and administrative aides).

- No particular advantage is observed among support personnel including psychologists, social workers, counselors, and health service personnel. Thus, despite the greater needs exhibited in Table III-2 in the higher poverty schools, state and local funds provide no additional support staff to meet those needs.

Staff qualifications in the high poverty schools appear somewhat lower, although the difference in principals' ratings of their own teachers is much greater than the difference in objective measures of teacher characteristics

(e.g., years of experience, degree level, standard teaching certificate). Principals in the high poverty schools are much less likely to give their teachers a high rating relative to other teachers in the district (66% in the high poverty schools vs. 89% in the low poverty schools). Staff morale also appears somewhat lower in the high poverty schools, with greater teacher turnover (8% vs. 5%) and fewer teachers saying that, if they could do it over again, they would choose teaching as a career (74% vs. 88%).

Once salaries are adjusted for variations in labor market conditions reflecting differences in cost-of-living and in the attractiveness of local districts, there is little difference in the average salaries paid to teachers.

A slightly smaller percentage of classroom teachers in the high poverty schools reports an adequate supply of textbooks. In addition, the high poverty schools report that they have less equipment than the low poverty schools. For example, the high poverty schools average about 31 computers in a school of 500 students, compared to more than 37 computers in a low poverty school of the same size. This is not surprising because the high poverty schools, although in districts with comparable funding levels, spent a larger percentage of their funds for school staffing.

School facilities are somewhat larger in the high poverty schools (106 square feet per pupil vs. 96), although instructional space is comparable (48 square feet per pupil vs. 50). The high poverty schools are in buildings that are considerably older but have undergone fewer renovations since construction.

The high poverty schools tended to be in poorer condition on average than the low poverty schools. Twenty-five percent of the high poverty school buildings were rated in fair or poor condition, while only 2% of the low poverty school buildings were similarly rated.[13] Four percent of the classrooms and 29% of the restrooms located in the high poverty schools were rated as in fair or poor condition, while none of the classrooms and only 2% of the restrooms located in low poverty schools were rated fair or poor.

[13]These ratings were assigned by the senior site visitors based on a four point scale: 4=excellent, 3=good, 2=fair, and 1=poor with descriptions of specific criteria. These can be obtained along with the data collection instruments from AIR on request.

In summary, while high poverty schools tend to show relatively greater student needs in terms of lower achievement, greater numbers of special need populations, and greater levels of problems with student mobility, health, drug and alcohol abuse, and violence, these same schools show no significant advantages in resources to address these needs with state and local revenues.

Comparing Schools by Revenue Level

The schools in low revenue districts exhibit somewhat greater needs and lower levels of resources than schools in high revenue districts. As shown in Table III-4, the schools in both high and low revenue districts have comparable numbers of poor students (34% vs. 37% of the students eligible for subsidized school lunches), participants in Chapter 1 and state compensatory education (18% vs. 19%), limited-English proficient students (7% vs. 8%), but schools in the low revenue districts have fewer minority students (32% vs. 39%). However, students in the high revenue districts scored higher on standardized achievement tests (with an average percentile ranking of 70% in the high revenue districts vs. 58% in the low revenue districts). Further, teachers in the low revenue districts were more likely to perceive moderate to serious problems with student mobility (51% vs. 39%), student health (25% vs. 15%), student drug and alcohol abuse (11% vs. 3%), and student violence (17% vs. 3%). Differences in student needs are more dramatic between high and low poverty schools than between the schools in high and low revenue districts. There is little difference, however, in the percent of teachers in the schools in high and low revenue districts who say they would want their child to attend the school where they teach.

Differences in district revenue levels do not translate into large differences in class size. In fact, the disparity in cost-adjusted school personnel expenditures (a $711 difference) is substantially less than the disparity in total district revenues (a $2,700 difference), reflecting the greater percentage of total funds allocated to school personnel expenditures in the low revenue districts (see Table III-5). Schools have comparable numbers of regular classroom teachers. The high-revenue districts also have more resource teachers, while the low revenue districts rely more heavily on classroom aides. Specifically, schools in high revenue districts employ, on average, 1.3 FTE more regular resource teachers (i e., subject matter specialists, art, music,

and PE teachers) than schools in low revenue districts. The numbers of administrative personnel do not vary much by revenue level. Finally, the elementary schools in high revenue districts employ more health service personnel than low revenue districts. The mid revenue districts employ more psychologists, social workers, and counselors combined than either the low or high revenue districts.

Table III-4
Elementary School Characteristics by District Revenue Level

	Low Revenue	Mid Revenue	High Revenue
Number of schools	35	27	33
Student characteristics			
% eligible for free/reduced price lunch	37%	30%	34%
% Chapter 1 participants	19%	12%	18%
% state compensatory education	9%	0%	11%
% limited-English proficient	8%	0%	7%
% special education	8%	10%	6%
% minority	32%	13%	39%
Avg %ile ranking on achievement tests	58%	62%	70%
% principals rating problem as moderate/serious			
Student absenteeism	28%	22%	12%
Student mobility	51%	29%	39%
Student health	25%	14%	15%
Student drug/alcohol abuse	11%	7%	3%
Student violence	17%	3%	3%
Student discipline	34%	33%	18%
% of teachers who say they would want their child to attend the school where they teach	76%	80%	77%

This table is based on a purposive sample of 95 elementary schools in five states.

Table III-5 also shows that classroom teachers in the low revenue districts have somewhat lesser qualifications, with fewer years of experience (12.7 years vs. 16.3 years) and lower degree attainment (40% with Master's degrees vs. 56% in the high revenue districts). Principals in the low revenue districts are less likely to give their teachers high ratings than are principals in the high revenue districts, although the difference is not as great as between high and low poverty schools. Teacher turnover is considerably higher, however, in the low revenue districts (10% vs. 4%).

Table III-5
Elementary School Resources by District Revenue Level

	Low Revenue	Mid Revenue	High Revenue
Funding per pupil			
Cost-adjusted district revenues	$4,025	$5,199	$6,725
Cost-adjusted personnel expenditures	$2,791	$3,398	$3,502
School personnel expenditures as percent of district revenues	69%	65%	52%
Numbers of staff (per school of 500 students)			
Certificated			
Self-contained classroom teachers	19.9	19.1	20.4
Regular resource teachers	2.1	4.1	3.4
School administrators	1.5	1.5	1.6
Library personnel	0.6	0.9	0.7
Psychologists/social workers/counselors	0.8	1.4	0.7
Health personnel	0.1	0.4	0.5
Non-certificated			
Instructional aides/regular program	5.7	1.9	3.3
Other paraprofessionals (library, health & admin aides)	1.0	1.9	1.8
Staff characteristics (classroom teachers)			
Cost-adjusted average teacher salary	$31,063	$33,506	$35,949
Years of experience	12.7	16.5	15.8
% with Master's degree	40%	31%	56%
% with standard teaching certificate	90%	94%	90%
% principals reporting teachers "much above the district average"	71%	77%	90%
Staff morale			
% teacher turnover	10%	2%	4%
% who would again choose teaching as a career	82%	83%	84%
Instructional materials			
% of teachers reporting an adequate supply of textbooks	91%	94%	89%
Capital equipment (per school of 500 students)			
Computers	24.5	38.5	38.5
Printers	10.0	14.7	15.3
Televisions	11.2	9.3	7.3
Overhead projectors	16.0	22.2	10.7
Average total value per student for equipment	$184	$213	$215
School facilities			
Total building space per student (square feet)	79	106	111
Total instructional space per student (square feet)	46	55	48
Age of building (years)	29	37	43
Number of renovations since completion	2.3	2.6	1.7
Physical condition of school facilities:			
% buildings rated as fair/poor	20%	0%	9%
% classrooms rated as fair/poor	2%	0%	9%
% restrooms rated as fair/poor	17%	7%	12%

These data exclude resources funded from Chapter 1.
This table is based on a purposive sample of 95 elementary schools in five states.

Excluding variations due to costs-of-living and other labor market factors outside district control, teachers employed in schools in high revenue districts enjoy about a 15.7% average salary differential (a cost-adjusted salary index of 1.03 vs. 0.89). Moreover, based on the analysis done for this study, only 5% of this differential can be accounted for by differences in teacher experience and education. The remaining 9% reflects a salary advantage that may be used to attract more highly qualified teachers to high revenue districts.

There were only marginal differences in teachers' perceptions of the differences between schools in the high and low revenue districts with regard to the adequacy of textbook supply.

Schools in the low revenue districts report substantially less equipment overall than the schools in high revenue districts, particularly for computers (38 vs. 34 in a typical school of 500 students) and printers (15 vs. 10). However, the low revenue districts have more television sets (11 vs. 7) and overhead projectors.

School facilities were more spacious in the high revenue districts, although instructional space was comparable. Interestingly, school buildings in the low revenue districts were newer and had undergone more renovations since construction than buildings in the high revenue districts. In addition, AIR site visitors rated the conditions of school buildings and school restroom facilities more poorly in low revenue districts than in high revenue districts, although the reverse was true for classroom facilities.

Interactions Between District Revenues and School Poverty

The comparisons of schools by poverty level found that although the high poverty schools had substantially greater student needs, most resource measures showed fairly small differences between the high and low poverty schools. The comparisons by district revenue level revealed how differences in funding levels translated into difference in the quantity and quality of resources available at these schools. Advocates for disadvantaged children have expressed particular concern for those high poverty schools that are located in low revenue districts, where high student needs are combined with limited school resources to meet those needs (e.g., see Kozol, 1991).

To examine the impact of limited school resources in combination with high student needs, the subsequent analysis will explore resource differences among high and low poverty schools in high and low revenue districts, using a subsample of 44 elementary schools. In particular, the analysis will focus on contrasts between high poverty schools in low revenue districts versus low poverty schools in high revenue districts.

Table III-6 presents the numbers of schools along with the average revenue and poverty levels of the selected subset of schools included in the analysis. Twenty-three of the schools are in low revenue districts with 13 being low poverty and 10 being high poverty schools. Twenty-one of the schools are in high revenue districts with 13 being low poverty and eight being high poverty schools. The average cost-adjusted revenue level of the low revenue districts in this subsample is between $3,849 and $4,034 per pupil. The average cost-adjusted revenue level of the high revenue districts is approximately $3,000 higher and ranges between $6,769 to $7,126 per pupil. The average poverty levels in the low poverty schools range from 9% in the high revenue districts to 11% in the low revenue districts. The average high poverty schools range from 72% in the high revenue districts to 79% poverty in the low revenue districts.

Table III-6
Characteristics of the Subsample of Schools Used for the Combined Analysis of Revenue and Poverty

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Number of schools	13	10	13	8
Average % eligible for free/reduced price lunch	11%	79%	9%	72%
Cost-adjusted district revenue levels	$4,034	$3,849	$6,769	$7,126

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

The School Context

Table III-7 presents the enrollment patterns in the sample schools. Students in the low poverty schools located in high revenue districts attend the smallest schools (472 students), while their counterparts in the low revenue districts attend the largest schools (697 students), on average. Differences of this magnitude may have some meaningful impact on student outcomes if the literature showing negative effects of larger schools on student achievement is accurate.[14] Regardless of the revenue level of the districts in which they are located, the high poverty schools tended to enroll greater percentages of minorities and to serve higher percentages of state compensatory education and limited-English proficient students.

Table III-7
School Characteristics: Enrollment and Student Composition of Elementary Schools

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Average school enrollment	697	552	472	565
% minority	19%	68%	11%	75%
% Chapter 1	2%	46%	3%	46%
% state compensatory education	2%	23%	1%	25%
% limited-English proficient	3%	20%	1%	12%
% gifted education	10%	1%	11%	1%
% special education	7%	7%	7%	7%

This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

The low poverty schools in the sample enrolled greater percentages of children in gifted and talented programs. Virtually no differences were observed in the percent of the student population served in special education. Table III-8 displays further evidence of the differences between low and high revenue districts with respect to the levels of student need. The high revenue districts revealed higher percentile rankings on achievement test scores in both the low and high poverty schools. Moreover, in both the low

[14]For example, see Wyckoff (1991), Coleman *et al.* (1982), and Chambers (1981).

and high revenue districts, the low poverty schools showed higher percentile rankings on achievement tests.

Table III-8
Student Needs/School Climate: Elementary Schools

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Avg. %ile ranking on achievement tests	70%	42%	81%	54%
% principals rating problem as moderate/serious				
Student absenteeism	15%	50%	0%	50%
Student mobility	15%	80%	15%	87%
Student health	15%	60%	7%	25%
Student discipline	15%	70%	15%	37%
Student drug/alcohol abuse	7%	20%	0%	12%
Student violence	7%	30%	15%	37%
% of teachers who say they would want their child to attend the school where they teach	91%	48%	97%	46%

This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

As was revealed with the differences between Chapter 1 and non-Chapter 1 schools, the results in Table III-8 show more significant problems in the higher poverty schools. Approximately half or more of the principals of high poverty schools in low revenue districts indicated that there are moderate or serious problems with student absenteeism, mobility, health, and discipline. Less than one in six of the principals of low poverty schools in low revenue districts reported that student absenteeism, mobility, health, and discipline are moderate or serious problems. Similar patterns of difference were observed between the high and low poverty schools in high revenue districts, although the percentages reporting moderate or serious problems were somewhat smaller in most areas in the higher poverty schools.

School Expenditures

The four alternative measures of spending on school personnel discussed in Chapter II are once again presented in Table III-9. It is not surprising to find that schools located in the high revenue districts outspent schools in the low revenue districts no matter which measure of spending is utilized. The magnitude of the estimated differences is relatively large and the patterns of variation are quite interesting.

Table III-9
Actual and Adjusted Expenditures Per Student for Elementary School Personnel

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Expenditure				
Actual	$2,585	$2,825	$3,674	$3,558
Standardized	$2,736	$3,037	$3,385	$3,305
Experience & education-adjusted	$2,658	$2,912	$3,376	$3,350
Cost-adjusted	$2,681	$2,825	$3,542	$3,525

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

■ Inter and Intradistrict Analysis of Total Expenditures

The actual expenditure figures show the greatest relative differences between the low poverty schools in the high and low revenue districts. The low poverty schools in the high revenue districts outspent their counterparts in the low revenue districts by about 42% (i.e., $3,674 vs. $2,585). However, the high poverty schools in the high revenue districts outspent their counterparts in the low revenue districts by less than 26% (i.e., $3,558 vs. $2,825). *The results presented in Table III-9 show that no matter which expenditure figure is used, high poverty schools outspent low poverty schools in the low revenue districts, but the reverse is true in high revenue districts.*

We examined the relative differences across school poverty and district revenue between standardized and the experience-education-adjusted and the cost-adjusted expenditures. Differences between standardized expenditure figures primarily reflect differences in the quantities of resources being utilized. This is because the rates of personnel compensation (i.e., salaries and benefits) used to estimate the standardized expenditure figures represent sample averages (i.e., it assumes all districts are paying the same level of compensation for a given job title). The standardized expenditure figures answer the question,

> *What would the differences in expenditures be across the sample schools and districts if they all paid identical levels of compensation to personnel with the same job titles?*

Differences in the experience-education-adjusted expenditures differ from the standardized expenditure figures because they permit variations in employee compensation levels associated with differences in employee and education. The cost-adjusted expenditure figures allow for all variations in employee compensation levels except those resulting from costs-of-living and other related labor market factors. Thus, differences between the adjusted-expenditure figures reflect quantity as well as "quality" differences for personnel resources.

The standardized expenditure figures show that the high poverty schools within low revenue districts provided greater quantities of resources overall than the low poverty schools, while the reverse is true in high revenue districts. However, within each of the high and low revenue districts, the relative differences between the high and low poverty schools were smaller for both the experience-education-adjusted and the cost-adjusted expenditures than were the differences for standardized expenditure figures. For example, the relative difference in standardized expenditures in the low revenue districts was almost 11.1% ($3,037 vs. $2,736), while the experience-education adjusted expenditure was almost 9.6% ($2,912 vs. $2,658) and the cost-adjusted expenditure was 5.4% ($2,825 vs. $2,681). This could only be true if the compensation rates used to estimate the experience-education-adjusted and the cost-adjusted expenditure figures were, on average, lower for the high poverty than the low poverty schools. Thus, while the high poverty schools had larger quantities of resources, the

qualitative differences favored the lower poverty schools. In other words, this *intradistrict analysis* leads to the following implication:

> *Lower poverty schools are likely to have somewhat more experienced and/or highly educated teachers.*

Interdistrict analysis revealed that the high poverty schools in the high revenue districts showed more than an 8.8% ($3,305 vs. $3,037) advantage in standardized expenditures over their counterparts in the low revenue districts, while this advantage for experience-education-adjusted expenditures between these two groups of schools was more than 15% ($3,350 vs. $2,912). Using cost-adjusted expenditures, the relative difference was more than 24.7% ($3,525 vs. $2,825). The implication of this *interdistrict analysis* is stated as follows:

> *The relative differences between all schools at the same poverty levels show that the higher revenue districts not only provide greater quantities of personnel resources, but also employ individuals with greater levels of experience and education and have additional resources to attract "better" teachers.*

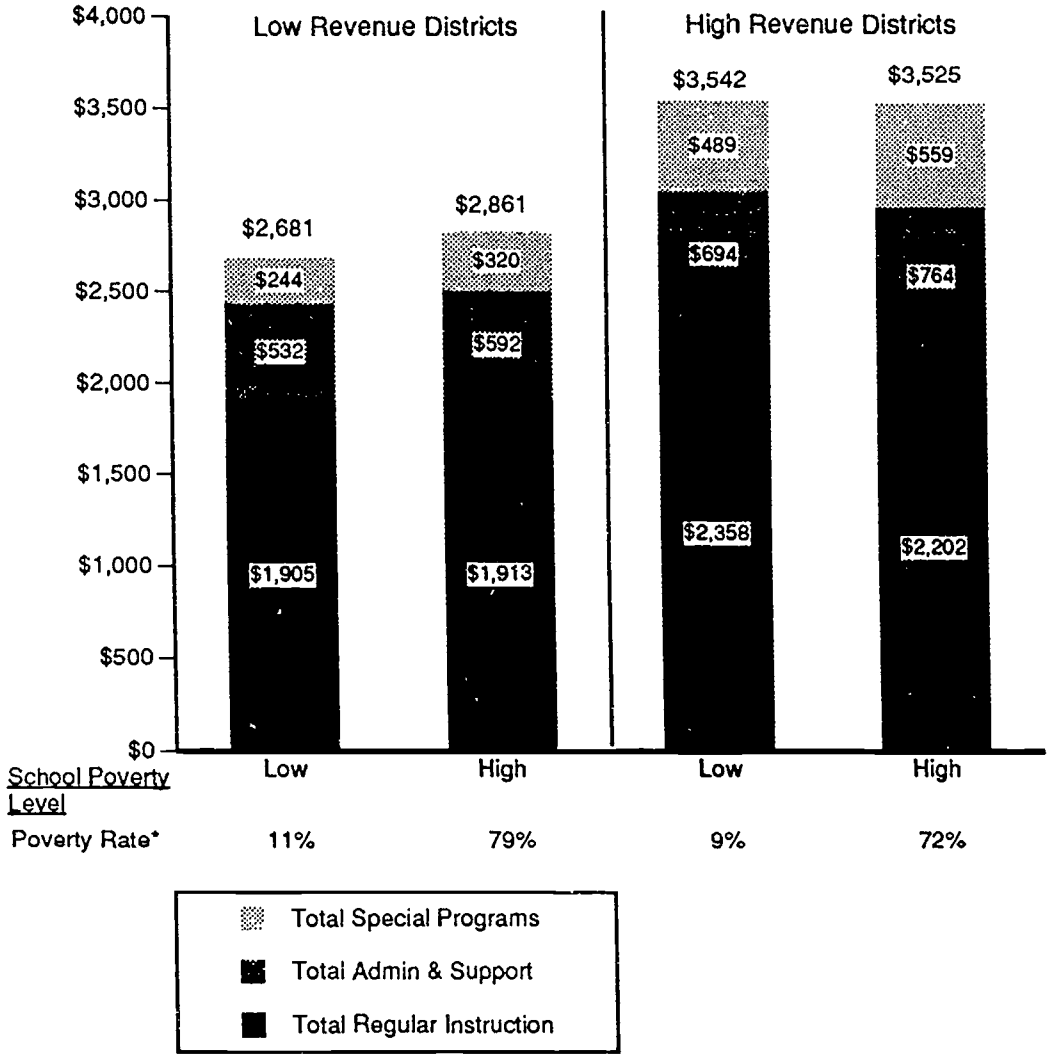
■ Analysis of the Expenditure Components

Tables III-5, III-6, and III-7 focus attention on the cost-adjusted figures since these reflect the differences in both quantity and quality. These tables explore further the overall differences reported in Table III-9 to reveal the sources of the observed differences. Once again, revenue appears to be the driving force behind differences. Figure III-1 summarizes the expenditure information contained in Tables III-5, III-6, and III-7.

Regular Instructional Resources. Table III-10 shows cost-adjusted expenditures for regular instruction defined as classroom instruction and regular resource services. Classroom instruction encompasses personnel expenditures for all self-contained classrooms including teachers and aides, but excluding special education classes. Regular resource services include all of the special teachers (other than those for special needs programs) for subjects such as music, art, and physical education or specialists for other subject matter (e.g., reading and math).

Focusing on differences in regular instructional expenditures, the analysis suggests that the hypothetical high revenue district spends 10.9% more in

Figure III-1
Base Level Cost-Adjusted Personnel Expenditures Per Student By School Poverty and District Revenue: Elementary Schools



These data exclude resources funded from Chapter 1.
This figure is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

* Poverty rate is measured by the percent of students eligible for the free and reduced price lunch program.

high poverty schools ($1,938 vs. $1,747 per pupil) and 14.0% more in low poverty schools ($1,973 vs. $1,731 per pupil) than the low revenue districts. With respect to resource services, low poverty schools in high revenue districts spend more than twice (2.2 times) what their counterparts spend in low revenue districts for these services ($385 per student vs. $175 per student). In contrast, the high poverty schools in the high revenue districts only spend 1.8 times what their counterparts spend in low revenue districts ($264 per student vs. $166 per student).

Table III-10
Cost-Adjusted Expenditures Per Student for Elementary School Personnel: Regular Instruction

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Classroom instruction	$1,731	$1,747	$1,973	$1,938
Resource services	$175	$166	$385	$264
TOTAL REGULAR INSTRUCTION	**$1,905**	**$1,913**	**$2,358**	**$2,202**

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

As shown in Table III-10, expenditures for classroom instruction services are virtually identical in low and high poverty schools within districts. The high revenue districts show a difference of less than 2% while the low revenue districts show a difference of less than 1%. However, the differences in regular resource services between the high and low poverty schools are more substantial. The low poverty schools outspend the high poverty schools by about 46% (i.e., $385 vs. $264) in the high revenue districts, while the low poverty schools outspend the high poverty schools by only 5.4% ($175 vs. $166) in the low revenue districts. These interactions between school poverty and district revenue are sufficiently intriguing to warrant further research on larger samples of schools. *To what extent do high revenue districts systematically allocate resources between high and low poverty schools differently than low revenue districts?*

Administrative and Support Resources. In almost all cases, the higher revenue districts spend more on administrative and support services (see Table III-11). More specifically, high poverty schools tend to outspend their low poverty counterparts for most administrative and support services (i.e., administration, library, health, and custodial). The only exception is for psychological, social work, and counseling services where low poverty schools outspend the high poverty schools. Moreover, these differences are more pronounced for low revenue districts. Two and one-half to three times as much is spent per pupil on health services in high revenue districts as in low revenue districts. Spending on custodial services is higher in the high revenue districts and, within districts, it is higher in high poverty schools, a finding consistent with the assumption that high poverty schools may be subject to greater vandalism.

Table III-11
Cost-Adjusted Expenditures Per Student for Elementary Schools Personnel: Administration and Support

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Services				
School administration	$278	$353	$367	$419
Library	$48	$69	$83	$93
Psychologist/social worker/counselor	$74	$29	$82	$51
Health	$13	$16	$33	$48
Custodial	$120	$124	$131	$153
Security	$0	$1	$0	$0
TOTAL ADMINISTRATION & SUPPORT	**$532**	**$592**	**$694**	**$764**

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

Social and health services were scarce in all elementary schools visited, despite the fact that respondents indicated a significant need for these services. School and district staff repeatedly told site visitors that increasing numbers of students come to school with medical, dental, social, and emotional problems that make it difficult for them to learn. This was particularly true in the high poverty schools.

Psychologists and social workers spent about one day a week at an average school in the sample, regardless of Chapter 1 status or school poverty. The case study interviews indicated that during much of that time, these staff attended special education staffing meetings and performed evaluation activities, leaving little time to provide counseling and social services to students.

Although many schools provided some medical services to students, in many cases it was on an "as needed" basis only. High poverty schools were more likely to lack medical services than were medium or low poverty schools, according to principals' reports. In fact, 29% of principals of high poverty schools in the sample reported having no medical services available to their students.

Even when schools provided medical services, they were usually very limited. On average, schools tended to have an itinerant nurse or clinic worker in the school less than half time. Many schools referred students to off-site health services which, in some cases, were provided by the school district. For example, in order to provide more complete health care for all district students, a large urban district recently opened a central health clinic that includes the services of a physician.

In more than half of the schools in the sample, principals reported that on-site services were provided by community health and/or social service agencies. Such services were more common in Chapter 1 schools than in non-Chapter 1 schools; however, there were no consistent patterns by school poverty.

Special Needs Programs. The overall variation in special need expenditures is related positively to district revenue and to school poverty (see Table III-12). The most dramatic difference in per pupil expenditures is for instruction in special education classrooms: schools in high revenue districts are spending four to six times as much per total enrollment on special classroom instruction as their counterparts in low revenue districts. Spending per total enrollment on special education resource programs is more comparable among the four schools by comparison to special class expenditures, although there are some differences.

Although the dollar magnitudes are not nearly as large as for special education, the high poverty schools outspend the low poverty schools by more than two to three times on services for limited-English proficient students. Moreover, the low revenue districts show a higher level of expenditure than the high revenue districts. The reverse is true for students in gifted and talented education (GATE) programs: low poverty schools outspend the high poverty schools on GATE programs and the high revenue districts outspend the low revenue districts.

Table III-12
Cost-Adjusted Expenditures Per Student for Elementary School Personnel: Special Need Programs

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Services				
Limited-English proficient	$27	$64	$8	$30
Compensatory education resource	$4	$20	$42	$63
Gifted education resource	$33	$15	$54	$22
Special education class instruction	$34	$39	$151	$235
Special education resource	$123	$155	$160	$133
Therapy	$23	$26	$74	$76
TOTAL SPECIAL NEED PROGRAMS	$244	$320	$489	$559

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

It is important to point out that the per-pupil figures used for special needs programs are based on the total enrollment at the school. This is necessary to maintain the comparisons with other expenditure figures and to show the general pattern of resources allocated to the school regardless of which students directly benefit. However, some interesting patterns are revealed by taking another look at these per-pupil expenditure figures when adjusted for the actual counts of students served by the respective programs. This analysis is included in Chapter IV.

Staffing Patterns

The results on staffing patterns confirm the general patterns of variations in quantities and qualities of staff reported in the analysis of expenditures. As in Chapter II, the FTE data are again presented for a hypothetical elementary school enrolling 500 students (i.e., the number of predicted FTE personnel who would be employed by an elementary school).

Table III-13 shows that there is little difference in the FTE number of self-contained classroom teachers between high and low poverty schools or high and low revenue districts. The high poverty schools in low revenue districts reported 20 FTE regular self-contained classroom teachers, while the low poverty schools in these districts reported 19.0 FTEs. In the high revenue districts, the total numbers of FTE regular self-contained classroom teachers is reported at about 20 FTE teachers with only one-tenth of an FTE teacher difference between high and low poverty schools.

Average class sizes (not reported in the table) are about 2.5 students (about 10%) smaller in low poverty schools located in the high revenue versus low revenue districts. For high poverty schools, the average difference in class size is about 1.7 students, again favoring the high revenue districts. This difference was larger than the difference implied by the number of FTE teachers because the figures for FTE teachers reported in Table III-13 do not include teachers funded by Chapter 1. As reported in Chapter IV, some portion (albeit a small portion) of Chapter 1 funding is allocated to class size reduction.

The high revenue districts, as presented in Table III-13, employ one to two additional FTE regular resource teachers (i.e., teachers providing music, art, physical education, or special subject matter instruction). More health service professionals are employed in the high revenue versus the low revenue districts. Table III-13 also shows a slightly greater tendency for volunteers to assist in the low revenue districts, but a somewhat lower tendency for them to be in high poverty schools.

In low revenue districts, the high poverty schools employ greater numbers of FTE aides and support personnel, while just the opposite is true is the high revenue districts. Interestingly enough, schools in the low revenue districts

employ relatively more instructional aides per pupil in the regular program than do the schools in the high revenue districts. Thus, while the schools in high revenue districts showed overall advantages in the FTE numbers of certificated personnel, the schools in the low revenue districts show an overall advantage in the FTE numbers of non-certificated personnel. These patterns suggest that when funding is limited, schools have staff to ensure adequate adult/student ratio.

Beyond these differences in FTE staff, the school sample revealed that high poverty schools in low revenue districts were two to three times as likely to offer before/after school instruction, full-day kindergarten, and preschool programs than were low poverty schools in high revenue communities. However, before and after school *day care* programs were more common in the low poverty schools in the high revenue communities.

Table III-13
Staffing Patterns Based on Fulltime Equivalents Per Elementary School of 500 Students

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Certificated				
Self-contained classroom teachers	19.0	20.0	20.0	19.9
Regular resource teachers	2.1	1.9	4.1	2.8
Staff receiving stipends	1.8	0.6	1.8	0.0
School administrators	1.3	1.7	1.4	2.1
Library personnel	0.4	0.6	0.8	0.8
Psychologist/social worker/counselors	0.8	0.4	1.0	0.6
Health personnel	0.2	0.2	0.4	0.4
Other certificated	0.1	0.0	0.3	0.0
Non-certificated				
Instructional aides-regular program	4.6	6.4	3.6	2.8
Clerical, custodial, security & other support personnel	5.1	6.5	6.8	6.2
Other paraprofessionals (library, health & admin. aides)	0.9	1.3	1.7	2.3
Volunteers	1.2	1.1	0.7	0.2

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

Table III-14 shows how principal and teacher characteristics differ between schools, based on school poverty and district revenue. The high revenue districts tend to have a more highly educated teaching staff. Sixty-six percent of the teachers in the low poverty schools have a Master's degree. In the low revenue districts only 40% of the teachers in the low poverty schools have a Master's degree. However, only 45% of the teachers employed in high poverty schools in high revenue districts have a Master's degree, while 37% of the teachers employed in high poverty schools in low revenue districts do. Thus, there is relatively little difference in the percent of teachers with a Master's degree between high and low poverty schools (40% vs. 37%) in low revenue districts, while there is a relatively large difference in the percent of teachers with a Master's degree between high and low poverty schools (66% vs. 45%) in high revenue districts.

Table III-14
Principal and Teacher Characteristics and Attitudes: Elementary Schools

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Principal				
Years in school as principal	6.1	6.6	6.5	6.1
Total years as principal	11.3	10.9	14.7	8.6
% with Master's degree	100%	90%	100%	100%
Classroom teacher				
Cost-adjusted average teacher salary	$31,063	$30,714	$35,600	$36,298
Years of experience	13.4	13.2	14.5	15.9
Years at this school	6.7	7.0	7.2	11.2
% with Master's degree	40%	37%	66%	45%
% with standard teaching certificate	90%	86%	91%	89%
% principals reporting teachers "much above the district average"	76%	50%	100%	100%
Classroom teacher morale				
% teacher turnover	10%	13%	4%	7%
% who would again choose teaching as a career	83%	78%	92%	75%

This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

The high revenue districts in the sample also employed teachers who have more years of experience and remain in their schools for a longer period of time. The rate of teacher turnover was up to two and one-half times higher in low revenue districts than in the high revenue districts. The higher poverty schools also tended to have higher turnover rates. Thus, teacher turnover was reported as higher in low revenue districts and in higher poverty schools where staff stability for students may be of greater importance. Also, a greater percentage of teachers in the low poverty as opposed to the high poverty schools reported they would remain in their current positions if given a choice (92% vs. 75% in the high revenue and 83% vs. 78% in the low revenue districts).

Principals in the high revenue districts were more likely to rate their teachers as above average quality for the district. Moreover, principals in low poverty schools in low revenue districts were also more inclined to rate their teachers as above average quality than were principals in the high poverty schools.

The differences in the quality of staff between the districts may be caused by a complex interaction of factors. In large urban districts with declining enrollment or declining funds, teachers with the most experience are usually kept on staff while teachers with less experience are being laid off. In large urban districts with increasing enrollment, the newest teachers may be sent to the least desirable schools. Some districts benefit from a good reputation and location and can choose from the best job candidates, even at relatively low wages. Some districts that cannot pay high wages still recruit good teachers because of their proximity to sources of qualified staff, such as accredited four-year colleges and universities.

■ School Climate and Teaching Atmosphere

Table III-15 provides information on other dimensions of the school climate. Teachers in the higher revenue districts are more likely to report they had sufficient instructional materials and had more planning time. The differences in teacher perceptions about the sufficiency of instructional materials are consistent with the data on nonpersonnel expenditures for supplies and materials. The average low poverty school in the high revenue districts reports spending more than twice as much as a low poverty school

Table III-15
School Climate/Teaching Atmosphere Reported by Elementary Classroom Teachers

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
% teachers reporting adequate supply of textbooks	95%	90%	88%	84%
% reporting sufficient instructional materials	13%	1%	27%	17%
% receiving at least 1 hour/week of planning time	88%	78%	100%	80%
% receiving at least 16 hours inservice training per year	53%	57%	59%	53%
% reporting having influence on school decisionmaking	22%	18%	31%	20%

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

in the low revenue districts ($276 vs. $131 per pupil). At the same time, the high poverty school in the high revenue districts spent significantly less than its low poverty counterpart ($114 vs. $148 per pupil). In contrast, the high poverty schools in the low revenue districts outspent the low poverty schools in the same district ($148 vs. $131 per pupil).

■ Availability of Instructional Materials

Closer examination of these nonpersonnel expenditures provided a mixed picture of the availability of materials and equipment. Teachers located in the high revenue districts were more likely to report a sufficient supply of workbooks, notebooks, and art supplies than teachers in schools in the low revenue districts. Teachers in the low revenue districts, however, were more likely to report a sufficient supply of manipulative materials, science equipment and supplies, and calculators than were teachers in the high revenue districts.

Many of the case study schools had switched to whole language and conceptually based math over the last few years. Because the switch was recent, some teachers, even in the low poverty schools, complained that they lacked sufficient materials, particularly tradebooks and manipulatives. However, according to the observations of site visitors, most low and medium poverty schools appeared to have abundant resources. In general,

in-class libraries were well stocked, and the more affluent schools had reading and math centers that contained large supplies of tradebooks and manipulatives.

In contrast, the picture appeared to be mixed in the high poverty schools, ranging from adequate to scarce. At an urban elementary school with a Chapter 1 schoolwide project and a new conceptually based math program mandated by the district, teachers complained of shortages of manipulatives. Teachers in some of the high poverty schools also reported that classroom math kits were not resupplied for broken or missing items.

In several of the high poverty schools, teachers also reported shortages of textbooks. For example, one teacher at a high poverty urban elementary school indicated that she had only five science texts and 12 social studies texts for the entire class. Another teacher at the same school reported having only 11 social studies books that were extremely outdated—30 years old—and no spelling books.

In several schools, shortages of books were attributed partially to high transiency and dropout rates of students. Staff at one high school with 100% poverty rate explained that textbooks lost to the school are only reimbursed when students graduate; most of the students who do not return textbooks to the school never graduate.

The large number of limited-English proficient students also may contribute to the reported shortages of books in some of the high poverty schools in the sample. Although most schools with primarily Spanish-speaking students appeared to have no problem obtaining sufficient books, the situation was more difficult for schools whose population included students with a variety of first languages. Several of the case study schools in large urban districts were attempting to cope with this problem. Teachers at one school indicated that they very badly needed books in various languages, including Cambodian and Samoan.

Teachers in all types of schools complained of shortages of workbooks; however, budgets in low and medium poverty schools enabled teachers to photocopy the relevant pages for their students. In contrast, in some high poverty schools, teachers told site visitors that students were copying pages

from workbooks in class or that teachers tended to make dittos. To cope with shortages of books and other materials, teachers shared books and materials across classrooms. Classroom teachers and Chapter 1 teachers also frequently pooled resources.

Teachers in high poverty schools also complained of shortages of other types of consumables. For example, teachers in a high poverty urban school told site visitors that for several days her class had no pencils—an item that would be furnished by the students themselves in a more affluent school.

Although differences were not systematic, site visitors also noted some differences between libraries in the low and high poverty schools. Libraries in the low poverty schools appeared to have wide varieties of interesting and new titles. One low poverty elementary school in a suburban district had more than 11,000 books, having discarded more than 2,000 in the last year and added more than 600. In another low poverty elementary school in a large suburban district, students wrote books which were then hardbound and circulated in the library. In contrast, libraries in the high poverty schools were mixed, some with fewer and older books. For example, the library in one very high poverty school contained a large number of books, but many of them were yellowed with age and covered with dust, appearing largely unused.

■ Parent and Business Support

Some of the elements that characterize the base resources available to a school were either not easily quantifiable or reliable data were simply not available. The case study interviews provided some information on issues related to the support of parents and the business community.

Staff at many schools was augmented by volunteers. Volunteers comprised both school parents and individuals from the community (e.g., businesses). They provided a range of services including working in the library, tutoring, mentoring students, serving as room mothers, and organizing student activities such as student recognition programs. Two examples illustrate the types of resources parent volunteers add to schools:

> *At one low poverty elementary school, parent volunteers organized additional instructional activities. For example, the PTA brought an ocean biologist and*

an expert on planetariums to the school to give presentations. Parents held reading and math clubs and supported a drill team of approximately 100 students. One of the professional parents ran an after-school enrichment program serving 200 to 300 students that provided a variety of courses: parenting, study skills, tennis, and calligraphy.

At a medium poverty elementary school, the library was staffed entirely by volunteers. Parents also started an after-school softball team, published students' poems to increase self-esteem, put a float together for a New Year's parade, donated books and materials, and collected computers and workbooks.

In addition to parent volunteers, many schools at all levels of poverty received support from local businesses or community organizations. Examples of business partnerships with elementary schools included a company-sponsored tutoring program and a $500 grant to a medium poverty school in a suburban low revenue district, and businesses that supported a low poverty school in a suburban district through staff development, student recognition programs, tutors, and a "lunch-buddy" program.

Looking at elementary schools by poverty levels reveals no systematic patterns of support from businesses and community organizations. Survey data indicated more support from businesses and industries in low and high poverty schools than in medium poverty schools. However, staff in several high and low poverty schools felt that schools at the extremes were less likely than other schools to have business partnerships—low poverty schools because businesses felt the schools were not needy, and high poverty schools because businesses did not want to be associated with "their type of students."

In addition to community agencies, parent groups and business partners also provided health and social services to schools. For example, in two suburban schools (one low poverty and one medium poverty), the PTAs funded fulltime nurse's aides so that district funds could be used for other purposes. One of the business partners of a medium poverty urban school provided fitness testing for students. A low poverty school in a high revenue suburban district had a foundation grant from a health maintenance organization for a family wellness program. In many instances, the quantitative data reflect these numbers since site visitors were trained to request estimates of personnel time devoted to these activities. However, in

some instances, estimates in the more idiosyncratic circumstances were difficult to obtain.

As shown earlier in Table III-13, there was a slightly greater tendency for volunteers to assist in the low revenue districts, but somewhat lower tendency for them to be in high poverty schools. Interviews at the case study schools provided some insight into the disparity in numbers of volunteers between high poverty schools and other schools. School staff and parents reported that parents in high poverty schools often were unable to spend time at the school because they worked multiple jobs, lacked transportation, lacked child care for other children, or lacked confidence about what they could contribute to the school. Last, in very poor schools, parents may have had more serious personal problems that resulted in a lack of interest or ability to help in their children's education.

■ Sources of Funding for Supplies and Materials

Funding sources for equipment, books, materials, and supplies differed in schools with different levels of poverty. At the low poverty schools in the sample, parent donations accounted for substantial purchases. For example,

> *In one suburban school with 2% poverty, parents donated $15,000 last year toward equipment purchases. Parents indicated, "What the district doesn't pay for, the PTA does." In another suburban school, parents donated one computer to each classroom.*

> *When all schools in a large urban district began using whole language and conceptually based mathematics last year, the PTA at one very low poverty school donated $5,000 for books and $1,000 for math manipulatives to help ease the transition. At the same school, there was a "wish tree" where teachers posted "leaves" of paper indicating their wishes for equipment, materials and/or supplies. Most wishes were fulfilled quickly.*

In contrast:

> *When 7th graders in an urban school with 50% poverty broke the television, teachers paid for the replacement. In the same district at another school with 70% poverty, teachers hosted special fund-raising activities and donated their own money to purchase a photocopy machine.*

Attempts to raise funds by the PTA at an urban school where 89% of the students qualified to receive free or reduced price lunch met with limited success. The last two years' efforts yielded $600 and $800, respectively.

In a school with 95% poverty that operates a Chapter 1 schoolwide project, we were told that the parent organization "does not fund extras." The computer lab contained mostly older models that the school is trying to replace gradually with district funds.

■ Staff Development and Decisionmaking

Teachers in the low revenue districts were more likely to report participation in inservice training. Teachers in the high poverty schools in the low revenue districts reported spending more time in staff development and receiving more training in the instruction of low achieving students than did teachers in low poverty schools in the high revenue districts. Elementary school teachers in the high poverty schools in the low revenue districts were also twice as likely to report they received training in the instruction of low achieving students than were teachers in low poverty schools in the high revenue districts (45% vs. 23%), and somewhat more likely to report they received training in higher order thinking skills (28% vs. 19%). Teachers' assessments of the quality of this training were uniformly low. Teachers in low poverty schools and higher revenue districts were more inclined to feel that they influenced decisionmaking within those schools than did their counterparts in the lower revenue districts (see Table III-15).

Capital Equipment

Table III-16 provides information on capital equipment available in the low and high poverty schools in the low and high revenue districts. As in the Chapter II discussion of equipment, the standardized figure of 500 students is used to permit comparisons among the four categories of schools. Schools in the high revenue districts had more computers and printers than the low revenue districts. The higher revenue districts tended to allocate greater numbers of computers and printers to the low poverty schools. Teachers in schools in low revenue districts were less likely to have access to other equipment (printers, videodisc players, and movie projectors) than teachers

in districts with greater revenues, but there was little difference regarding computers.

Using the technique of standardized pricing described in Chapter II, the total value of the 19 equipment items was only somewhat higher in the high revenue than the low revenue districts.

Table III-16
Capital Equipment: Number of Items Per Elementary School of 500 Students

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Computers	28.2	19.8	44.7	37.6
Printers	12.5	8.1	18.2	10.0
Televisions	13.3	13.6	9.7	6.8
VCRs	6.3	7.1	6.7	2.9
Tape recorders	23.1	23.3	24.3	15.9
Overhead projectors	15.9	15.1	14.2	6.4
Average total value per student for equipment	$192	$169	$223	$194

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

The case studies yield interesting patterns of differences in capital equipment. In the last few years, there has been a tremendous push to have computers in all schools. Thus, when the case study schools were visited last year, all schools had computers. However, the quality of the computers varied somewhat. All low poverty schools had state-of-the-art equipment. Indeed, in some of these schools, there was such an abundance of new computers that older computers (such as Apple IIe's) were left to gather dust in an equipment room. Among the high poverty schools visited, the picture was mixed. Those that had been last in line for computers and, until recently had none, now had new equipment. In contrast, those that had computers for some time were still using them, however dated.

Equipment of other types (e.g., televisions, VCRs, and other audiovisual equipment) tended to vary somewhat more with school poverty. While all low poverty schools had abundant, high quality equipment, many high poverty schools in the sample either lacked equipment or had low quality, dated equipment.

In the case study schools with the lowest levels of student poverty, items such as televisions tended to be relatively new; old equipment had been rapidly replaced. In the higher poverty schools, old equipment was being replaced at a much slower pace. For example, five of nine television sets were black and white in a case study school with 89% poverty.

School Facilities

Table III-17 indicates that students in the higher revenue districts attend school in more spacious buildings. The estimated building space for schools in the high revenue districts exceeds 111 square feet per pupil, while the estimated building space in the low revenue districts is well below 80 square feet per pupil. More detailed breakdowns show that a great deal of this differential is in larger allocations of space for gymnasiums, cafeterias, auditoriums, administrative and other non-instructional space (e.g., hallways).

There is little difference across schools based on poverty and district revenue levels in the percent of students attending classes in portable structures. Students in the low revenue districts are also more likely to be attending school in newer buildings.[15]

Finally, AIR site visitors rated the classroom learning environment as fair or poor in only 7% of the low poverty schools in high revenue districts. The classroom environments most likely to have been rated as fair or poor are located in high poverty schools in the higher revenue districts (25%). The difference between high and low poverty schools in the quality of classroom environments is much smaller in low revenue districts: 15% rated fair or poor in low poverty schools versus 10% rated fair or poor in high poverty schools.

[15]This may be a California effect since most of the California schools are classified as low revenue and California is more likely to have newer school buildings than other states because of the substantial growth the state has experienced in the last 40 years.

Table III-17
Elementary School Facilities

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Characteristics of facility				
Total square feet of building space per pupil	78	76	117	111
% classroom space in portables	3%	3%	2%	3%
Age of building (as of 1992)	21	31	32	54
Sq. feet land space (excluding buildings) per pupil	784	925	914	426
Physical condition of school facilities				
% of buildings rated as fair/poor	7%	30%	0%	37%
% of classrooms rated as fair/poor	0%	0%	0%	12%
% of school restrooms rated as fair/poor	7%	30%	0%	37%
% of school grounds rated as fair/poor	30%	30%	0%	75%
% of schools where the quality of the classroom learning environment is rated as fair/poor	15%	10%	7%	25%

This table is based on selected revenue and poverty cells from a purposive sample of 95 elementary schools in five states.

The case study data showed that although many high poverty schools were well maintained, facilities were far from ideal. Friendship School provides an example:

> *Friendship School was built in 1941. Although it is very clean, displays of student work in the halls were few. Some classrooms were well decorated, but others had only minimum samples of student work displayed. Facilities for providing breakfast and lunch were located in the basement of the school. While the cafeteria was clean, areas for eating were dimly lit, walls were stark, and the floor was concrete. Thus, students received breakfast and lunch in rooms named a cafeteria but in actuality no more than rooms in the school's basement.*
>
> *Outside the building graffiti were evident. The school had no playground because the only available space was used for staff parking during school hours. A small community playground existed on the block next to the school, but was used only by primary grades during recess and lunch.*

Chapter 1 teachers and students were often among the most adversely affected by overcrowding:

> *In a high poverty school in an urban district, the Chapter 1 room is one-fifth the size of a regular classroom; only four or five students can be present at once. Students are instructed at a table. The one desk in the room is used as a computer stand. The math/computer lab is housed in a room located at the top of the building in what was formerly the girls' shower room. The teacher's desk is literally in a shower stall, while the computers circle the tile walls of the group shower area.*
>
> *At a medium poverty suburban school, Chapter 1 provided pullout services in the hallway, while in another medium poverty rural school, services were provided in a renovated bookroom.*

■ Play Areas and Sports Facilities

Among the case study schools, the low and medium poverty schools tended to have adequate, well maintained play facilities. This was also true of some high poverty schools; however, at others, facilities were nonexistent or unpleasant:

> *At one high poverty school, teachers use the blacktop area for parking during the winter, but during warmer weather, they park on the street so that children can play outside. This same school has a swimming pool among its sports facilities; however, it is quite small—115 laps to the mile.*
>
> *At a very high poverty school in a suburban district, there is a playground; however, it is dirt and gravel rather than blacktop, and is not very conducive to playing.*

Several low poverty elementary schools visited had received large donations from parent organizations for funding playground equipment such as jungle-gyms. For example, two schools in a suburban district had received such grants, one of $60,000 and the other of $15,000.

Summary

In contrast to the relatively small differences between the average Chapter 1 and non-Chapter 1 school, there are some relatively larger differences in the base resource levels provided to students in high and low poverty schools located in low and high revenue districts. The focus of attention in this chapter is the base level of services before adding Chapter 1 funds.

Not surprisingly, district revenue differences tend to be the principal factor associated with differences in resource levels. However, differences in poverty levels are associated with some important differences in characteristics and quantities of base level resources. Differences in pupil needs tend to be positively related to school poverty, while differences in the levels of school resources are positively associated with district revenue levels.

Low poverty schools in high revenue districts are about 30% smaller than their counterparts in low revenue districts. The composition of students by minority status or program needs differed more according to the poverty level of the school than the revenue level of the district. The high poverty schools had more minorities and more students in special needs programs. Students in high poverty schools had lower scores on achievement tests and exhibited more significant problems with absenteeism, mobility, health, and discipline than students in low poverty schools.

Cost-adjusted differences in per pupil spending average more than 25% between the high and low revenue districts. While only small differences were observed in classroom instructional services, significantly larger differences were found between high revenue and low revenue districts in their ability to offer regular resource services through art, music, physical education, and other subject matter specialists. Moreover, high revenue districts showed a fairly significant advantage in their spending on special needs programs.

In regard to regular classroom instruction, which accounts for the majority of the instructional budget of a school, rather small differences exist in the quantities of resources between high and low revenue districts. Class sizes and staff-pupil ratios of self-contained classroom teachers show relatively small differences (less than 10%) between the high and low poverty schools

in the high and low revenue districts. The differences appear to exist between the types of teachers that these districts could afford to employ. Above and beyond the remuneration for experience and education, high revenue districts are able to pay the higher salaries that may allow them to attract "better" teachers. They also employ more special teachers (e.g., music, art, physical education, subject matter specialists) who broaden the instructional program beyond the self-contained classroom. Students also have access to more of the modern technology equipment (e.g., computers and printers) and attend school in somewhat nicer and more spacious school facilities. Such resource differences certainly have the potential of contributing to a significant difference in the educational experience provided by the school. To the extent that these differences reflected the patterns of variation in the larger educational community, there was a relatively unequal base on which Chapter 1 builds, across the schools located in the districts with different access to state and local revenues.

One intriguing finding from this sample of schools is that in certain instances, high and low revenue districts allocated resources differently among high and low poverty schools. The high poverty schools are somewhat more likely to have higher staffing ratios and other resources in the low revenue districts than in high revenue districts. Even with somewhat higher staffing ratios, the higher poverty schools in both the high and low revenue districts are more likely to be staffed with less experienced, less educated, and somewhat lower paid teachers (allowing for regional differences in educational cost). These differences in the patterns of allocation are persistent enough throughout the sample to suggest the need for further research.

There is always the temptation to generalize results from a study such as this one. Given the fact that these analyses were not based on a random sample, this temptation must be avoided. Nevertheless, it is interesting to compare the results of this study to similar analyses of data drawn from a random sample. There is some evidence from analysis of the 1987-88 School and Staffing Survey (SASS) that school staffing ratios are not strongly related to variations in student poverty level. Using the same ranges to define low, middle, and high student poverty within schools, the SASS data show elementary student-teacher ratios of 20.2, 20.4, and 19.7, respectively for 1987-88. If we combine all personnel classified as teachers and calculate the overall student-teacher ratios, we find ratios of 19.5, 18.5, and 18.4 for low,

middle, and high poverty schools, respectively. For these same poverty categories, the SASS data indicate that the average percent of teachers with degree levels above a Bachelor's degree is 46%, 40.5%, and 41.4% in low, middle, and high poverty schools, while the AIR sample data show that the average percent of teachers with a Master's degree or above is 46%, 45%, and 36%, respectively, for the low, middle, and high poverty schools. While no conclusions could be made that the two sets of data would have similar patterns for all items, this comparison provides at least some evidence that the absolute and relative magnitudes of difference for two dimensions of staffing patterns are similar for the AIR and the nationally representative sample included in the SASS.

The good news derived from this study is that the base instructional program and support services in schools do not vary a great deal by poverty. But students' needs differ in schools with different levels of poverty. This point is illustrated by the fact that the mean standardized test score in the low poverty schools in the sample is at the 75th percentile, compared to the 59th percentile in medium poverty schools and 43rd percentile in high poverty schools.

In addition to differences in student needs, schools also differ in ways that are not captured by the quantitative data. Although in almost all case study schools students are exposed to learning experiences that supplement the regular classroom curriculum, the extent of these experiences varies according to the affluence of the community. In the least affluent of the case study schools, students typically take one or two field trips a year. In the most affluent schools, students take a variety of field trips to local museums, planetariums, theaters, symphonies, and exhibits.

In addition, there are many in-school enrichment experiences in the more affluent schools. For example,

> *One elementary school brought in authors and performers on almost a bi-weekly basis. In-school performances last year included all types of music (from country to opera), and a performance by "Kids on the Block" (puppets with disabilities). People from the local zoo and aquarium also addressed the students.*

There are several reasons that these activities were more widespread in affluent schools than in poorer schools. First, these activities are often funded by the PTA or other parent organizations. In the case studies of poorer schools, the PTA typically does not raise a great deal of money and the money raised is usually spent in other ways. Second, the people presenting talks and performances are often volunteers—either parents or people with whom parents have influence. Thus, having educated, influential parents directly affects school activities. Third, teachers and staff in poor schools are often so involved with helping students with basic problems such as food, shelter and medical care, that they have little energy or time to devote to the "extras"--the enrichment of student lives.

IV. How Chapter 1 and Base Resources Combine to Meet Student Needs

Chapter 1 allocations are based on poverty measures and are granted to provide additional resources to students with special academic needs. Inherent in this program is the principle that these funds must *supplement*, rather than *supplant*, the regular instructional program.

Previous chapters compared types and quantities of resources in the base educational program (i.e., without Chapter 1 funds) across different types of schools and districts in the sample. In Chapter II, the base program at Chapter 1 schools is compared to non-Chapter 1 schools. Only limited differences in base resources between Chapter 1 and non-Chapter 1 schools were noted. This is not surprising, as Chapter 1 schools are found in 90% of districts and therefore include a broad range of district revenue and school poverty levels. Rather than being affected by Chapter 1 status, differences in base resources appear to be driven by differing levels of poverty across schools and revenues per pupil across districts.

In the case study districts, non-Chapter 1 schools often had programs and services that were virtually identical to those in Chapter 1 schools; they were simply paid for from different sources (e.g., state compensatory education or desegregation funds). For example, in one district all schools received either Chapter 1 funds or state compensatory education funds.

Chapter III compares the base levels of resources in high and low poverty schools, located in high and low revenue districts. This chapter describes what Chapter 1 adds to the base levels of resources and services, and how

those funds are used in schools of varying poverty and revenue levels. For example,

> *An elementary school with 9% poverty has 36 students who qualify for Chapter 1 services, based on test scores below the 50th percentile. The Chapter 1 grant of approximately $10,000 funds a mathematics assistant who works five hours a week. In addition, the Chapter 1 funds are combined with funds from other sources to pay for a remedial tutor six hours per week and two aides who work in each 4th and 5th grade classroom 10 hours a week.*
>
> *With more than 90% of its students qualifying for free or reduced price lunch, a suburban school uses its $200,000 Chapter 1 grant to run a schoolwide project. Four fulltime remedial teachers and one fulltime facilitator/certificated teacher, co-funded by Chapter 1 and a state program, work with students in classrooms. An aide in the computer lab is also partly funded by Chapter 1. Three primary-grade Chapter 1 teachers also staff an after-school Reading Club that serves only 4th and 5th graders with low test scores in reading and/or language arts.*

This chapter presents analyses of the cost-adjusted Chapter 1 expenditures per student by types and FTE allocations of staff, staff characteristics, and types and quantities of supplies and equipment purchased with Chapter 1 funds. The analysis focuses primarily on personnel, which comprise the majority of Chapter 1 expenditures. District and school staff explained they preferred to fund personnel because they felt that the students' greatest need was for more individualized attention. Chapter 1 also funds technology —especially computer labs, but also in-class computers for Chapter 1 students. Although data are also presented on materials and equipment purchased with Chapter 1 funds, these should be considered as underestimates, as staff often could not attribute older equipment items to the funding source.

In the first three sections of this chapter, we compare the quantities and types of Chapter 1 resources in the sample schools across three dimensions. First they are compared on the basis of student poverty, with the sample Chapter 1 schools divided into three poverty levels. Next, the resources are compared across three levels of district revenues per pupil. The last of these three sections shows the interaction between revenue and poverty. Only the

high and low poverty Chapter 1 schools from high and low revenue districts are included in this analysis.

Next, the quantities and types of resources purchased with Chapter 1 funds (the Chapter 1 add-on) are compared to the differential in base-level resources found between the high and low poverty schools in the high and low revenue districts. A key issue for this study is addressed: to what extent and in what ways can Chapter 1 resources be considered *supplemental* when base resource differentials *across low and high* revenue districts are contrasted?

The last three sections of this chapter provide descriptive information about the Chapter 1 instructional program, Chapter 1 program coordination and decisionmaking, and staff development opportunities for Chapter 1 staff.

Chapter 1 Resources by Poverty Level of School

Table IV-1 shows differences in Chapter 1 resources by levels of school poverty. It includes *only* resources purchased with Chapter 1 funds. The sample of Chapter 1 elementary schools is divided into the three categories of low, mid, and high poverty. Because the non-Chapter 1 schools are excluded, only 61 of the sample of 95 elementary schools are in this analysis. School poverty is measured by the percent of students eligible for the federal free or reduced price lunch program. Twelve percent of the students at the sample low poverty schools are eligible for this program as compared to an average of 75% at the high poverty schools.

The cost-adjusted Chapter 1 personnel expenditures per pupil are highest at the mid-poverty schools ($1,302) and are lowest at the low poverty schools ($1,085). The greatest number of supplemental FTE instructional staff purchased with Chapter 1 dollars, however, is found at the high poverty schools in all personnel categories except regular classroom teachers.

Chapter 1 teachers in the mid-poverty schools have the most experience and the highest degree levels, but a much higher percentage of the principals from the low-poverty schools rated their Chapter 1 teachers as "much above the district average" in quality. The Chapter 1 teachers in the low-poverty Chapter 1 schools were also the most likely to report that they had an adequate supply of textbooks.

Table IV-1
School Resources by School Poverty Level in Chapter 1 Elementary Schools—Chapter 1 Funds Only

	Low Poverty	Mid Poverty	High Poverty
School characteristics by school poverty level			
Number of schools	11	26	24
District revenues per pupil (cost-adjusted)	$5,616	$5,218	$5,296
% eligible for free/reduced price lunch	12%	34%	75%
Funding per pupil			
Cost-adjusted personnel expenditures	$1,085	$1,302	$1,190
Numbers of staff (per school of 500 students)			
Regular classroom teachers	0.2	0.4	0.3
Chapter 1 resource teachers	1.1	1.8	2.6
Chapter 1 aides	0.5	0.7	2.3
Staff characteristics (Chapter 1 Teachers)			
Years of experience	12.2	18.3	17.9
Years at this school	3.7	6.8	7.8
% with Master's degree	63%	75%	64%
% with standard teaching certificate	92%	92%	89%
% of principals reporting teachers are "much above the district average"	75%	37%	54%
Instructional materials			
% of Chapter 1 teachers reporting an adequate supply of textbooks	93%	77%	79%
Capital equipment (per school of 500 students)			
Computers	1.3	4.7	6.4
Printers	0.9	2.4	2.9
Televisions	0.3	0.2	0.0
Overhead projectors	0.0	0.6	0.8
Average total value per student for equipment	$35	$99	$71

These data only include resources funded from Chapter 1.
This table is based on a purposive sample of 61 Chapter 1 elementary schools in five states.

Chapter 1 capital equipment items were generally most plentiful in the mid-poverty schools. The average total value per student of equipment purchased with Chapter 1 funds was largest at the mid-poverty schools ($99).

Chapter 1 Resources by Revenue Level of the District

Table IV-2 shows differences in Chapter 1 resources at schools categorized by levels of non-federal district revenues per pupil. This table also includes *only* resources purchased with Chapter 1 funds. The 61 Chapter 1 elementary

schools in the sample are divided into the three categories on the basis of average district revenues per pupil. District revenues per pupil range from an average of $4,057 to $6,693 per pupil.

Table IV-2
School Resources by District Revenue Level in Chapter 1 Elementary Schools—Chapter 1 Funds Only

	Low Revenue	Mid Revenue	High Revenue
School characteristics by district revenue level			
Number of schools	22	17	22
District revenues per pupil (cost-adjusted)*	$4,057	$5,179	$6,693
% eligible for free/reduced price lunch	51%	43%	44%
Funding per pupil			
Cost-adjusted personnel expenditures	$1,098	$1,587	$1,054
Numbers of staff (per school of 500 students)			
Regular classroom teachers	0.2	0.7	0.2
Chapter 1 resource teachers	1.9	2.5	1.7
Chapter 1 aides	2.2	0.3	1.2
Staff characteristics (Chapter 1 teachers)			
Years of experience	19.2	14.5	16.7
Years at this school	8.2	5.0	6.4
% with Master's degree	63%	65%	76%
% with standard teaching certificate	90%	93%	91%
% of principals reporting teachers are "much above the district average"	35%	58%	61%
Instructional materials			
% of Chapter 1 teachers reporting an adequate supply of textbooks	77%	76%	89%
Capital equipment (per school of 500 students)			
Computers	7.1	5.0	2.3
Printers	1.9	5.0	0.7
Televisions	0.0	0.4	0.0
Overhead projectors	0.3	1.3	0.4
Average total value per student for equipment	$84	$109	$44

These data only include resources funded from Chapter 1.
This table is based on a purposive sample of 61 Chapter 1 elementary schools in five states.
* District revenue include total state and local revenue per student, and do not include Chapter 1 funds.

The cost-adjusted Chapter 1 personnel expenditures per pupil are highest at the schools from the mid-revenue districts ($1,587) and are lowest at the

schools from the high revenue districts ($1,054). The greatest number of supplemental FTE certificated instructional staff purchased with Chapter 1 dollars was found at the schools from the mid-revenue districts. However, the greatest number of Chapter 1 aides was found at the schools from low revenue districts.

The most experienced Chapter 1 teachers were also in the schools from the low revenue districts. However, the highest percentage of Chapter 1 teachers with Master's degrees were in the schools from the high revenue districts. This category of schools also showed the highest percentage of the principals rating their Chapter 1 teachers as "much above the district average" in quality. The Chapter 1 teachers from the schools in the high revenue districts were also the most likely to report that they had an adequate supply of textbooks.

Schools from the mid-revenue districts had the greatest number of capital equipment items purchased with Chapter 1 funds where the average total value of equipment purchased with Chapter 1 funds per student was $109.

Chapter 1 Resources by Levels of School Poverty and District Revenue

■ Cost-Adjusted Personnel Expenditures Per Student

This section explores the interactive effect of school poverty and district revenues on Chapter 1 resources. With three poverty and three revenue categories, a full presentation of this interaction would produce nine columns of data. In order to focus attention on this interaction at the extremes of the sample, the following tables include only a subset of the full elementary school sample. This analysis focuses on high and mid poverty schools in high and low revenue districts and includes 37 of the 61 Chapter 1 elementary schools in this sample. The poverty and revenue parameters of this sample of Chapter 1 elementary schools are shown in Table IV-3.

Table IV-4 shows cost-adjusted Chapter 1 personnel expenditures per student grouped by categories for compensatory education services, regular education services, and administration and supports services. The table shows the magnitude of cost-adjusted Chapter 1 staff expenditures and how they are

distributed in schools of differing poverty in the low and high revenue districts.

Table IV-3
Characteristics of the Subsample of Schools Used for the Combined Analysis of Chapter 1 Resources by School Poverty and District Revenues

	Low Revenue Districts		High Revenue Districts	
	Mid Poverty Schools	High Poverty Schools	Mid Poverty Schools	High Poverty Schools
Number of schools	10	10	9	8
Average % eligible for free/reduced price lunch	31%	79%	37%	72%
Cost-adjusted district revenue levels	$4210	$3849	$6311	$7126

This table is based on selected revenue and poverty cells from a purposive sample of 61 Chapter 1 elementary schools in five states.

Table IV-4
Cost-Adjusted Chapter 1 Personnel Expenditures Per Student

	Low Revenue Districts		High Revenue Districts	
	Mid Poverty Schools	High Poverty Schools	Mid Poverty Schools	High Poverty Schools
Special programs				
Compensatory education resource services	$1,095	$851	$917	$954
Regular education				
Classroom instruction	$77	$100	$100	$20
Resource services	$0	$0	$6	$94
School administration and support services				
Administration	$14	$36	$27	$81
Library	$0	$0	$0	$20
Psychologist/social worker/counselor	$9	$7	$0	$24
Health	$0	$0	$0	$0
Custodial	$0	$0	$26	$6
Security	$0	$0	$0	$0
TOTAL EXPENDITURES	**$1,194**	**$993**	**$1,076**	**$1,194**

These data only include resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 61 Chapter 1 elementary schools in five states.

Average expenditures per pupil are shown for four types of Chapter 1 elementary schools from the sample: mid and high poverty schools in low and high revenue districts. Because this chapter focuses on Chapter 1 resources, much of the analysis is on differences between *mid* and high poverty schools, rather than the prior analysis which was based on placing schools into *low* and high poverty groups. This change occurs because these analyses are based on average resource allocation patterns observed for schools near the extremes of the distribution of our sample. Because the average poverty level for the low poverty Chapter 1 schools was much higher than for the overall sample, Chapter 1 schools in the *mid* poverty range are compared to Chapter 1 schools in the high poverty range.

For the purposes of these analyses, the mean levels of mid poverty range from 31% to 37% of students eligible for free or reduced lunch, and the mean levels of high poverty range from 79% to 72%. The low revenue districts received an average of $4,210 to $3,849 per student in non-federal funds, and the high revenue districts received an average ranging from $6,311 to $7,126.

The largest category of Chapter 1 expenditures was for compensatory education resource staff. A range of $851 to $1,095 per pupil in expenditures is shown in the four school types for Chapter 1 resource teachers and aides.

Chapter 1 funds were also used for regular education classroom instruction and resource services. Expenditures for regular classroom instruction helped to reduce class size and sometimes to support a full-day kindergarten program. Regular education resource services include expenditures for resource teachers and aides in such areas as art, music, and physical education. Expenditures on regular education classroom instructional services were largest in the high poverty schools from the low revenue districts and the mid poverty schools from the high revenue districts. Only the mid and high poverty schools in the high revenue districts used Chapter 1 funds for regular education resource services.

The remaining Chapter 1 expenditures for personnel are included in the general category of school administration and support services. Administration services include staff with duties for the principal's office (e.g., an attendance aide).

Administrative support services include library, social work, counseling, and health services. Despite increasing concerns that health-related problems may be affecting students' ability and readiness to learn at the high poverty schools, none of the schools in the sample showed any Chapter 1 expenditures on health services. Other services, such as counseling, were partially supported from Chapter 1 funds. The high revenue districts show partial funding for custodial services. No Chapter 1 support for security services was found in the elementary school analysis.

■ Chapter 1 Staff and Program Characteristics

Table IV-5 presents data on fulltime equivalent (FTE) counts of Chapter 1 staff at a standardized elementary school of 500 students. For example, the first row shows the quantities of Chapter 1-funded compensatory education resource teachers at the four poverty and revenue points adjusted to reflect a standardized enrollment. For example, the number of Chapter 1 resource teachers is 1.8 at the mid poverty schools from the low revenue districts, assuming a standardized enrollment of 500 students. At the high poverty schools in high revenue districts, this number increased to 2.8. Conversely, the number of Chapter 1 aides was highest at the high poverty schools from the low revenue districts.

Table IV-5
Staffing Patterns Based on Fulltime Equivalents Per Elementary School of 500 Students—(Chapter 1 Funds Only)

	Low Revenue District		High Revenue District	
	Mid Poverty Schools	High Poverty Schools	Mid Poverty Schools	High Poverty Schools
Certificated				
Compensatory education resource teachers	1.8	2.0	1.4	2.8
Regular education self-contained classroom teachers	0.2	0.1	0.3	0.1
Regular resource teachers	0.0	0.0	0.1	0.2
Staff receiving stipends	0.0	0.0	0.0	0.1
School administrators	0.0	0.1	0.0	0.0
Psychologist/social worker/counselor	0.0	0.1	0.0	0.0
Other certificated	0.0	0.0	0.1	0.2
Non-Certificated				
Instructional aides-compensatory education	0.9	3.6	0.3	0.8
Clerical, custodial & other support	0.0	0.1	0.2	0.3

These data only include resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 61 Chapter 1 elementary schools in five states.

Small numbers of regular education self-contained classroom teachers were funded by Chapter 1 at all four poverty and revenue points. Very small numbers of regular education resource teachers and a small percentage of staff receiving stipends for extracurricular activities were found at the high revenue schools. Similarly, only small numbers of school administration and support personnel were funded by Chapter 1.

Characteristics of Chapter 1 staff and the Chapter 1 program are shown in Table IV-6. Comparisons of Chapter 1 teachers on the number of years of teaching experience overall or at this school, or the percentage with standard teaching credentials do not reveal any clear patterns of variation by school poverty or district revenue. The percentage of Chapter 1 teachers with Master's degrees is highest in the schools from the high revenue districts. Attitude toward the job, as represented by the percent of Chapter 1 teachers who would choose to remain in their current position, appears to be about the same across all four categories of schools. The percent of regular classroom teachers citing the Chapter 1 program as effective in their schools tended to be higher in the mid poverty schools. The number of years in the school that Chapter 1 aides reported was greater in the high poverty schools, and the percent of aides with Bachelor's degrees was greatest in the low revenue districts.

The survey data also revealed that Chapter 1 teachers had, on average, more teaching experience and higher degree attainment than the regular classroom teachers in their elementary schools. Overall, Chapter 1 teachers had about 1.5 more years of total teaching experience and were more likely to hold advanced degrees than were regular classroom teachers (64% vs. 44%).

On average, about half of the principals rated the quality of their Chapter 1 teachers above that of the average teacher in their school. Principals of schools in high revenue districts were more likely to give their Chapter 1 teachers high ratings than were principals of schools in low revenue districts.

The varying opinions regarding Chapter 1 teachers and Chapter 1 program effectiveness might be explained in part by differences in the concentration of Chapter 1 students in schools. For example, classroom teachers in low poverty Chapter 1 elementary schools had, on average, three Chapter 1 students in a class of 25 students, while teachers in high poverty Chapter 1 schools had an average of nine Chapter 1 students in a classroom of similar size. Classroom teachers with fewer Chapter 1 students may have an

opportunity to spend extra time with their Chapter 1 students and/or to work more closely with Chapter 1 staff on the students' programs.

Table IV-6
Chapter 1 Teacher, Aide, and Program Characteristics: Elementary Schools

	Low Revenue Districts		High Revenue Districts	
	Mid Poverty Schools	High Poverty Schools	Mid Poverty Schools	High Poverty Schools
Chapter 1 teachers				
Years of experience	19.3	18.3	17.8	18.9
Years at this school	7.7	9.3	7.0	7.4
% with Master's degree	73%	50%	92%	84%
% with standard teaching certificate	96%	96%	88%	92%
% principal reporting teachers "much above the district average"	30%	25%	42%	62%
% who would again choose teaching as a career	85%	77%	77%	81%
Chapter 1 aides				
Years at this school	3.6	9.7	6.5	9.5
% with teaching credential	12.0	12.0	0.0	12.0
% with Bachelor's degree	12.0	18.0	0.0	2.0
Regular classroom teachers				
% citing Chapter 1 program effective	62%	44%	69%	57%

These data only include resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 61 Chapter 1 elementary schools in five states.

■ Supplies and Equipment

The Chapter 1 teachers in the sample schools were more likely than the non-Chapter 1 teachers to report they had a sufficient supply of computers and pens and pencils but less likely to report they had enough textbooks and workbooks. For each item in a list of supplies, Chapter 1 teachers in mid poverty schools were more likely than Chapter 1 teachers in high poverty schools to report they had enough instructional materials and equipment. Chapter 1 teachers in high revenue districts were more likely than Chapter 1 teachers in low revenue districts to report a sufficient supply of supplemental books, notebooks, pens, and pencils.

Regardless of school poverty, the Chapter 1 teachers were twice as likely as classroom teachers to report they received *all* of the resources they needed. And, as with classroom teachers, there were differences in the Chapter 1 teachers' assessment of resource adequacy when elementary schools were grouped by poverty. More than half of the Chapter 1 teachers in mid poverty schools (56%) reported they received all the resources they needed compared to 20% in low poverty schools and only 12% in high poverty schools. A different pattern emerges when schools were grouped by district revenue. While classroom teachers in high revenue districts were more likely to report they got all resources needed, Chapter 1 teachers in these districts were *less* likely than Chapter 1 teachers in low revenue districts to feel this way.

Quantities of computers, printers, and other equipment purchased with Chapter 1 funds at the four revenue and poverty points are shown in Table IV-7. On average, a considerably larger number of computers and printers purchased with Chapter 1 funds were at schools in low revenue districts. The estimated annualized cost of all equipment items funded by Chapter 1 was also substantially larger in the schools in low revenue districts.

Table IV-7
Chapter 1 Capital Equipment: Number of Items Per Elementary School of 500 Students

	Low Revenue Districts		High Revenue Districts	
	Mid Poverty Schools	High Poverty Schools	Mid Poverty Schools	High Poverty Schools
Computers	7.5	17.6	3.0	2.9
Printers	1.0	2.8	0.2	1.7
VCRs	0.1	0.0	0.0	0.2
Tape recorders	0.0	0.7	0.0	0.6
Overhead projectors	0.2	0.4	0.0	0.2
Average total value per student for equipment	$107	$69	$53	$60

These data only include resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 61 Chapter 1 elementary schools in five states.

Chapter 1 teachers were more likely than classroom teachers in Chapter 1 schools to report they had computers and printers available to their classrooms. This availability was somewhat greater in low poverty Chapter 1 schools than in high poverty schools, but the differences were small.

Is Chapter 1 Supplemental Across Districts?

An important question addressed by this study is whether "Chapter 1 provides services in poor districts and/or schools that are normally provided in wealthier districts from local funds?"

The first step in answering this question was taken in Chapter II by determining the base levels of services and comparing them between Chapter 1 and non-Chapter 1 schools. Base levels of services are those services provided through state and local funds. Comparisons showed relatively few differences in base levels of resources between the Chapter 1 and non-Chapter 1 schools. This finding is supported by Anderson, Hollinger, and Sweet (1992) and Hollinger, Anderson, and Conaty (1992) in their analyses of nationally representative data from the Schools and Staffing Survey.

However, comparative analyses of Chapter I versus non-Chapter 1 schools provide little information about how resource levels might differ in schools with high and low percentages of students living in poverty or across schools from high and low revenue districts. Although Chapter 1 funds are allocated on the basis of student poverty, Chapter 1 programs across districts can be found in high and low poverty schools. In addition, schools with high poverty students are as likely to be found in high revenue districts as in low revenue districts. Schwartz and Moskowitz (1988) found a positive relationship between poverty and district expenditures in over two-thirds (33) of the states.

Chapter III takes this analysis of base resources for the sample elementary schools a step farther by comparing them in high and low poverty schools and from high and low revenue districts. On average, the high poverty schools had greater base resources than the low poverty schools, and schools in the high revenue districts had greater base resources than their counterparts in the low revenue districts.

The positive relationship between revenues and base resources was more pronounced than the relationship between poverty and base resources. On average, the low poverty schools in high revenue districts had more base resources than the high poverty schools in low revenue districts. This indicates that there *is* an uneven fiscal base, measured by real school-based resources, upon which Chapter 1 builds. However, this finding still does *not* address the question of whether supplemental resources funded through Chapter 1 in the low revenue districts were part of the base program in low poverty schools in the high revenue districts. Is Chapter 1 truly supplemental when base levels of resources are compared in schools across high and low revenue districts?

Taylor and Piche (1990) raise two important points that are fundamental to the research in this study.

> *Fiscal inequity in the states thwarts the Federal Government in carrying out its role of assisting in meeting the special needs of disadvantaged students...Federal policy is premised on the belief that educational programs and services provided to students with state and local funds are "comparable," and that Federal funds are a supplement to meet special needs...in many states...Federal funds are used in property-poor districts to meet needs that are routinely met through state and local expenditures in other districts. (p. x)*

A second, related contention is:

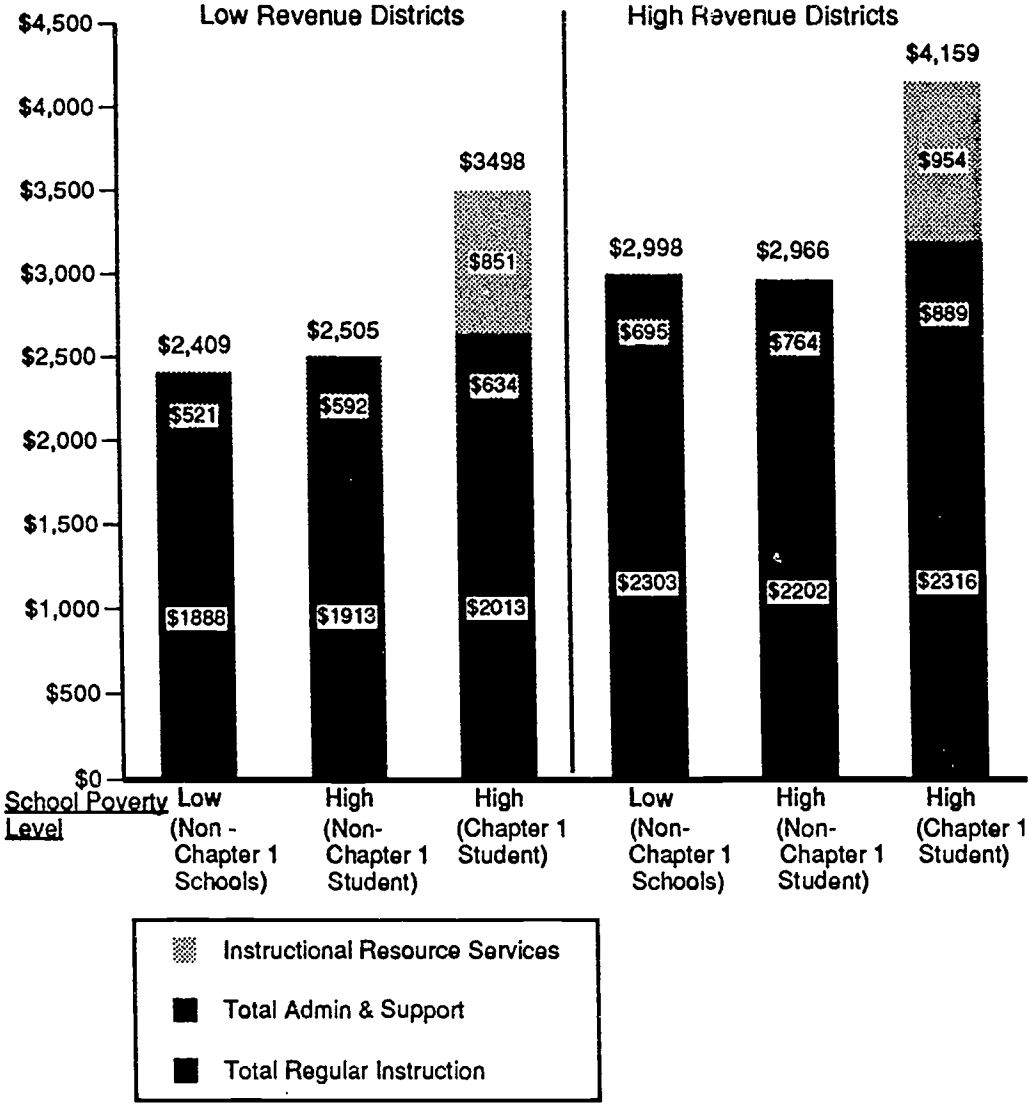
> *The value of Chapter 1 funds is often severely impaired in property-poor districts because the assistance can be used only to fund one important service while funds are not available to provide other vital services that are interdependent. (p. x)*

The following section will address these issues relating to the comparability of base resources across the sample of high and low revenue districts.

■ Comparing Total Revenues Per Student

Figure IV-1 illustrates the two points raised by Taylor and Piche within the context of this purposive sample of schools and districts. It compares base resources for regular instruction and administrative and support services in the low and high poverty schools from the low and high revenue districts.

Figure IV-1
Total Cost-Adjusted Personnel Expenditures Per Student By School Poverty and District Revenue: Elementary Schools



This figure is based on selected revenue and poverty cells representing 37 schools from a purposive sample of 95 elementary schools in five states.

Comparisons of *low*, rather than *mid*, poverty schools are most relevant to this discussion because the main focus is on comparisons at the extremes between high and low poverty Chapter 1 and non-Chapter 1 schools. Figure IV-1 shows $2,505 in total personnel, school-based, regular program expenditures for the high poverty schools from low revenue districts compared to $2,998 for their low poverty counterparts from high revenue districts. These numbers, as well as the numbers presented in the other figures in this chapter, *do not necessarily agree* with those shown in Chapter III. This is because only the non-Chapter 1 schools are included with the low poverty schools shown in Figures IV-1 through IV-4. In addition, other special program expenditures are not included in this section. The purpose of Figure IV-1 is to compare regular education instruction and administrative expenditures in low poverty, non-Chapter 1 schools to high poverty, Chapter 1 schools in low and high revenue districts.

Figure IV-1 also compares these resources in the high poverty schools with and without Chapter 1 funds to illustrate the affect of Chapter 1 on regular education instruction and administration services as well as the Chapter 1 supplement for instructional resource services. Thus, the second and third bars in Figure IV-1 represent the quantities of regular education and administration and support services for each average non-Chapter 1 and for each average Chapter 1 student at these high poverty, Chapter 1 schools. The primary research question addressed by this analysis is how the Chapter 1 supplement compares to the base program in high revenue districts. *Are Chapter 1 funds in low revenue districts used to meet needs that are routinely met through state and local expenditures in other districts?*

The Chapter 1 allocations added to bars three and six in Figure IV-1 are expressed as Chapter 1 funds per student receiving Chapter 1 services; therefore, the expenditure totals with Chapter 1 resources for the high poverty schools pertain only to Chapter 1 students. All other students in the school receive only those resources and services reflected in the base level resource quantities.

The remaining discussion in this section focuses on the resources ($3,498 per pupil) received by Chapter 1 students in high poverty schools in low revenue districts as compared to those received by all students in low poverty schools in high revenue districts ($2,998 per pupil). Thus, this

comparison is between the middle two bars in Figure IV-1. These two points become the focus of discussion because they represent the points of comparison raised by Taylor and Piche (i.e., Chapter 1 students in low revenue [poor] districts as compared to the average student in high revenue [rich] districts).

Even with the addition of Chapter 1 funds, the expenditures for regular instructional services were nearly 15% larger in the low poverty schools ($2,303) than in the high poverty schools ($2,013). Also, even after the addition of Chapter 1 funds to administrative and support services, the levels of these services were still higher in the low poverty schools from the high revenue districts ($695 vs. $634). As expected, the major investment of Chapter 1 funds in these high poverty schools was in the area of supplementary services provided by Chapter 1 resource teachers. This allocation of $851 per Chapter 1 student for the high poverty schools in the low revenue districts results in a total expenditure per Chapter 1 student that is 16.7% higher than for all students at the low poverty schools from the high revenue districts.

However, these data still do not address the question as to whether the Chapter 1 resources allocated to regular instruction and administration and support services are truly supplemental or are just providing resources that are part of the base program in the high revenue districts. To better understand this, we need more detail about the use of resources at the low poverty, high revenue schools compared to the use of Chapter 1 funds to supplement regular education and administration and support services in the high poverty, low revenue schools. The sample data show that the additional regular education resources found in the low poverty schools from the high revenue districts were used primarily to provide smaller self-contained classes, more regular education resource services (see Table III-10) and on health and social services (see Table III-11). Regular education resource services include art, music, physical education, and regular education remedial instruction.

Health service expenditures were more than twice as great in the low poverty schools from high revenue districts than in the high poverty, Chapter 1 schools from the low revenue districts ($33 vs. $16 per student). The regular instruction expenditure per student was 23% greater in the low poverty

schools from high revenue districts than in the high poverty, Chapter 1 schools from the low revenue districts ($2,358 vs. $1,913 per student). Chapter 1 funds spent on regular education reduced this differential to 14.4%, which is also reflected in the differences in average class size between the two types of schools. Classes are about 10.4% smaller in the low poverty schools from high revenue districts than in the low revenue, Chapter 1 schools (23.1 vs. 25.5 students). More than twice as much was spent per student on regular education resource services in the low poverty schools from high revenue districts as compared to the high poverty, Chapter 1 schools from the low revenue districts ($385 vs. $166 per student). As expected, the vast majority (85.7%) of Chapter 1 funds in the low revenue, high poverty schools was spent on compensatory education resource services.

These findings address the first of the two assertions made by Taylor and Piche regarding interdistrict comparability. They posit that federal funds are used in low revenue districts to meet needs that are routinely met through state and local funds in more affluent districts. The data from this study show this to be largely untrue for the elementary sample. *Based on the data from the elementary schools in our sample, Chapter 1 schools in low revenue districts used only about 14% of these federal funds to bolster areas that are more adequately supported through state and local funding in the high revenue schools.* Nearly 86% of these funds, however, were allocated to compensatory education resource services that were not provided in the low poverty schools in high revenue districts. Based on these data alone, this finding suggests that there is no conflict between the goal of Chapter 1 to provide supplemental services in high poverty schools and the uneven levels of base resources found across districts. Despite varying quantities of base-level resources at the sample schools, for the most part, Chapter 1 resources supplement base-level instructional services.

Taylor and Piche's second contention is more complex. That is, the value of Chapter 1 funds may be severely impaired in low revenue districts if they are used primarily to fund one service (i.e., remedial instruction) and are not available to provide other vital services that are interdependent with these remedial services in meeting the overall goals of the Chapter 1 program. The data from this study, as presented in the following section, tend to support this argument.

■ Variations in Resources in Relation to Student Need

This section takes a closer look at the resources received by Chapter 1 students in the high poverty schools in low revenue districts as compared to those received by all students in the low poverty schools in high revenue districts in relation to selected indicators of student need for services. With the addition of Chapter 1 funds, the overall level of resources flowing into the high poverty school from the low revenue districts, *per Chapter 1 student*, was greater than for students in the low poverty, high revenue schools. The difference, however, was due almost exclusively to the addition of Chapter 1 compensatory education resource services for Chapter 1 students.

Are other vital services that are interdependent with compensatory resource services provided at substantially lower levels at schools in low revenue districts? To fully assess this point, it is necessary to compare the *needs* of the students in both the low revenue and high revenue districts.

Chapter 1 is just one of a number of programs that try to address the special needs of students; other programs include state compensatory education, special education, and programs for limited-English proficient (LEP) students. Because these programs often serve similar students, or even the same students, these services are interdependent with Chapter 1 services. If these services are provided at lower levels in high poverty schools, then the supplemental benefits of Chapter 1 in these schools may be offset by the lower levels of support for these programs seeking to address similar needs.

Exceptional student needs are also acknowledged through gifted and talented programs. Some advocates have argued that economically disadvantaged students tend to be under-identified for these programs, although they would receive important benefits from the high-level learning opportunities and enrichment activities that these programs offer. To the extent that gifted and talented programs receive lower levels of support in high-poverty schools, these disparities could offset the benefits of Chapter 1 and other special needs programs based on low achievement.

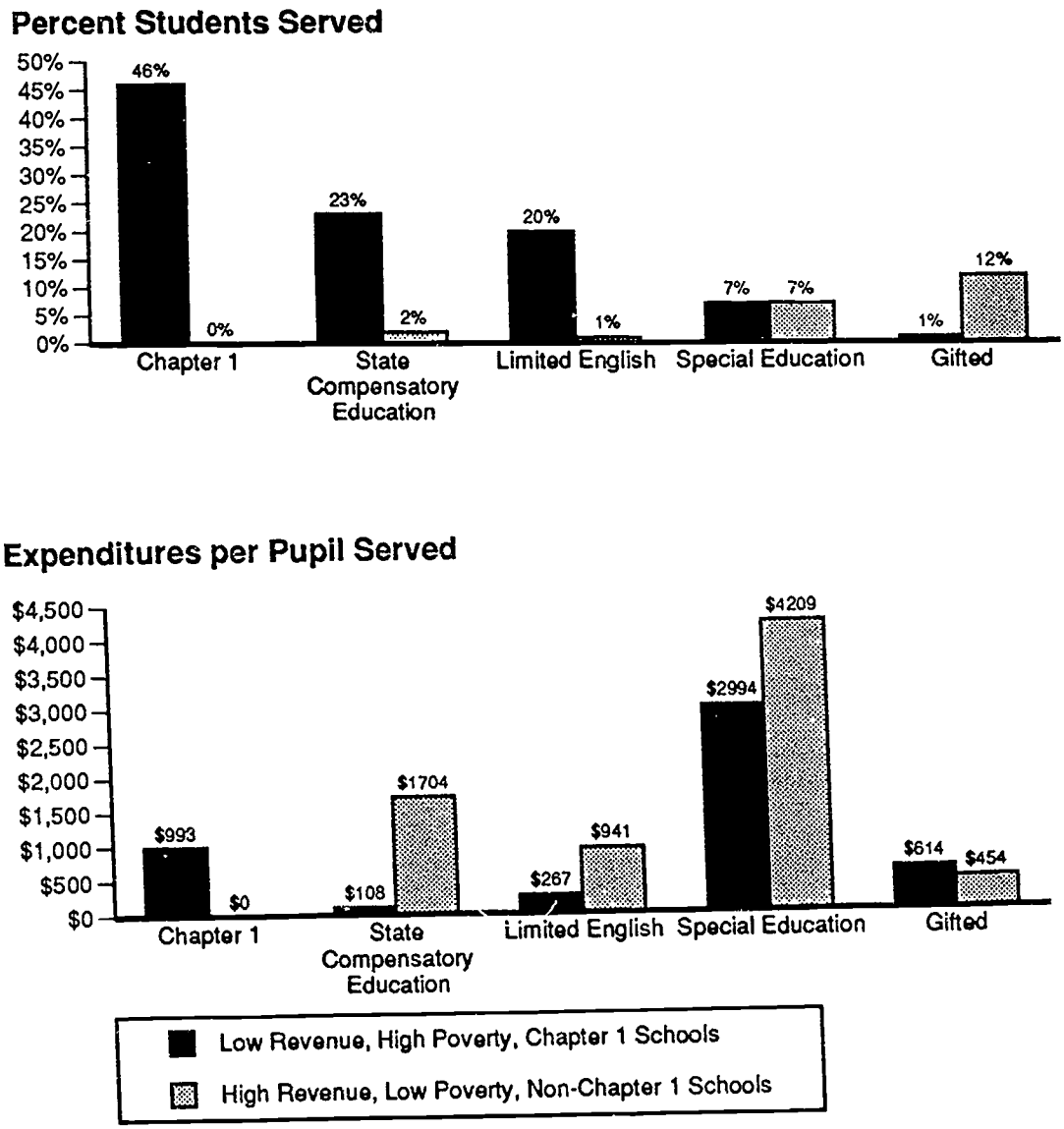
Comparing the percent of students identified for special program services to the level of expenditures per student served shows a dramatic contrast between high poverty Chapter 1 schools in low revenue districts and low

poverty non-Chapter 1 schools in high revenue districts (see Figure IV-2). In the high poverty schools in low revenue districts, students were more likely to be served in Chapter 1 (46%), state compensatory education (23%), and LEP programs (20%); the low poverty non-Chapter 1 schools served only a small percentage of their students in these programs. Students in the high and low poverty schools were equally likely to receive special education services (7%), but students in the high poverty schools were much less likely to participate in gifted and talented programs (1% vs. 12%).

The level of funding per student, however, was considerably *lower* in the high poverty schools from the low revenue districts (see Figure IV-2). For four these five programs, the allocation per student was considerably smaller at the high poverty schools in low revenue districts. These differences include allocations per student that were nearly 16 times smaller for state compensatory education students ($108 vs. $1,704), less than one-third the size for limited-English proficient services ($267 vs. $941), and 40% smaller for special education ($2,994 vs. $4,209). Only in the case of the gifted and talented programs, with only one-twelfth the number of students identified as gifted in the high poverty schools in the low revenue districts, was the allocation per pupil larger (35%) in the high poverty schools in the low revenue districts.

To the extent that larger Chapter 1 allocations per student served in high-need schools are accompanied by lower levels of support in other special programs serving similar students, the program may not be achieving its goals of supplementing a comparable base of resources and services. Perhaps the most striking example of the disparity observed in special program funding between the low and high poverty schools is in the contrast between Chapter 1 and state compensatory education expenditures per pupil. For the most part, these two programs are designed to serve comparable, if not the same, students. A pattern noted by the project site visitors, supported by the data in Figure IV-2, was that districts tended to target state compensatory education dollars to schools not receiving Chapter 1 funds. While this practice does not violate the comparability requirements of Chapter 1, which call for equal quantities of *base resources* prior to the addition of Chapter 1 funds, it does raise some interesting questions about the quantities and quality of services received by compensatory education students in low versus high poverty schools.

Figure IV-2
Special Categorical Program Enrollments and Expenditures Per Student in Sample Low Revenue, High Poverty Chapter 1 and High Revenue, Low Poverty Non-Chapter 1 Elementary Schools



This figure is based on selected revenue and poverty cells representing 18 schools from a purposive sample of 95 elementary schools in five states.

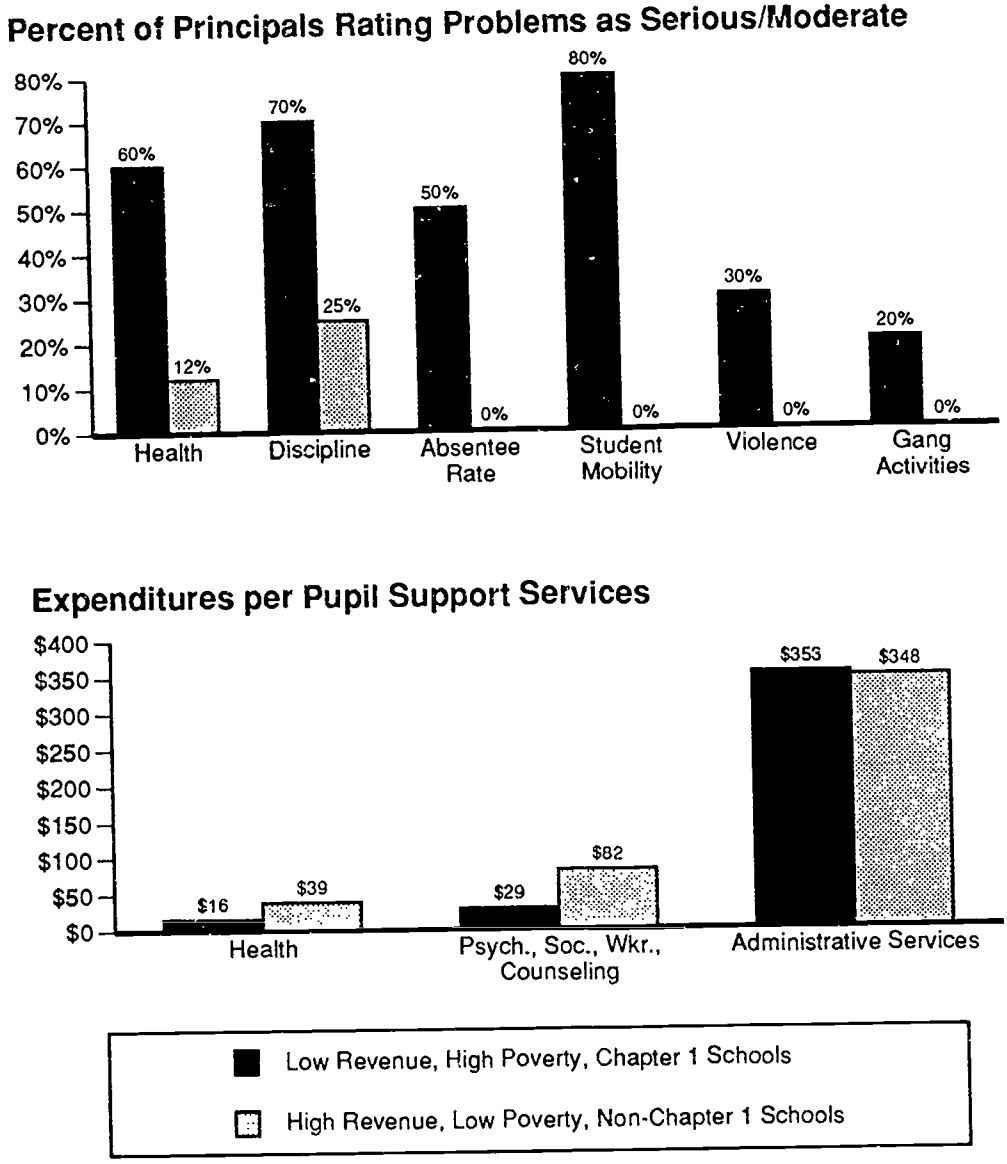
For example, the data in Figure IV-2 show that the average compensatory education, Chapter 1 student in a high poverty school from a low revenue district received $993 in compensatory services from Chapter 1. Compare this to a state compensatory education student in a low poverty school from a high revenue district who received an average of $1,704 in supplemental services from state compensatory education funding. Even assuming that the same compensatory education student from a high poverty school may have received the $993 in supplemental services from Chapter 1 as well as $108 in supplemental services from state compensatory education funding, *the supplemental allocation per compensatory education student is still 55% larger in the low poverty schools.*

Arguably, administration and support services are interdependent with remedial education services in meeting the overall goal of the Chapter 1 program to improve the educational performance of underachieving students in high poverty schools. For example, attendance, counseling, social and health services seem to be important elements in providing an environment in which low-achieving students can succeed in high poverty schools.

As discussed earlier (see Figure IV-1), the total administration and support allocation per student was smaller in the high poverty schools in the low revenue districts than in the low poverty schools in high revenue districts before Chapter 1 funds were added ($592 vs. $695). With the Chapter 1 allocation, the gap in the levels of these services is somewhat narrowed ($634 vs. $695).

However, these administrative and support allocations are better understood in relation to the *needs* of the students enrolled in these two types of schools. The first section of Figure IV-3 shows the percent of principals from these schools rating problems of health, discipline, absenteeism, student mobility, violence and gang activities as being moderate to serious. These problems, which increased administrative and support services should help to remedy, were markedly pronounced in the high poverty Chapter 1 schools in the low revenue districts compared to their low poverty counterparts from high revenue districts.

Figure IV-3
Problem Ratings and Support Service Expenditures Per Student in Sample Low Revenue, High Poverty Chapter 1 and High Revenue, Low Poverty Non-Chapter 1 Elementary Schools



This figure is based on selected revenue and poverty cells representing 18 schools from a purposive sample of 95 elementary schools in five states.

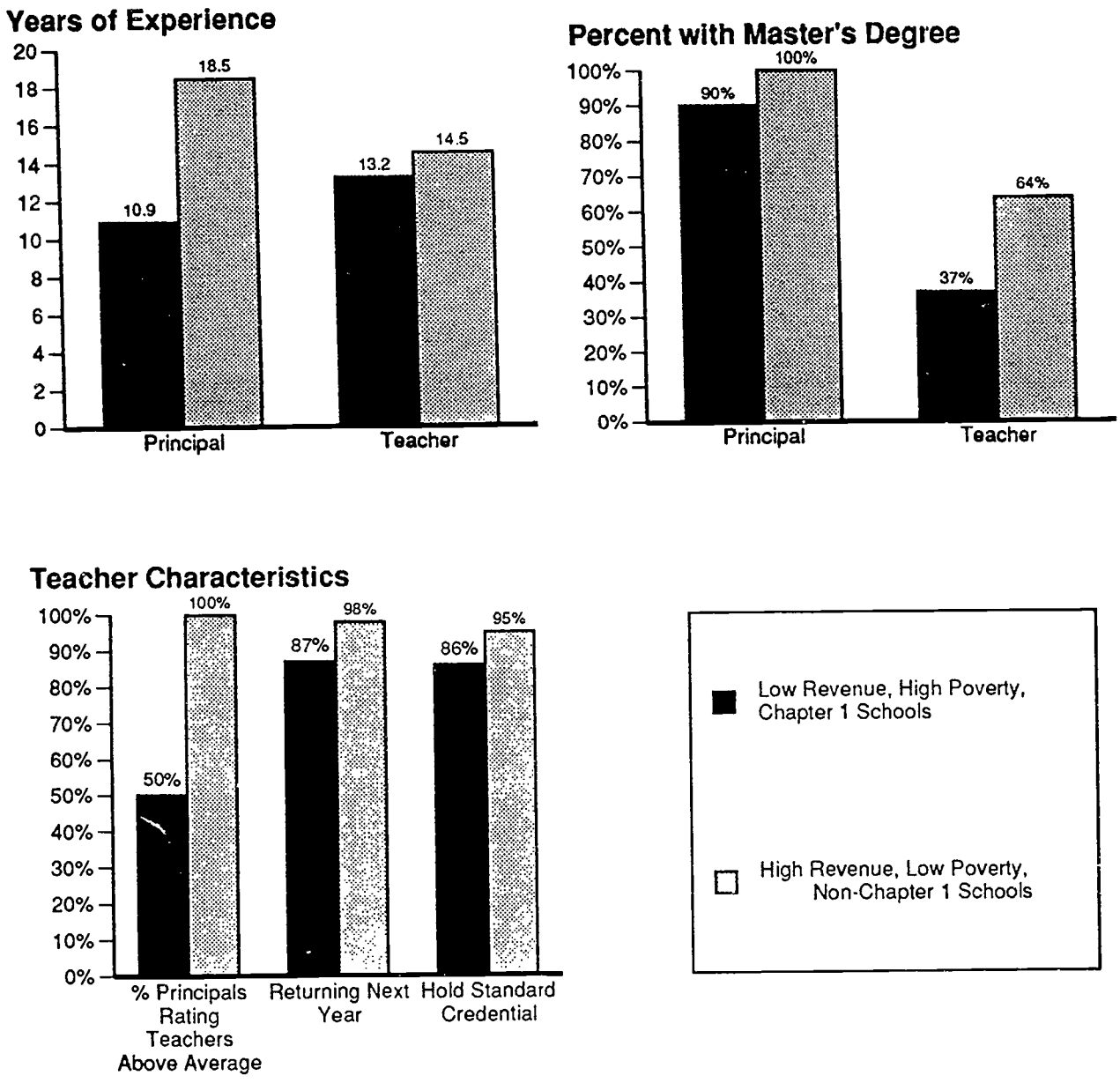
The second section of Figure IV-3 shows expenditures per pupil for health workers, psychologists, social workers, counselors, and general administrative services at the two types of schools. The most pronounced difference between student need and available resources was for psychologists, social workers, and counselors. Despite the much greater severity of such problems as discipline, mobility, and violence, expenditures on these important support services were only one-third as great at the high poverty schools in the low revenue districts compared to the low poverty schools in the high revenue districts. Discrepancies were also apparent in health services. Sixty percent of the principals in the high poverty schools in the low revenue districts indicated that health problems were a moderate to serious problem versus 12% of the principals in the low poverty schools from the high revenue districts. However, the expenditures per student for these services was less than one-half that spent in the high poverty schools from the low revenue districts. This is inconsistent with the vertical equity principle that greater student needs require greater levels of support.

Selected principal and teaching staff characteristics also shed light on the comparability of resources between high and low poverty schools from low and high revenue districts (see Figure IV-4). The first section of Figure IV-4 shows that the principals and classroom teachers from the high poverty schools in low revenue districts were less experienced and less well educated than their counterparts from low poverty schools in high revenue districts.

Other important teacher characteristics are compared in the second section of Figure IV-4. Principals at high poverty schools in low revenue districts were much less likely to rate their teachers as being above the district average (50% vs. 100%). While only 13% of the teachers at high poverty schools from the low revenue districts indicated that they would not be returning next year, the turnover rate for the low poverty schools in the high revenue districts was only about 2%. Finally, only 14% of the teachers in the high poverty schools from the low revenue districts did not hold a standard teaching credential, as compared to 5% at the wealthier schools.

In summary, the contention is that the Chapter 1 program may be impeded in meeting its goals in low revenue districts because Chapter 1 funds tend to be used to provide only remedial instruction while funding is not available for other vital and related services (i.e., LEP and special education programs;

Figure IV-4
Principal and Teacher Characteristics Sample in Low Revenue, High Poverty Chapter 1 and High Revenue, Low Poverty Non-Chapter 1 Elementary Schools



This figure is based on selected revenue and poverty cells representing 18 schools from a purposive sample of 95 elementary schools in five states.

attendance and health services). These types of services are interdependent with compensatory education services in meeting the overall goal of the Chapter 1 program to improve the educational performance of underachieving students in high poverty schools. Our data comparing resources per student and student needs at the high poverty schools in low revenue districts and the low poverty schools in high revenue districts support this contention.

The Chapter 1 Instructional Program

The notion that Chapter 1 instructional staff are treated as "poor relations" (i.e., isolated, considered less able, given fewer resources) was not supported by the findings in this study. Regardless of school poverty, most Chapter 1 teachers were considered specialists and respected for their expertise, were sought out for advice and acted as a resource to teachers, provided staff training, and often had advanced training or multiple certifications. The move to more in-class services and a closer alignment in curricula may have also enhanced understanding of what Chapter 1 staff were doing.

> *At a high poverty elementary school, Chapter 1 teachers team teach daily with classroom teachers. They serve as resources to all teachers in the school on how to work with low-achieving students. One of the Chapter 1 teachers also serves as the "technology" teacher, working with students and teachers on integrating computers into the instructional program.*

> *In an urban district that has emphasized coordination between the Chapter 1 and regular education program, Chapter 1 teachers are encouraged to serve as a resource to classroom teachers—teaching classes, providing materials, and giving advice about instructional methods. In addition, the Chapter 1 curriculum is designed to reinforce the district-mandated developmental curriculum, and Chapter 1 teachers meet with classroom teachers weekly to coordinate their activities. As a result, Chapter 1 teachers are well-regarded by school staff and play an active role in the academic life of the schools.*

Chapter 1 added very little student support staff in any elementary schools regardless of school poverty. Examples of the few types of student support staff funded by Chapter 1 came primarily from high poverty schools.

Chapter 1 funds guidance counselors at two case study schools. At one urban school, a parttime counselor works with students in a one-on-one situation, with the amount of time varying depending on the needs of the student. Several years ago, this component of the Chapter 1 program was recognized for its effectiveness by the U.S. Department of Education. In another urban school, the counselor is part of a district-mandated program that all Chapter 1 schools must have fulltime counselors.

The structure and content of the Chapter 1 instructional program varies little by school poverty or by district revenue. All the Chapter 1 elementary schools in the sample reported providing reading/language arts instruction, 74% provided mathematics instruction, and 7% provided English as a Second Language instruction. High poverty schools were more likely than low poverty schools to provide both Chapter 1 reading/language arts and Chapter 1 mathematics instruction, and to have a Chapter 1-funded ESL program. Where available in the school, high poverty schools were more likely to report that students received Chapter 1 services in multiple subjects than were low poverty schools (89% vs. 75%). There was little difference by poverty level in the percent of Chapter 1 students served. In contrast, Chapter 1 schools in high revenue districts reported serving a considerably larger percent of their Chapter 1 eligible students than schools in low revenue districts (80% vs. 59%).

Most Chapter 1 instruction takes place during the regular school day. Only 10% of elementary school Chapter 1 teachers reported teaching any Chapter 1 subject after school, and only 15% reported teaching during the summer. Low poverty elementary schools were more likely to have after-school Chapter 1 reading/language arts classes and Chapter 1 summer schools than higher poverty schools.

In regard to what Chapter 1 adds to staffing, across the full sample of elementary schools those in low revenue districts used considerably more Chapter 1 aides than Chapter 1 teachers, compared to elementary schools in medium and high revenue districts. However, this trend was not always evident at the case study schools. These schools made decisions about the types of Chapter 1 staff to be funded often as the result of state directives,

local educational philosophy, and overall school resource equalization. For example:

> *One low revenue district hired only Chapter 1 teachers because the community finds teachers more acceptable (they want professionals delivering instructional services), and with limited Chapter 1 funding relative to perceived need, there were no "extra" funds available to spend on hiring aides. The district has been tempted to move towards the use of aides to serve a greater number of low-achieving students given the rapid growth of their student enrollment, but have continued their use of teachers to deliver Chapter 1 services: "Teachers need to be the voice for these [Chapter 1] students...If you want someone to work hard, you need to pay them well." In this district, the schools with the greatest numbers as well as percentage of students who need services are allocated additional teachers.*
>
> *A high revenue district hired both Chapter 1 teachers and aides with their large Chapter 1 budget and distributed them equally among all of the Chapter 1-eligible schools (94% of the schools in the district receive Chapter 1 services). This district is very concerned about distributing resources equally across schools and serving as many students as resources will allow.*

Most of the Chapter 1 aides in the sample elementary schools (85%) reported they provide instruction to students and clerical support for the Chapter 1 program. Two-thirds of the aides also tested students, and a smaller number (32%) served as liaisons with Chapter 1 parents. There were slight differences in responsibilities across schools grouped by poverty and by district revenue. Aides in the low poverty Chapter 1 schools were somewhat more likely to provide instruction and clerical support and somewhat less likely to serve as parent liaisons than were aides in higher poverty schools. Aides in low revenue districts were more apt to provide instruction, serve as liaisons with Chapter 1 parents, and test students than were aides in the highest revenue tercile.

Chapter 1 teachers reported that their districts provided a range of activities (either school or district-based) for parents of Chapter 1 students. Thc most commonly cited activities at the elementary school level were opportunities for parents to be volunteers, tutors, or aides (reported by 60% of the Chapter 1 teachers); serve on parent advisory councils (54%); attend educational programs (55%); do liaison work with parents or coordinate

parent involvement activities (42%); receive Chapter 1 newsletters (39%); and learn home-based education activities to reinforce classroom instruction (38%). Fewer Chapter 1 teachers reported the availability of a parent resource center (27%) or educational opportunities for parents with limited-English proficiency (14%).

Chapter 1 teachers in high poverty schools were more likely than those in low poverty schools to report that parents had the opportunity to be volunteers or aides or to have access to a parent liaison, home-based education activities or literacy programs. Chapter 1 parents in low poverty schools were more likely, however, to have a Chapter 1 newsletter. In high revenue districts Chapter 1 parents reported greater opportunities to serve as volunteers or aides and more access to a parent resource center and/or literacy program than did Chapter 1 parents in low revenue districts.

Principals were asked to report changes in their Chapter 1 program since 1988-89. The major changes were increases in the number of students served by Chapter 1 and increases in the use of in-class projects and computer-assisted instruction (CAI). It is interesting that while principals reported increased in-class projects, few reported a *decrease* in the use of limited pull-out projects. High poverty Chapter 1 schools were much more likely than low poverty Chapter 1 schools to have increased the number of Chapter 1 students and to have made more use of CAI. Schools in low revenue districts were more likely than schools in high revenue districts to have increased the number of Chapter 1 students and to have made more use of CAI.

Chapter 1 Program Coordination and Decisionmaking

This section presents study results about coordination between the Chapter 1 and regular instructional programs, services from multiple categorical programs, and decisionmaking on the part of Chapter 1 staff.

■ Coordination between Chapter 1 and the Regular Program

Chapter 1 teachers were surveyed about procedures they used to coordinate the Chapter 1 and regular classroom instruction provided to Chapter 1 students. Most (79%) of the Chapter 1 teachers reported they consulted with regular classroom teachers more than once a month to develop instructional

objectives and goals for Chapter 1 teachers. While only 40% of the Chapter 1 teachers reported they held *formal meetings* or conferences with regular classroom teachers at least once a month, nearly all the Chapter 1 teachers (96%) reported they held *informal discussions* with classroom teachers at least monthly. Half of the Chapter 1 teachers reported they *shared written information* concerning the progress of Chapter 1 students with classroom teachers at least monthly, but only 22% reported having *common planning periods* with regular classroom staff more than once a month.

Analysis of the classroom teacher surveys supports these findings. Of those classroom teachers who teach Chapter 1 students, 71% reported that there were at least monthly consultations between regular classroom teachers and Chapter 1 teachers. Forty percent reported formal meetings, 88% reported informal discussions, and 70% reported sharing written information at least monthly. Only 25% reported having common planning periods.

Chapter 1 teachers in high poverty elementary schools were more likely to report having common planning periods than were Chapter 1 teachers in low poverty schools (27% vs. 13%), but there was little difference among schools in the other means of coordination and communication. However, regular classroom teachers in high poverty schools were less likely to report consulting with Chapter 1 teachers (67% vs. 90%), having formal meetings (36% vs. 55%), or sharing written information (65% vs. 79%) than were teachers in low poverty Chapter 1 schools, but were more likely to report having common planning periods (33% vs. 26%).

Only 27% of the Chapter 1 elementary school teachers reported that the overall quality of coordination between regular classroom instruction and Chapter 1 instruction was "excellent," but only 14% considered it "fair" or "poor" either. Chapter 1 teachers in low poverty schools were somewhat more likely than Chapter 1 teachers in high poverty schools to rate coordination as "excellent" (38% vs. 26%). This question was not asked of the regular education classroom teachers.

■ Services From Multiple Categorical Programs

Chapter 1 teachers were asked whether students who received other program services also receive Chapter 1 services. Of those who reported that the questions were applicable, half said that students in special education

resource rooms, compensatory education programs, and bilingual/ESL programs received Chapter 1 services as well. Only 15% reported that students in self-contained special education classrooms received Chapter 1 services. Chapter 1 teachers in the high poverty schools were most likely to report that Chapter 1 services were provided for students in other programs.

Data from the case study sites show that the provision of multiple services depended partly on the nature of the other program and partly on whether services were in-class or pull-out. In general, districts tried to avoid either fragmentation or duplication of services, stating that all services in one area should be provided by one source. For example, special education students could not receive Chapter 1 services covered by their Individualized Education Plans (IEPs), and students receiving state compensatory education services for reading could not also receive Chapter 1 services for reading.

In some districts, students could not receive services from more than one pull-out program. For example, students who were pulled out for speech therapy could not receive Chapter 1 pull-out services. In other districts, multiple pull-outs were allowed, so long as they were not in the same instructional area. Students could receive services from one program that provided in-class services and another program that provided pull-out services. For example, if state compensatory education funded in-class aides to reduce teacher-pupil ratios, students might also be pulled out for Chapter 1 services.

With the move to in-class services, the Chapter 1 teacher's curriculum must necessarily be aligned with that of the regular classroom teacher. What is essential, however, is common planning time. Where teachers or aides worked with one teacher all day, their schedules were identical and they reported that common planning time was built in. When Chapter 1 teachers or aides worked with large numbers of classroom teachers, scheduling joint planning times was more difficult. Some teachers complained about lack of common planning time during school hours but arranged to meet during lunch or after school.

The case study schools reported that, with a pull-out model, communication between Chapter 1 and classroom teachers typically concerned the subject material covered in the regular classroom and the needs of particular

students. These teachers reported exchanging weekly written communications, and teachers in several schools also indicated that Chapter 1 and regular teachers met weekly to coordinate. Chapter 1 teachers and regular classroom teachers in several schools stated that coordination became less difficult when the regular program moved to whole language and hands-on math instruction because those methods were used by Chapter 1 as well.

The case study data show that the type and frequency of communication between Chapter 1 and regular classroom teachers were affected by district policy and by the nature of the Chapter 1 and regular education programs in the school. For example, coordination between supplementary programs and the regular program was mandated by one of the states in the study. Precisely how this was to be accomplished was left up to each district.

■ Decisionmaking

Classroom teachers were asked how much influence they had over educational decisions, including establishing curriculum, choosing textbooks and other instructional materials, determining how educational resources are used in the school, determining the content of inservice programs, and determining the selection and exiting of Chapter 1 students. Among those answering the question, teachers in low poverty Chapter 1 schools reported having the most influence on non-Chapter 1 related decisions, followed by teachers in middle and high poverty Chapter 1 schools. For example, 40 to 44% of the teachers in the low poverty Chapter 1 schools reported they had "a great deal" of influence in establishing curriculum, choosing textbooks, and determining how educational resources were used in their schools. In comparison, 22 to 29% of teachers in low poverty non-Chapter 1 schools and 17 to 22% of teachers in high poverty Chapter 1 schools gave this same response. Teachers reported they had the greatest influence in the selection of "other instructional materials" and the least in determining the content of inservice programs.

Classroom teachers reported they had little influence in how Chapter 1 funds were used in their school or in determining when students should exit from Chapter 1. A majority (54%) of teachers in low poverty Chapter 1 schools reported having a great deal of influence on the selection of Chapter 1 students. Teachers in poorer Chapter 1 schools, however, had less influence

on Chapter 1 student selection (41% in middle poverty and 32% in high poverty schools).

Chapter 1 teachers reported greater input in Chapter 1 decisions, but their influence declined as the poverty of their schools increased. Two-thirds of Chapter 1 teachers in low poverty schools reported they had a great deal of influence in a range of Chapter 1 decisions—establishing Chapter 1 curriculum, determining how Chapter 1 services are delivered, determining how Chapter 1 funds are used, selecting students for Chapter 1 programs, and determining exit criteria. Yet, only one-third to less than half of Chapter 1 teachers in the high poverty schools reported this level of involvement in these activities. Regardless of school poverty level, few Chapter 1 teachers reported much involvement in determining the intensity and amount of Chapter 1 services that students received. These apparently were district-driven decisions. It also appears that the schools in high poverty districts that also educate large numbers of Chapter 1 students had less discretion in Chapter 1 program design and delivery than the schools in lower poverty communities with smaller Chapter 1 programs.

Summary

This chapter continues the discussion of the data presented in Chapter III. In Chapter III, the levels of school-based personnel resources in the base program (i.e., without Chapter 1 funds) were compared for the high and low poverty schools in high and low revenue districts. This chapter takes this analysis of base-level resources a step further to examine the types and quantities of resources and services added to the base program through Chapter 1 funding. The first section of the chapter examined differences in the supplemental resources funded by Chapter 1 in the sample Chapter 1 schools by school poverty. The second section examined these differences according to variations in district revenue. A third section examined differences in the Chapter 1 supplement at high and mid poverty schools in high and low revenue districts. Mid, rather than low, poverty schools were used in this analysis because the distribution of Chapter 1 schools in the sample fell predominantly in the mid to high poverty ranges. These analyses showed that Chapter 1 expenditures per student were highest in the high poverty schools in the high revenue districts ($1,194) and in the mid poverty schools in the low revenue districts ($1,194).

The primary research questions confronting this study are addressed in Chapters III and IV. In Chapter III it was shown that Chapter 1 resources were added to uneven levels of base resources across the schools in our sample. Specifically, more base resources per student were found at the high, as opposed to the low, poverty schools and at schools from the high, as opposed to the low, revenue districts.

Beyond the question of whether Chapter 1 funds supplement an equal base, two important related issues are addressed in this chapter. First, for the most part Chapter 1 funds were *not* used to provide services in the low revenue sample districts that are routinely provided through state and local funds in the high revenue sample districts. Rather, to a large extent, Chapter 1 funds were used to support *supplemental* remedial education services in the sample schools.

The data from the elementary sample of schools supported a second contention. This contention argues that other special programs (e.g., special education, bilingual education) and administrative support services (e.g., health, counseling) are interdependent with Chapter 1 remedial instructional services in meeting the overall goals of the Chapter 1 program. The question is whether Chapter 1 is used primarily to fund one important service while funds are not available to provide other vital and interdependent services. The data showed that expenditures for other special programs and support services were substantially less in the high poverty schools in low revenue districts compared to the low poverty schools from high revenue districts. These data support the argument that Chapter 1 funds are generally used for a single purpose, while other interdependent services are relatively underfunded in low revenue districts.

V. The High School Analysis

Although the vast majority of students receiving Chapter 1 services are at the elementary school level, this study included a high school sample of 25 schools in order to examine the extent to which the elementary school findings are supported by the high school data. Fifteen of the high schools in the sample received Chapter 1 funds and 10 were non-Chapter 1 schools. Because the study addresses intradistrict as well as interdistrict comparability, the sampling frame required a Chapter 1 and a non-Chapter 1 high school from each contributing district. This condition limited the sample to only one district in both Georgia and Colorado and resulted in New York and California being somewhat overrepresented in the high school sample.

It is important to test whether the allocation patterns for Chapter 1 and non-Chapter 1 resources observed in the elementary sample also hold true in secondary settings, particularly since the instructional mode may have important implications for the ways in which Chapter 1 resources are distributed across, and used within, high schools. At the elementary level the majority of Chapter 1 resources are used to provide services by "pulling out" students from their regular self-contained classes for specialized remedial resource services. Conversely, in the departmentalized instructional setting of high schools, students change classes and, rather than being "pulled out," are scheduled for alternative classes or classes with the Chapter 1 teacher team-teaching with the instructional area specialist (e.g., the regular biology teacher).

Because high schools are usually larger and have a more heterogeneous student enrollment than elementary schools, differences in poverty levels between the high schools tend to be less extreme than across neighborhood elementary schools. In addition, since Chapter 1 allocations are based on poverty, the larger and more heterogeneous student populations found in

high schools may also create differences in the distribution of resources at high and low poverty schools in high and low revenue districts.

The relatively small size of the high school sample is less of a problem when resource allocation trends are found that are also observed in the larger elementary sample. Where the patterns of resource allocation vary between the smaller high school and the larger elementary school sample, it may be more difficult to know whether the variation can be attributed to school differences or to the limited nature of the high school sample. In the last section of this chapter, the findings from the high school analysis are compared and contrasted with the elementary school analysis in Chapters II through IV.

The first two sections of this chapter describe the resource base upon which the Chapter 1 program builds in high schools. As in the elementary school analysis, this base is comprised of all of the personnel resources found at the school, excluding those funded by Chapter 1. First, the resource base for Chapter 1 and non-Chapter 1 high schools is presented and compared. Next, as in Chapter III for the elementary school analysis, these base resources are compared by the poverty level of the school and then by district revenue. Finally, the impact of school poverty and district revenue together are examined. The next section describes what Chapter 1 adds, or how Chapter 1 funds are used. As in Chapter IV, these comparisons feature high and mid poverty schools in high and low revenue districts. Again, there is a *switch from low to mid poverty schools* for this analysis to reflect the more limited poverty distribution in the sample of Chapter 1 schools. The chapter concludes with a section on intra and interdistrict comparability at the high school level, and with a comparison of the findings from the elementary and high school analyses.

The Base Upon Which Chapter 1 Builds: Chapter 1 and Non-Chapter 1 Schools

Relatively little difference in base resources was found between the Chapter 1 and non-Chapter 1 high schools. As discussed in the elementary sample, the levels of poverty found in Chapter 1 and non-Chapter 1 schools varied considerably, and high and low poverty schools were almost evenly distributed between high and low revenue districts. Given this broad range

of variation among the Chapter 1 and the non-Chapter 1 schools, it is not surprising that only small differences in base resources were found between these two types of schools. Few differences in base resources between Chapter 1 and non-Chapter 1 schools were also found for the elementary school sample, as described in Chapter II.

The Base Upon Which Chapter 1 Builds: School Poverty

Dividing the high school sample on the basis of school poverty, as measured by the percent of students eligible for the federal free and reduced lunch program, results in 12 of the 25 sample high schools falling in the low poverty range, eight in the mid poverty category, and five in the group of high poverty sample schools. A more balanced distribution of high schools across these three ranges of school poverty would have been desirable. The skewed distribution toward the low poverty range was the result of the inclusion of 10 non-Chapter 1 high schools in the sample of 25 schools, and the relatively small number of districts in the sample states that met the requirement for inclusion in the high school sample of at least one Chapter 1 and one non-Chapter 1 high school. We also found that even in districts with high concentrations of poverty, several neighborhood elementary schools feeding into a single high school tended to create a more diverse mix of poverty and resulted in lower overall average poverty levels for high schools.

As shown in Table V-1, the average poverty level between the low and high poverty high schools ranged from 12 to 70%. In terms of Chapter 1 participation, there was little difference between the mid and high poverty schools, with both showing about 28% enrollment as compared to 8% for the low poverty schools. Enrollment in state compensatory education programs showed about 7% enrollment for the low and mid poverty schools compared to 22% for the high poverty schools. As would be predicted, the percent of limited-English proficient (LEP) and of minority students increases with school poverty as the average percentile ranking on achievement tests declines. The percent of principals rating such problems as student mobility, health, drug and alcohol abuse, and violence as moderate to serious problems in their schools is somewhat erratic across poverty levels, but is clearly more pronounced in the mid and high poverty schools. In addition, 77% of the

teachers in the low poverty schools indicate that they would like to have their children attend the schools where they teach, compared to an average of 54% of the mid and high poverty sample high schools.

Table V-1
High School Characteristics by School Poverty Level

	Low Poverty (0-20%)	Mid Poverty (20-50%)	High Poverty (50-100%)
Number of schools	12	8	5
Student characteristics			
% eligible for free/reduced price lunch	12%	33%	70%
% Chapter 1 participants	8%	28%	29%
% state compensatory education	7%	6%	22%
% limited-English proficient	6%	14%	17%
% special education	7%	8%	13%
% minority	40%	69%	87%
Avg %tile ranking on achievement tests	54%	47%	27%
% principals rating problem as moderate/serious			
Student absenteeism	33%	62%	80%
Student mobility	16%	62%	60%
Student health	0%	0%	80%
Student drug/alcohol abuse	0%	37%	0%
Student violence	8%	50%	20%
Student discipline	25%	87%	20%
% of teachers who say they would want their child to attend the school where they teach	77%	56%	52%

This table is based on a purposive sample of 25 high schools in four states.

Table V-2 provides a number of indicators of the quantities and relative "quality" of resources at the sample high schools across the three levels of school poverty. Funding per pupil, measured by district revenues and cost-adjusted school-level personnel expenditures, increases with school poverty. This relationship appears to be primarily a function of average district revenues. The revenue analysis shows that school poverty and average district revenues are correlated for the high school sample. As funding per pupil increases with average poverty level, so does the number of staff. Average staff allocations for the sample high schools across the three poverty levels are shown in Table V-2.

Table V-2
High School Resources by School Poverty Level

	Low Poverty (0-20%)	Mid Poverty (20-50%)	High Poverty (50-100%)
Funding per pupil			
Cost-adjusted district revenues	$5,575	$5,844	$6,763
Cost-adjusted personnel expenditures	$3,677	$4,173	$4,570
School personnel expenditures as percent of district revenues	66%	71%	68%
Numbers of staff (per school of 1,500 students)			
Certificated			
Regular classroom teachers	70.3	70.0	76.8
Regular resource teachers	4.6	6.7	2.5
School administrators	4.9	8.1	9.4
Library personnel	1.5	1.3	1.7
Psychologists/social workers/counselors	4.6	5.1	6.9
Health personnel	.9	.4	1.4
Non-certificated			
Instructional aides-regular program	4.0	3.4	8.1
Other paraprofessionals (library, health & admin aides)	4.3	3.4	5.6
Classroom teacher characteristics			
Cost-adjusted average teacher salary	$38,465	$38,476	$37,747
Years of experience	18.5	20.6	14.4
% with Master's Degree	70%	72%	66%
% with standard teaching certificate	92%	90%	91%
% principals reporting teachers "much above the district average"	70%	62%	80%
Classroom teacher morale			
% teacher turnover	5%	4%	8%
% who would again choose teaching as a career	77%	68%	70%
Instructional materials			
% of teachers reporting an adequate supply of textbooks	82%	74%	71%
Capital equipment (per school of 1,500 students)			
Computers	115	171	161
Printers	38	24	48
Televisions	24	18	35
Overhead projectors	35	39	19
Average total value per student for equipment	$194	$235	$259
School facilities			
Total building space per student (square feet)	139	179	201
Total instructional space per student (square feet)	58	74	72
Age of building (years)	34	42	68
Number of renovations since completion	1.5	1.8	4.2
Physical condition of school facilities:			
% of buildings rated as fair/poor	25%	25%	60%
% of classrooms rated as fair/poor	8%	25%	40%
% of restrooms rated as fair/poor	33%	50%	80%

These data exclude resources funded from Chapter 1.
This table is based on a purposive sample of 25 high schools in four states.

Cost-adjusted staff salary differentials are shown in Table V-2. They show that once these salaries are adjusted for variations in labor market conditions reflecting cost-of-living differences and differences in the attractiveness of local districts, there is little difference in the average salaries paid to teachers in the sample high schools on the basis of school poverty. Other staff characteristics and indicators of staff morale show few clear patterns by poverty level, but are clearly affected by district revenue levels. This relationship was also observed for the elementary analysis. While the percent of teachers rated much above the district average is greatest in the high poverty schools, again this pattern seems to be related to variations in district revenues.

Although teachers in the low poverty schools were more likely to report an adequate supply of textbooks, overall quantities of capital equipment items were found to be greater, overall, at the high poverty schools. However, again this appears to be a function of revenue more than of poverty.

While school facilities in the high poverty schools were most spacious, these buildings were also considerably older than the mid and low poverty schools. The AIR site visit teams were more likely to rate the buildings overall, as well as classrooms and restrooms, as being in poor condition.

The Base Upon Which Chapter 1 Builds: District Revenue

Tables V-3 and V-4 show the sample high school characteristics and resources by levels of average district revenues per pupil. The high school sample fell into two revenue groupings, with 16 of the 25 sample high schools in the high revenue category. It was very difficult to find districts within our five sample states that met the criterion of at least one Chapter 1 and one non-Chapter 1 high school, and the districts that met this condition tended to be high revenue districts. The average district revenues per student for the schools in the high revenue category was $7,193 compared to an average of $3,598 in the low revenue districts.

Table V-3 also illustrates the positive correlation between district revenues and school poverty, as noted above. This is indicated by the 33% poverty

level in the schools from the high revenue districts as compared to an average poverty level of 23% in the schools from the low revenue districts. Despite this relationship between district revenues and school poverty in the high school sample, the percentage of students participating in the Chapter 1 program is larger in the schools from the low revenue districts (25%) than in the schools from the high revenue districts (15%). Other student characteristic variables shown in the table are relatively comparable across the two revenue levels. Of the school problems rated by school principals as moderate to serious, student mobility and violence are shown as important concerns to a larger percent of the principals in the schools from the low revenue districts.

Table V-3
High School Characteristics by District Revenue Level

	Low Revenue	High Revenue
Number of schools	9	16
Student characteristics		
% eligible for free/reduced price lunch	23%	33%
% Chapter 1 participants	25%	15%
% state compensatory education	11%	9%
% limited-English proficient	12%	11%
% special education	6%	9%
% minority	55%	61%
Avg %ile ranking on achievement tests	50%	46%
% principals rating problem as moderate/serious		
Student absenteeism	60%	43%
Student mobility	66%	25%
Student health	11%	18%
Student drug/alcohol abuse	11%	12%
Student violence	44%	12%
Student discipline	77%	25%
% of teachers who say they would want their child to attend the school where they teach	62%	67%

This table is based on a purposive sample of 25 high schools in four states.

Table V-4 lists various measures of the quantity and the "quality" of resources at the sample high schools in low and high revenue districts. As expected, cost-adjusted, school-level personnel expenditures are higher in the schools from the high revenue districts. In addition, the schools from the low

Table V-4
Sample High School Resources by District Revenue Level

	Low Revenue	High Revenue
Funding per pupil		
Cost adjusted district revenues	$3,598	$7,193
Cost-adjusted personnel expenditures	$2,961	$4,607
School personnel expenditures as percent of district revenues	82%	64%
Numbers of staff (per school of 1,500 students)		
Certificated		
Regular classroom teachers	59.8	78.1
Regular resource teachers	0.9	2.8
School administrators	5.4	7.6
Library personnel	1.1	1.7
Psychologists/social workers/counselors	3.1	6.4
Health personnel	.5	1.1
Non-certificated		
Instructional aides/regular program	6.7	9.6
Other paraprofessionals (library, health & admin aides)	3.0	5.0
Staff characteristics (classroom teachers)		
Cost-adjusted average teacher salary	$34,204	$41,080
Years of experience	16.1	19.7
% with Master's Degree	44%	84%
% with standard teaching certificate	89%	93%
% principals reporting teachers "much above the district average"	55%	78%
Staff morale		
% teacher turnover	6%	4%
% who would again choose teaching as a career	70%	74%
Instructional materials		
% of teachers reporting an adequate supply of textbooks	73%	80%
Capital equipment (per school of 1,500 students)		
Computers	90	171
Printers	37	35
Televisions	21	26
Overhead projectors	28	36
Average total value per student for equipment	$155	$257
School facilities		
Total building space per student (square feet)	118	190
Total Instructional space per student (square feet)	56	72
Age of building (years)	41	44
Number of renovations since completion	2	2
Physical condition of school facilities:		
% of buildings rated as fair/poor	33%	31%
% of classrooms rated as fair/poor	33%	12%
% of restrooms rated as fair/poor	66%	37%

These data exclude resources funded from Chapter 1.
This table is based on a purposive sample of 25 high schools in four states.

revenue districts allocate a substantially greater share of their limited resources to school personnel (82% of district revenues) than the schools from the high revenue districts, which allocate 64% of district revenues to expenditures on school-level staff. Despite the greater percentage of allocation to school personnel, the actual numbers of staff at schools in the low revenue districts are substantially lower than their counterparts from the high revenue districts.

A comparison of teacher salaries across the two types of schools is shown in Table V-4. Excluding variations due to costs-of-living and other labor market factors outside district control, teachers employed in schools in high revenue districts enjoy about a 20% average cost-adjusted salary differential. Based on the analysis done for this study, about 13% of this differential can be accounted for by differences in teacher experience and education. The remaining 7% reflects a salary advantage that may be used to attract more highly qualified teachers in high revenue versus low revenue districts. In addition, school staff from the high revenue districts are also more experienced, better educated, and are much more likely to be rated as being above the district average by their principals. The indicators of morale are shown to be fairly comparable across these two types of schools.

Teachers in schools from the high revenue districts are somewhat more likely to report an adequate supply of textbooks and to have considerably more educational equipment than their counterparts from the low revenue districts. The high school buildings in the high revenue districts also show more space overall as well as more instructional space per student. The AIR site visit team was much less likely to rate classrooms and restrooms in schools in high revenue districts as being in poor condition, although the buildings were rated about the same for the two categories of schools.

The Base Upon Which Chapter 1 Builds: School Poverty and District Revenue

As with the elementary school sample, variations in school-level resources seem to be more related to school poverty or differences in overall district resource levels than to Chapter 1, non-Chapter 1 school distinctions. Because Chapter 1 programs are found in high and low poverty schools and in high and low revenue districts, the Chapter 1 status of the school seems to bear

little relationship to observed variations in base resource levels. However, analyses of resource differentials made on the basis of school poverty or district revenue alone may miss an important interactive effect from these two bases for comparison. For this reason, this section presents a more detailed discussion of base level resource differentials in the high and low poverty schools from the nigh and low revenue districts.

This format is similar to the analysis presented for the elementary school sample in Chapter III. However, because the high school sample is much smaller than the elementary school sample, all 25 of the sample high schools are included in this analysis. As a result, the analysis is less representative of the extremes of school poverty and district revenues than were the elementary results. Nevertheless, these analyses allow comparisons of the interactions of school poverty and district revenues for these two samples of schools.

■ School Characteristics and Climate

Table V-5 provides descriptive data on the highest and lowest poverty schools from the highest and lowest revenue districts in the high school sample. The low poverty schools ranged from 7 to 14% of students eligible for the federal free and reduced lunch program while the high poverty schools included a range from 42 to 57%. Average revenues per pupil in the schools from the low revenue districts were $3,550 and $3,657 compared to $6,844 and $7,643 in schools from the high revenue districts. The size of the average school was smaller for the category of schools in the high revenue districts. The percent minority is largest in the high poverty schools. However, in the high revenue districts, the Chapter 1, state compensatory education, and limited-English proficient programs are actually considerably larger in the low poverty schools than in the high poverty schools. The percentage of students enrolled in special education programs is fairly constant across the four school types except for the high poverty schools from the high revenue districts, where it nearly doubles at 13%.

The variables at the bottom of Table V-5 show the percentage of school principals rating six problem areas as being moderate to serious in their schools. All six of these problem areas were found to be more pronounced in the high poverty schools.

Table V-5
High School Characteristics and Climate

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Number of schools	5	4	9	7
Average % eligible for free/reduced lunch	7%	42%	14%	57%
Cost-adjusted district revenue levels	$3,550	$3,657	$6,844	$7,643
Average school enrollment	1,614	1,776	1,431	1,233
% minority	40%	72%	52%	73%
% Chapter 1	2%	53%	18%	11%
% state compensatory education	0%	25%	12%	6%
% limited-English proficient	4%	21%	12%	9%
% gifted education	12%	4%	8%	4%
% special education	6%	7%	7%	13%
% principals rating problem as moderate/serious				
Student absenteeism	60%	75%	22%	71%
Student mobility	40%	100%	11%	42%
Student health	0%	50%	0%	42%
Student discipline	60%	100%	11%	42%
Student drug/alcohol abuse	0%	25%	0%	28%
Student violence	20%	75%	0%	28%
Avg. %ile ranking on achievement tests	58%	39%	51%	35%
% of teachers who say they would want their child to attend the school where they teach	81%	39%	76%	54%

These data exclude resources funded from Chapter 1.
This table is based on selected revenue and poverty cells from a purposive sample of 25 high schools in four states.

Cost-adjusted expenditures are presented throughout the remainder of this section. The cost-adjusted measures were selected because they include "choice" variables that lead to higher expenditures (i.e., the quantities and qualities of staff as reflected by experience and degree level, and the overall level of the salary structure), but are adjusted to control for variations in the cost of living (and the impact on the purchasing power of the educational dollar).[16]

[16] A more complete discussion of cost-adjusted expenditures is presented in Chapter II.

Table V-6 shows average expenditures for regular classroom instruction, administration and support services, and special programs at high and low poverty schools in high and low revenue districts. Total instructional expenditures were about 44 to 67% higher in the high revenue districts. This is reflected primarily in the regular classroom instructional costs, and this difference is comparable in magnitude to that observed in the elementary school sample.

Table V-6
Cost-Adjusted Expenditures Per Student for High School Personnel

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Classroom instruction	$1,837	$1,727	$2,681	$3,005
Resource services	$121	$186	$140	$187
TOTAL REGULAR INSTRUCTION	**$1,958**	**$1,913**	**$2,821**	**$3,193**
School administration	$332	$521	$415	$713
Library	$58	$42	$68	$78
Psychologist/social worker/counselor	$98	$121	$211	$301
Health	$21	$15	$32	$35
Custodial	$196	$153	$204	$235
Security	$28	$46	$9	$33
TOTAL ADMIN. & SUPPORT	**$732**	**$898**	**$940**	**$1,394**
Limited-English proficient	$8	$14	$3	$32
Compensatory education resource	$0	$14	$12	$15
Special education classroom instruction	$134	$129	$175	$507
Special education resource	$30	$105	$84	$146
Therapy	$2	$6	$8	$43
TOTAL SPECIAL NEED PROGRAMS	**$174**	**$269**	**$283**	**$743**

These data exclude resources funded from Chapter 1.
This table is based on a purposive sample of 25 high schools in four states.

Administrative and support service expenditures are shown in the middle section of Table V-6. While the revenue effect holds for this set of services, the higher levels of expenditures at the schools from the high revenue districts were somewhat less pronounced than for regular instructional services. The poverty effect observed with the elementary school sample was also true for high school administrative and support services. Expenditures

for most of the administrative and support services were higher at the high poverty schools within both district revenue groupings. Overall, the cost-adjusted administrative and support expenditures were from 28 to 55% greater at the high poverty schools.

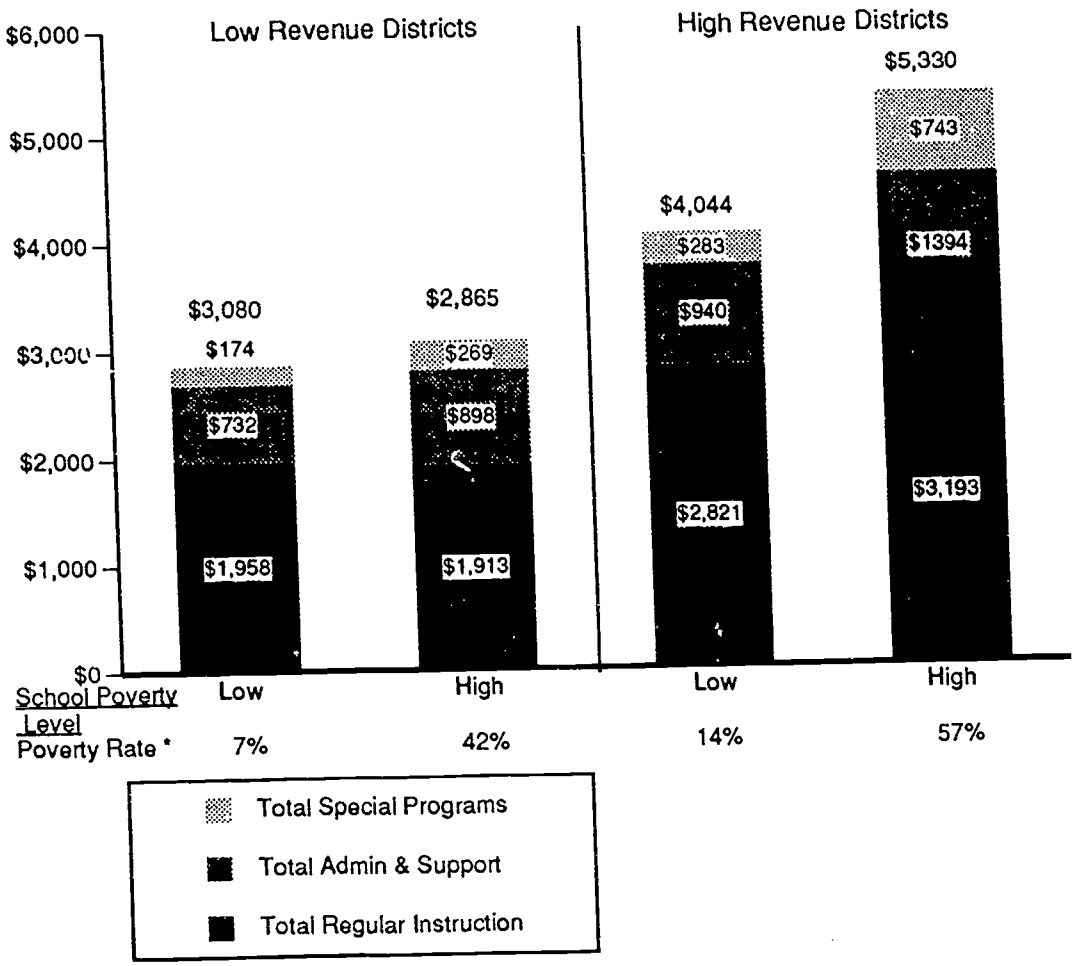
The bottom section of Table V-6 shows total special program expenditures at each type of school divided by the total school population. Although variation by individual program is observed, overall expenditures for special programs divided by the total enrollment of the school were greater in the high revenue and in the high poverty schools.

Figure V-1 summarizes the expenditures for the three groups of personnel in the high and low poverty high schools and in the high and low revenue districts. Overall, as found in the elementary school sample, personnel expenditures per pupil were higher in high revenue districts and in the high poverty schools. The one exception to this trend was that the regular instructional expenditures were higher in the low poverty, than in the high poverty, schools in the low revenue districts. As with the elementary school sample, the revenue effect predominated; that is, the overall expenditures per pupil in the low poverty schools in the high revenue districts were higher (31.3%) than in the high poverty schools in the low revenue districts.

■ Staff Characteristics

These personnel expenditures were derived from counts of fulltime equivalent (FTE) staff (see Table V-7). The staff counts are expressed in terms of a standardized high school of 1,500 students, allowing an assessment of the impact of variations in personnel expenditures on actual counts of staff. For example, the increased expenditures on regular classroom teachers at the high revenue schools translated into more than 15 additional fulltime classroom teachers at the low poverty high schools in high revenue districts, compared to the high poverty high schools from the low revenue districts (75.5 vs. 60.3). Interestingly, within each revenue grouping the quantities of regular classroom teachers were greater at the high poverty schools. Generally, this would not be expected given the flat or lower regular instructional expenditures shown for the high poverty schools above. This change, shown in Table V-8, was the result of higher teacher compensation at the low poverty schools due to a more senior and highly educated staff. More regular education resource teachers are at the low poverty schools, while a greater number of regular education instructional aides are at the high poverty schools.

Figure V-1
Base Level Cost-Adjusted Personnel Expenditures Per Student By School Poverty and District Revenue: High Schools



These data exclude resources funded from Chapter 1.
This figure is based on a purposive sample of 25 high schools in four states.
* Poverty rate is measured by the percent of students eligible for the free and reduced price lunch program.

Table V-7
Staffing Patterns Based on Fulltime Equivalents Per High School of 1500 Students

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Certificated				
Regular classroom teachers	59.3	60.3	75.5	81.5
Regular resource teachers	4.2	6.5	4.0	5.4
Staff receiving stipends	12.3	5.8	10.8	5.0
School administrators	4.1	7.1	5.6	10.3
Library personnel	1.1	1.0	1.6	1.8
Psychologists/social workers/counselors	2.7	3.4	5.6	7.6
Health personnel	0.5	.4	1.0	1.1
Other certificated	0.0	1.1	0.4	0.0
Non-certificated				
Instructional aides-regular program	1.9	2.0	5.2	7.4
Admin. supp. personnel (non-cert.)	23.6	28.6	11.0	5.6
Other support personnel (non-cert.)	2.7	3.3	4.8	5.2
Volunteers	0.3	0.1	0.7	0.0

These data exclude resources funded from Chapter 1
This table is based on selected revenue and poverty cells from a purposive sample of 25 high schools in four states.

It is interesting to note that the number of teachers receiving supplemental stipends for extracurricular activities or other special duties was considerably higher at the low poverty schools. This may indicate more student activities at these schools. Throughout virtually all of the administrative and support areas, the high revenue schools showed more staff than those from low revenue districts, and the high poverty schools showed more staff than their low poverty counterparts.

Table V-8 shows that the principals in the high poverty schools and high revenue districts had more experience. The regular classroom teachers in the high schools from the high revenue districts had more professional training and experience. The percent of principals rating their teachers as being above the district average was highest for the low poverty schools in the high revenue districts and was lowest for the high poverty schools in the low revenue districts.

Table V-8
Principal and Teacher Characteristics and Attitudes: High Schools

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Principal				
Years in school as principal	3.8	3.0	5.7	7.0
Total years as principal	8.8	11.0	8.5	9.6
% with Master's degree	100%	100%	100%	100%
Classroom Teacher				
Cost-adjusted average teacher salary	$33,862	$34,204	$41,080	$39,956
Years of experience	16.2	15.9	20.7	18.4
Years at this school	10.0	7.7	10.0	7.5
% with Master's degree	44%	44%	84%	85%
% with standard teaching certificate	95%	81%	89%	97%
% principals reporting teachers "much above the district average"	60%	50%	85%	71%
% teachers not returning	8%	4%	3%	5%
% who would again choose teaching as career	78%	60%	78%	69%

This table is based on a purposive sample of 25 high schools in four states.

■ Facilities and Equipment

Table V-9 compares the four groups of schools on the availability of selected equipment and the overall annualized expenditures on capital equipment per student. On average, nearly twice as many total computers were reported per school of 1,500 students in the high revenue districts. Although less pronounced, a similar disparity in the number of computers was reported among the sample elementary schools. Overall, on average, annualized expenditures per pupil on equipment were substantially higher in the schools from the high revenue districts.

Table V-10 shows selected variables for comparison of high school facilities. Total school space per pupil was greater in the schools from the high revenue districts and in the high poverty schools. The condition of classrooms buildings and grounds was most likely to be rated fair to poor in the high poverty schools. The classroom learning environment was most likely to be rated from fair to poor in the schools from the high revenue districts.

Table V-9
Capital Equipment: Number of Items Per High School of 1,500 Students

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Computers	96.5	81.8	135.1	218.1
Printers	43.4	28.3	30.1	40.7
Average value per student for equipment	$194	$105	$202	$327

These data exclude resources funded from Chapter 1.
This table is based on a purposive sample of 25 high schools in four states.

Table V-10
High School Facilities

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Characteristics of facility				
Total square feet of building space per pupil	111	127	164	223
% classroom space in portables	6%	9%	0%	0%
Age of building (as of 1992)	25	61	42	47
Sq. feet land space (excluding buildings) per pupil	893	1,157	1,106	1,024
Physical condition of school facilities				
% of buildings rated as fair/poor	20%	50%	22%	42%
% of classrooms rated as fair/poor	20%	50%	11%	14%
% of school restrooms rated as fair/poor	60%	75%	22%	57%
% school grounds rated fair/poor condition	40%	50%	22%	57%
% of schools where the quality of the classroom learning environment is rated as fair/poor	0%	25%	33%	57%

This table is based on a purposive sample of 25 high schools in four states.

The following are examples of the conditions receiving low ratings:

> *Although the two libraries in a high poverty urban high school in a high spending district were adequate in size, they were very dismal. Books in the stacks appeared dusty and several tables were strewn*

with books. There were few chairs and tables, most too small for high school students. Although the faculty indicated that they wanted all students to learn and that the neighborhood was not conducive to students' studying, the libraries were anything but an invitation to study there.

One very high poverty urban school was old and poorly maintained. Although no graffiti were on the walls, the buildings were not clean. The girls' restroom was the most telling illustration of the poor maintenance. Not only was the room dirty, it was also in disrepair. When we turned on a faucet, the water gushed out the bottom of the sink onto the floor; one of the pipes underneath the sink was missing.

What Chapter 1 Adds

The percent of Chapter 1 resources directed to high schools tends to be small compared to that directed to elementary schools, perhaps because of a belief in early intervention for compensatory education services. Therefore, Chapter 1 services in the high schools were often limited to specific grade levels and/or subject areas.

Table V-11 shows cost-adjusted Chapter 1 expenditures in high and low poverty schools in high and low revenue districts. Because this analysis includes only the Chapter 1 high schools from the sample, the total number of schools is reduced from 25 to 15. It should be noted that only one low poverty Chapter 1 high school from a low revenue district is represented in this analysis.

Overall Chapter 1 expenditures per pupil were considerably higher in the high revenue districts. Other funding sources in the high revenue schools may have allowed the schools in these districts to focus Chapter 1 funds on a smaller number of students.

Table V-11
Cost-Adjusted Chapter 1 Personnel Expenditures Per Student: High Schools

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Number of schools	1	4	4	6
Compensatory education resource services	$193	$121	$104	$152
Classroom instruction-regular education	$0	$13	$1,255	$895
Administrative services	$320	$102	$6	$0
Psychologist/social worker/counselor	$230	$7	$2	$0
TOTAL PERSONNEL	**$743**	**$243**	**$1,366**	**$1,081**

These data only include resources funded from Chapter 1.
This table is based on a purposive sample of 15 Chapter 1 high schools in four states.

■ Chapter 1 Instructional Services

In regard to how Chapter 1 funds are used in the high school sample, the expenditure per Chapter 1 student for compensatory education resource services was greater in the low poverty schools and in the high revenue districts. While compensatory resource services were clearly the predominate category of expenditure for Chapter 1 funds in the elementary school sample, this was much less the case for the high school sample. In most of the Chapter 1 high schools, Chapter 1 funds were used primarily to bolster regular classroom instructional services or administrative services. This was especially true for the Chapter 1 high schools from the high revenue districts where regular classroom instruction accounted for a large share of Chapter 1 expenditures per student.

The increased use of team teaching to deliver instructional services was a trend reported in the case study sites. In our sample, teams often consisted of a Chapter 1 teacher and a state compensatory education teacher; in other cases, teams consisted of a classroom teacher together with a Chapter 1 teacher who was also funded by the state compensatory program and thus could serve both Chapter 1 and state compensatory education students. Teaming arrangements were often the result of state or district initiatives to increase collaboration between the special programs and the regular program

or to provide the level of services that allowed students to get credit for their courses. In some districts, low-achieving students sometimes received no credit for remedial courses.

Most of the Chapter 1 high schools in our sample provided both reading/language arts and mathematics services. Twenty percent of the high schools provided English as a second language (ESL) instruction. However, the high schools reported serving only 54% of their eligible Chapter 1 students.

More than three-quarters of the Chapter 1 aides reported providing instruction to students and clerical support to teachers. A much smaller percentage served as liaisons with Chapter 1 parents (35%) and/or assisted in testing students (39%).

Chapter 1 teachers in the sample high schools were less likely than the elementary school Chapter 1 teachers to report that Chapter 1 parents had opportunities to serve as school volunteers or tutors (33% vs. 60%) or to participate in activities (e.g., parent resource center, home-based education activities, literacy activities) to enhance their role as teachers of their own children. However, high school parents were as or more likely to have access to Chapter 1 parent liaisons and parent advisory committees than were elementary school parents.

■ Chapter 1 School Administration and Support Services

Chapter 1 funds were used to augment school administrative services, particularly in schools in the low revenue districts. Schools in the high revenue districts, with an adequate base of administrative services, appear more able to use Chapter 1 funds to supplement the regular instructional program.

To a more limited extent, this pattern appeared also for psychological, counseling, and social services. More Chapter 1 funds per pupil were allocated for these services in the low poverty schools and *especially* in the low revenue districts.

While most of the Chapter 1 high schools used their funds to support Chapter 1 aides for instructional staff and equipment, some schools also used Chapter 1 funds to support services for special needs. For example:

> *Several of the very poorest high schools visited, with poverty rates above 90%, had very low test scores and staggering dropout rates. Staff in these schools cite attendance as a major problem. To address this problem, a high poverty high school in a large urban, low revenue district spent its Chapter 1 funds to pay for attendance officers. These officers call the homes of absent students, encouraging families to have their children come to school. They also walk the streets of the neighborhood surrounding the school, bringing truant students into the school. The school's principal reported that attendance rates have increased substantially since the inception of this program.*

> *Parents as well as staff expressed the need for more support services in high schools. For example, several parents interviewed at a medium poverty urban high school said they would like greater flexibility for compensatory education programs to serve all students who need help. They wanted administrators to look more broadly at what underachievers need and to provide services such as counseling and after-school programs. As one parent stated, "You can't catch up if you're in the school only the same amount of time as others or getting the same educational program as other kids."*

■ Chapter 1 Materials and Equipment Expenditures

Table V-12 shows counts of computers and printers purchased with Chapter 1 funds in the four types of schools. It also shows the average total value per Chapter 1 student for all equipment items in the school purchased with Chapter 1 funds. Greater quantities of Chapter 1 funds are used to buy computers and printers in the high poverty schools. However, this trend does not always translate into higher overall equipment expenditures per pupil from Chapter 1 funds. In the high revenue districts, the overall expenditure per pupil in the high poverty schools is greater than for the low poverty schools. This reflects that fact that there are greater Chapter 1 expenditures in these schools on equipment items other than just computers and printers.

Table V-12
Chapter 1 Capital Equipment: Number of Items Per High School of 1,500 Students

	Low Revenue Districts		High Revenue Districts	
	Low Poverty Schools	High Poverty Schools	Low Poverty Schools	High Poverty Schools
Computers	0.0	22.8	28.9	11.0
Printers	0.0	5.4	5.2	2.6
Average total value per pupil for equipment	$0	$87	$74	$97

These data only include resources funded from Chapter 1.
This table is based on a purposive sample of 15 Chapter 1 high schools in four states.

Most high school Chapter 1 teachers in our sample (nearly 80%) reported they had a sufficient supply of textbooks, workbooks, and audiovisual equipment. Nearly all (90%) high school Chapter 1 teachers reported they had computers and printers available to their classrooms. Most high school Chapter 1 teachers reported that textbooks and supplemental books were available for students to use at home, while about 72% reported that workbooks could go home with students. High school Chapter 1 teachers were more likely than elementary school Chapter 1 teachers in our sample to report they had *all* of the resources they need (35% vs. 20%) and less likely to report they had only some of what they need (16% vs. 24%).

Intra and Interdistrict Comparability at the High School Level

Figure V-1, presented earlier in this chapter, provided the best illustration of intradistrict comparability within the high school sample. Within the high and low revenue districts, the high poverty Chapter 1 schools showed more base resources than their low poverty counterparts. They also showed greater need as measured by special program enrollments and student problem areas rated as moderate to serious. Administrative and support expenditures were higher in the high poverty schools from both high and low revenue districts. Although the regular education instructional expenditures were nearly identical or somewhat larger in the low poverty schools, in both cases this differential was less than 5%, suggesting virtual parity.

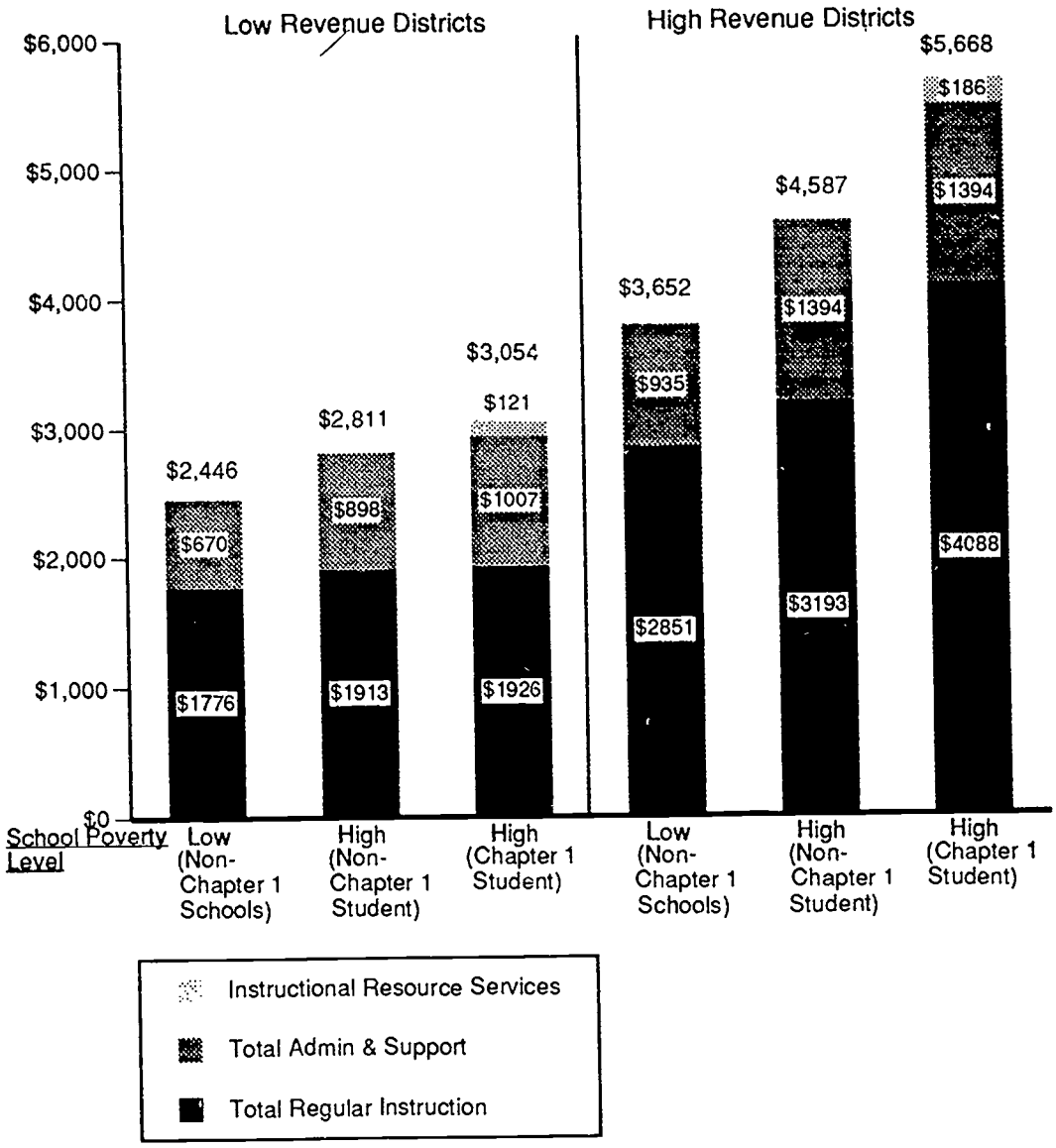
When an interdistrict comparability standard is applied, however, the picture appears less equitable. Figure V-2 compares base instruction and administration and support expenditures in low poverty non-Chapter 1 and high poverty Chapter 1 schools from high and low revenue districts. For the low poverty schools, the base resource totals do not agree with those shown in Figure V-1 because only the schools that do not receive Chapter 1 funds are included. The purpose of Figure V-2 is to compare regular education instruction and administrative expenditures in low poverty non-Chapter 1 schools in low and high revenue districts. For the high poverty schools, two bars are shown. One bar represents expenditures per student for regular instruction and administrative and support services without Chapter 1 funding; the second includes Chapter 1 funds spent for these purposes and for instructional resource services.

Comparisons between the middle two bars in Figure V-2 show whether Chapter 1 funds were being used to provide services in schools from low revenue districts that are part of the basic program in schools from high revenue districts. Even with the addition of Chapter 1 funds, per-pupil expenditures on instruction and administrative and support services were less in the high poverty Chapter 1 high schools from the low revenue districts, than for the low poverty high schools from the high revenue districts. *These data from the high school sample tend to support the argument that Chapter 1 resources may not be supplemental when compared on an interdistrict standard of comparability.*

Comparing the Elementary and the High School Results

To what extent do the findings from the high school analysis support the conclusions from the elementary school analysis? The base levels of instructional, administrative, and special program expenditures found in the revenue and poverty analysis for the elementary and high school samples are best compared using Figures III-1 and V-1. Although the overall expenditures per pupil were higher at the high schools across all four types of schools, the relationships between the resources and the totals represented by each bar were comparable for the elementary and high school samples. In both figures, higher expenditures were generally shown for the high poverty elementary and high schools and for the high revenue districts. The one exception is for the high and low poverty elementary schools in the high revenue districts, where total expenditures per pupil were virtually identical.

Figure V-2
Total Cost-Adjusted Personnel Expenditures Per Student By School Poverty and District Revenue: High Schools



This figure is based on a purposive sample of 25 high schools in five states.

In each case, the revenue effect was stronger, in that the low poverty schools from the high revenue districts showed greater expenditures than the high poverty schools from the low revenue districts. These basic relationships are also generally true for administration and support services and special programs. One exception that applies across the elementary and the high school analysis is the case of regular education instructional services. In the high revenue districts, base regular education expenditures were higher in the low poverty schools than in the high poverty schools. In the low revenue districts, expenditures on regular education services were fairly even across the two poverty levels.

In both elementary and high schools, the base resource allocation patterns did not appear to substantially violate the spirit or the letter of the Chapter 1 intradistrict comparability standard. However, the evidence supports the contention that Chapter 1 funds were being used to supplement an uneven resource base across the districts in the sample.

In response to the specific question of whether Chapter 1 funds provided services in low revenue districts that are a part of the basic program in high revenue districts, the elementary and high school findings differed somewhat. In the elementary school analysis, although an uneven resource base was shown to exist for the most part, Chapter 1 funds were *not* used to support services routinely being provided in high revenue districts through state and local funds. Rather, Chapter 1 funds were being used mostly to provide compensatory education resource services—services that were not found as a part of the base program in schools from the high revenue districts. A second concern is that Chapter 1 funds were primarily being used to provide a single set of services and not to fund interdependent special program and support services that are systematically deficient in high poverty schools from low revenue districts. The data from the elementary school analysis provided evidence in support of this concern.

For the high schools, Chapter 1 funds were less likely to be used for a single type of service. The predominant expenditure in most of the sample Chapter 1 high schools was for regular education services. Chapter 1 support was also more likely to be used to augment administrative and support services, and, to a more limited extent, to provide compensatory resource services. However, even with the inclusion of Chapter 1 funds, expenditures

at the high poverty Chapter 1 schools from low revenue districts were lower than for their low poverty, high revenue counterparts. *Based on the high school analysis, Chapter 1 funds were being used to provide services that were part of the base program in the low poverty, high revenue schools.*

VI. Implications of Findings for the Reauthorization of Chapter 1

Issues in the Reauthorization of Chapter 1

Reports of the Independent Commission on Chapter 1 and the Independent Review Panel of the National Assessment of Chapter 1 call for major changes to the focus and structure of the Chapter 1 program. These include:

- Establishing high educational standards by states and local school districts which are applicable to all schools and students
- Using Chapter 1 funds to reform and enhance the whole school program, with an emphasis on preventing school failure, not just remediation
- Switching to an outcome-based system of accountability, supported by a new assessment system that provides information for national evaluations, measures school progress and accountability, and provides information about individual students to teachers and parents
- Providing greater targeting of Chapter 1 dollars to schools with large concentrations of poverty to support schoolwide reforms
- Increasing dollars available for professional development and school development
- Re-energizing and expanding parent involvement programs to enhance the ability of parents to support children's learning

- Assuring access to health and social services for all children in Chapter 1 schools

- Equalizing the distribution of state and local resources to assure comparability in vital services among all districts as well as in all schools within each district

These recommendations will frame Congressional debate on the future course of the Chapter 1 program. This study of resource allocation patterns is one of several studies conducted in conjunction with the National Assessment of Chapter 1. This chapter uses findings from this study to inform the discussion of five issues: (1) inter and intradistrict resource equalization; (2) intrastate distribution of Chapter 1 resources; (3) the use of Chapter 1 resources to meet the academic and nonacademic needs of Chapter 1 students; (4) staff training; and (5) access to health and social services.

An important limitation of this study is that it purposely examined resource allocation patterns in a sample of schools with relatively high and low percentages of students in poverty and in districts with relatively high and low levels of resources per student. This approach had the advantage of allowing an in-depth examination of resource allocation patterns in the types of districts and schools of particular interest to these analyses. The disadvantage is that the sample is not representative and that the results can not be generalized to the nation. To address these issues further, a full and nationally representative interdistrict comparability study would have to be conducted.

Inter and Intradistrict Resource Equalization

The Chapter 1 program is based on the premise that the educational programs and services provided to students with state and local funds are "comparable" and that federal funds for Chapter 1 are supplemental resources to be used to "expand and improve" education programs to meet the special needs of eligible students. "Supplement not supplant" and "comparability" provisions in the Chapter 1 law are designed to ensure that the levels of basic instructional, supplemental, and support services are the same across all schools *within* a district prior to the addition of Chapter 1 funds. Two concerns have been raised about the comparability of the base program: (1) Do the current comparability regulations result in comparable

services across schools within districts? If not, what comparability measures should be instituted to ensure greater equity in the base program? (2) To what extent are basic educational services equitable *across* district lines? What steps can the states and federal government take to lessen these inequities?

■ Intradistrict Comparability

Data from this study do not support the call for expanded intradistrict comparability measures. For the most part, districts in the study sample have achieved intradistrict comparability on most measures of educational program: (1) cost per student; (2) number of staff; (3) average size of self-contained classrooms; (4) teaching experience and degree attainment of classroom teachers; and (5) availability of instructional materials and equipment. Where differences in these measures existed, they generally favored the high poverty schools. For example, high poverty schools had, on average, somewhat higher base expenditures (non-Chapter 1) per pupil in administration and support services than low poverty schools in their districts.

However, schools did differ within districts on more qualitative measures.

- Principals of the low poverty schools were more likely to rate their teachers as above the district average than principals of the high poverty schools.

- Teachers in the low poverty schools were somewhat more likely than their colleagues in the high poverty schools to report they had all of the instructional resources they needed.

- The low poverty schools also had more parent-funded extras, such as better playground equipment or additional funds to purchase library books.

- And the high poverty schools were less likely to have a supportive school climate. They had higher levels of student absenteeism, student mobility, student health problems, student discipline problems, and student violence than the low poverty schools.

While districts have worked to equalize base expenditures, number and type of staff, level of instructional resources, and staff qualifications across their schools, they face a more difficult problem of equalizing the "quality" of staff and the environment in which students are educated. These are not variables that can be manipulated through comparability standards.

■ Interdistrict Comparability

While it appears that the current resource-based requirements for intradistrict comparability have been achieved, there are major disparities in educational programs related to district revenue. This study found that schools in higher revenue districts, regardless of poverty level, had more art/music/gifted and talented staff; teachers with more teaching experience, more formal education, higher salaries, and higher ratings from their principals; smaller elementary school classes, more health services, more instructional equipment, and larger facilities than schools in low revenue districts. Schools in high revenue districts also reported fewer problems with student absenteeism, student health problems, and discipline. Thus, Chapter 1 builds on a significantly stronger educational resource base in high revenue districts.

A major question for this study is whether Chapter 1 provides services in low revenue districts that are part of the basic instructional program funded by state and local funds in high revenue districts. In Chapter IV this assertion was tested by comparing the resource base between the high poverty schools in the low revenue districts to the low poverty schools in the high revenue districts. Although Chapter 1 funds provided supplemental services through remedial pull-out classes, many other services that are interdependent to meeting the goals of Chapter 1 were supported at much lower levels in the low revenue schools. Expenditures per student served in other special program areas were considerably lower at the high poverty schools (from one-fifth to one-half). These include such programs as special education, LEP, and state compensatory education, which sometimes serve the same, or similar, students served by Chapter 1. Expenditures on the base regular education instructional program were 25% lower at the high poverty, low revenue Chapter 1 schools. Administrative support services were provided at a generally lower level in the low revenue Chapter 1 schools despite much greater indications of student need. As an example, although health problems were cited as serious by the principals in a much larger percentage

of the low revenue Chapter 1 schools (45% vs. 8%), expenditures for health services in these school were only one-third of their low poverty, high revenue counterparts.

How can the federal government address these differences? One suggestion has been to require states to equalize revenues among districts as a condition of receiving Chapter 1 funds. However, this approach has a number of problems. First, states that have attempted greater equalization, largely under state court order, have faced considerable political resistance from wealthy school districts and taxpayers to tax increases needed to finance equalization (e.g., New Jersey, Texas). Second, a federal requirement to equalize education expenditure may conflict with court mandates in some states. For example, some courts (e.g., Texas) have interpreted their state constitutions as requiring the equalization of *the ability of districts to raise revenues for education* (fiscal neutrality), not the equalization of education revenues themselves. Third, expenditure equity does not necessarily result in program parity. Given different needs, cost structures, and community demands, school districts may spend their education dollars in different ways. Fourth, there is the question of how state categorical funds (i.e., special, LEP, compensatory education) should be factored into measures of expenditure equity. These funds *should* differ by district based on varying student needs, and represented an important source of the differences in expenditures per student noted in the sample schools. Finally, it may be unreasonable to expect $6.7 billion spent on Chapter 1 to substantially affect the way resources are allocated across the full $265 billion education system.

Another suggestion calls for the establishment of interdistrict standards that would guarantee comparable education services for comparable student needs. This recommendation is a major departure from current Chapter 1 practice in four areas: (1) it creates *interdistrict* comparability standards; (2) it shifts from an equity standard of equal treatment of all students (horizontal equity) to one of unequal treatment of students with unequal needs (vertical equity); (3) it moves from an expenditure-based to a programmatic-based set of comparability measures; and (4) it expands the scope of comparability to include services such as preschool child development programs, reading programs in the early grades, and a broad and comprehensive curriculum designed to teach advanced skills. Establishing interdistrict standards raises a number of issues, some of which are administrative and some of which are

philosophical. For example, how do we determine which services are essential for students with different kinds of educational needs? In other words, how do we operationalize the concept of vertical equity when applied to educational programs, rather than education expenditures? How will districts (and the states and federal government that monitor them) measure and report these programmatic standards? What would be the costs of monitoring and compliance for such a system and how would they be supported? Who should be responsible for paying additional services for high need districts? What are the appropriate roles of local school districts, states, and the federal government? What should be the educational base that Chapter 1 supplements?

If we were to move to such a system of interdistrict standards, how might such a system of interdistrict equalization be defined and monitored? One possible basis for defining such a system would be to concentrate on a limited set of selected resources that are considered essential to the provision of adequate base-level instructional services. At a minimum, this might include required ratios of such key school-based staff as regular instruction teachers and aides and administration and support personnel. Standards for key resources other than personnel, as identified in this report, might also be established. These might include specifications for required levels of access to computers and other labs, as well as for the availability of textbooks and other key educational supplies and materials. In addition, based on the premise that higher salaries buy better quality staff, certain standards might be set for teacher compensation.

Data systems currently exist in some states that would allow districts to be compared and monitored on such resource standards. In the other states, data collection and monitoring based on these criteria could be substantially more difficult.

However, such a resource-based approach to the derivation of interdistrict equalization standards has some important advantages over more traditional dollar-based comparisons across districts. For example, it is generally recognized that equal dollars do not necessarily translate into equalized school-based services. The prices (e.g., salaries and wages) of educational resources may vary substantially across the regions in a state; supplemental resources may not be allocated to instructional services at the school level; or,

differential student needs for special services, such as special or limited-English education, may require supplemental, rather than equal, resources. Focusing on key regular education resources at the school level circumvents some of these issues, which tend to substantially complicate approaches to school finance equalization based on nominal dollar allocations.

While the establishment of selected, resource-based standards provides a simpler approach for conceptualizing equity in school finance, other difficulties arise. For example, if the lower revenue districts in a state are required to meet statewide standards on selected resource measures without supplemental funding, they may be forced to invest a disproportionate share of their limited resources in these specified areas to the detriment of all of the other resources that have not been targeted. To meet state class size standards, a low revenue district might be forced to forgo security services or routine maintenance to an extent that could have serious implications for the overall quality of the learning environment. Thus, an important limitation to resource-based equity standards, that are imposed in the absence of overall standards of adequate funding for all of the districts in the state, is that they could punish the very districts, and students, they are designed to protect.

For this reason, to be most effective, it would seem that such a limited resource-based system would have to be combined with other statewide provisions to ensure funding levels that would at least be adequate to meet these basic service standards in all of the districts of the state. A comprehensive system of this type was developed and tested by Chambers and Parrish in the states of Illinois (1982) and Alaska (1984). However, neither state adopted this approach as the basis for their state funding system because of its complexity and far-reaching implications for the redistribution of funds across districts.

A simpler approach could be to develop cost-adjusted equalization standards across districts for the regular education, as well as the various categorical program areas, that would be based on a less precise standard, such as overall revenues for each programmatic area divided by the number of students served. This could be accomplished by making the kinds of comparisons shown in this report (i.e., overall special education expenditures divided by the number of special education students). Because expenditures

are considerably more difficult to track than revenues a revenue, rather than expenditure, approach might be used for this purpose.

Such an approach would account for variations in student need. However, some form of adjustment for variations in the *cost* of education resources across districts should be included. This type of adjustment is needed because equal dollars will generally purchase very different levels of educational resources in high cost urban areas as compared to the lower cost outlying regions of the state. A methodology for the comprehensive measurement of these types of educational cost variations is well developed and has been applied in a number of states. However, this approach is complex and would require original data collection.

Once "adequate" funding levels for all districts are established, more limited and specific resource standards could also be applied to districts with the assurance of adequate resources to support them. While the administrative issues associated with the implementation of such equity measures are not trivial, they pose a much less formidable burden to the realization of such policies than the political difficulties. The imposition of such standards would be likely to cause considerable fiscal redistribution within states, and thus disruption of existing services levels, unless there was a substantial infusion of supplemental funds to "level up" all districts to some acceptable level of funding.

Beyond the issues cited above, is it reasonable to expect a federal program of the relatively modest size of Chapter 1 to establish uniform resource allocation patterns across a massive educational system that is primarily state and local in nature? What sanctions would be associated with such a system, and how would the cost of administration and compliance be supported? The technical issues are also difficult, but they are probably more manageable. Although it is not easy to assess exactly what levels of service should be considered adequate for students of varying special educational needs, comparative analyses, such as those discussed in Chapter IV, can indicate inequities in base instruction, special needs, and administrative and support services.

Intrastate Allocation of Chapter 1 Funds

An ongoing issue in the Chapter 1 program is how to allocate Chapter 1 funds to districts within states, and to schools within districts. What criteria should be used: the number of poor students, percent poverty in the district, percent poverty in the school regardless of district poverty? There has been considerable discussion on the political feasibility of redistributing Chapter 1 funds from low poverty districts to high poverty districts.

This study raises the question of whether poverty alone is the appropriate criterion for the allocation of funds. The purpose of Chapter 1 is to provide financial assistance to meet the special needs of educationally deprived children who live in areas with large numbers of children from low-income families. High poverty Chapter 1 schools are located in both high and low revenue school districts. The findings from the study suggest that the *need* for supplemental resources for educationally deprived children from high poverty schools may be substantially different in high and low revenue districts. Data from our sample show that students attending high poverty schools in high revenue districts benefit from the additional educational services provided to all students in high revenue communities--more and better qualified staff, more health services, and so on.

These findings suggest that for Chapter 1 to be most effective in supplementing the resource needs of low income students, intrastate allocation formulas may need to find ways to account for districts with low revenues and high poverty when targeting Chapter 1 funds.

Within districts, however, school poverty becomes a more relevant allocation criterion. High poverty schools have greater student needs (as measured by achievement test scores, English language proficiency, student health, and social needs). Although they provide Chapter 1 services to a larger portion of their student body than do low poverty schools, the high poverty schools in our sample reported serving, on average, only two-thirds of their eligible students. In many urban districts, however, *most* schools qualify as high poverty schools. The average student poverty in several urban districts in the sample was 60% or higher. Here the question becomes the extent to which schools that are 90% poor differ from those that are only 60% poor, and how much more resources the higher poverty schools should receive.

■ Use of Chapter 1 Resources

This study has shown that, at the school level, Chapter 1 primarily adds resource services, regardless of school poverty or district revenue. In some cases, Chapter 1 funds were also used to provide preschool and extended-day kindergarten, but they were not used for the educational services that differentiate high and low revenue districts such as art/music/gifted and talented programs, more experienced staff, smaller class sizes, or additional administrative and support services. As required by law, Chapter 1 provides *supplemental instructional services*, but these were found to be layered on an inequitable program base between low and high revenue districts.

What are the implications of the findings from this study for recommendations to use Chapter 1 dollars to strengthen the core instructional program in Chapter 1 schools? Rather than providing Chapter 1 students with remedial services that may be supplementing an inadequate foundation of regular instruction and support services, how might we bolster this foundation? First, at least in our sample, Chapter 1 teachers had more experience, were better educated, and received more staff development than regular classroom teachers in the Chapter 1 schools. They were also generally held in high regard by their peers. Thus, Chapter 1 teachers have much to contribute to a school's base educational program.

Second, high poverty schools (the real focus of Chapter 1 reform efforts) in the sample received about $500 in Chapter 1 funds per student enrolled. This represented about 15% of total personnel expenditures in all high poverty schools across all districts in the sample. These dollars could be used to lower class size, expand services (art/music/foreign languages, preschool, all-day kindergarten), provide additional support in core academic subjects, or enhance the basic foundation of health and social services that are especially needed at high poverty schools.

Third, both the current and proposed Chapter 1 programs fail to address other problems facing students and teachers in high poverty schools--high mobility, health problems, absenteeism, and discipline. What should be the role of the Chapter 1 program and other federal efforts in ameliorating the negative impact of student poverty and resource deficiencies on the learning environment? Can Chapter 1 resource services be expected to have a positive

impact on the learning outcomes in high poverty communities and schools where the basic administrative and support infrastructure is insufficient?

Finally, where does this leave Chapter 1 programs in low poverty schools where there is generally less need for schoolwide reform? These schools serve many fewer Chapter 1 students, but the teachers in our sample reported the existing program was effective for their students.

■ Staff Development

Extensive and high-quality staff development will be required to enable teachers and administrators to implement new instructional, assessment, and school management systems. Yet, this and numerous other studies have documented the limited amount and poor quality of staff development generally provided to teachers. Regardless of school poverty or district revenue, teachers in our study reported limited participation in staff training, little focus on the teaching of academic subjects or higher order thinking skills, and little benefit in improving their teaching. What should be the role of Chapter 1 in funding and structuring needed staff development? Currently, Chapter 1 supports staff development for Chapter 1-funded staff in most school districts. Our study showed that Chapter 1 teachers received more staff training, more appropriate training, and were more satisfied with their staff development than were regular classroom teachers. Chapter 1 dollars, administered by the district Chapter 1 office, could be used to train classroom teachers in Chapter 1 schools. A few districts in our sample were beginning to also train classroom teachers to work more effectively with Chapter 1 students.

■ Student Health and Social Services

Health and other social problems were identified as moderate to severe in a large percentage of the high poverty schools in our sample, regardless of district revenue. Principals in many high poverty Chapter 1 schools discussed the inadequacy of health and social services in their buildings. While the school nurse is often, by default, the primary health care provider for poor children, most high poverty elementary schools had only parttime nurses or nurse aides, funded by the school district or county health agencies. Chapter 1 funds rarely paid for health or social services in the schools. Access to school-based health services was also related to district

expenditure: high revenue districts provided a higher level of service than low revenue districts. Some high poverty schools had successfully sought state or private foundation grants to support school-based health clinics or to support other social services. But these clinics were few in number and funding was not guaranteed for more than two to three years.

Chapter 1 could be used in several ways to augment health and social services in high poverty schools. First, it could provide funding to expand existing services in high poverty schools, but without increased funding for Chapter 1, this would drain resources from instructional programs. Second, it could facilitate student referrals to other health services and social workers or counselors. Referral mechanisms were found to be in place in many of the schools, but students had to arrange transportation to other locations and miss school to receive these services. A third option would be to use Chapter 1 funds to manage and coordinate the relocation of some public and private health and counseling services at the school site. The result would be enhanced health services at high poverty schools that would be paid for and provided by public and private health agencies.

Conclusion

The purpose of Chapter 1 is to provide *supplemental* resources to students with academic deficiencies in schools serving high poverty students. The purpose of this study was to explore whether Chapter 1 resources truly are *supplemental*. Prior to the distribution of Chapter 1 funds are students receiving equal bases of educational resources? This study examined this question at two levels. Are base resources comparable across schools *within* the same district? Are base resources comparable in schools *across* districts?

The findings from this study show relatively few differences in base resources between Chapter 1 and non-Chapter 1 schools *within* districts. However, the *cross* district comparisons show that Chapter 1 is added to an uneven resource base in schools from districts with varying levels of state and local resources. Although this finding is not surprising, it does appear to form an obstacle to one of the basic purposes of Chapter 1 funding -- to close the achievement gap between poor children from other children. If students from high poverty schools in districts with low revenues receive less educational support even *after* the inclusions of Chapter 1 than their wealthier

neighbors, the achievement gap between these two sets of students may continue to grow.

Although findings from this study are based on a purposive sample, they raise important policy questions relating to some of the recommendations being considered for the reauthorization of Chapter 1. Perhaps the finding of foremost relevance is that variations in the resource base upon which Chapter 1 builds appear to be driven primarily by differences in district revenue. This suggests that the increased targeting of Chapter 1 funds solely on poverty criteria may still deny truly *supplemental* services to students from high poverty schools in low revenue districts. Resolution of this problem, however, clearly seems to involve general school finance as well as Chapter 1 policy reform. The need to reform state school finance allocation formulas to ensure that Chapter 1 is truly a supplement *across* districts complicates the possible policy solutions. Perhaps the overriding question is whether the Chapter 1 program, at $6.7 billion, can effectively be used as a vehicle for reforming a $265 billion public education system that is predominantly state and local in nature.

Thus, an overriding issue in the reauthorization of Chapter 1 is the appropriate role of this program in addressing these inequities. Can the reform of Chapter 1 succeed if the base program is inequitable? What are the responsibilities of states to equalize this base? Should the Chapter 1 allocation formula consider the base levels of resources available to students as well as levels of poverty? What mechanisms can or should the federal government use to foster more equalized resource allocation at all levels of educational governance? Are there enough Chapter 1 dollars to address student learning, education restructuring, staff development, and student health and social problems?

References and Bibliography

Abt Associates. (1992). *Special tabulations from the Classroom Teacher Survey of Chapter 1 Implementation.* Prepared for American Institutes for Research.

Anderson, J. I., Hollinger, D. K., & Sweet, A. P. (1992). *Teaching in Chapter 1 schools: Public school teachers' perceptions of resources, discipline, and support.* Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA.

Augenblick, J., Gold, S. D., & McGuire, K. (November, 1990). *Education finance in the 1990s.* Denver, CO: Education Commission of the States.

Barro, S. M. (1975). *Budget allocation by school districts: An analysis of spending for teachers and other resources.* Santa Monica, CA: Rand.

Barro, S. M. (1991). *The distribution of federal elementary-secondary education grants among the states.* Final report. Rockville, MD: Westat, Inc.

Barton, P. E., Coley, R. J., & Goertz, M. E. (1991). *The state of inequality.* Princeton, NJ: Educational Testing Service, Policy Information Center.

Berke, J. S., Goertz, M. E., & Coley, R. J. (1984). *Politicians, judges and city schools: Reforming school finance in New York.* New York: Russell Sage Foundation.

Berne, R. (Fall, 1988). Equity issues in school finance. *Journal of Education Finance, 14,* 159-180.

Berne, R. (April, 1991). *Governing for results: Decentralization with accountability*. Final report of the Temporary State Commission on New York City School Governance, Robert Berne, Executive Director, Appendix E, "Analysis of Resource Distribution among Elementary and Middle/Junior High Schools in New York City, 1989-90."

Berne, R., & Stiefel L. (1981). Measuring the equity of school finance policies: A conceptual and empirical analysis. *Policy Analysis, 7*(1) 47-69.

Berne, R., & Stiefel L. (1984). *The Measurement of equity in school finance; Conceptual, methodological, and empirical dimensions*. Baltimore, MD: John S. Hopkins University Press.

Berne, R., Chambers, J., Parrish, T., & Stiefel, L. (1992). *Concept paper on measures of equitability*. Palo Alto, CA: American Institutes for Research.

Birman, B. F., Orland, M. E., Jung, R. K., Anson, R. J., Garcia, G. N., Moore, M. T., Funkhouser, J. E., Morrison, D. R., Turnbull, B. J., & Reisner, E. R. (1987). *The current operation of the Chapter 1 program*. Final report. Washington, DC: National Assessment of Chapter 1 Office of Research, Office of Educational Research and Improvement, U.S. Department of Education.

Breslin, S. P. (1987). *Promoting poverty: The shift of resources away from low income New York City School Districts*. New York: Community Service Society of New York.

Brown, L. L., et al. (1978). School finance reform in the seventies: Achievement and failures. *Journal of Education Finance, 4*, 195-212.

Camp, W. E., Thompson, D. C., & Crain, J. A. (1990). Within-district equity: Desegregation and microeconomic analysis. In J. K. Underwood and D. A. Verstegen (Eds.), *The impacts of litigation and legislation on public school finance: Adequacy, equity and excellence*. New York: Harper and Row, 273-292.

Carroll, S. J. (Summer, 1976). School district expenditure behavior. *Journal of Human Resources*, 317-327.

Catterall, J. S. (March, 1991). *Intra-district equity litigation in the 1990s: The Role of recent social science evidence.* Paper presented at the Annual Meeting of the American Education Finance Association, Williamsburg, VA.

Chaikind, S. (1991). *Issue brief: Recent research on administrative costs in school districts.* Prepared for U.S. Department of Education, Planning and Evaluation Service.

Chambers, J. G. (May, 1979). School district behavior, markets for educational resources, and the implications for public policy: A survey. In D. Windham (Ed.), *Economic dimensions of education.* Washington, DC: National Academy of Education.

Chambers, J. G. (Winter, 1980). The development of a cost of education index: Some empirical estimates and policy issues. *Journal of Education Finance, 5*(3).

Chambers, J. G. (March-April 1981). An analysis of school size under a voucher system. *Educational Evaluation and Policy Analysis.*

Chambers, J. G. (1981). Cost and price level adjustments to state aid for education: A theoretical and empirical review. In K. Jordan (Ed.), *Perspectives in state school support programs; Second annual yearbook of the American Educational Finance Association.* Cambridge, MA: Ballinger Publishing Company.

Chambers, J. G. (March, 1981). *The development of a cost-of-education index for the State of California: Final report.* Prepared for the California State Department of Education (Program Report No. 81-B3). Stanford, CA: Institute for Research on Educational Finance and Governance, Stanford University.

Chambers, J. G. (Winter, 1981). The hedonic wage technique as a tool for estimating the costs of school personnel: A theoretical exposition with implications for empirical analysis. *Journal of Education Finance.*

Chambers, J. G. (August, 1987). *The development of a cost factor for the adjustment of federal funds for Chapter 1 of the ECIA of 1981.* Prepared for the United States General Accounting Office, Washington, DC. Mountain View, CA: Associates for Education Finance and Planning, Inc.

Chambers, J. G. (June, 1988). *A survey of expenditures on special education and related services: An analysis of the four oversampled states.* Draft report prepared for the Office of Special Education Programs (OSEP), U.S. Department of Education. Under subcontract with Decision Resources Corporation, Washington, DC.

Chambers, J. G. (September, 1990). The costs of operating exemplary urban, career oriented high schools. In V. Mitchell, E.S. Russell, & C. Benson (Eds.), *Exemplary urban career-oriented secondary school programs.* Berkeley, CA: National Center for Research in Vocational Education, University of California, 135-195.

Chambers, J. G,. & Parrish, T. B. (July, 1982a). *The issue of adequacy in the financing of public education: How much is enough?* (Project Report 82-A-19). Stanford, CA: Institute for Research on Educational Finance and Governance, Stanford University.

Chambers, J. G., & Parrish, T. B. (December, 1982b). *The development of a resource cost model funding base for education finance in Illinois.* (Volume I: Executive Summary; Volume II: Technical Report). Prepared for the Illinois State Board of Education. Stanford, CA: Associates for Education Finance and Planning, Inc.

Chambers, J. G., & Parrish, T. B. (March, 1983). *Adequacy and equity in state school finance and planning: A resource cost model approach.* Stanford, CA: Institute for Research on Educational Finance and Governance, Stanford University.

Chambers, J. G., & Parrish, T. B. (December, 1984). *The development of a program cost model and a cost-of-education index for the State of Alaska: Final report, Volumes I-IV.* Stanford, CA: Associates for Education Finance and Planning, Inc.

Chambers, J. G., & Parrish, T. B. (November, 1986a). *The AEFP/RCM documentation for Version 86.4.* Prepared for users of the AEFP/RCM System Computer Simulation Programs. Mountain View, CA: Associates for Education Finance and Planning, Inc.

Chambers, J. G., & Parrish, T. B. (January, 1986b). *Education program costs in Connecticut: A demonstration project for the application of the AEFP/RCM system: Final report and addendum.* Prepared for the Office of Legislative Research, State of Connecticut. Mountain View, California: Associates for Education Finance and Planning, Inc.

Chambers, J. G., & Parrish, T. B. (January, 1987). *Education program costs in Connecticut: Phase II.* Prepared for the Office of Legislative Research, State of Connecticut. Mountain View, CA: Associates for Education Finance and Planning, Inc.

Chambers, J. G., & Parrish, T. B. (1991). *Meeting the challenge of language diversity: An evaluation program for pupils with limited proficiency in English.* Berkeley, CA: BW Associates.

Choy, R. K. H., & Gifford, B. R. (1980). Resource allocation in a segregated school system: The case of Los Angeles. *Journal of Education Finance, 6,* 34-50.

Clune, W. H., & White, P. A. (1988). *School-based management: Institutional variation, implementation, and issues for further research.* New Brunswick, NJ: Center for Policy Research in Education, Rutgers University.

Cohen, D. (May 22, 1991). New approaches to funding, testing, and teaching advocated. *Education Week/Special Report,* 14-17.

Coleman, J., Hoffer, T., & Kilgore, S. (1982). *High school achievement.* New York, NY: Basic Books.

Compensatory education: Most Chapter 1 funds in eight districts used for classroom services. (1992). (GAO/HRD-92-136FS). Washington, DC: United States General Accounting Office.

Cooper, B. S., Sarrel, R., & Tetenbaum, T. (1990). *Choice, funding, and pupil achievement: How urban school finance affects students--particularly those at risk.* Paper presented at the Annual Meeting of the American Educational Research Association, Boston, MA.

Dougherty, J. C., IV. (September, 1985). *A matter of interpretation: Changes under Chapter 1 of the Education Consolidation and Improvement Act.* (Serial No. 99-B). Prepared for the Subcommittee on Elementary, Secondary and Vocational Education, U.S. House of Representative. Washington, DC: Government Printing Office.

Educational Research Service. (1987). *Cost of education.* Arlington, VA: Author.

Ellman, F., Ferrara, L., Moskowitz, J., & Stewart, S. (1981). *Utilization and effects of alternative measures of comparability.* Executive summary. Washington, DC: AUI Policy Research. Contract No. 300-79-0726.

Farrar, E., & Millsap, M. A. (1986). *State and local administration of the Chapter 1 Program.* Cambridge, MA: Abt Associates, Inc.

Feldstein, M. S. (1975). Wealth neutrality and local choice in public education. *American Economic Review, 65*(1), 75-89.

Fischer, M. (1990). Fiscal accountability in Milwaukee's Public Elementary Schools: Where does the money go? *Wisconsin Policy Research Institute Report, 3*(4). Milwaukee, WI: The Wisconsin Policy Research Institute.

Florida Education Association/United. (1990). *Dollars politics & education: A guide to the Florida Education Finance Program.* Tallahassee, FL: Author.

Forte, L. V. (1991). State Chapter 1 brings riches at a price. *Catalyst, 3*(3), 2-5, 48.

Franklin, D. L., Hickrod, G. A., Frank, L. E., Lenz, R. J., & Hubbard, B. C. (1990). *The constitutionality of the K-12 Funding System in Illinois, Volume II: 1990 supplement.* (MacArthur/Spencer Series No. 15). Normal, IL: Center for the Study of Educational Finance, Illinois State University.

Geske, T. G., & LaCost, B. Y. (1988). The student equity effects of the public school finance systems in Louisiana. *Economics of Education Review.*

Ginsburg, A., Moskowitz, J. A., & Rosenthal, A. S. (1981). A school-based analysis of inter- and intradistrict resource allocation. *Journal of Education Finance, 6,* 440-455.

Goertz, M. E. (1988). *State educational standards in the 50 states: An update.* (ETS RR-88-22). Princeton, NJ: Educational Testing Service.

Goertz, M. E. (December, 1991). *A review of the literature on the state and local context of Chapter 1 resource allocations.* Submitted to U.S. Department of Education under contract with American Institutes for Research. Princeton, NJ: Educational Testing Service.

Gray, G. (n.d.). *A report on educational opportunities in selected Montana school districts.* Billings, MT: University of Montana at Billings.

Gurwitz, A. S. (1977). Local taxation and the dynamics of metropolitan property values. Unpublished Doctoral Dissertation, Stanford University.

Halstead, D. K. (November, 1987). *Cost of living, equilibrium wages, and cost of public services: City and state indexes.* Washington, DC: U.S. Department of Education.

Hartman, W. T. (1991). *School finance in Pennsylvania, 1991.* Paper presented at the Annual Meeting of the American Education Research Association, Chicago, IL.

Hartman, W. T. (1988). District spending disparities: What do the dollars buy? *Journal of Education Finance, 13,* 436-459.

Hentschke, G. C. (1988). Budgetary theory and reality: A microview. In D. H. Monk, & J. Underwood (Eds.), *Microlevel school finance: Issues and implications for policy.* Cambridge, MA: Ballinger Publishing Company, 311-335.

Hess, G. A., Jr. (1991). *The reallocation of funds under the Chicago School Reform Act*. Paper presented at the Annual Meeting of the American Education Research Association, Chicago, Illinois.

Hess, G. A. Jr., Lewis, J., Laine, R. D., & Gilbert, M. A. (January, 1991). *The inequity in Illinois school finance: An analysis of the current situation, the historical record, alternative solutions*. Chicago, IL: The Equity Coalition.

Hickrod, G. A., & Goertz, M. E. (Eds.). (1983). Evaluating the school finance reforms of the 1970s and early 1980s (Part I). *Journal of Education Finance, 8*(4).

Hickrod, G. A., Chaudhari, R. B., & Hubbard, B. C. (1983). The decline and fall of school finance reform in Illinois. *Journal of Education Finance, 9*, 17-38.

Hickrod, et al. (1991). *The long march to educational inequality in Illinois: Financial facts for the Committee versus Edger*. (MacArthur/Spencer Series No. 18). Normal, IL: Center for the Study of Educational Finance, Illinois State University.

Hickrod, G. A., Hubbard, B. C., & Yang, T. W. C. (1975). *The 1973 reform of the Illinois General Purpose Educational Grant-in-Aid: A description and an evaluation*. Normal, IL: Center for the Study of Educational Finance, Illinois State University.

Hickrod, G. A. (May, 1991). *School finance constitutional litigation: Classification of states*. Normal, IL: Illinois State University.

Hollinger, D. K., Anderson, J. I., & Conaty J. (April, 1992). *Services and staffing Chapter 1 public schools: Chapter 1 data from the schools and staffing survey*. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA.

Kearney, C. P., & Chen, L. (1989). Measuring equity in Michigan school finance: A further look. *Journal of Education Finance, 14*(3), 319-367.

Kirst, M. W. (1988). The internal allocation of resources within U.S. school districts. In D. H. Monk & J. Underwood (Eds.), *Microlevel school finance: Issues and implications for policy*. Cambridge, MA: Ballinger Publishing Company, 365-389.

Knapp, M. S., Turnbull, B. J., Blakely, C. H., Jay, E. D., Marks, E. L., & Shields, P. (1986). *Local program design and decisionmaking under Chapter 1 of ECIA*. Menlo Park, CA: SRI International.

Knapp, M. S., Adelman, N. E., Needels, M. C., Zucker, A. A., McCollum, H., Turnbull, J. B., Marder, C., & Shields, P. M. (1991). *Study of academic instruction for disadvantaged students: What is taught, and how, to the children of poverty*. (Contract No. LC88054001). Interim report from a two-year investigation. Prepared for the U.S. Department of Education, Office of Planning, Budget and Evaluation.

Kozol, J. (1991). *Savage inequalities: Children in America's schools*. New York: Crown Publishers.

Ladd, H. F. (June, 1975). Local education expenditure, fiscal capacity, and the composition of the property tax base. *National Tax Journal*, 145-158.

Levin, H. M. (1975). Cost-effectiveness in evaluation research. In M. Guttentage & E. Struening (Eds.), *Handbook of evaluation research*. (Vol. 2). Beverly Hills, CA: Sage Publications.

Levin, H. M. (1983). *Cost-effectiveness: A primer*. (Vol. 4). Beverly Hills, CA: Sage Publications.

Making Schools Work for Children in Poverty. (December, 1992). Prepared by the Commission on Chapter 1. Summary.

McMahon, W. W., & Chang, S. (April, 1991). *Geographical cost of living differences: Interstate and intrastate, Update 1991*. MacArthur/Spencer Series Number 20. Normal, IL: Center for the Study of Educational Finance, Illinois State University.

Michigan Institute on Education and the Economy. (December, 1990). *Education indicators: Patterns of resource use*. Ann Arbor, MI: School of Education, University of Michigan.

Miller, J. A. (May 22, 1991). Studies show mixed results, spur calls for changes in program. *Education Week/Special Report*, 8-10.

Miller, J. A. (May 22, 1991). New provisions forcing a critical look at the quality of services. *Education Week/Special Report*, 11-13.

Miller, J. A. (May 22, 1991). Chapter 1: An educational revolution. *Education Week/Special Report*, 1-7.

Millsap, M. A., Moss, M., & Gamse, B. (1992). *The Chapter 1 implementation study*. (Draft final report). Cambridge, MA: Abt Associates Inc.

Moore, M. T., Strang, E. W., Schwartz, M., & Braddock, M. (December, 1988). *Patterns in special education service delivery and cost*. Washington, DC: Decision Resources Corporation.

National Center for Education Statistics. (1989). *Digest of education statistics, 1989*. (NCES 89-643). Washington, DC: U.S. Government Printing Office.

National Center for Education Statistics. (1990). *Public elementary and secondary state aggregate nonfiscal data, by state, for school year 1988-89; and school revenues and current expenditures for Fiscal Year 1988*. (NCES 90-093). Washington, DC: Government Printing Office.

Nelson, F. H. (Spring, 1991). *An interstate cost-of-living index: Educational evaluation and policy analysis*, 103-110.

Odden, A. (February, 1991). *School finance in the 1990s*. Paper presented at the 1991 Annual Meeting of the American Education Finance Association, Williamsburg, VA.

Odden, A., Berne, R., & Stiefel, L. (1979). *Equity in school finance*. Report No. F79-9. Denver, CO: Education Commission of the States.

Pennsylvania State Education Association. (1991). *Equity in education.* Harrisburg, PA: Author.

Phelps, J. L., & Addonizio, M. F. (1983). Michigan public school finance: The last ten years. *Journal of Education Finance, 9*(1), 5-16.

Picus, L. O. (1991). *Cadillacs or Chevrolets? The effects of state control on school finance in California.* Paper presented at the Annual Meeting of the American Education Research Association, Chicago, IL.

Program Budgeting Approach for State and Local Educational Agencies. Institute for Research on Educational Finance and Governance, Stanford University, Stanford, CA.

Richardson, G. P., & Lamitie, R. E. (1989). Improving Connecticut school aid: A case study with model-based policy analysis. *Journal of Education Finance, 15*(2), 169-188.

Riddle, W. C. (1990). *Expenditures in public school districts: Why do they differ?* Washington, DC: Congressional Research Service.

Remedial education: Modifying Chapter 1 formula would target more funds to those most in need. (1992). (GAO/HRD-92-16). Washington, DC: United States General Accounting Office.

Rollefson, M. R. (1991, August 20). *Schools at risk: Result of the 1988 schools and staffing survey.* A Presentation to the American Statistical Association Annual Meeting.

Schwartz, M., & Moskowitz, J. (1988). *Fiscal equity in the United States, 1984-85.* Washington, DC: Decision Resources Corporation.

Sexton, P. C. (1961). *Education and income; Inequalities in our public schools.* New York: Viking Press.

Sherman, J. D., & Suitor, J. H. (1991). *Where does the money go? An analysis of state expenditures for elementary and secondary schools.* Paper presented at the Annual Meeting of the American Education Finance Association, Williamsburg, VA.

Shields, M. P., Jay, D. E., Parrish, T. B., & Padilla, C. (1989). *Alternative programs and strategies for serving students with learning disabilities and other learning problems.* (Final report). Menlo Park, CA: SRI International.

Sinclair, & Gutmann. (1990). *A summary of state Chapter 1 participation and achievement information for 1987-88.*

Sinclair, & Gutmann. Draft tables from *A summary of state chapter 1 participation and achievement information for 1988-89.* (Final report is scheduled for January 1992.)

Stiefel, L., & Berne, R. (1990). *Measuring school finance equity in the 1990s: Old dogs or new tricks?* Paper presented at the 12th Annual Research Conference of the Association for Public Policy Analysis and Management, San Francisco, CA.

Strang, E. W., & Carlson, E. (1991). *Providing Chapter 1 services to limited English-proficient students.* (Contract No. LC89089001). Final report. Prepared for the U.S. Department of Education. Rockville, MD: Westat, Inc.

Taylor, W. L., & Piche, D. M. (December, 1990). *A report on shortchanging children: The impact of fiscal inequity on the education of students at risk.* Committee on Education and Labor, U.S. House of Representatives. Washington, DC: Government Printing Office.

U. S. Congress. (1989). *National assessment of programs assisted under Chapter 1.* (Section 2 of P.L. 101-305).

Verhovek, S. H. (May 6, 1991). Poorer New York school districts challenging state aid as unequal. *The New York Times.*

Verstegen, D. A. (April, 1990). *School finance at a glance*. Denver, CO: Education Commission of the States.

Viadero, D. (May 22, 1991). Need for separate handicapped program again up for discussion. *Education Week/Special Report*, 20.

Walsh, M. (May 22, 1991). Felton continues to pose logistical challenges; opponents of services wage new legal battles. *Education Week/Special Report*, 17-19.

Wise, A. E. (1965). Is denial of equal education opportunity constitutional? *Administrator's Notebook, 13*, 1-4.

Wise, A. E. (1968). *Rich schools, poor schools: The promise of equal educational opportunity*. Chicago, IL: University of Chicago Press.

Wohlstetter, P., & Buffett, T. (June, 1991). *School-based management: Are the dollars decentralized too?* Los Angeles, CA: Center for Research in Education Finance, University of Southern California.

Wood, C. T., Gabriel, R., Marder, C., Gamel, N. N., & Davis, A. (1986). *A study of targeting practices used in the Chapter 1 process*. Mountain View, CA: SRA Technologies, Inc.

Wyckoff, J. H. (1991). *Inequality in the allocation of education inputs within and across school districts*. Albany, NY: Graduate School of Public Affairs, Rockefeller College.

Wyckoff, J. H. (1992). The intrastate equality of public primary and secondary education resources in the U.S., 1980-87. In E. Cohn (Ed.), *Economics of Education Review, 11*(1), 19-30. New York: Pergamon Press.

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