3-1993

0376 Legislative Council Staff Report on the School District Setting Category Study

Colorado Legislative Council

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COLORADO

GENERAL ASSEMBLY

Legislative Council Staff Report on the School District Setting Category Study

March 1993

Legislative Council
Research Publication No. 376

COLORADO LEGISLATIVE COUNCIL
RECOMMENDATIONS

SCHOOL DISTRICT SETTING CATEGORY STUDY

Legislative Council
Report to the
Colorado General Assembly

Research Publication No. 376
March 1993

ACKNOWLEDGMENTS

The Legislative Council staff had the benefit of an advisory committee comprised of experts in school finance issues, all of whom gave of their time and energy to advise us in developing this report and the recommendations contained herein. The committee advised us on the selection and analysis of data elements, the use of various statistical techniques for data analysis, and the evaluation of the outcomes of the statistical analyses. We would like to thank the members of this panel for their assistance. The members of the advisory committee were:

Dr. John Augenblick, *Augenblick Van De Water and Associates, Inc.*

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We would also like to acknowledge and thank the *Colorado Education Association* for providing us with data on the district of employment and the zip code of residence for their membership. These data were crucial in our analysis of school district labor pool areas.

Finally, we would like to acknowledge the work of the members of the Legislative Council staff who contributed to the development of this report:

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Executive Summary

Current Setting Categories

The "Public School Finance Act of 1988", as amended, contains eight discrete categories of school districts. The purposes of these categories are twofold: 1) to target funding for each category of districts to levels appropriate for each category; and 2) to equalize funding for districts within each category. The categories were established using factors and characteristics established in an attempt to provide greater equity and precision in school funding than existed in the prior Act. Data available to analyze factors and characteristics of school districts were incomplete since very little economic and demographic data existed on a school district basis at the time the current setting categories were established. However, the setting category feature of the 1988 Act was an evolutionary step in the General Assembly's effort to achieve equity in school funding.

Study Directive

Section 22-53-105.5, Colorado Revised Statutes, directed the Legislative Council Staff to examine the factors and characteristics utilized in the 1988 Act and recommend changes if warranted. The staff was also directed to evaluate school district assignment to categories, and analyze additional funding sources available to school districts, and the operating costs of school districts in each category.

Study Approach and Methodology

Approach. With the advice of an Advisory Committee of acknowledged experts and practitioners in the field of education finance, several data elements were selected from information available from the 1990 Census and reformulated on a school district basis. The data elements selected were combined with other data currently available, and were organized into three classes thought to impact school district cost. Additional data elements were computed from the original data elements selected. The data elements selected for analysis are outlined below.

Economic Data

a) average household income
b) average housing values
c) average rent
d) average ownership costs for owner occupied property
e) shelter cost index

Economies of Scale Data

a) school district enrollments
b) selected instructional school district personnel
c) ratios of selected instructional personnel to enrollment by district

School District "At Risk" Population Characteristics

a) persons over age 18 without a high school diploma
b) non-English speaking children
c) child poverty
d) children from households receiving federal "Aid for Dependent Children"
e) children qualified for free or reduced lunches under the "National School Lunch Act"

Methodology. A "labor pool" was established for each school district to display the geographical area within which instructional staff for each district reside. The labor pool areas for each district were based upon zip code information and membership data provided by the Colorado Education Association and supplemented by a survey of selected districts. Economic data were computed for each school district labor pool area to reflect the cost of living for the area from which each district recruits staff.

Data were "normalized" and "cluster analyses" utilizing standard statistical techniques were run in order to group districts based upon the data elements selected. It is estimated that approximately 150 separate cluster analyses were performed utilizing different combinations of data elements and different weights assigned to each data element. Each cluster analysis was reviewed and generally compared to the current setting category groupings. In addition, separate cluster analyses were performed on each distinct class of economic, economies of scale, and "at risk" data.

FINDINGS AND RECOMMENDATIONS

Findings

Based upon the analysis performed, the following conclusions were reached.

- It appears that the current setting category groupings cannot be justified based upon analysis of any combination of data elements selected for the study. Differences between each cluster analysis run and current setting category groupings appear to be so substantial that minor reassignment of districts between categories or combining of existing categories is not justified.

- The use of discrete categories of districts for school funding purposes does not appear to be warranted. Relatively minor alterations of weights or changes in variables utilized for the cluster analysis appear to dramatically alter the number and composition of groups of districts. The sensitivity of the groupings to these minor changes suggests that the use of other mechanisms for school funding may be warranted.

- The only data class for which categorization appears to be justified is economic or cost-of-living data. For this component of school funding, minor alteration of weights and data elements results in little or no change to the basic configuration of school district groups. It appears that four major cost-of-living regions currently exist for Colorado school districts. This data class does not alone, however, appear to be a sufficient basis for grouping districts because it does not recognize cost variations associated with enrollment, economies of scale, or characteristics of pupil populations. **For this reason, it should be underscored that location of a school district in a cost-of-living region does not mean that it should be funded at the same level as all other districts in the region.** Other factors such as enrollment size, scale economies, and pupil characteristics should further modify cost-of-living funding levels on a per pupil basis.

Recommendations

On the basis of the study analysis, findings, and conclusions, the following recommendations are offered for consideration by the General Assembly.

- We recommend that school districts be grouped according to cost-of-living factors and that funding components reflect the cost of living in each of the four major cost of living groups. Further, it is recommended that instructional unit funding ratios and "at risk" factors not be addressed through the use of categories, but rather through the mechanism of formula funding that recognizes individual district variation. Instructional unit funding ratios should be determined by the enrollment size of each district, and then should be modified to the extent that each district's enrollment is comprised of "at risk" pupils.

- Several mechanisms were investigated to determine funding component values to reflect cost-of-living regions, enrollment-based instructional unit funding ratios, and calibrate the individual school district variations that should be allowed for "at risk" factors. These mechanisms included "reaveraging" of funding components, a fixed and variable cost model, and a proportionate funding approach. None of these approaches is developed to the point where serious consideration by the General Assembly is appropriate, and recommendation of any of these mechanisms appears to go beyond the scope of the assigned study. It is recommended, however, that the study scope be expanded, reporting deadlines established, and that further refinement of each alternative be pursued for consideration during the 1993 legislative interim.

- It should be remembered that most of the data used in the study are available on a once-every-ten-years basis from the decennial Census. Such data are inappropriate for annual funding of Colorado schools. Therefore, other "proxy" data should be found which emulates the Census data but are available or can be collected on an annual basis.

- Although comfortable with the approach recommended above, we recommend that additional data be gathered to improve the database available for further analysis. For example, economic data reflects income, housing values, and shelter costs, but does not reflect the costs of other goods and services. In addition, labor pool areas were established using only a single year's information. This data should be augmented with additional years, residence of non-teaching personnel, and should be reviewed by school districts for accuracy.

- Additional revenue available to school districts appears to have a disequalizing effect on school funding. We recommend that both practical and theoretical issues pertaining to the equalization of additional revenues be researched and reported to the General Assembly during the 1993 legislative interim.

- It appears that under the current setting category factors and characteristics a few school districts are assigned to setting categories incorrectly. Any consideration of reassignment of these districts should be approached with caution and the General Assembly should be cognizant of the other recommendations contained in this report.

- Although beyond the scope of the study directive, we believe that amendment #1, adopted at the 1992 general election will have a profound impact on the various mechanisms and formulas utilized for school funding. We recommend, therefore, that any further study of any portion of the "Public School Finance Act of 1988" or any categorical program include consideration of this new provision of the Colorado Constitution.

INTRODUCTION

One of the unique features of Colorado's "Public School Finance Act of 1988" is the categorization of school districts for funding purposes. No other state attempts to place school districts in discrete categories for the purposes of providing differentiated funding among the categories. The purposes of this approach, as expressed in section 22-53-105 (1), *Colorado Revised Statutes*, are twofold: 1) "... improving financial equity among districts in providing educational services to children..."; and 2) "...to reflect the differing needs and characteristics of the state's large number of districts...".

The first purpose of the categorization of school districts is to treat all districts with similar characteristics the same for funding purposes. That is, to place all similar school districts into a setting category in order to equalize the level of revenue provided to all districts within each category, regardless of property tax wealth or other factors. The current act accomplishes this objective by providing the same instructional unit funding ratio and funding component levels to all districts within a setting category. The exceptions to this uniform funding of districts within a setting category are certain school districts which received revenue above the uniform funding level for each category. These districts were "held harmless" with the adoption of the new school finance law in 1988. Increases in revenue for these "hold harmless" districts were slowed in order for funding for the remaining districts within each category to increase at a faster rate. It was thought that eventually the levels of funding for all other districts within each category would overtake the funding levels for the "hold harmless" districts within each category. It was the intent of the General Assembly to substantially reduce the disparity in funding levels of districts within each setting category in this manner.

The second purpose of the categorization of school districts is to recognize the immense diversity among the state's 176 school districts. It is assumed that since districts vary considerably in terms of their enrollments, pupil characteristics, geographical size, population density or sparsity, and regional economic forces that influence their costs, districts should not be funded to the same level per pupil. Setting categories are the mechanism that allows for differentiated funding among all 176 Colorado school districts in a manner that is intended to be appropriate to the factors influencing the cost of education in each group of districts.

The current Public School Finance Act of 1988 contains six "factors" utilized for the categorization of school districts. These factors are "...Population size and density; geographic size and population sparsity; regional economic relationships; location of economically important cities or towns within districts; cost-of-living factors; and presence of communities of interest." These factors were selected as criteria for the creation of setting categories because they were thought to impact the major structural

components of the public education system. These structural components include the nature and number of school sites within each district, rates of employee compensation, and the required number of classrooms, teachers, and other staff within each district.

The use of setting categories for funding purposes originated with the adoption of House Bill 1344, 1988 Session, which created the Public School Finance Act of 1988. During debate on the bill in both houses of the General Assembly, questions arose concerning the appropriateness of the categories and how categories could be modified in future years. In the years that followed, questions regarding the validity of the categories and placement of school districts within the categories continued to escalate. A certain amount of the debate related to the mechanism of discrete categories with varying funding levels between the categories. It was observed by many that relatively small differences between school districts at the margins of each category could result in substantial variations in funding. Others expressed concern that the categories made distinctions between school districts where very little practical differences in cost existed.

The 1988 act contained a mechanism for study and review of setting categories as well as consideration of proposed modifications to the categories. This mechanism was the Colorado Commission on School Finance, which was comprised of the President of the Senate, the Speaker of the House, and the Governor or their designees; appointees of the Speaker, the President, and the Governor; the Commissioner of Education; and the Chairman of the Colorado State Board of Education. The commission reviewed numerous requests by school districts from 1989 through 1991. None of the requests involved moving a school district from a higher funded category to a lower funded category. The commission recommended that only one district (the Durango school district) be moved to a different setting category.

The movement of the Durango school district from the outlying city category to the recreational high cost-of-living category established a precedent that tended to discourage further setting category reassignments. This precedent was that funding components for the the remaining districts in both the "sending" category as well as the "receiving" category were reaveraged. The reaveraging process recomputed setting category averages for both the outlying city category, without the inclusion of Durango, and the recreational category with Durango included. The results of the reaveraging process were twofold: 1) no additional state or local funding was required to fund the act on a statewide basis; and 2) since no "new money" was added to the funding of the act, a redistribution of revenues occurred in both the sending and receiving categories that created revenue losses for all the districts involved in order to fund the increased funding for Durango. Obviously, the use of the "reaveraging" approach tended to make reassignment of school districts to setting categories extremely difficult for the General Assembly.

In addition to the problem associated with the use of the reaveraging technique, very little economic and demographic data existed on a school district basis during the period of 1989 through 1991 to facilitate a thorough review of the appropriateness and

validity of the categories. The lack of such thorough review of the categories and the seemingly insurmountable difficulty of moving districts between setting categories fueled the growing criticism of the categories during this time. Further, as enrollment growth and assessed valuation declines placed greater demands on state equalization support provided by the act, resulting in fewer dollars being available for per pupil funding increases, school districts became increasingly concerned about their setting category placement. Setting category changes, some have alleged, were viewed as one of the only means available for some districts to obtain funding increases. The net result of these growing concerns was that the setting categories themselves have taken a preeminent position among all of the provisions of the Public School Finance Act of 1988 as a lightning rod of legislative and public concern over the fairness of the act.

Finally, as the General Assembly began to prepare for Congressional reapportionment and legislative staff was called upon to assist the Colorado Reapportionment Commission in reapportioning the Colorado General Assembly, another important factor emerged. It became evident that the U.S. Bureau of the Census would be providing census data to most states for reapportionment purposes in a computerized format, complete with computerized geographic information. Colorado, like most other states, purchased a geographic information system (GIS) to process the census data. The GIS was to continue to be maintained in the event of reapportionment litigation. The GIS made it possible, after reapportionment, to array a multitude of census data on a geographic basis. Once school district boundaries were "digitized" on the GIS, it was possible to aggregate a variety of data on a school district basis for the first time. The acquisition of the GIS along with the release of certain data tapes by the census bureau appeared to provide the solution for the lack of economic and demographic information that had become an impediment to the serious evaluation of setting categories.

During the 1992 session of the General Assembly, several legislators called for a study of school district setting categories. These calls culminated in the insertion of a study directive in House Bill 92-1344, the 1992 school finance bill, for the Legislative Council staff to undertake a study of setting categories.

Study Directive

Section 22-53-105.5, C.R.S., directs the staff of Legislative Council to undertake five tasks:

1) to evaluate the categorization of each school district to determine if each district is in the appropriate setting category;

2) to examine the "factors" used in the establishment of the categories and make recommendations as to whether the use of the factors is reasonable and whether they should be modified;

3) to examine the "characteristics" of the setting categories and make recommendations as to whether they are appropriate for distinguishing between school districts and whether they should be modified;

4) to analyze the additional funding sources not included in the act that are available to school districts; and

5) to analyze the per pupil operating costs of school districts in each category.

The complete text of section 22-53-105.5, C.R.S., is provided in the Appendix.

The first task assigned by the study directive involves an evaluation of the setting category placement of each school district. In completing this task, we assume that the evaluation is to be governed by the "factors" and "characteristics" enumerated as criteria for setting category placement under current law. In other words, this task appears to involve evaluating whether changes have occurred in any of the state's 176 school districts since their original placement in 1988 which would dictate a change in category assignment, or whether districts were incorrectly assigned originally under the criteria expressed in current law for setting category placement. It is important to note, however, that section 22-53-105 (10) (a), C.R.S., specifies that "The characteristics of the setting categories...are intended as general descriptions of such categories and not as binding definitions of the descriptions of districts to be included therein."

The second and third tasks mandated by the study directive involve examination of the "factors" and "characteristics" of the setting categories for reasonableness and appropriateness. Both "factors" and "characteristics" are defined either directly or by context in section 22-53-105, C.R.S., which establishes the setting categories in current law. **Factors** are defined as "population size and density; geographic size and population sparsity; regional economic relationships; location of economically important cities or towns within districts; cost-of-living factors; and presence of communities of interest." These factors were thought to capture the major local attributes of districts which resulted in differing costs of education among school districts throughout the state. **Characteristics** are used in the law to describe certain common traits of groups of school districts and relate them to one or more of the factors enumerated above. For example, paragraph (3) (a) of section 22-53-105, C.R.S., states:

> Setting category II - Denver metro is composed of districts located within the Denver-Boulder standard metropolitan statistical area which are primarily suburban in nature, compete economically for the same staff pool, and reflect the regional economy of the area. Denver metro districts are **characterized** by a more homogeneous pupil population and generally smaller numbers of special needs pupils than core city districts. (emphasis added).

This description is cited later in paragraph (10) (a) of the same statute as "...**characteristics** of the setting categories set forth in paragraph (a) of subsections (2) through (9) of this of this section..." (emphasis added). This recitation of characteristics of the Denver metro category appears to relate the districts in the category to the regional economic relationships, cost of living, and communities of interest factors.

The fourth task assigned by the study directive involves analysis of additional funding sources available to school districts in each setting category. The act currently accounts for school district general fund property taxes and state aid regulated by the state equalization program. State categorical programs account for state appropriations for special education, public school transportation, vocational education, and English language proficiency. Federal categorical programs generally provide earmarked funding for specific purpose programs including vocational education, special education, and food service programs. We understand the reference to "additional funding sources" in the study directive to imply those sources of revenues not otherwise accounted for or equalized in either the state equalization, state categorical, or federal categorical programs, the use of which is discretionary by school districts. The "additional sources of funding" include specific ownership taxes, federal impact assistance, school district fees, school district investment income, additional property tax revenues for general fund use authorized by an election, and other general fund revenue from local sources.

The fifth and final task required by the study directive is an analysis of per pupil operating costs of school districts in each setting category. The term "operating costs" is generally understood to denote those items upon which school districts expend funds for non-debt service purposes. Employee salaries and benefits, purchased services, supplies and materials, and capital outlays for both instructional and support services are "operating costs" for which standardized school district general fund expenditure information is readily available. Standardized definitions of these cost items are found in the *Handbook II Revised*, published by the United States Department of Education. The analysis is to focus on such operating costs for school districts in each "setting category". It appears, again, that the analysis is to focus on the current setting categories for an evaluation of the manner in which districts expend operating funds for various purposes. This exercise is not unlike the manner in which the funding components contained in the act were originally computed, based on actual audited school district expenditures from 1986. The original computation involved determination of pupil or instructional unit weighted averages for each funding component for each setting category in the law. Since the study directive does not require reformulation of the funding components used in current law, we understand "operating costs" to include instructional supplies/materials, instructional purchased services, capital and insurance reserves, instructional salaries and benefits, instructional support services, operations and maintenance, school administration, and district level support.

In pursuing the various tasks assigned by the study directive, section 22-53-105.5 (2), C.R.S., requires that Legislative Council staff utilize the digitized census data including, but not limited to: levels of income; the number of single parent households;

housing values; the dominant language spoken in households; the level of educational attainment of parents; age stratification; housing costs; and other data regarding reduced and free meals provided pursuant to the "National School Lunch Act". All of the required data were assembled and evaluated during the course of the study.

Study Approach

In evaluating the study directive, it became apparent that task #1 (evaluation of school district setting category placement), task #4 (analysis of additional funding sources), and task #5 (analysis of per pupil operating costs) were relatively simple and straightforward in nature. Tasks #1, #4, and #5 primarily involved data gathering, calculation, and reporting.

Tasks #2 and #3, however, involved not only examination of the factors and characteristics contained in the law for setting category placement, but also the making of recommendations for change. In pursuing these more difficult tasks, a School District Setting Category Advisory Committee was assembled. Participants were invited to become members of the advisory committee based upon their demonstrated knowledge and experience in national and/or statewide school finance issues. Advisory committee members included: Dr. John Augenblick, Augenblick Van De Water and Associates; Dr. Richard King, Professor of Education, University of Northern Colorado; Dr. Ken Kirkland, Office of State Planning and Budgeting; Scott Murphy, Director of Business Services, Littleton Public Schools; Dr. Don Saul, Deputy Superintendent, Thompson School District; Dr. Dan Stewart, Assistant Commissioner of Education, Colorado Department of Education; and Dr. Ed Steinbrecher, Superintendent, Platte Canyon school district.

The role of the advisory committee was to act as a sounding board for ideas forwarded by the staff of Legislative Council; to advise the staff on selection and analysis of data elements at each step of the study, the use of various statistical techniques for analytical purposes, the evaluation of the outcomes of the various statistical reports; and to advise the staff with respect to the recommendations made in this report. The staff of Legislative Council and the advisory committee worked in a collaborative fashion at each step in the study process.

The decision was made early in the study to analyze the current setting category groupings through analysis of the data compiled for the study rather than by attempting to conduct a direct analysis of each of the "factors" and "characteristics" enumerated in law. Since the factors and characteristics do not lend themselves to direct analysis, the approach taken was to "cross verify" the groups resulting from the use of the factors and characteristics through independent analysis of the data compiled for the study. It was thought that if the basic groupings specified by current law were correct, they would be reflected in the groupings created by analysis of the study data. Conversely, it was thought

that if the groupings were not correct, they would not align with the groupings created independently.

In order to group school districts according to the data compiled for the study, each data element was "normalized" and "cluster analyses" were run to group the districts. It was felt that if natural groupings of Colorado school districts existed, they would emerge from the cluster analyses and would not significantly change if combinations of data elements were slightly altered or if weights of data elements were slightly modified. To this end, multiple iterations of the cluster analyses were run and generally compared both to existing categories and to the results of previous clusters. It was thought that this approach would either verify existing category groupings or reveal better groupings to recommend to the General Assembly.

The data elements selected for the study pursuant to the statutory directive were organized into three classes thought to impact school district costs. In addition, other data elements were added to the database, and some new data elements were computed from the combination of data already compiled. The three classes of data were: 1) **economic data**, intended to evaluate cost-of-living differences between districts; 2) **economies of scale data**, reflecting the premise that certain educational costs spread over a larger pupil population result in somewhat lower per pupil costs than when spread over smaller pupil population; and 3) **"at-risk" characteristics of pupil populations** reflecting the assumption that high concentrations of at-risk pupils require greater levels of educational services. The data elements selected for the study are outlined below.

Economic Data

- average household income
- average housing values
- average rent
- average ownership costs for owner occupied property
- shelter cost index

Economies of Scale Data

- school district enrollments
- selected instructional school district personnel
- ratios of selected instructional personnel to enrollment by district

School District "At Risk" Population Characteristics

- persons over age 18 without a high school diploma
- non-English speaking children
- child poverty
- children from households receiving federal "Aid for Dependent Children"
- children qualified for free or reduced lunches under the "National School Lunch Act"

Economic data were evaluated based upon creation of a "labor pool" region for each district. As school district personnel often reside in communities outside of school district boundaries, the residence of school district instructional personnel was determined, and economic data was computed to reflect the cost of living for the geographical area within which such personnel reside. This approach was based on the premise that school district salaries must be competitive with the cost of living in the areas within which school employees live.

It is important to note that the study directive requires that any recommendations made address only the setting category feature of the current school finance law. Other features of the law, such as funding component values, state and local share provisions, mill levy provisions, and hold harmless provisions lie outside the scope of the study directive. **In the event that there is interest on the part of the General Assembly in pursuing the recommendations made in this report, further research will be needed to associate the setting category recommendations with dollar values and carefully calibrated funding mechanisms.**

Organization of Report

This report is organized by the various tasks assigned in the study directive. Chapter I contains the evaluation of the placement of districts under current law (Task #1). Tasks #2 and #3 are combined into a single chapter - Chapter II - because of the study approach taken. Chapter III includes Tasks #4 and #5: the analyses of additional funding sources available to school districts in each setting category and per pupil operating costs of school districts in each setting category. Technical documentation of statistical techniques utilized, detailed explanation of the data elements, and statistical tables are appended.

CHAPTER I

EVALUATION OF THE PLACEMENT OF DISTRICTS UNDER CURRENT LAW

The Public School Finance Act of 1988 created eight setting categories and specified criteria for placing school districts in each of these categories.[1] Section 22-53-105.5, C.R.S., directs the Legislative Council to evaluate the categorization of each school district to determine if districts are in the appropriate setting category, given the criteria outlined in law. These criteria include characteristics such as population, cost of living, enrollment, and regional economic relationships. While current statute provides a description of the required criteria for the placement of districts in a category, the law does not consistently provide definitions of these criteria. In addition, in some instances the statute does not provide measurable criteria for evaluating the placement of districts in categories. Therefore we have limited this analysis to those characteristics for which definitive measurements are provided in current law. This essentially limits the scope of this analysis to an evaluation of whether a district meets the population size criteria specified in law for inclusion in a category. An assumption is made that the term "population center" refers to the largest city or town within the district.

Core city. Among other characteristics, current law specifies that the core city category be composed of "large urbanized districts with district and city boundaries which are coterminous."[2] Since the Denver school district is the only district which currently has coterminous city and district boundaries, it is the only district that meets the criteria for this geographical criterion.

Denver metro. The law identifies the Denver metro category as including "districts located within the Denver-Boulder consolidated metropolitan statistical area which are primarily suburban in nature." Thus, this category would automatically exclude any district that is not in this statistical area. The other criteria specified in law for this category include districts that "compete economically for the same staff pool, and reflect the regional economy of the area." While all of the districts currently in the Denver metro category are located within the Denver-Boulder consolidated metropolitan statistical area (CMSA), the law contains no measurable criteria for determining if these districts meet the other requirements specified in law. It should be noted, however, that because the Denver-Boulder CMSA is comprised of the entire counties of Adams, Arapahoe, Boulder, Denver, Douglas, and Jefferson, there are other districts which meet the geographic criterion. However, as with districts currently assigned to the Denver metro category, the law does not contain a mechanism for analyzing whether these districts meet the other criteria.

Urban-suburban. This category is defined in statute as including districts with population centers of at least 30,000 persons. In addition, the law states that this category

includes "districts which comprise the state's major population centers outside of the Denver metropolitan area and their immediately surrounding suburbs." However, the law does not provide measurable criteria for determining a "major population center." Longmont (Boulder-St. Vrain), Fort Collins (Larimer-Poudre), Loveland (Larimer-Thompson), Pueblo, Colorado Springs, and Greeley all meet the population center requirements of the urban-suburban category. According to 1990 census data, the population of Grand Junction is 29,034. Based solely on the population of Grand Junction, the district fails to meet the population requirement specified in law, and would be placed in the outlying city category. The remaining districts in this category were originally classified as urban-suburban districts because of their suburban nature and proximity to a major city. However, the law does not contain a mechanism for determining whether the other criteria area met.

Outlying city. Current law specifies that this category include districts in which "most of the pupils" live in population centers between 7,000 and 30,000 persons. Since the statute does not define "most of the pupils," we limited our evaluation of this category to the size of the population center in a district. Using 1990 census population data, we confirmed that all of the districts currently classified as outlying city, with the exception of the Delta school district, contain an incorporated city or town between 7,000 and 30,000 persons. Sponsors of the 1988 act placed the Delta school district in the outlying city category based on the combined population of three communities within the district: Delta, Orchard City, and Cedaredge. Thus, in this instance, the "population center" consisted of more than one incorporated area. It should be noted that similar groupings of communities within other districts might place districts in different categories.

Outlying town. The statute specifies that the outlying town category contains districts where "most of the pupils" live in population centers between 1,000 and 7,000 persons. As with the outlying city category, no criteria is provided in law for determining what constitutes "most of the pupils." However, an analysis of 1990 population data indicates that three districts - Conejos-South Conejos, Prowers-Holly, and Weld-Platte Valley - do not contain a city or town with a population of at least 1,000 persons. According to population figures from the 1990 census, the population of Antonito in the South Conejos district is 875 persons. In Holly, the population of the town of Holly is 877 persons, while the population of Kersey in the Platte Valley district is 980 persons. Based on population criteria, these three districts would be placed in the rural category.

Rural. The law states that the rural category includes districts with no population centers over 1,000 persons. An analysis of 1990 population data indicates that two districts (Arapahoe-Byers and La Plata-Bayfield) contain towns with populations over 1,000 and would thus be placed in the outlying town category. The 1990 census indicates that the population of Byers, located within the Arapahoe-Byers school district, is 1,065 persons. The data also indicates that the population of Bayfield, located within the La Plata-Bayfield school district, is 1,090.

Recreational. Current statute defines the recreational category as "composed of districts which contain major recreational developments that impact the cost of property values, community income, and other cost-of-living components." The law is silent on the definition of "major recreational development" and does not provide any measurable criteria for determining the "impact" of recreational developments on a district. Thus, we are unable to evaluate the current classification of recreational districts.

Small attendance. The law defines small attendance districts as districts with funded pupil counts of less than 150. Current law directs the Commissioner of Education to annually transfer districts between the rural and small attendance categories based on a district's certified pupil enrollment.[3] Thus, this category is adjusted each year to ensure the districts in the category meet the category definition.

CHAPTER II

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Tasks #2 and #3 assigned by the study directive involve examination of the factors and characteristics utilized in the Public School Finance Act of 1988 as criteria for the creation of eight setting categories of school districts, and assignment of school districts to the setting categories. Generally, the factors contained in the act describe the circumstances which were thought to impact the cost of education, but were not spelled out in detail. Characteristics were intended to link individual school districts to the factors so that districts could be assigned to setting categories, but often do not directly align with one or more of the factors. For example, one of the factors is "population size and density," but the characteristics elucidated for the core city category involve five characteristics (large urbanized districts, coterminous city and county boundaries, large enrollment declines, high concentrations of special needs students, and more than 40,000 pupils), none of which is premised on either population size or density. In fact, none of the other factors in the act (geographic size and population sparsity, regional economic relationships, location of economically important cities or towns within districts, cost-of-living factors, and presence of communities of interest) appear to have any relationship to the characteristics for core city category placement. On this basis, it appears that the factors and characteristics express qualitative inclinations rather than quantitative criteria that lend themselves to analysis.

Because the factors and characteristics expressed in law are not directly susceptible to quantitative analysis, it was determined that the method of grouping districts would be the focus of the analysis. In order to accomplish this, three classes of data elements were selected which are thought to heavily impact school district costs on a per pupil basis: 1) regional economic or cost-of-living data; 2) economies of scale data; and 3) school district "at risk" pupil population characteristics. The following sections of this chapter discuss each of these data classes in detail, our approach to the analysis of the data, and issues for consideration by the General Assembly.

ECONOMIC REGIONS

This portion of the study identifies and analyzes factors outside the control of school districts that create cost differences among districts. One such factor is the cost of living in the community surrounding a school district. School districts have little or no control over the cost of living within the district's labor pool area, the area from which the district attracts employees. Yet, in order to attract qualified personnel, a school district must provide salary levels that reflect the cost of living in the community. In addition, cost-of-living variations between school districts result in differing non-salaried cost structures among districts. Thus, analyzing the cost of living in each district's community, or labor pool area, and grouping districts with similar cost of living characteristics into economic regions provides insight into relative similarities and differences in costs among school districts.

In an effort to identify similarities, as well as differences, in the cost of living among districts, variables derived from 1990 census data were weighted based on each district's labor pool area and then grouped into economic regions based on similar cost-of-living characteristics. This section discusses the rationale for analyzing the cost of living within a district's labor pool area. The methodologies used to create each district's labor pool area and to select variables that represent the cost of living in a district's labor pool area are also described. In addition, the use of cluster analysis to group districts into economic regions based on the weighted cost-of-living variables is discussed. Finally, the economic regions created by the cluster analysis are presented.

Rationale for Analyzing a School District's Cost of Living

Public education is a very labor intensive industry. In 1990, over 80.8 percent of school district general fund expenditures were allocated to salaries and benefits. When purchased services are included, the figure increases to just over 88 percent. While a district may be able to control the salaries and benefits of its employees, a district must also be able to compete for, attract, and maintain a qualified work force. Thus, a district must be able to provide levels of compensation that accommodate the cost to the employee of living in the community. Districts must also provide salaries that are competitive with those being offered by other employers in the community for individuals with similar education and experience levels.

Since the vast majority of school district expenditures are devoted to personnel costs and districts must provide salary levels that reflect the relative cost of living within the community, we chose to measure the differences in cost of living among districts and group districts based on similar cost-of-living characteristics. Our analysis involved identifying the district's labor pool area and selecting the available variables that best

represent the cost of living within the district's labor pool area. Cost-of-living variables were calculated for each district labor pool area. Economic regions were then formed using cluster analysis, a statistical technique, to group districts based on similar cost-of-living characteristics.

Determining a District's Cost of Living

As discussed above, school districts face pressure to provide salary levels that reflect the cost of living within the community surrounding the district and attract qualified personnel. A district's community, or labor pool, often extends past the district's boundaries. Teachers may live within one district and work in another district. Thus, in order to determine differences in the cost of living between school districts, it is first necessary to identify a district's labor pool area.

District labor pool areas. A district's labor pool area is defined by the residence of the teachers employed by the district. Using data on the number of teachers by zip code of residence provided by the Colorado Education Association (CEA), along with data collected by our office through contact with school districts, a labor pool area was developed for each school district. The data in our sample represented over 80 percent of the fall 1991 certificated staff, excluding administrators, principals, and vice principals in 91 districts and over 50 percent of the specified certificated staff in 155 districts.

In order to ensure that an adequate sample of data were used in developing each district's labor pool area, the percentage representation of teachers (or additional personnel if included in the data) in a given district was calculated by dividing the number of teachers provided by CEA by the number of teachers in a district.[4] CEA provided data on the number of teachers by zip code of residence for 150 school districts. Forty-seven districts with less than 25 percent representation were contacted by our office. Of these 47 districts, 25 districts for which CEA no data provided zip codes of residence for their teachers. In addition, school district data were substituted for CEA data in 20 districts. The 25 percent criterion was not met for two districts: El Paso-Peyton and Las Animas-Hoehne.

Once the data on the zip code of residence for teachers were collected for each district, zip codes were matched with school district boundaries to determine the school district of residence for each teacher. The relative weight, or percentage of teachers for a given district by district of residence, was calculated by dividing the number of teachers residing in each zip code by the total number of teachers for a given district for which data were available. In many instances, zip code boundaries encompassed more than one school district. In these cases, the percentage of total population in each of the districts within the zip code relative to the total population of the zip code was calculated and allocated to the corresponding district. This percentage was then multiplied by the number of teachers in the zip code to determine the number of teachers represented by the given district.

Teachers associated with unknown zip codes were deleted from the database. In some cases, the location of the zip code simply could not be identified. In other cases, the zip code was in a surrounding state. As a result, 274 teachers out of 29,494, or less than 1 percent, were deleted from the database. A review of the number of teachers in the districts with these deletions indicated that no district was significantly impacted.

Selection of cost of living variables. The state of Colorado does not collect data that measures the cost of living at the community or school district level. Therefore, variables were derived from 1990 census data to represent the cost of living within a district. Three variables - average housing value, average monthly rent, and average monthly owner costs - were selected based on an analysis of the goods and services used by the U.S. Bureau of Labor Statistics to calculate the consumer price index (CPI) for the Denver-Boulder metropolitan area. The Denver-Boulder metropolitan area is the only area in Colorado for which a CPI is computed. Average household income was included as a proxy for labor costs given the labor intensive nature of education services.

An analysis of the Denver-Boulder consumer price index provides insight into what the U.S. Bureau of Labor Statistics considers important in determining cost of living. The CPI measures the change in prices of a fixed market basket of goods and services purchased, on the average, by the population covered by the index. Average housing value, average monthly rent, and average monthly owner cost were selected from the census data as best able to represent the housing component of the consumer price index. In addition, using separate variables for rent and monthly owner costs reflects individual movement in each of these variables. The housing component of the CPI measures the change in the cost of housing, household fuel and utilities, and household furnishings and operations. In addition, the housing component is the largest single cost component of the CPI, representing 42.04 percent of the market basket of goods and services included the United States CPI and 40.01 percent of the goods and services included in the Denver-Boulder CPI.

Weighted cost of living variables. The four cost of living variables were weighted to reflect a district's labor pool area. Table 1 provides an example, using the Park-Platte Canyon school district, of the methodology used to calculate the weighted average household income value for that district. Of the 40 teachers at the Platte Canyon district for which district of residence data were available, 56.8 percent reside within the Platte Canyon district, 40.2 percent reside within the Jefferson County school district, 1.9 percent live in the Denver school district, 0.8 percent live in the Arapahoe-Littleton school district, and 0.3 percent live in the Clear Creek school district.

To calculate Platte Canyon's weighted average household income, the average household income in Platte Canyon was multiplied by .568, representing the 56.8 percent of the district's teachers who live in Platte Canyon. Similarly, the average household income in the Jefferson County school district was multiplied by .402, and the average household income in Denver, Littleton and Clear Creek were each multiplied by .019, .008, and .003, respectively. The resulting values were then summed to obtain an average

household income for Platte Canyon's labor pool area of $42,410. This process was repeated for each of the three remaining cost-of living variables. Table 2 details each district's individual cost-of-living variables, as well as the weighted variable for the district's labor pool area.

Table 1

Calculation of Weighted Average Household Income
Park-Platte Canyon Labor Pool Area

District of Residence	Percentage of Teachers	Average Household Income in District of Residence	Percent Teachers Times Avg. Hsld. Income
Park-Platte Canyon	56.8%	$40,672	$23,102
Jefferson	40.2	45,052	18,111
Denver	1.9	33,984	646
Arapahoe-Littleton	0.8	54,413	435
Clear Creek	0.3	38,734	116
Weighted Avg. Household Income	100.0%	N/A	$42,410

NOTE: Numbers may not match figures in Table 1 due to rounding of percentages.

Development of Economic Regions

After weighting each of the four cost-of-living variables to reflect a district's labor pool area, a statistical technique called "clustering" was used to group districts into economic regions. Clustering forms groups of similar objects. The clustering program grouped districts based on the similarity of district labor pool cost-of-living variables. The program defines similarities between districts based on the smallest distance, or variation, between the variables. Thus, clustering is an appropriate technique for grouping districts based on the similarity of variables used to measure a district's cost of living. (Please refer to the appendix for a discussion of the cluster analysis methodology.)

As a result of clustering the four weighted cost-of-living variables, the state's 176 school districts were grouped into six economic regions. However, the cluster analysis placed two districts (Pitkin-Aspen and San Miguel-Telluride) in individual district regions, based on a lack of similarity between the weighted cost-of-living data for Aspen and Telluride when compared to other districts using cluster analysis. Thus, four major economic regions were created. Map A, along with Table 3 , detail the school districts in each economic region. The name of the region in Table 3 corresponds to the color of the districts on the map. **Please note that the location of a district in a cost-of-living region does not mean that it should be funded at the same level as all other districts in the region.**

Table 2

Cost of Living Variables: District Averages and Weighted Labor Pool Averages

		DISTRICT AVERAGES				WEIGHTED LABOR POOL AVERAGES			
COUNTY	DISTRICT	AVERAGE HSEHOLD INCOME	AVERAGE HOUSING VALUE	AVERAGE MONTHLY RENT	AVERAGE OWNER COST	AVERAGE HSEHOLD INCOME	AVERAGE HOUSING VALUE	AVERAGE MONTHLY RENT	AVERAGE OWNER COST
ADAMS	MAPLETON	33,963	66,991	428	604	39,892	96,127	417	736
ADAMS	NORTHGLENN	37,834	85,183	421	746	39,956	98,461	428	745
ADAMS	COMMERCE CITY	25,675	58,168	331	473	39,149	95,871	413	727
ADAMS	BRIGHTON	35,974	87,947	389	666	37,391	92,330	401	692
ADAMS	BENNETT	36,031	77,448	399	650	38,665	86,967	394	688
ADAMS	STRASBURG	39,966	76,028	365	567	38,910	80,491	362	636
ADAMS	WESTMINSTER	34,452	79,434	373	624	40,566	98,862	425	743
ALAMOSA	ALAMOSA	25,633	53,086	233	400	25,404	52,320	228	390
ALAMOSA	SANGRE DECRIST	34,107	42,955	209	309	29,322	48,616	222	360
ARAPAHOE	ENGLEWOOD	29,201	75,594	366	512	44,777	107,642	431	797
ARAPAHOE	SHERIDAN	28,832	67,616	347	467	45,794	108,554	440	819
ARAPAHOE	CHERRY CREEK	57,096	132,138	478	1,034	48,267	114,307	444	879
ARAPAHOE	LITTLETON	54,413	124,503	474	913	50,257	117,426	459	881
ARAPAHOE	DEER TRAIL	23,417	43,420	244	399	27,730	53,290	276	456
ARAPAHOE	AURORA	34,375	77,238	387	683	44,282	104,570	427	823
ARAPAHOE	BYERS	32,288	69,704	284	588	30,420	62,839	303	529
ARCHULETA	ARCHULETA	28,247	89,762	288	510	28,247	89,762	288	510
BACA	WALSH	24,885	37,292	166	327	24,618	37,067	166	319
BACA	PRITCHETT	20,196	28,437	128	250	20,657	30,552	143	254
BACA	SPRINGFIELD	21,549	37,579	169	263	22,497	37,393	168	280
BACA	VILAS	26,435	31,652	165	283	24,304	33,555	163	279
BACA	CAMPO	22,451	17,777	117	205	23,047	25,044	136	242
BENT	LAS ANIMAS	22,562	27,472	215	274	23,520	32,527	213	302
BENT	MCCLAVE	25,107	38,519	200	380	25,760	41,316	204	375
BOULDER	ST VRAIN	40,307	101,948	410	718	40,523	104,560	419	724
BOULDER	BOULDER	44,517	131,565	510	824	43,752	125,033	491	806
CHAFFEE	BUENA VISTA	27,430	79,037	282	395	27,174	77,609	278	394
CHAFFEE	SALIDA	24,892	64,516	238	381	24,907	64,694	240	382
CHEYENNE	KIT CARSON	32,298	31,488	213	236	31,850	33,606	215	244
CHEYENNE	CHEYENNE R-5	28,746	48,286	228	300	28,804	48,724	228	303

Table 2

Cost of Living Variables: District Averages and Weighted Labor Pool Averages

		DISTRICT AVERAGES				WEIGHTED LABOR POOL AVERAGES			
COUNTY	DISTRICT	AVERAGE HSEHOLD INCOME	AVERAGE HOUSING VALUE	AVERAGE MONTHLY RENT	AVERAGE OWNER COST	AVERAGE HSEHOLD INCOME	AVERAGE HOUSING VALUE	AVERAGE MONTHLY RENT	AVERAGE OWNER COST
CLEAR CREEK	CLEAR CREEK	38,734	102,855	364	711	40,651	104,170	393	742
CONEJOS	NORTH CONEJOS	20,873	38,532	163	305	22,213	43,422	185	331
CONEJOS	SANFORD	21,461	40,203	165	293	22,040	42,010	175	311
CONEJOS	SOUTH CONEJOS	16,545	34,021	127	248	17,654	35,215	136	263
COSTILLA	CENTENNIAL	16,427	34,552	119	257	20,456	43,085	164	319
COSTILLA	SIERRA GRANDE	23,304	53,706	145	363	24,136	52,001	187	374
CROWLEY	CROWLEY	21,368	32,016	175	294	22,537	37,362	186	316
CUSTER	WESTCLIFFE	28,341	67,077	226	342	28,544	68,980	245	378
DELTA	DELTA	23,650	55,127	223	330	23,983	55,894	225	336
DENVER	DENVER	33,984	93,080	363	639	39,596	99,822	400	730
DOLORES	DOLORES	26,054	43,900	193	311	26,238	47,888	200	319
DOUGLAS	DOUGLAS	60,934	136,257	540	1,117	53,296	122,704	485	966
EAGLE	EAGLE	47,316	176,636	587	857	46,965	174,438	581	851
ELBERT	ELIZABETH	46,641	100,249	527	885	51,573	115,863	501	952
ELBERT	KIOWA	36,802	82,409	318	567	42,767	95,446	391	738
ELBERT	BIG SANDY	28,286	42,556	217	403	28,403	48,932	235	430
ELBERT	ELBERT	34,180	67,100	308	720	39,591	87,612	433	782
ELBERT	AGATE	23,817	48,661	213	449	26,390	55,839	239	460
EL PASO	CALHAN	26,671	66,449	258	455	31,068	77,842	317	564
EL PASO	HARRISON	27,435	66,406	371	605	36,845	93,799	401	702
EL PASO	WIDEFIELD	32,526	68,373	407	597	35,812	88,286	400	675
EL PASO	FOUNTAIN	31,705	72,584	339	664	35,835	89,213	397	681
EL PASO	COLORADO SPRIN	32,757	84,643	365	607	36,585	93,181	396	691
EL PASO	CHEYENNE MOUN	59,229	183,640	503	1,034	38,925	105,414	411	742
EL PASO	MANITOU SPRING	34,719	104,687	335	650	36,676	98,764	385	693
EL PASO	ACADEMY	51,881	124,507	518	1,013	42,999	107,016	446	821
EL PASO	ELLICOTT	28,091	81,901	317	542	33,292	85,871	359	619
EL PASO	PEYTON	34,872	83,415	353	687	34,872	83,415	353	687
EL PASO	HANOVER	28,784	70,357	341	546	34,769	88,282	392	668
EL PASO	LEWIS-PALMER	55,150	143,018	530	1,024	48,696	124,115	483	912

Table 2

Cost of Living Variables: District Averages and Weighted Labor Pool Averages

		DISTRICT AVERAGES				WEIGHTED LABOR POOL AVERAGES			
COUNTY	DISTRICT	AVERAGE HSEHOLD INCOME	AVERAGE HOUSING VALUE	AVERAGE MONTHLY RENT	AVERAGE OWNER COST	AVERAGE HSEHOLD INCOME	AVERAGE HOUSING VALUE	AVERAGE MONTHLY RENT	AVERAGE OWNER COST
EL PASO	FALCON	38,576	88,789	446	787	36,983	92,980	401	704
EL PASO	EDISON	24,599	113,500	213	287	30,359	73,891	297	528
EL PASO	MIAMI-YODER	23,251	64,975	214	337	26,724	70,594	271	444
FREMONT	CANON CITY	25,826	65,105	271	391	26,242	63,991	270	398
FREMONT	FLORENCE	25,976	52,503	249	384	26,442	58,776	263	402
FREMONT	COTOPAXI	24,751	71,289	270	391	25,031	69,466	270	391
GARFIELD	ROARING FORK	41,518	145,379	477	702	41,271	150,185	474	705
GARFIELD	RIFLE	30,287	69,955	308	460	31,416	78,320	326	487
GARFIELD	PARACHUTE	25,140	77,640	331	480	27,457	75,681	319	473
GILPIN	GILPIN	36,214	84,146	355	607	40,107	97,825	403	708
GRAND	WEST GRAND	29,090	69,539	284	413	30,509	77,726	308	459
GRAND	EAST GRAND	35,214	101,736	380	564	35,214	101,736	380	564
GUNNISON	GUNNISON	29,371	97,101	326	529	29,371	97,101	326	529
HINSDALE	HINSDALE	28,169	104,188	288	426	28,409	102,770	295	447
HUERFANO	HUERFANO	19,622	37,888	168	272	20,501	42,170	180	294
HUERFANO	LA VETA	20,002	64,264	203	345	19,969	61,999	200	338
JACKSON	NORTH PARK	26,330	56,117	232	317	26,330	56,117	232	317
JEFFERSON	JEFFERSON	45,052	105,601	441	806	44,060	105,560	435	792
KIOWA	EADS	25,276	39,233	192	322	26,589	37,110	184	322
KIOWA	PLAINVIEW	30,817	28,217	161	313	29,768	29,336	162	306
KIT CARSON	ARRIBA-FLAGLER	26,441	39,223	173	287	26,438	39,218	173	287
KIT CARSON	HI PLAINS	25,029	28,036	174	255	25,261	31,061	180	264
KIT CARSON	STRATTON	25,910	48,634	207	337	25,906	46,999	205	328
KIT CARSON	BETHUNE	36,590	46,956	213	473	28,826	54,248	222	350
KIT CARSON	BURLINGTON	29,753	56,217	227	354	29,579	55,231	225	352
LAKE	LAKE	28,913	52,399	282	392	28,913	52,399	282	392
LA PLATA	DURANGO	32,910	101,740	386	535	34,788	106,247	404	562
LA PLATA	BAYFIELD	32,124	86,912	335	483	31,557	86,334	327	482
LA PLATA	IGNACIO	26,408	60,039	193	394	29,703	78,877	284	457
LARIMER	POUDRE	35,341	95,903	392	672	35,486	95,152	388	667

Table 2

Cost of Living Variables: District Averages and Weighted Labor Pool Averages

		DISTRICT AVERAGES				WEIGHTED LABOR POOL AVERAGES			
COUNTY	DISTRICT	AVERAGE HSEHOLD INCOME	AVERAGE HOUSING VALUE	AVERAGE MONTHLY RENT	AVERAGE OWNER COST	AVERAGE HSEHOLD INCOME	AVERAGE HOUSING VALUE	AVERAGE MONTHLY RENT	AVERAGE OWNER COST
LARIMER	THOMPSON	38,228	89,935	361	634	37,287	91,333	368	640
LARIMER	ESTES PRK	39,144	116,996	379	608	39,158	115,471	382	617
LAS ANIMAS	TRINIDAD	21,959	50,650	174	329	22,625	51,072	179	340
LAS ANIMAS	PRIMERO	21,940	45,805	200	248	22,074	47,736	188	288
LAS ANIMAS	HOEHNE	28,437	55,028	213	431	22,703	51,142	179	340
LAS ANIMAS	AGUILAR	15,952	30,736	125	226	19,680	40,748	157	283
LAS ANIMAS	BRANSON	21,720	42,750	74	231	21,720	42,750	74	231
LAS ANIMAS	KIM	25,089	23,227	141	133	25,089	23,227	141	133
LINCOLN	GENOA-HUGO	24,704	36,636	207	270	25,090	41,142	215	310
LINCOLN	LIMON	25,134	54,884	246	412	25,533	52,137	240	403
LINCOLN	KARVAL	29,822	25,571	142	176	27,536	30,071	167	217
LOGAN	VALLEY	26,911	50,288	228	377	26,989	49,613	225	376
LOGAN	FRENCHMAN	24,918	36,933	178	317	25,341	40,949	185	307
LOGAN	BUFFALO	29,563	36,360	185	311	27,693	46,161	215	357
LOGAN	PLATEAU	26,727	30,771	148	318	26,918	50,217	228	376
MESA	DEBEQUE	23,235	39,713	218	247	25,784	51,418	243	329
MESA	PLATEAU	30,134	70,988	256	417	29,935	70,123	258	417
MESA	MESA VALLEY	29,994	70,760	286	464	29,969	70,682	286	463
MINERAL	CREEDE	24,870	62,444	229	265	24,761	61,566	229	276
MOFFAT	MOFFAT	33,431	55,130	251	482	33,670	57,008	257	490
MONTEZUMA	MONTEZUMA	27,973	61,331	254	414	27,782	64,658	255	406
MONTEZUMA	DOLORES	28,407	74,967	243	387	28,349	72,862	251	396
MONTEZUMA	MANCOS	24,913	65,389	267	381	26,636	71,247	286	411
MONTROSE	MONTROSE	28,610	66,539	266	417	28,537	67,107	266	416
MONTROSE	WEST END	27,186	43,958	193	270	27,942	48,202	211	282
MORGAN	BRUSH	29,452	49,996	236	366	29,191	51,282	238	372
MORGAN	FT MORGAN	28,936	58,133	258	410	29,202	57,938	258	412
MORGAN	WELDON	27,734	46,211	214	393	29,736	61,577	268	445
MORGAN	WIGGINS	36,792	47,589	246	427	31,024	62,296	278	460
OTERO	EAST OTERO	25,669	44,955	214	366	25,802	44,831	212	367

Table 2

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		DISTRICT AVERAGES				WEIGHTED LABOR POOL AVERAGES			
COUNTY	DISTRICT	AVERAGE HSEHOLD INCOME	AVERAGE HOUSING VALUE	AVERAGE MONTHLY RENT	AVERAGE OWNER COST	AVERAGE HSEHOLD INCOME	AVERAGE HOUSING VALUE	AVERAGE MONTHLY RENT	AVERAGE OWNER COST
OTERO	ROCKY FORD	23,526	40,119	184	309	23,799	40,581	188	319
OTERO	MANZANOLA	19,324	35,053	157	310	22,800	40,225	192	325
OTERO	FOWLER	23,800	37,692	194	301	23,610	38,424	197	310
OTERO	CHERAW	30,902	46,441	196	413	25,556	44,341	208	360
OTERO	SWINK	27,914	51,461	244	439	25,745	45,431	215	376
OURAY	OURAY	34,881	108,443	276	424	34,366	111,774	283	435
OURAY	RIDGWAY	30,824	134,705	331	515	31,688	111,926	300	465
PARK	PLATTE CANYON	40,672	88,935	441	773	42,416	96,050	440	785
PARK	PARK	30,517	69,051	291	395	32,055	75,717	325	493
PHILLIPS	HOLYOKE	25,835	49,644	185	281	25,690	48,463	184	282
PHILLIPS	HAXTUN	24,863	40,515	167	241	24,908	40,510	169	250
PITKIN	ASPEN	58,423	486,315	726	1,348	54,358	404,575	666	1,193
PROWERS	GRANADA	23,936	30,453	150	291	25,358	41,236	192	342
PROWERS	LAMAR	25,944	45,810	209	363	25,941	45,530	209	363
PROWERS	HOLLY	24,668	31,946	152	243	24,619	31,845	152	246
PROWERS	WILEY	27,276	45,073	221	411	26,330	44,903	210	370
PUEBLO	PUEBLO CITY	25,704	54,493	257	401	26,547	56,803	262	412
PUEBLO	PUEBLO RURAL	31,930	71,290	290	473	27,983	60,588	269	427
RIO BLANCO	MEEKER	33,311	64,871	218	417	33,217	65,030	221	419
RIO BLANCO	RANGELY	32,979	63,306	302	550	32,997	63,152	299	545
RIO GRANDE	DEL NORTE	24,180	56,833	229	338	25,295	57,010	236	375
RIO GRANDE	MONTE VISTA	22,944	50,326	213	329	24,295	51,607	219	351
RIO GRANDE	SARGENT	46,985	79,438	237	392	25,034	51,758	216	342
ROUTT	HAYDEN	37,321	61,431	295	485	37,675	85,176	345	579
ROUTT	STEAMBOAT SPRI	40,838	140,964	478	788	40,701	138,738	473	779
ROUTT	SOUTH ROUTT	32,912	57,453	282	466	35,794	87,820	353	583
SAGUACHE	MTN VALLEY	21,640	39,809	192	317	22,495	44,304	201	331
SAGUACHE	MOFFAT	28,032	63,089	256	390	25,314	49,272	218	351
SAGUACHE	CENTER	24,486	42,141	169	299	26,741	51,915	207	344
SAN JUAN	SILVERTON	28,024	55,804	267	469	28,566	60,906	281	476

Table 2

Cost of Living Variables: District Averages and Weighted Labor Pool Averages

		DISTRICT AVERAGES				WEIGHTED LABOR POOL AVERAGES			
COUNTY	DISTRICT	AVERAGE HSEHOLD INCOME	AVERAGE HOUSING VALUE	AVERAGE MONTHLY RENT	AVERAGE OWNER COST	AVERAGE HSEHOLD INCOME	AVERAGE HOUSING VALUE	AVERAGE MONTHLY RENT	AVERAGE OWNER COST
SAN MIGUEL	TELLURIDE	42,627	247,987	567	781	41,737	235,857	546	752
SAN MIGUEL	NORWOOD	30,938	64,777	280	327	30,923	64,714	280	327
SEDGWICK	JULESBURG	23,944	38,237	158	304	23,865	37,811	157	301
SEDGWICK	PLATTE VLY	21,817	26,824	122	240	23,618	33,376	147	283
SUMMIT	SUMMIT	41,419	143,775	510	859	41,581	143,019	509	859
TELLER	CRIPPLE CREEK	26,574	54,248	255	410	29,323	64,344	297	497
TELLER	WOODLAND PARK	37,209	93,295	419	747	37,327	94,005	414	737
WASHINGTON	AKRON	23,429	43,991	187	300	24,523	43,847	191	309
WASHINGTON	ARICKAREE	28,918	36,102	90	240	29,247	35,291	141	312
WASHINGTON	OTIS	25,568	35,856	156	314	26,998	42,923	187	309
WASHINGTON	LONE STAR	33,325	24,800	144	195	25,999	42,594	189	311
WASHINGTON	WOODLIN	30,671	33,227	134	335	29,914	46,104	187	370
WELD	GILCREST	32,954	62,791	307	491	31,918	75,333	324	545
WELD	EATON	34,373	80,818	272	576	32,688	80,167	299	569
WELD	KEENESBURG	32,189	74,798	300	558	32,757	77,565	331	576
WELD	WINDSOR	33,221	76,020	305	623	33,081	81,009	326	606
WELD	JOHNSTOWN	33,837	65,136	269	500	33,201	78,643	324	566
WELD	GREELEY	29,776	77,859	322	542	30,502	78,028	321	548
WELD	PLATTE VLY	32,193	64,015	254	496	30,589	76,333	312	542
WELD	FORT LUPTON	30,288	69,439	309	524	35,338	86,360	365	629
WELD	AULT-HGHLND	31,214	55,313	250	402	32,403	74,045	301	530
WELD	BRIGGSDALE	29,095	33,375	161	416	29,856	57,123	244	477
WELD	PRAIRIE	21,978	27,868	219	320	23,656	31,509	210	331
WELD	GROVER	22,143	28,325	159	265	23,699	32,115	171	300
YUMA	WEST YUMA	26,805	52,321	221	329	27,178	52,465	221	335
YUMA	EAST YUMA	28,291	51,006	202	319	28,130	51,099	203	319
STATE	*TOTAL*	37,511	95,146	385	687				

Map A

Cluster of School District Economic Regions Using Four Factors: Housing, Income, Rent, and Owner Cost

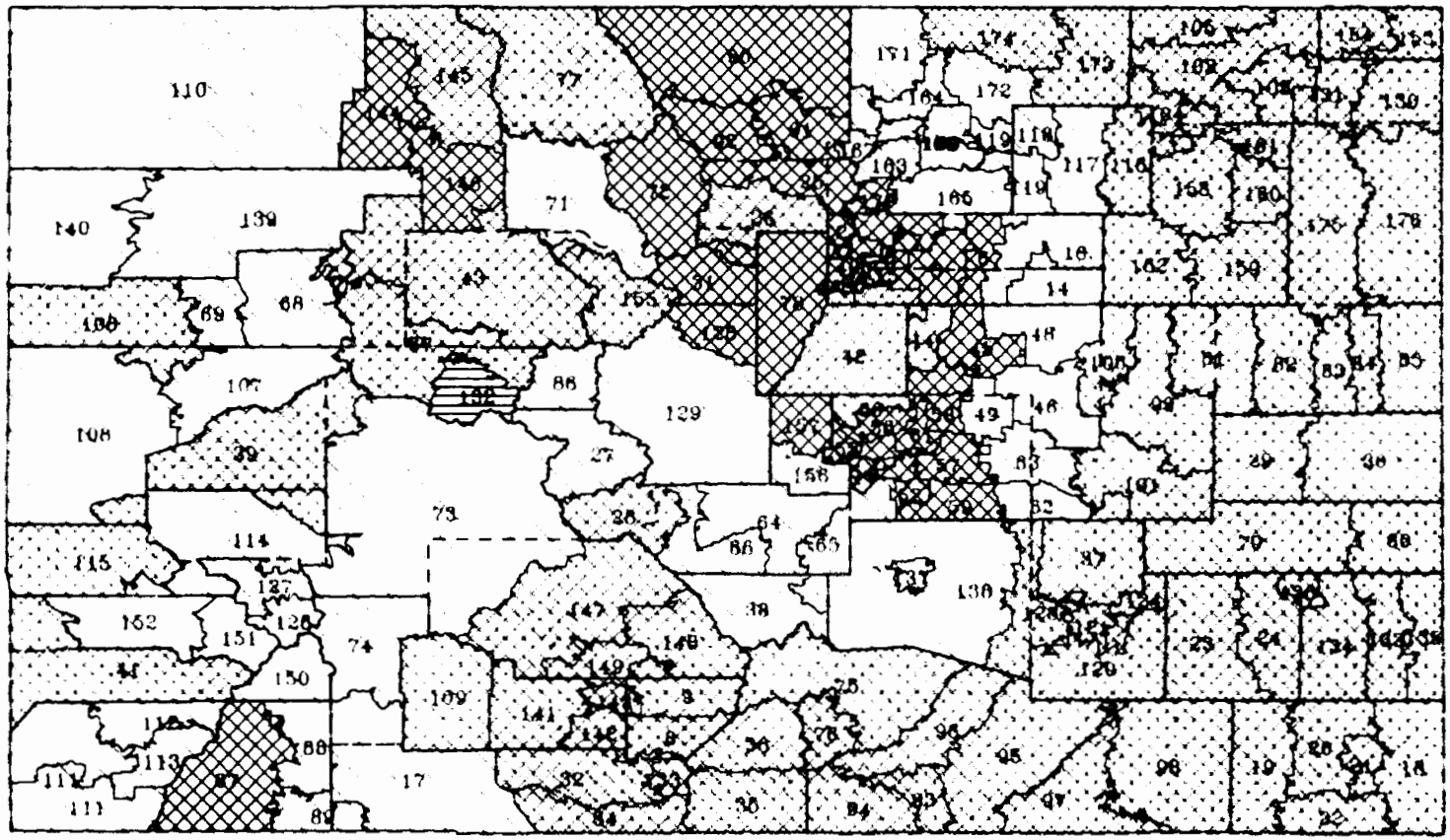


Table 3

School Districts in Economic Regions

Red

ADAMS	STRASBURG
ADAMS	COMMERCE CITY
ADAMS	NORTHGLENN
ADAMS	BENNETT
ADAMS	WESTMINSTER
ADAMS	BRIGHTON
ADAMS	MAPLETON
ARAPAHOE	SHERIDAN
ARAPAHOE	AURORA
ARAPAHOE	ENGLEWOOD
BOULDER	ST VRAIN
CLEAR CREEK	CLEAR CREEK
DENVER	DENVER
EL PASO	HANOVER
EL PASO	ELLICOTT
EL PASO	HARRISON
EL PASO	FALCON
EL PASO	CHEYENNE MOUNTAIN
EL PASO	FOUNTAIN
EL PASO	ACADEMY
EL PASO	MANITOU SPRINGS
EL PASO	PEYTON
EL PASO	WIDEFIELD
EL PASO	COLORADO SPRINGS
ELBERT	ELBERT
ELBERT	KIOWA
GILPIN	GILPIN
GRAND	EAST GRAND
JEFFERSON	JEFFERSON
LA PLATA	DURANGO
LARIMER	THOMPSON
LARIMER	POUDRE
LARIMER	ESTES PRK
PARK	PLATTE CANYON
ROUTT	SOUTH ROUTT
ROUTT	HAYDEN
TELLER	WOODLAND PARK
WELD	FORT LUPTON

Green

ALAMOSA	SANGRE DE CRISTO
ALAMOSA	ALAMOSA
BACA	VILAS
BACA	WALSH
BACA	CAMPO
BACA	PRITCHETT
BACA	SPRINGFIELD
BENT	MCCLAVE
BENT	LAS ANIMAS
CHAFFEE	SALIDA
CHEYENNE	CHEYENNE R-5
CHEYENNE	KIT CARSON
CONEJOS	SOUTH CONEJOS
CONEJOS	NORTH CONEJOS
CONEJOS	SANFORD
COSTILLA	SIERRA GRANDE
COSTILLA	CENTENNIAL
CROWLEY	CROWLEY
DELTA	DELTA
DOLORES	DOLORES
HUERFANO	LA VETA
HUERFANO	HUERFANO
JACKSON	NORTH PARK
KIOWA	PLAINVIEW
KIOWA	EADS
KIT CARSON	STRATTON
KIT CARSON	ARRIBA-FLAGLER
KIT CARSON	HI PLAINS
KIT CARSON	BURLINGTON
KIT CARSON	BETHUNE
LAS ANIMAS	HOEHNE
LAS ANIMAS	TRINIDAD
LAS ANIMAS	PRIMERO
LAS ANIMAS	AGUILAR
LAS ANIMAS	BRANSON
LAS ANIMAS	KIM
LINCOLN	KARVAL
LINCOLN	LIMON
LINCOLN	GENOA-HUGO
LOGAN	PLATEAU
LOGAN	BUFFALO
LOGAN	FRENCHMAN
LOGAN	VALLEY
MESA	DEBEQUE
MINERAL	CREEDE
MONTROSE	WEST END
MORGAN	BRUSH
OTERO	SWINK
OTERO	FOWLER
OTERO	EAST OTERO
OTERO	ROCKY FORD
OTERO	MANZANOLA
OTERO	CHERAW
PHILLIPS	HAXTUN
PHILLIPS	HOLYOKE
PROWERS	HOLLY
PROWERS	GRANADA
PROWERS	WILEY
PROWERS	LAMAR
RIO GRANDE	MONTE VISTA
RIO GRANDE	SARGENT
RIO GRANDE	DEL NORTE
SAGUACHE	MOFFAT
SAGUACHE	MTN VALLEY
SAGUACHE	CENTER
SEDGWICK	JULESBURG
SEDGWICK	PLATTE VLY
WASHINGTON	AKRON
WASHINGTON	ARICKAREE
WASHINGTON	OTIS
WASHINGTON	WOODLIN
WASHINGTON	LONE STAR
WELD	PRAIRIE
WELD	GROVER
YUMA	WEST YUMA
YUMA	EAST YUMA

Blue

ARAPAHOE	CHERRY CREEK
ARAPAHOE	LITTLETON
BOULDER	BOULDER
DOUGLAS	DOUGLAS
EAGLE	EAGLE
EL PASO	LEWIS-PALMER
ELBERT	ELIZABETH
GARFIELD	ROARING FORK
ROUTT	STEAMBOAT SPRINGS
SUMMIT	SUMMIT

Diagonal Blue

ARAPAHOE	DEER TRAIL
ARAPAHOE	BYERS
ARCHULETA	ARCHULETA
CHAFFEE	BUENA VISTA
CUSTER	WESTCLIFFE
EL PASO	CALHAN
EL PASO	MIAMI-YODER
EL PASO	EDISON
ELBERT	AGATE
ELBERT	BIG SANDY
FREMONT	CANON CITY
FREMONT	COTOPAXI
FREMONT	FLORENCE
GARFIELD	PARACHUTE
GARFIELD	RIFLE
GRAND	WEST GRAND
GUNNISON	GUNNISON
HINSDALE	HINSDALE
LA PLATA	BAYFIELD
LA PLATA	IGNACIO
LAKE	LAKE
MESA	MESA VALLEY
MESA	PLATEAU
MOFFAT	MOFFAT
MONTEZUMA	DOLORES
MONTEZUMA	MONTEZUMA
MONTEZUMA	MANCOS
MONTROSE	MONTROSE
MORGAN	WELDON
MORGAN	FT MORGAN
MORGAN	WIGGINS
OURAY	OURAY
OURAY	RIDGWAY
PARK	PARK
PUEBLO	PUEBLO RURAL
PUEBLO	PUEBLO CITY
RIO BLANCO	MEEKER
RIO BLANCO	RANGELY
SAN JUAN	SILVERTON
SAN MIGUEL	NORWOOD
TELLER	CRIPPLE CREEK
WELD	KEENESBURG
WELD	BRIGGSDALE
WELD	PLATTE VLY
WELD	AULT-HGHLND
WELD	GREELEY
WELD	WINDSOR
WELD	EATON
WELD	GILCREST
WELD	JOHNSTOWN

Black Horizontal

PITKIN	ASPEN

Yellow

SAN MIGUEL	TELLURIDE

Recommendations and Issues for Consideration

The calculation of cost-of-living factors for each school district and the subsequent identification of economic regions is just one part of the setting category study. However, we recognize that grouping districts in this manner is a precursor to establishing funding linked to categories. We investigated several options relating to funding, which are presented at the end of Chapter II. In addition, we identified areas in which more data collection could enhance school finance analyses in future years.

Data Enhancement

The cost-of-living analysis, or the first stage of the study, resulted in the creation at four major economic regions with two outliers. As previously discussed, the data used for this portion of the study consisted primarily of census data and information on the school district of residence of the teaching pool. While these data are more comprehensive and current than the data used in drafting the Public School Finance Act of 1988, expanding the base of information could improve school finance act analyses in future years. Collection of school district specific data on a more frequent basis would also permit the evaluation of multi-year data.

Census data on average housing value, income, rent, and home ownership cost were the primary means of evaluating cost of living. Yet, the sole source of information currently available for these items is already somewhat dated, and the data are available only on a once-every-ten-year basis. In addition, the census data provide information on only a portion of costs associated with cost of living - those relating to shelter. While shelter accounts for a significant portion of the Denver-Boulder CPI (40 percent), data on the remaining components of the market basket are not available through the census. These components comprise 60 percent of the CPI market basket, and include food and beverages (16.0 percent), apparel and upkeep (4.8 percent), transportation (19.4 percent), medical care (7.2 percent), entertainment (6.0 percent), and other goods and services (6.6 percent). To the extent the economic regions establish a method to differentiate between costs experienced by school district employees, the economic data currently available may present an incomplete picture. In an effort to provide a broader range of data on an ongoing basis, we recommend:

> *Additional data be gathered that emulate the census data but are available on a more frequent basis. To that end, a study should be conducted that establishes an appropriate market basket of goods and services for evaluating differentials in cost for each of the state's 176 school districts. The study should identify the weights that should be associated with each of the components of the market basket, provide a method for ascertaining the differences in cost, and recommend a mechanism for updating the data.*

The creation of labor pool areas for each school district was another important component of establishing economic regions. The data for this analysis was obtained from two sources: the Colorado Education Association and direct contact with school districts. In total, almost 29,500 school district employees were used to identify the labor pool region for each school district. Nonetheless, there are several areas in which these data could be improved.

First, the information collected on zip code of residence was limited primarily to teachers. According to the Colorado Department of Education report, *Certificated Personnel and Related Information*, in fall 1991, there were approximately 62,100 personnel employed by school districts throughout the state. Of that number, 52.9 percent

were teachers. As with the cost-of-living data, the information on school district of residence presents only a partial picture of school district employees. Secondly, the data provide a "snapshot" of labor pool patterns because it was available on a one-time basis only. Finally, in instances where the geographic area of a zip code encompassed more than one school district, the number of teachers residing in a given school district was computed based on the proportion of the population in a given school district area of the zip code to the total population of the zip code. While we believe that the methodology used was appropriate given the limitations of the data available, more comprehensive information may assist the General Assembly in evaluating the school finance act in future years. If this procedure proves helpful in determining labor pool areas and costs, we recommend that:

Data be augmented with additional years and residence of non-teaching personnel. School districts should be required to collect information on the zip code and school district of residence for each of their employees, and transmit such information to the Colorado Department of Education on an annual basis. The department should be required to audit these data as part of its audit of school district pupil counts.

ENROLLMENT

Providing education services involves certain fixed costs which are unrelated to minor changes in the number of students. Fixed-cost services such as building maintenance, overhead, and some administrative and support services are necessary for a district's operation regardless of the number of students enrolled in the district. This section of the report addresses enrollment as it affects cost pressures outside the control of school districts. The analysis identifies those districts with lower fixed costs per pupil because of their size and suggests a method for using existing pupil-teacher ratios to determine expected pupil-teacher ratios in order to compensate lower enrollment districts for higher per pupil costs associated with diseconomies of size.

Historical Perspective

The relationship between a district's enrollment and its ability to minimize fixed costs per pupil, or efficiency, has been the subject of much research. A study in 1971 reported that "reasonable economies of scale cannot be secured until districts have at least 10,000 students."[5] A 1973 study claimed that 675 students was the optimal size for a school district although there is no real difference in the efficiency of districts with enrollments between 400 and 1,100.[6] More recent studies have focused on school districts

in individual states and, in fact, a contemporary researcher in the area of size and per pupil expenditures suggests that the relationship between a district's enrollment and its ability to minimize fixed costs per pupil should be examined on a state-by-state basis.

As of 1990, legislation in 10 states provided additional revenue for small schools or school districts.[7] In Colorado, current law provides additional funding to school districts with enrollments under 300 in the form of lower instructional unit funding ratios. A ratio floor of seven is set, affecting districts with enrollments of less than 150. New Mexico offers financial assistance to all districts with enrollments under 10,000 and additional aid to districts with enrollments under 4,000. Kansas allows districts with enrollments below 1,900 to use higher budgets per pupil to determine their general fund budget and allows districts with enrollments under 300 to use even higher budgets per pupil. Oklahoma provides additional funding to districts with less than 500 students. The Virginia Department of Education has the authority to provide additional revenue to small districts.

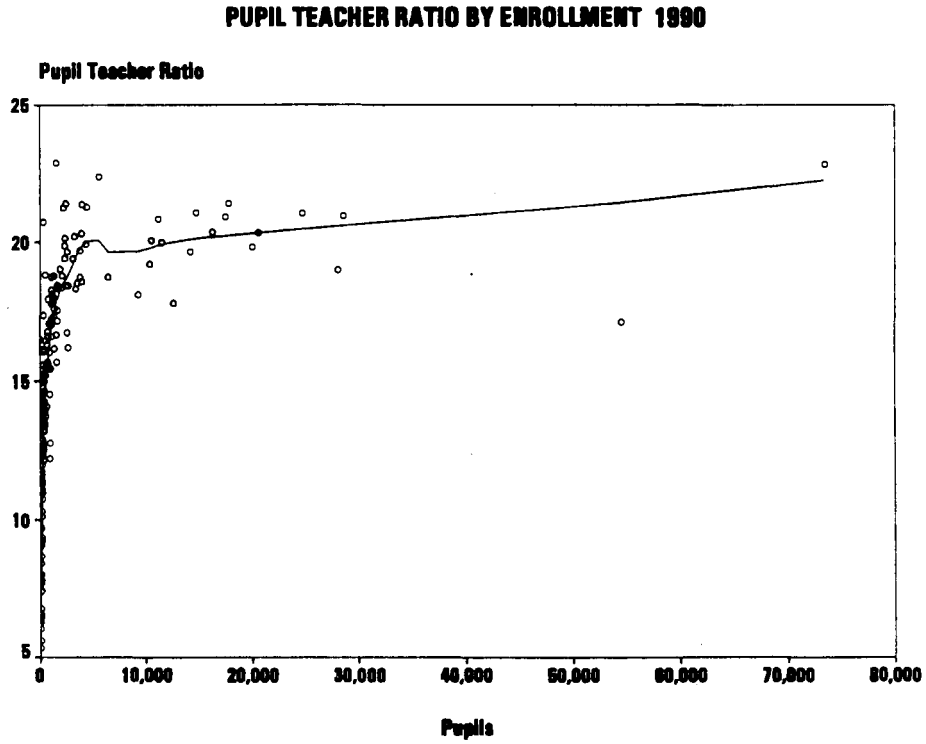
Indicators of Per Pupil Cost of Providing Education in Colorado

In conducting our analysis on the relationship between school district size and per pupil expenditures, the amount that each district spends to educate each pupil was examined to gauge the relationship between a given district's per pupil costs and its size. School district enrollment was compared with several items related to per pupil costs, including those listed below:

- pupil-teacher ratios;
- total expenditures per pupil;
- instructional expenditures as a percentage of total expenditures;
- capital reserve transfers per pupil; and
- the percentage of population in the district living in rural or in urban areas.

Of the factors listed above, pupil-teacher ratios provided the best indication of the differences between per pupil costs faced by districts based on enrollment. Therefore, actual 1990 pupil-teacher ratios were used to develop expected 1992-93 pupil-teacher ratios. Graph 1 shows each district's actual 1990 pupil-teacher ratio plotted against fall 1990 enrollment.[8] Graph 1 also shows a curve which was mathematically fit to the points.

Graph 1



The curve was magnified to find the enrollment points where the slope of the curve, or the ratios, changed most dramatically. Each of these points was identified as a level of enrollment at which a shift in per pupil costs occurred. Clear changes in the shape of the curve were found at enrollment levels of 296.5; 1,660; 4,477; and 30,000.

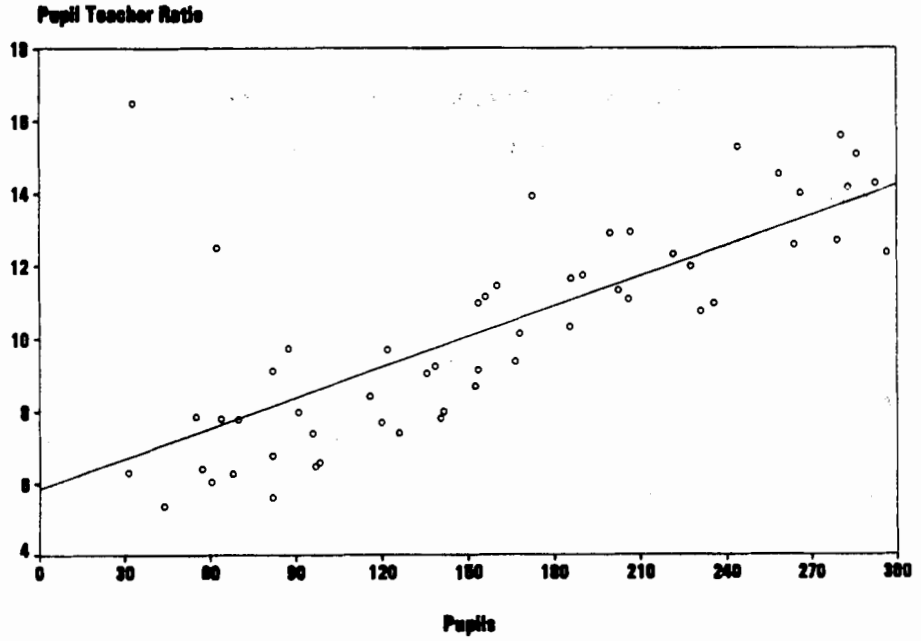
Expected Pupil-Teacher Ratios

After determining the specific points where the slope of the curve changed, new lines were fit to the pupil-teacher ratios of districts with enrollments between 0 and the four points (enrollment levels of 296.5, 1,660, 4,477, and 30,000). The new fitted lines became the basis for determining expected pupil-teacher ratios. For example, a line was fitted to the 1990 pupil-teacher ratios of the 55 districts with 1990 enrollments between 0 and 296.5 pupils (see Graph 2). The straight line in Graph 2 corresponds to the proposed expected pupil-teacher ratio of districts with enrollments under 296.5. The formula for the line allows an expected pupil-teacher ratio to be calculated for any enrollment under 296.5. The ratios for this particular enrollment group would range from 5.86 pupils per teacher (theoretically at 0 students) to 14.20.

Graph 2

PUPIL TEACHER RATIO BY ENROLLMENT 1990

Linear Fit For 0-296.5 Students

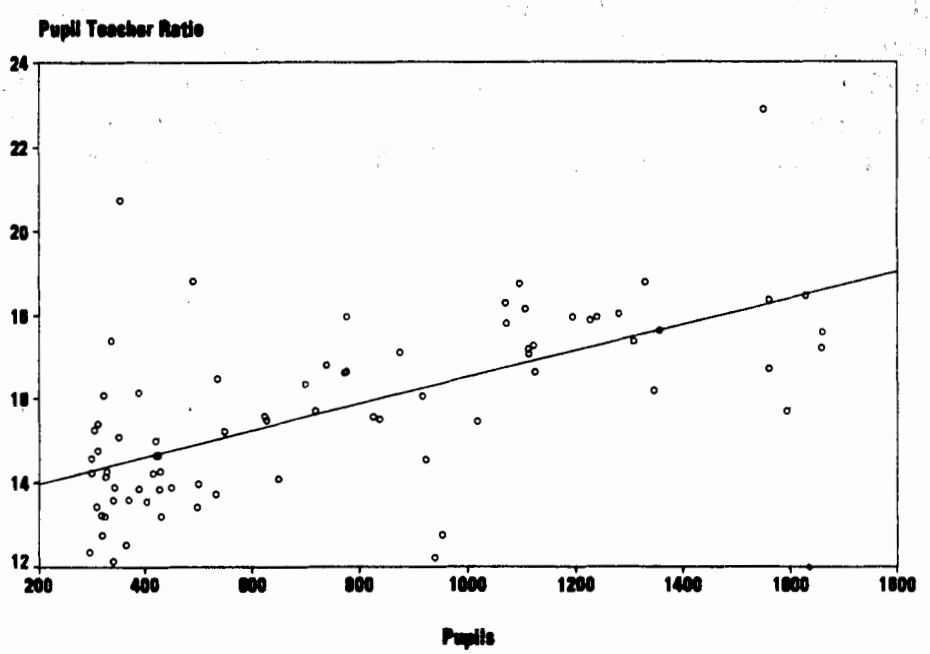


Graph 3 depicts the line fitted to the pupil-teacher ratios of districts with enrollments between 296.5 and 1,660, producing proposed expected pupil-teacher ratios between 14.20 and 18.59.

Graph 3

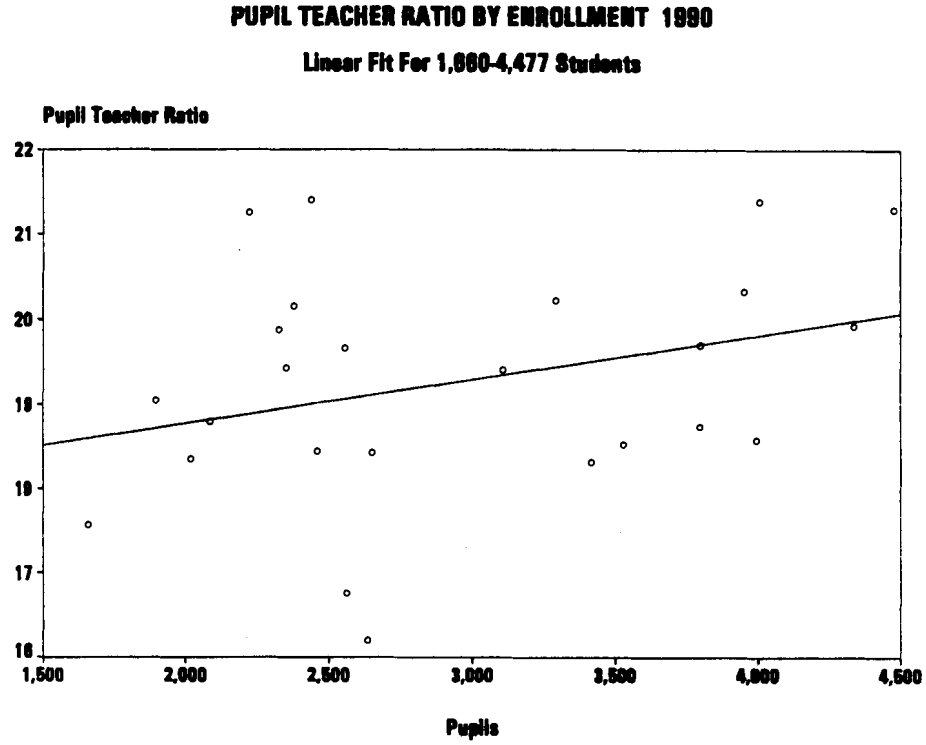
PUPIL TEACHER RATIO BY ENROLLMENT 1990

Linear Fit For 296.5-1660 Students



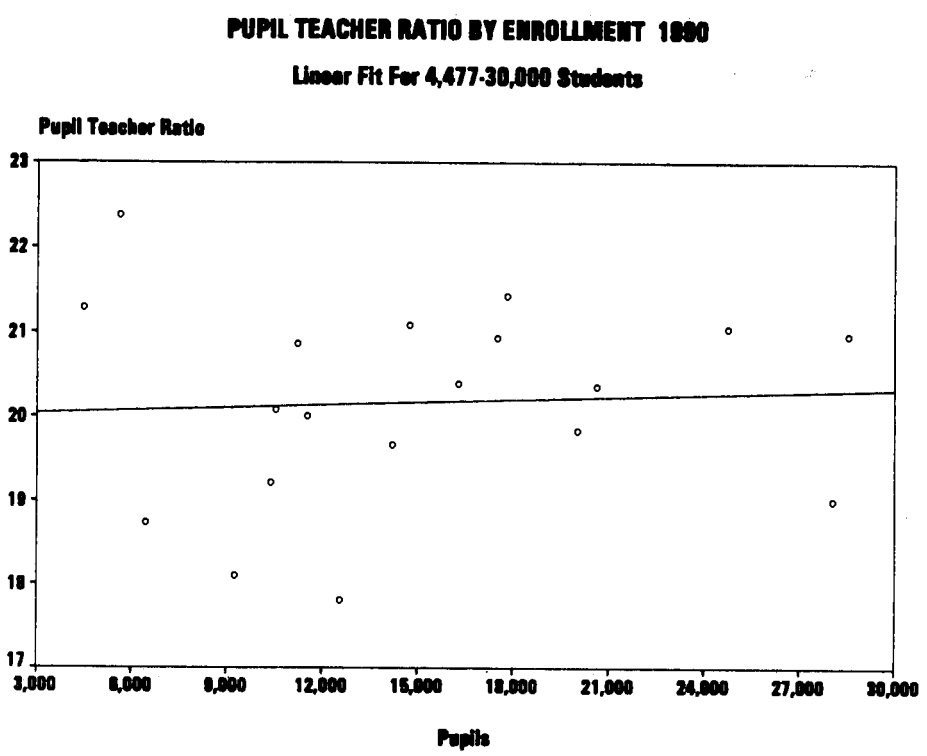
Graph 4 shows the line fitted to the pupil-teacher ratios of districts with enrollments between 1,660 and 4,477, producing proposed expected pupil-teacher ratios between 18.59 and 20.06.

Graph 4



Graph 5 illustrates the line fitted to the pupil-teacher ratios of districts with enrollments between 4,477 and 30,000, producing proposed expected pupil-teacher ratios between 20.06 and 20.33. The two districts with enrollments above 30,000 did not constitute an adequate sample so districts in that category were assigned the maximum expected pupil-teacher ratio of the 4,477 to 30,000 enrollment grouping, or 20.33.

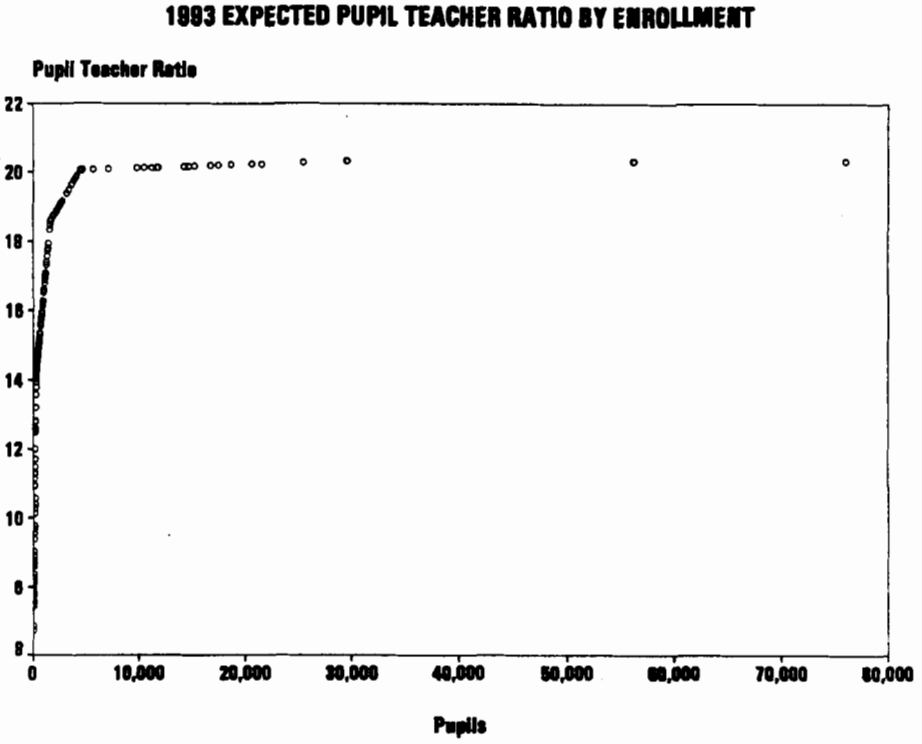
Graph 5



The lines drawn from each of the enrollment groupings were smoothed so that a continuum of expected pupil-teacher ratios existed, eliminating any step changes when moving from one enrollment level to the next. An average of endpoints was used in the two cases where the best-fit lines did not meet at exactly the same point, resulting in a shift of 0.08 pupils per teacher at enrollment of 296.5 and a shift of 0.01 pupils per teacher at enrollment of 1,660. When combined, the formulas for the four fitted lines and the fixed ratio for districts with enrollments over 30,000 allow for calculation of an expected pupil-teacher ratio at any given level of enrollment. The pupil-teacher ratio formula was applied to each district's 1992-93 enrollment. Graph 6 shows the proposed expected pupil-teacher ratios for districts based on 1992-93 enrollment.

The proposed formula for determining an expected pupil-teacher ratio takes into account the effect on costs faced by school district because of diseconomies of size. It allows for differentiation among districts based on actual enrollment, not ranges of enrollment, and allows for ratios to be adjusted each year in accordance with actual changes in enrollment. Annual enrollment changes affect the operational costs faced by districts and the proposed formula adjusts ratios to compensate. Map B shows the districts which fall between the points where changes in pupil teacher ratios are found. Please note that, although some districts may fall between different break points (and are different colors on Map B), pupil teacher ratios are adjusted without step changes.

Graph 6



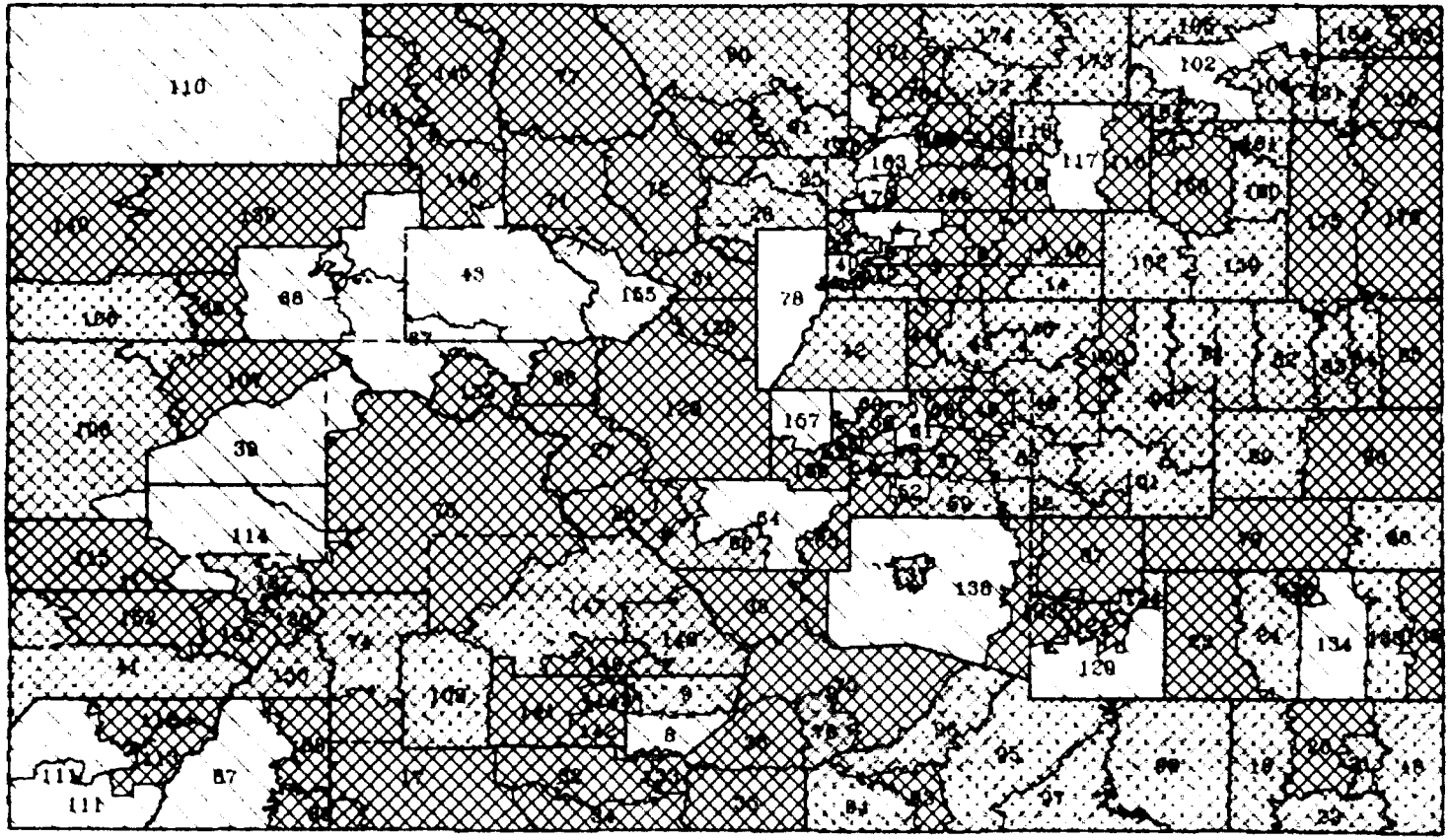
Recommendations and Issues for Consideration

In the preceding discussion, a formula is developed to adjust the pupil-teacher ratio of school districts to compensate for cost pressures resulting from the number of pupils enrolled in a district. Options exist for limiting the range of the expected pupil-teacher ratios, either at the low end or at the high end. For example, this analysis sets a limit on the maximum pupil-teacher ratio because not enough data exist to determine the true expected pupil-teacher ratio at enrollments over 30,000 pupils. The maximum pupil-teacher ratio in this analysis could be capped at a lower level. Similarly, a minimum expected pupil-teacher ratio could be set to reduce any disincentives for school district consolidation that may exist.

We believe that establishing pupil-teacher ratios based on enrollment, rather than through the use of setting categories, best meets the needs created by diseconomies of size. This proposal compensates districts by adjusting ratios in such a way as to avoid step changes, or dramatic changes in funding based on minor changes in enrollment.

Map B

District Groupings Based on Enrollment Breakpoints



0 to 296.5

296.5 to 1,660

1,660 to 4,477

4,477 to 30,000

30,000 +

AT RISK

The statute creating the school district setting category study directed our office to consider certain census and other data relating to the characteristics of school districts. Some of these data appear to relate to the issue of at-risk youth: levels of income, the number of single parent households, the dominant language spoken in households, the level of educational attainment of parents, and free and reduced meals. The inclusion of these types of data in the setting category study directive appear to signal the General Assembly's intent to have an at-risk component in school finance funding.

In the following pages, at-risk children are discussed in the context of the types of programs that have been created to target resources to these children, and the types of costs associated with these programs. A description of our activities in examining the pertinent data is included. Finally, the section concludes with a presentation of recommendations for including an at-risk component in the school finance act.

At-Risk Programs

The phrase "at risk" refers to those students who have the potential to perform poorly in or to drop out of school prior to graduation. The diversity of the factors thought to be responsible for students being at-risk is reflected in the variety of programs created to address the needs of at-risk students. Factors such as teen pregnancy, low income, poor performance on assessment tests, English as a second language, and the frequency of discipline problems have been shown to be predictors of whether students stay in school and how well they perform.[9] Other indicators of at-risk youth are provided in Table 4.

The most common response to the needs of potential dropouts is the creation of one or more add-on programs that target specific problems or needs of at-risk students. The term "add-on" is used because these programs are normally in addition to the standard educational curriculum. A second and less common response involves systemic change in the way educational services are provided.[10] The following paragraphs briefly describe the various add-on programs currently in use, the goals of systemic change as they relate to at-risk youth, and the expense involved with at-risk programs. Table 5 presents additional characteristics of at-risk programs.

Add-on programs. **Early intervention** efforts attempt to address conditions that may lead to a student dropping out later in life. Research indicates that the prenatal period and first nine years of life are crucial to a child's educational success, with the "die cast" as early as the fourth grade. Thereafter, changing a student's behavior becomes progressively more difficult. Early intervention strategies include providing prenatal and

Table 4

Indicators of/Eligibility Criteria for At-Risk Students

- federal Aid to Families with Dependent Children (AFDC)
- federal Free Lunch or Reduced Price Lunch Programs
- federal Head Start Program
- low income or similar measures of poverty, or high concentrations of impoverished families
- number of births to unmarried women
- district dropout rates, whether as a percentile placement among all districts or relative to a statewide average
- districts with similar demographics
- literacy rates, often based on percentile placement among all districts
- pupil transiency rates
- prevalence of disruptive behavior or disciplinary problems
- large numbers of homes where the primary language is other than English or high concentrations of recent immigrants or migratory farm families
- poor performance on state assessment tests or performance below one or more grade levels
- retention at grade level one or more times
- district contains areas that may be classified as slums or economically depressed
- students subject to child abuse or neglect
- students in foster care or other state institutions, or students living in hotels, shelters, and other temporary living arrangements
- high concentrations of racial or ethnic minorities
- unemployment rates of young adults
- employment of dropouts
- rates of tobacco, alcohol, and drug abuse
- causes of death
- rates of victims of violent crimes
- arrest rates by age by type of crime
- education level of parents and parental attitudes toward education
- number of premature births or low birth weight babies
- chronic/habitual truancy

child care services, preschool education (e.g., Head Start), and comprehensive programs of health and social services for the child and his or her family.[11]

Mentoring is the establishment and maintenance of a one-on-one relationship with an at-risk student that encourages and guides personal growth and development in that student. Mentoring may involve a peer, an older student, a teacher, or an adult volunteer. Mentoring may also occur in the context of work experience programs that are designed to clarify the connections between school and the requirements of the working world and in that way provide incentives for the student to remain in school.

Parental involvement programs provide additional support for the at-risk student, often outside the school. Efforts include training for new parents and helping parents to teach their children, health and nutrition education, increasing parental awareness and support of school learning, and increasing the school's obligation to communicate with parents about school programs and their child's progress. Programs may also involve parents as school volunteers and parental participation in school governance.

Collaboration efforts reflect the view that treating the whole child will more effectively address the conditions that may lead to dropping out. Collaboration programs involve improving student access to a variety of services not directly related to normal schooling and improving the communication between those service agencies to decrease conflicts and overlapping services. Agencies that are often joined in collaborative efforts include primary, secondary, and higher education; health and social service agencies; law enforcement; community groups; and business.

Cost of addressing at-risk children through add-on programs. The presence of large numbers of at-risk students can increase school district expenses. At its simplest, the creation of new programs or the expansion of existing programs will normally involve increased costs. For instance, improving access to pre-school programs has been shown to improve the subsequent performance of children with at-risk backgrounds. Beyond new or expanded programs, certain strategies are also likely to cost more than others. For instance, using specialized staff and equipment will probably be more expensive than peer programs involving older students tutoring younger students. Other costs are associated with new information systems to identify and track at-risk students, special training for teachers and counselors, additional counselors, incentive and award programs, outreach efforts, remedial course work, additional testing, and smaller class sizes that require additional teachers.[12]

In terms of the categories of programs described above, **early intervention** costs could include health and parenting classes for new parents, instruction on how to help their children learn, offering classes at non-traditional times, and providing day care services at the school site. **Mentoring** can be a labor-intensive approach to addressing at-risk behavior because it requires time and commitment by the mentor. Such programs also require the support of and close collaboration with local schools and community-based and volunteer organizations. Other costs may be incurred through training,

Table 5

Characteristics of At-Risk Programs

Characteristics of at-risk programs include:

- definition and identification of at-risk students, whether the criteria are general to allow local discretion or specific to target particular students;
- comprehensive data collection systems that track drop-outs and monitor performance;
- remedial courses in basic skills and English-speaking skills;
- competency testing and student exhibitions as a final demonstration of mastery;
- special courses directed toward particular groups (e.g., substance abuse, suicide, pregnancy, parenting and life skills, and self-esteem);
- concentrated course work (e.g., "magnet" schools);
- group learning, peer tutoring, field work, and vocational education;
- a variety of individual and family counseling efforts;
- special assistance (e.g., on-site day care);
- smaller class size;
- flexible school policies (e.g., attendance hours to accommodate work, in-school suspension in place of expulsion, and ease of "mid-course corrections" in a student's curriculum);
- granting school district status to various juvenile and mental health facilities;
- increased graduation requirements and minimum grade requirements for participation in extracurricular activities;
- alternative teaching methods, usually with an emphasis on personalized instruction;
- outreach and retrieval activities that limit the possibility that students can drop out without being noticed;
- resources for staff development, program planning and coordination, and specialized inservice training;
- publication of information on at-risk programs and practices and operation of an information clearinghouse;
- formation of interdepartmental committees to monitor and coordinate service delivery from different agencies; and
- incentives and rewards, whether directed toward the student (e.g., guaranteed employment, prepaid college tuition) or toward individual schools or districts for innovative programs.[25]

monitoring, and supervision. Costs associated with additional training, monitoring, and supervision may also increase the cost of **parental involvement** and **collaboration** programs. In a broad sense, the increased expense related to at-risk students is due to the increased attention to the individual problems and learning styles of each student.

Systemic change to address at-risk students. According to one report, "most research on school-related factors has focused on students' behaviors and performance in school. Little attention has been given to the influences of schools themselves - their organization, leadership, teachers - on students' decisions to drop out. Yet many potential dropouts attend schools with very poor facilities and inadequate teaching staffs, conditions that could affect their performance in school and ultimately their decision to leave."[13] The highly structured nature of the current education environment tends to drive out the diversity that is at the heart of the needs of at-risk students. Most schools are structured to accommodate the needs of a two-parent, only-father-works family.[14] Under these circumstances, solutions such as requiring more courses, more time in the classroom, or more homework will most likely not address at-risk issues.

An alternative is to increase the flexibility of the system to respond to the needs of the whole child, reflecting the belief that the current system is deficient in addressing the wide variety of learning styles of all children. Therefore, the current structures must change so that learning is more individual, hands-on, interdisciplinary, and more interactive (e.g., group and experience-based learning such as community service and field research).[15] Thus, support for structural change comes from a belief that systemic change will work better in the long run than specifically targeted programs and that "structures which work most effectively for at-risk children will benefit all children."[16] To date, efforts at systemic change have been mostly pilot-project in scope.

Cost of addressing at-risk children through systemic change. The costs associated with addressing the needs of at-risk students through systemic change in the delivery of education are more difficult to quantify than add-on programs. Increased expenses are often associated with special training for teachers and administrators to assist them with adjusting to new teaching methods. As with add-on programs, systemic change may include smaller class size and efforts to track student progress in such areas as critical thinking skills and motivation to learn (e.g., the use of portfolio grading and student exhibitions). Systemic change does not preclude using many of the features of add-on programs that may also increase costs.[17]

Funding at-risk programs.[18] Though enough information exists concerning what components appear to work with at-risk students, "no accurate information exists regarding cost relative to effectiveness." Policymakers are, therefore, "limited in their ability to estimate the potential resources required for dropout prevention initiatives." Alternatives include closer examination of existing programs or creation of pilot projects designed to generate the types of information needed.

Overall, research suggests that: 1) at-risk programs should be designed and funded in ways that allow school districts to design programs that match services with the specific needs of individual students; 2) these programs should be targeted at elementary and middle school students at immediate risk of dropping out; 3) programs should encourage parental involvement in the development of the child's program and the monitoring of improvement; 4) funding should accommodate and encourage student choice of program setting and providers; and 5) funding should encourage the participation of the private sector and larger community.

Evaluation of At-Risk Data

As previously mentioned, the statute creating the school district setting category study directed our office to consider specified data relating to at-risk characteristics: levels of income, the number of single parent households, the dominant language spoken in households, the level of educational attainment of parents, and free and reduced meals. As a result of analysis of the data in the study directive, three data elements were derived from the census as proxies for the presence of at-risk youth. These data elements were: 1) the percentage of children age 5 to 17 living in poverty, 2) the percentage of persons age 18 and older without a high school diploma, and 3) the percentage of children age 5 to 17 who speak English "not well" or "not at all." Each of these three elements appear to be supported by research, as briefly described below.

Poverty. According to one report, "dropouts are three times more likely than high school graduates to come from families that receive welfare." For instance, about 18 percent of all dropouts ages 14 to 21 live in families on AFDC, while only 5 percent of high school graduates rely on this aid.[19] Many of the other sources cited in this section also noted the correlation between low income and drop-out potential.

English-speaking skills. Below grade level performance and dropping out are related to poor English skills because poor English skills often lead to students getting farther behind students of the same age. Getting behind in grade level increases the likelihood of dropping out by up to four times, even if the student is reading at higher levels than their peers. Evidence also exists that "three times as many Spanish language background Hispanic students drop out during 10th grade or earlier as do English language background Hispanic youth."[20]

Parental education. The educational attainment of parents and, more generally, their attitudes toward education have been shown to have a significant relationship with the academic performance of their children. The influence of parental education on at-risk behavior can be in the form of parents who are not concerned with their child's education, do not become involved, or lack the skills and study aids needed to support their children. For instance, parents may not be able to read to their child or, because of their own failure in school, value education less or continue to be intimidated by it.[21]

Data on average household income levels were derived from the census by school district, but were not used in this portion of the study. As a measure of socioeconomic status, data on children living in poverty were substituted for income levels because they appeared to more accurately reflect the circumstances of school age children. Information on the percentage of children living in single parent households was also obtained from the census and examined in conjunction with the above-described data. This data element was eliminated as being the least defensible in terms of the research available.

The three data elements selected were used to establish an "at risk index" for each school district. Each of the data elements were expressed as a percentage of the applicable universe. (A listing of the at-risk data by school district is contained in Table 6.) The data for each of the elements were standardized prior to determining the index for each school district to eliminate the inherent weighting that occurs because of variations in percentages. (A description of standardization of variables can be found in the Appendix.) An at-risk index was developed by summing the standardized values. This at-risk index was used to conduct cluster analysis, similar to the process used to group school district labor pool areas into economic regions. These clusters are presented in Map C.

Cluster analysis, however, quickly revealed the difficulty of establishing setting categories using a combination of economic, size, and at-risk variables. Slight variations in the elements included in the cluster, or differences in the weights given each variable produced markedly different groupings of districts. In addition, the exercise of grouping economic, size, and at-risk variables raised the question of the appropriate weighting among the three variables. Should cost of living be given the same weight as at risk? If not, how should weights be distributed among the three variables? By not determining the weight of particular variables, all variables are implicitly weighted the same. We were not comfortable with the assumption that equal weights should be applied to all three of the at-risk variables, nor were we comfortable assigning weights to the various elements.

Map C

Cluster of Child Poverty, High School Diploma, and Non-English Index

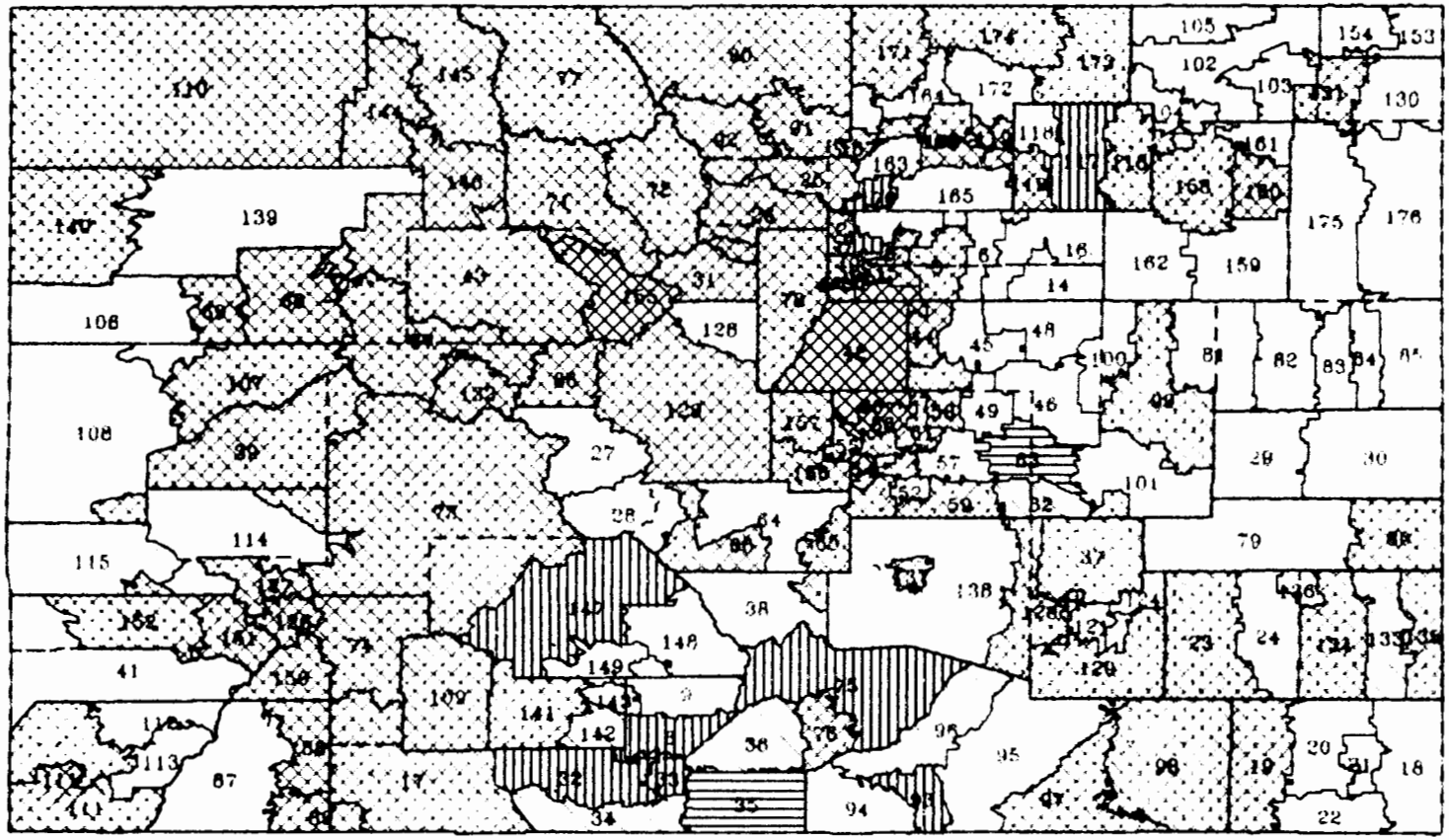


Table 6

1990 At-Risk Data

COUNTY	DISTRICT	PERCENT OF PERSONS UNDER 18 W/OUT HS DIPLOMA	CHILD POVERTY RATE	NON-ENGLISH SPEAKING CHILDREN
ADAMS	MAPLETON	25.24%	13.32%	0.34%
ADAMS	NORTHGLENN	17.12%	9.07%	0.94%
ADAMS	COMMERCE CITY	37.72%	24.68%	2.39%
ADAMS	BRIGHTON	27.10%	12.75%	1.01%
ADAMS	BENNETT	18.91%	8.87%	0.22%
ADAMS	STRASBURG	16.56%	3.96%	3.83%
ADAMS	WESTMINSTER	22.47%	11.60%	2.51%
ALAMOSA	ALAMOSA	20.46%	31.96%	4.83%
ALAMOSA	SANGRE DECRISTO	18.98%	22.83%	2.17%
ARAPAHOE	ENGLEWOOD	20.24%	15.38%	0.83%
ARAPAHOE	SHERIDAN	28.19%	25.33%	2.01%
ARAPAHOE	CHERRY CREEK	5.74%	4.12%	0.78%
ARAPAHOE	LITTLETON	8.14%	5.46%	1.14%
ARAPAHOE	DEER TRAIL	32.32%	18.00%	0.00%
ARAPAHOE	AURORA	13.20%	12.58%	0.89%
ARAPAHOE	BYERS	23.69%	21.69%	0.37%
ARCHULETA	ARCHULETA	18.69%	19.46%	3.88%
BACA	WALSH	24.80%	15.65%	1.37%
BACA	PRITCHETT	21.21%	47.31%	0.00%
BACA	SPRINGFIELD	31.50%	16.67%	0.00%
BACA	VILAS	28.81%	10.00%	0.00%
BACA	CAMPO	30.40%	19.67%	0.00%
BENT	LAS ANIMAS	27.78%	23.70%	1.78%
BENT	MCCLAVE	27.81%	21.64%	0.00%
BOULDER	ST VRAIN	17.40%	8.24%	1.03%
BOULDER	BOULDER	6.62%	9.45%	1.44%
CHAFFEE	BUENA VISTA	22.94%	13.81%	0.00%
CHAFFEE	SALIDA	20.36%	17.57%	0.77%
CHEYENNE	KIT CARSON	23.52%	12.40%	2.46%
CHEYENNE	CHEYENNE R-5	18.53%	13.59%	2.43%
CLEAR CREEK	CLEAR CREEK	9.66%	10.02%	1.47%
CONEJOS	NORTH CONEJOS	33.51%	37.79%	0.09%
CONEJOS	SANFORD	30.52%	40.79%	0.90%
CONEJOS	SOUTH CONEJOS	41.71%	47.16%	1.47%
COSTILLA	CENTENNIAL	45.73%	49.75%	8.64%
COSTILLA	SIERRA GRANDE	25.03%	49.82%	5.42%
CROWLEY	CROWLEY	30.18%	28.17%	0.00%
CUSTER	WESTCLIFFE	18.04%	24.32%	0.66%
DELTA	DELTA	27.46%	22.70%	1.18%
DENVER	DENVER	21.63%	26.41%	2.73%
DOLORES	DOLORES	27.27%	13.37%	0.00%
DOUGLAS	DOUGLAS	6.54%	3.95%	0.36%
EAGLE	EAGLE	11.37%	8.62%	1.45%
ELBERT	ELIZABETH	12.97%	3.30%	1.56%
ELBERT	KIOWA	18.02%	4.89%	2.17%

Table 6

1990 At-Risk Data

COUNTY	DISTRICT	PERCENT OF PERSONS UNDER 18 W/OUT HS DIPLOMA	CHILD POVERTY RATE	NON-ENGLISH SPEAKING CHILDREN
ELBERT	BIG SANDY	29.14%	22.09%	0.00%
ELBERT	ELBERT	20.00%	0.00%	0.00%
ELBERT	AGATE	35.32%	0.00%	0.00%
EL PASO	CALHAN	20.07%	14.83%	0.31%
EL PASO	HARRISON	16.13%	22.49%	1.21%
EL PASO	WIDEFIELD	11.15%	10.86%	0.42%
EL PASO	FOUNTAIN	18.22%	18.23%	0.80%
EL PASO	COLORADO SPRINGS	14.02%	13.86%	0.77%
EL PASO	CHEYENNE MOUNTAIN	5.70%	7.89%	0.00%
EL PASO	MANITOU SPRINGS	11.35%	24.33%	0.54%
EL PASO	ACADEMY	4.52%	3.51%	0.40%
EL PASO	ELLICOTT	15.86%	22.78%	0.40%
EL PASO	PEYTON	12.23%	12.82%	0.00%
EL PASO	HANOVER	19.05%	22.62%	4.60%
EL PASO	LEWIS-PALMER	6.23%	3.61%	0.00%
EL PASO	FALCON	10.34%	8.35%	1.06%
EL PASO	EDISON	36.21%	37.04%	7.14%
EL PASO	MIAMI-YODER	36.36%	38.61%	13.13%
FREMONT	CANON CITY	24.26%	17.10%	0.56%
FREMONT	FLORENCE	28.41%	18.09%	1.44%
FREMONT	COTOPAXI	16.17%	3.26%	2.31%
GARFIELD	ROARING FORK	12.15%	5.90%	0.86%
GARFIELD	RIFLE	20.36%	13.48%	0.27%
GARFIELD	PARACHUTE	13.75%	11.97%	0.00%
GILPIN	GILPIN	8.67%	13.03%	0.32%
GRAND	WEST GRAND	15.83%	12.22%	0.00%
GRAND	EAST GRAND	12.18%	5.77%	0.18%
GUNNISON	GUNNISON	8.19%	14.64%	0.00%
HINSDALE	HINSDALE	6.55%	17.65%	0.00%
HUERFANO	HUERFANO	38.11%	35.37%	0.00%
HUERFANO	LA VETA	25.20%	32.76%	0.00%
JACKSON	NORTH PARK	19.75%	8.31%	0.00%
JEFFERSON	JEFFERSON	11.45%	6.65%	0.77%
KIOWA	EADS	33.01%	11.59%	0.00%
KIOWA	PLAINVIEW	19.49%	1.22%	0.00%
KIT CARSON	ARRIBA-FLAGLER	20.22%	23.08%	0.00%
KIT CARSON	HI PLAINS	23.46%	15.28%	0.00%
KIT CARSON	STRATTON	29.51%	12.55%	0.00%
KIT CARSON	BETHUNE	26.27%	11.45%	0.75%
KIT CARSON	BURLINGTON	29.28%	22.39%	0.00%
LAKE	LAKE	19.00%	16.68%	0.00%
LA PLATA	DURANGO	12.51%	16.29%	1.96%
LA PLATA	BAYFIELD	15.65%	7.46%	0.81%
LA PLATA	IGNACIO	25.17%	24.30%	0.99%
LARIMER	POUDRE	9.14%	10.90%	0.59%

Table 6

1990 At-Risk Data

COUNTY	DISTRICT	PERCENT OF PERSONS UNDER 18 W/OUT HS DIPLOMA	CHILD POVERTY RATE	NON-ENGLISH SPEAKING CHILDREN
LARIMER	THOMPSON	15.91%	7.59%	0.36%
LARIMER	ESTES PRK	9.30%	10.91%	1.73%
LAS ANIMAS	TRINIDAD	30.67%	30.57%	3.97%
LAS ANIMAS	PRIMERO	26.17%	19.92%	0.00%
LAS ANIMAS	HOEHNE	27.05%	21.10%	0.28%
LAS ANIMAS	AGUILAR	42.99%	59.09%	0.00%
LAS ANIMAS	BRANSON	11.19%	6.98%	0.00%
LAS ANIMAS	KIM	21.33%	36.51%	0.00%
LINCOLN	GENOA-HUGO	23.56%	26.85%	1.08%
LINCOLN	LIMON	24.97%	20.60%	0.00%
LINCOLN	KARVAL	30.94%	16.44%	0.00%
LOGAN	VALLEY	20.77%	18.77%	0.07%
LOGAN	FRENCHMAN	24.92%	15.08%	1.10%
LOGAN	BUFFALO	21.98%	15.70%	0.00%
LOGAN	PLATEAU	17.05%	22.33%	0.00%
MESA	DEBEQUE	15.73%	33.33%	0.00%
MESA	PLATEAU	20.79%	37.50%	0.00%
MESA	MESA VALLEY	21.07%	18.96%	1.00%
MINERAL	CREEDE	15.70%	9.21%	0.00%
MOFFAT	MOFFAT	20.35%	11.73%	0.33%
MONTEZUMA	MONTEZUMA	27.92%	25.55%	1.28%
MONTEZUMA	DOLORES	22.67%	23.62%	0.97%
MONTEZUMA	MANCOS	21.41%	18.94%	0.94%
MONTROSE	MONTROSE	26.40%	17.60%	1.42%
MONTROSE	WEST END	29.91%	16.13%	0.24%
MORGAN	BRUSH	35.19%	15.48%	2.61%
MORGAN	FT MORGAN	33.51%	20.91%	3.19%
MORGAN	WELDON	42.02%	8.86%	0.00%
MORGAN	WIGGINS	21.22%	9.09%	0.00%
OTERO	EAST OTERO	30.60%	27.72%	0.75%
OTERO	ROCKY FORD	35.99%	46.36%	2.61%
OTERO	MANZANOLA	37.23%	38.38%	0.00%
OTERO	FOWLER	26.20%	26.07%	0.74%
OTERO	CHERAW	17.16%	18.34%	0.60%
OTERO	SWINK	23.23%	15.59%	1.63%
OURAY	OURAY	13.77%	9.72%	0.00%
OURAY	RIDGWAY	13.79%	11.34%	0.00%
PARK	PLATTE CANYON	8.38%	12.77%	3.23%
PARK	PARK	15.14%	9.84%	0.00%
PHILLIPS	HOLYOKE	21.95%	14.63%	1.04%
PHILLIPS	HAXTUN	20.65%	13.03%	0.00%
PITKIN	ASPEN	5.32%	5.04%	2.70%
PROWERS	GRANADA	44.51%	36.09%	4.35%
PROWERS	LAMAR	28.47%	27.26%	1.68%
PROWERS	HOLLY	35.21%	16.72%	0.94%

Table 6

1990 At-Risk Data

COUNTY	DISTRICT	PERCENT OF PERSONS UNDER 18 W/OUT HS DIPLOMA	CHILD POVERTY RATE	NON-ENGLISH SPEAKING CHILDREN
PROWERS	WILEY	28.43%	10.69%	0.00%
PUEBLO	PUEBLO CITY	26.71%	28.96%	1.48%
PUEBLO	PUEBLO RURAL	22.69%	17.57%	1.25%
RIO BLANCO	MEEKER	20.16%	18.54%	0.00%
RIO BLANCO	RANGELY	17.56%	10.56%	0.00%
RIO GRANDE	DEL NORTE	28.46%	26.32%	0.69%
RIO GRANDE	MONTE VISTA	34.52%	34.89%	5.04%
RIO GRANDE	SARGENT	22.75%	22.75%	0.39%
ROUTT	HAYDEN	15.77%	7.22%	0.00%
ROUTT	STEAMBOAT SPRINGS	7.30%	10.34%	0.00%
ROUTT	SOUTH ROUTT	13.71%	12.01%	0.00%
SAGUACHE	MTN VALLEY	28.95%	46.20%	0.00%
SAGUACHE	MOFFAT	15.46%	35.16%	0.00%
SAGUACHE	CENTER	43.32%	41.71%	4.86%
SAN JUAN	SILVERTON	17.24%	17.71%	0.00%
SAN MIGUEL	TELLURIDE	2.55%	16.08%	0.00%
SAN MIGUEL	NORWOOD	16.85%	7.67%	0.00%
SEDGWICK	JULESBURG	27.94%	13.18%	0.00%
SEDGWICK	PLATTE VLY	32.64%	12.04%	0.00%
SUMMIT	SUMMIT	5.34%	7.92%	0.23%
TELLER	CRIPPLE CREEK	15.38%	13.74%	0.00%
TELLER	WOODLAND PARK	8.33%	10.97%	0.00%
WASHINGTON	AKRON	29.28%	25.57%	0.45%
WASHINGTON	ARICKAREE	23.69%	23.85%	0.00%
WASHINGTON	OTIS	16.49%	13.13%	0.00%
WASHINGTON	LONE STAR	15.64%	25.58%	0.00%
WASHINGTON	WOODLIN	17.93%	20.00%	0.00%
WELD	GILCREST	28.04%	14.45%	1.65%
WELD	EATON	20.88%	10.01%	1.29%
WELD	KEENESBURG	25.56%	15.81%	0.38%
WELD	WINDSOR	20.24%	10.90%	1.10%
WELD	JOHNSTOWN	32.21%	17.64%	0.90%
WELD	GREELEY	22.60%	21.66%	2.46%
WELD	PLATTE VLY	22.41%	8.34%	0.00%
WELD	FORT LUPTON	35.50%	21.92%	1.96%
WELD	AULT-HGHLND	27.59%	24.19%	2.71%
WELD	BRIGGSDALE	19.75%	18.92%	0.00%
WELD	PRAIRIE	32.60%	25.58%	0.00%
WELD	GROVER	29.04%	30.77%	0.00%
YUMA	WEST YUMA	22.57%	16.63%	0.20%
YUMA	EAST YUMA	22.25%	14.37%	0.20%
STATE TOTAL		16.22%	14.19%	1.23%

Recommendations and Issues for Consideration

On the basis of the analysis of at-risk characteristics, and the combination of those characteristics with economic and size factors, we recommend that:

> *at-risk factors not be addressed through the use of categories, but rather through the mechanism of formula funding that recognizes individual district variation. We further recommend that the instructional unit funding ratio be modified to reflect the extent to which each district's enrollment is comprised of at-risk pupils. Lastly, we reiterate our previous recommendation that census data be replaced by other "proxy" data that are available, or can be collected, on an annual basis.*

The differences in groupings that resulted from variations in weighting or a combination of different elements suggest that the creation of discrete categories to accommodate cost of living, size, and at risk may not be feasible. The creation of categories also suggests some continuity in the groupings of districts. Such constancy may not adequately respond to changes in the pupil characteristics of districts, or, alternatively, setting category recategorizations would have to be conducted on a relatively frequent basis. Our recommendation to address at risk through the funding formula would allow the changes in the characteristics of the student population to be addressed annually.

The mechanism recommended for accommodating an at-risk component in the school finance act is a modification of the instructional unit funding ratio. The preceding discussion on characteristics of at-risk programs indicates that the costs associated with at-risk programs are primarily personnel costs. Additional personnel are required for smaller class sizes, additional programs or classes targeting specific populations of students, counseling services, and the like. An adjustment in the funding ratio that recognizes the at-risk population of a school district provides a method to account for such variations in personnel needs.

As with the economic data, the data used in the at-risk analysis were derived from census data, which are only available every ten years. Given our recommendation for a formula adjustment in the school finance act for at risk, we also recommend that this adjustment be based on data that are available, or can be collected, annually. Such a data source would permit changes in the pupil characteristics of school districts to be addressed on an on-going basis. Options currently exist for annual data. The Department of Education collects data on low income pupils, and students for which free or reduced meals are provided under the National School Lunch Act. A correlation analysis revealed that of the data collected by the department, the percentage of students receiving free lunch correlated most highly with the at-risk index, with a coefficient of .7612.

FUNDING MECHANISM OPTIONS

The analysis conducted in the three preceding sections of this chapter leads us to make the following recommendations relating to the establishment of setting categories:

school districts should be grouped according to cost-of-living factors and funding components should be established that reflect the cost of living in each of the four major cost-of-living groups;

instructional unit funding ratios and at-risk factors should not be addressed through the use of categories, but rather through the mechanism of formula funding that recognizes individual district variation; and

instructional unit funding ratios should be determined by the enrollment size of each district, and modified to the extent that each district's enrollment is comprised of at-risk pupils.

Several mechanisms were investigated to determine funding component values to reflect cost-of-living regions, enrollment-based instructional unit funding ratios, and individual school district variations that should be allowed for at-risk factors. These mechanisms included "reaveraging" of funding components, a fixed and variable cost model, and a proportionate funding approach. None of these approaches is developed to the point where serious consideration by the General Assembly is appropriate, and recommendation of any of these mechanisms appears to go beyond the scope of the assigned study. It is recommended, however, that:

the study scope be expanded, reporting deadlines established, and that further refinement of each alternative be pursued for consideration during the 1993 legislative interim.

Funding Options Based on Economic Regions

Two options for linking funding to the economic regions surfaced during the study. These options provide different methodologies for determining funding based on the setting category concept contained in the current school finance act.

Option 1: averaging district expenditures. Under Option 1, funding components would be computed for the economic regions in the same manner as they were computed for the setting categories under the 1988 act. That is, actual expenditures would be averaged within each region to determine a region funding component amount

for the applicable component. Per pupil funding amounts could be calculated for instructional supplies and materials, capital reserve and insurance, and instructional purchased services, while unit funding amounts could be calculated for instructional salaries and benefits, pupil support services, school administration, operations and maintenance, and district support services. This option assumes that the cost of living differences inherent in the different economic regions are reflected in current school district expenditures. This option also provides actual expenditure data on those portions of district budgets that may not be addressed in the cost-of-living variables used to develop the regions. However, it could be argued that this methodology tends to validate the expenditure patterns of the past. The latest year for which expenditure data are available is budget year 1990, although 1991 data should be available in the spring.

Option 2: fixed and variable costs. Although option 2 uses actual expenditure data to some degree, it also relies on the cost-of-living data from the census. Under this option, the differentials in costs among regions would be computed and applied to a base unit funding amount to determine the value of unit funding in a given region. To compute the cost differentials, a region average could be established for each of the four variables used in analyzing cost of living: average housing value, income, monthly rent, and monthly ownership costs. The averages would be used to arrive at the ratio of the region average to the statewide average. Using these ratios, an index could be established for each region. For example, a region with a high cost structure relative to the statewide average might have an index value of 1.2, while an index of .8 would indicate a region with a lower cost structure. This basic concept would be modified to accommodate issues not accounted for in the cost differentials.

The census data are limited in that they provide information primarily on shelter costs. Other variables impact the cost of living and the cost of providing educational services, however. While the information on shelter expenses may provide a rational basis for differentiating between salary and benefit needs, the same may not hold true for other school district costs. Thus, this option envisions a preliminary computation of a separate index for salaries and benefits and one for "all other" expenditures. These indices would be combined for a final index based on the percentage of expenditures in each region for the two expenditure categories. The index for the "all other" category of expenditures - supplies and materials, capital outlay, purchased services, transfers, and other expenses - would be created from actual expenditure data. An average unit amount would be calculated for each region, and an index established based on the ratio of the region's average to the statewide average. The overall index for a region would be the sum of: 1) the region's percentage of expenditures for salaries and benefits relative to total expenditures multiplied by the region's economic cost-of-living index, and 2) the region's percentage of all other expenditures relative to total expenditures multiplied by the "all other" index. Using the example provided in the preceding paragraph, a region that has an economic index of 1.2 and spends an average of 80 percent of the combined expenditures on salaries and benefits would have an economic index of 0.96. Assuming an "all other" factor of 0.9 and 20 percent of expenditures on the all other components,

the "all other" index would be 0.18. Thus, this region's overall index would be 1.14, or 0.96 plus 0.18.

Option 2 also recognizes that not all costs vary with the cost of living, and that some costs are fixed. For example, an economic region with an economic index of 0.6 would not be expected to pay a beginning teacher $10,800, assuming a statewide average beginning salary of $18,000. Thus, a floor exists for school district expenditures. One method of arriving at this fixed amount would be to calculate the minimum per unit dollar value associated with the salary and benefit and all other expenditure categories. The sum of these two figures would become the fixed per unit funding, which every district would receive regardless of economic region. The index described in the preceding paragraph would only be applied to unit funding in excess of the base amount, or the variable unit amount. The fixed costs would be subtracted from the salary and benefit and all other expenditures prior to computing the weights for the indices described above.

This method of linking funding to economic regions would take into account the census data used in deriving the economic regions. Option 2 also takes into account differences in spending patterns among regions as they relate to salaries and benefits and all other expenditures. However, by the very nature of the census data, the economic index is limited to shelter costs. Differentials in other costs, therefore, are not taken into consideration in the economic index.

Instructional Unit Funding Ratios

Rather than including size as a category characteristic, a formula is proposed that computes the instructional unit funding ratio of each district based on the district's enrollment. This formula allows for differentiation among districts based on actual enrollment, not ranges of enrollment. It is also recommended that the instructional unit funding ratio be modified to recognize the at-risk student population. An adjustment to the ratio, rather than distinct groupings of districts, allows individual district variations to be taken into account. One method of targeting funding to school districts to recognize the at-risk population would be a proportionate funding approach.

Proportionate funding approach. Theoretically, the proportionate funding approach provides an increase in per pupil funding based on the extent to which a given district's "at-risk measurement" exceeds whatever "baseline" is established. The district's at-risk measurement would be the data that are selected to measure the at-risk population in a school district. For example, the measurement could be the percentage of children receiving free lunches under the National School Lunch Act or the at-risk index described previously in this chapter. The baseline would be the point at which increased funding is provided. The statewide average would be one example of a baseline. Alternatively, the baseline could be zero and all districts could be eligible for funding. As the relative difference between the district's measurement and the baseline increases, more funding

would be provided per pupil. In practice, this funding approach could be implemented by reducing a district's instructional unit funding ratio in some proportion to the district's distance from the baseline. For example, the instructional unit funding ratio could be decreased by some percentage for every percentage point increase in the district "at-risk measurement" above the statewide average. Under this method, a floor could be established below which the instructional unit ratio could not fall.

Under the proportionate funding approach, the increase in funding would be directly related to the degree of concentration of at-risk pupils. This methodology may not precisely link funding to costs, however. While the research on at-risk youth supports the theory that higher costs are associated with these children, we found that little data exist to quantify those costs.

CHAPTER III

CHAPTER III

This chapter provides information on tasks #4 and #5 assigned by the statutory study directive: to analyze the additional funding sources not included in the act that are available to school districts, and to analyze the per pupil operating costs in each setting category. The first section of the chapter provides an analysis of additional funding sources available to school districts that are not otherwise accounted for in state equalization, state categorical funding, or federal categorical programs. We have defined these additional funding sources to include the following revenues: specific ownership taxes; federal impact assistance; fees charged by school districts; school district investment income; and additional property tax revenues for general fund use authorized by an election. In addition, this section contains a discussion of the combined impact of additional local revenues. Because of the nature of override revenues, they have been excluded from the discussion of the combined impact of other local revenues.

The last section of this chapter provides an analysis of per pupil operating costs in each setting category. The term "operating costs" is generally understood to denote those items upon which school districts expend funds for non-debt service purposes. The study directive requires an analysis of school district per pupil operating costs in each setting category. This directive appears to be similar to the analysis of school district expenditures used to compute the funding component values by setting category in the Public School Finance Act of 1988. Thus, the analysis presented in this chapter uses the same methodology to determine per pupil operating costs by setting category. We understand operating costs to include school district expenditures for the following items: instructional supplies and materials; instructional purchased services; capital reserve and insurance; instructional salaries and benefits; pupil support services; school administration; operations and maintenance; and district support services.

The information presented in this chapter includes data on the various revenues and expenditures discussed above. Unless discussed below, all the data included in this chapter were provided by the Colorado Department of Education (CDE) and reflect actual audited amounts for the 1990 school district budget year. Calculations of 1990 per pupil amounts reflect the use of October 1989 enrollment figures. In addition, calculations of assessed valuation per pupil use 1989 assessed valuations for property taxes collected in 1990.

Actual audited 1991 revenue data were used in the section on impact aid because staff at CDE indicated that the 1991 data better reflected actual differences in restricted and unrestricted impact aid funds received by school districts. Thus, 1991 impact aid per pupil amounts were calculated using budget year 1991 enrollment figures (fall 1990).

In addition, fiscal year 1992-93 school finance act funding per pupil amounts were used in the impact aid section, total additional revenue section, and additional property tax revenue section because phase-in of formula funding under the act was still occurring in 1990 and 1991. Fiscal year 1992-93 funding amounts reflect the full phase-in of the setting category per pupil and per unit amounts specified in the act. All data presented by setting category utilizes the setting categories as they existed in fiscal year 1992-93.

FEDERAL IMPACT AID TO SCHOOL DISTRICTS

During World War II, federal war mobilization and production efforts resulted in the removal of real property from local tax rolls and sudden and substantial increases in population in many areas of the country. These federal activities placed a financial burden on many school districts. In an effort to compensate these school districts, Congress passed the Lanham Act in 1941 to provide federal assistance for the construction, operation, and maintenance of school facilities impacted by federal activities. Following the war, federal activities continued to affect many communities and school districts across the country. In 1950, Congress passed Public Law 81-874 (P.L. 874) initiating a program of federal aid to school districts impacted by federal activity.

In 1991, 42 of the state's school districts received federal funds under the Federal Impact Aid Program. This program provides funds to school districts when the tax base of a district is reduced by the presence of federal land or when federal activities or projects increase the number of children a district must educate.

Eligibility requirements for receiving impact aid and impact aid received by Colorado school districts are provided below. Finally, the federal requirements for equalizing impact aid payments and the experiences of other states that have been approved to supplant impact aid funds are discussed.

Eligibility Criteria and Calculation of Impact Aid

As mentioned above, the Federal Impact Aid Program provides funds directly to school districts when the tax base of a district is reduced by the presence of federal land or when federal activities or projects increase the number of children a district must educate.[22] Districts are not restricted on the use of funds received under the program, with the exception of funds received for disabled children with a parent on active military duty or disabled Indian children. Funds received for these disabled children must be used for special education programs and services.

Presence of Federal Land

Impact aid is provided to school districts when the tax base of the district is reduced due to the acquisition of property by the federal government.[23] In order for a district to receive compensation for the presence of federal land, the following circumstances must exist:

- the federally owned property has been acquired by the federal government since 1938, and had an assessed value of at least 10 percent of the assessed value of all real property in the school district when acquired;

- the property has placed a "substantial and continuing financial burden" on the school district; and

- the school district is not being "substantially compensated" for the loss in revenue by offsetting increases in revenue from federal activities involving the acquired property.

The amount of impact aid provided to a district as compensation for the presence of federal property is equal to the lesser of: 1) the proportion of the district's property tax base comprised of federal property multiplied by the district's total current expenditures, minus all state, local, and federal revenues, with the exception of local property tax revenues, or 2) the amount of revenue the district would have received if the property had remained on the tax rolls.[24] To compute the latter, the Secretary of Education multiplies the total assessed value of the federal property by the current local real property tax rate.

Enrollment Increases Due to Federal Activity

The impact aid program also provides funds to school districts when federal projects or activities increase the number of children a district must educate.[25] A district is eligible to receive assistance if it enrolls at least 400 eligible children or if at least 3 percent of the total number of students in average daily attendance are eligible, whichever is less. The amount of revenue received by the district depends on whether the parent: 1) resides and works on federal property; or 2) resides or works on federal property. The differences in each case are discussed below.

Impact aid payments for enrollment increases due to federal activity are based on a percentage of a district's local contribution rate multiplied by the number of eligible children. A district's local contribution rate is the greater of: 1) 50 percent of the average per pupil expenditure in the state during the second fiscal year preceding the fiscal year for which the rate is being computed; or 2) 50 percent of the average per pupil expenditure in all 50 states and the District of Columbia during the second fiscal year preceding the fiscal year for which the rate is being computed.[26]

Parents who reside AND work on federal property. When the parent resides and works on federal property, the school district may receive 100 percent of the local contribution rate times the number of eligible children. Eligible children are those who, while in attendance, live with a parent who resides and works on federal property, or have a parent who is on active military duty. A district's entitlement for eligible children

who reside on Indian lands is equal to 125 percent of the local contribution rate times the number of eligible children. Additional funding may be provided to a district if the Secretary of Education determines that the district lacks sufficient funds to provide a level of education equal to the state average, or the average of three comparable school districts, whichever is greater.

Parents who reside OR work on federal property. When the parent resides or works on federal property, the district may receive 25 percent of the local contribution rate multiplied by the number of eligible children. Eligible children are those who, while in attendance, either: 1) reside on federal property; 2) reside with a parent employed on federal property; or 3) have a parent who is on active military duty. As before, increased funding is provided for eligible children who reside on Indian lands.

Additional funding for disabled children. Additional funding is also provided for children with disabilities. Eligible disabled children are those with a parent on active military duty or disabled children who reside on Indian lands. In addition, the child must be receiving special education services and be enrolled in a special education program. A district's entitlement for disabled children is equal to 150 percent of the district's local contribution rate times the number of eligible disabled children. Funds received by a district for disabled children must be used for special education programs and projects.[27] In addition, a state may not include funds received for disabled children in offsetting aid to districts receiving impact aid.[28]

Adjustment for Decreases in Federal Activity

In 1990, Congress amended P.L. 874 to provide a mechanism for a four-year phase-out of impact aid payments to any school district which experiences a reduction in federal activities in the district.[29] In order to qualify for this funding, the Secretary of Education must determine that:

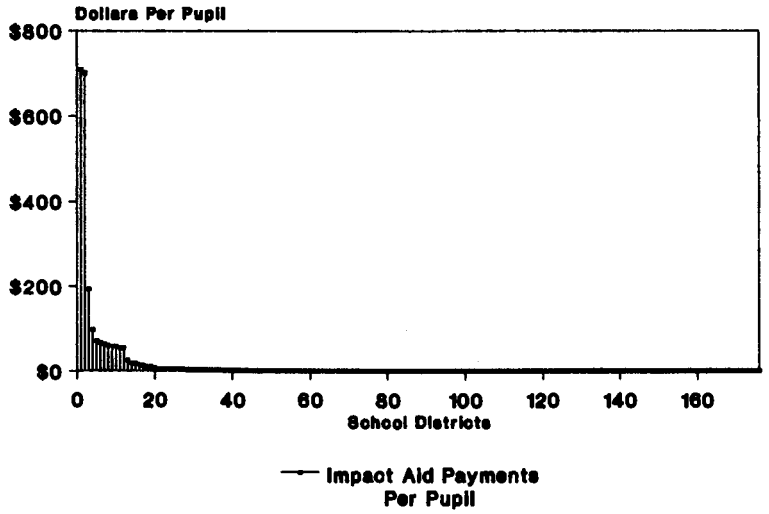
- a district experienced a decrease in the enrollment of eligible children of more than 10 percent from the preceding fiscal year;
- federal activities within the district have decreased or ceased; and
- the decrease or cessation of federal activities has resulted in a substantial decrease in the number of eligible children.

A district that meets these criteria is eligible to receive impact aid payments for four years following the reduction in federal activities. A district is entitled to at least 90 percent of the payment it received for the preceding fiscal year for each of the four years following the reduction in federal activities.

Impact Aid and Colorado School Districts

Impact aid received by districts. Graph 7 along with Table 7 detail unrestricted impact aid funds received by Colorado school districts in 1991. As the table indicates, 42 districts received a total of $8.9 million in unrestricted impact aid funds in 1991. Of this amount, $1.4 million, or 15.2 percent, went to two districts, Adams-Commerce City and El Paso-Academy, as payment for the presence of federal land. Of the $8.9 million received by districts in 1991, $6.0 million, or 67.8 percent, went to districts in the urban/suburban setting category. Of this $6.0 million, $5.9 million went to eight districts in El Paso county. Two of these districts, Fountain and Academy, received $2.4 million and $2.1 million, respectively.

GRAPH 7
1991 UNRESTRICTED IMPACT AID REVENUE PER PUPIL



As indicated in Table 7 per pupil impact aid varies widely among districts. The El Paso-Fountain school district received $709 per pupil in impact aid, the highest of any district in the state. The La Plata-Ignacio school district received $701 per pupil, the second highest impact aid per pupil in the state, followed by the El Paso-Academy school district, which received $194 in per pupil impact aid. Of the remaining 39 districts that received impact aid in 1991, nine districts received between $100 and $50 per pupil, eight districts received between $49 and $5 per pupil, and 22 districts received less than $5 per pupil.

Table 7 also details the percentage increase in fiscal year 1992-93 per pupil funding that occurs when a district's 1991 impact aid per pupil is added to the district's total program funding per pupil under the state's school finance act. The additional funds represent a 17.99 percent increase in per pupil funding for the El Paso-Fountain school district and a 15.00 percent increase for the La Plata-Ignacio school district. Per pupil

Table 7

1991 Unrestricted Impact Aid (P.L. 874) Funds Received by School Districts

COUNTY	DISTRICT	1991 IMPACT AID	1991 IMPACT AID PER PUPIL	FY 92-93 SCHOOL FINANCE ACT PER PUPIL	FY 92-93 FUNDING PER PUPIL (Including Impact Aid)	PERCENT INCREASE PER PUPIL
CORE CITY						
DENVER	DENVER	657,431	12	4,580	4,592	0.26%
DENVER METRO						
ADAMS	COMMERCE CITY	552,476	98	4,238	4,337	2.32%
BOULDER	BOULDER	31,562	2	4,238	4,239	0.04%
ADAMS	WESTMINSTER	7,391	1	4,238	4,238	0.02%
ARAPAHOE	AURORA	246,928	10	4,238	4,247	0.23%
ADAMS	NORTHGLENN	25,574	1	4,238	4,239	0.03%
JEFFERSON	JEFFERSON	106,973	1	4,238	4,239	0.03%
TOTAL		970,904	6			
URBAN/SUBURBAN						
LARIMER	POUDRE	19,107	1	3,938	3,939	0.03%
PUEBLO	PUEBLO CITY	34,119	2	3,938	3,940	0.05%
EL PASO	FALCON	41,610	17	3,939	3,956	0.44%
EL PASO	LEWIS-PALMER	9,762	4	3,939	3,943	0.11%
EL PASO	COLORADO SPRING	410,415	14	3,938	3,952	0.36%
EL PASO	FOUNTAIN	2,444,332	709	3,938	4,646	18.00%
EL PASO	WIDEFIELD	432,843	65	3,938	4,002	1.65%
EL PASO	CHEYENNE MOUNT	7,703	3	4,040	4,043	0.08%
BOULDER	ST VRAIN	19,773	1	3,938	3,939	0.04%
PUEBLO	PUEBLO RURAL	16,330	4	3,938	3,942	0.10%
EL PASO	HARRISON	535,439	57	3,938	3,995	1.46%
EL PASO	ACADEMY	2,057,772	194	3,937	4,131	4.92%
TOTAL		6,029,204	50			
OUTLYING CITY						
MOFFAT	MOFFAT	153,121	59	3,930	3,989	1.50%
MONTROSE	MONTROSE	18,287	4	3,930	3,934	0.11%
MONTEZUMA	MONTEZUMA	228,128	72	3,929	4,001	1.82%
TOTAL		399,536	39			

Table 7

1991 Unrestricted Impact Aid (P.L. 874) Funds Received by School Districts

COUNTY	DISTRICT	1991 IMPACT AID	1991 IMPACT AID PER PUPIL	FY 92-93 SCHOOL FINANCE ACT PER PUPIL	FY 92-93 FUNDING PER PUPIL (Including Impact Aid)	PERCENT INCREASE PER PUPIL
OUTLYING TOWN						
LARIMER	ESTES PRK	19,243	17	4,099	4,117	0.42%
GARFIELD	ROARING FORK	6,359	2	4,098	4,100	0.04%
GRAND	WEST GRAND	1,536	3	4,775	4,778	0.06%
RIO BLANCO	MEEKER	47,359	67	4,100	4,167	1.64%
ROUTT	HAYDEN	26,438	53	4,274	4,328	1.24%
ADAMS	BENNETT	1,187	2	4,099	4,100	0.04%
BENT	LAS ANIMAS	45,395	62	4,097	4,159	1.51%
GARFIELD	RIFLE	2,002	1	4,098	4,099	0.02%
GUNNISON	GUNNISON	3,524	3	4,096	4,099	0.06%
TOTAL		153,043	13			
RURAL						
EL PASO	ELLICOTT	1,528	3	4,673	4,677	0.07%
SAGUACHE	MTN VALLEY	10,831	53	6,422	6,475	0.83%
ROUTT	SOUTH ROUTT	2,400	7	5,018	5,024	0.13%
MONTROSE	WEST END	1,024	3	4,675	4,678	0.06%
LA PLATA	IGNACIO	643,050	701	4,668	5,369	15.01%
JACKSON	NORTH PARK	992	3	4,719	4,722	0.07%
LA PLATA	BAYFIELD	7,025	9	4,669	4,678	0.19%
BENT	MCCLAVE	448	3	7,051	7,054	0.04%
MESA	PLATEAU	12,542	25	4,675	4,701	0.54%
TOTAL		679,840	168			
RECREATIONAL						
PITKIN	ASPEN	2,355	3	6,318	6,320	0.04%
GRAND	EAST GRAND	1,413	1	4,951	4,952	0.03%
TOTAL		3,768	2			
STATE TOTAL		8,893,727	25	4,247	4,272	0.59%

funding is increased by 4.92 percent for the El Paso-Academy district and 2.32 percent for the Adams-Commerce City district. The increase in per pupil funding created by the addition of impact aid revenues for the remaining 38 districts that received impact aid in 1991 is below 2.00 percent.

Colorado does not offset state aid to districts that receive impact aid. Thus, these revenues are not considered in determining a district's total program funding under the Public School Finance Act of 1988. As mentioned above, one purpose of the impact aid program is to compensate districts for reductions in the tax base due to the presence of federal land. A reduction in a district's assessed valuation due to the presence of federal land does not negatively affect a district's total program funding under the school finance act since the reduced property tax wealth of a district is compensated through increased state aid. However, the taxing ability of a district may be affected due to the presence of federal land.

Colorado law limits school district indebtedness to a percentage of the district's assessed value and, in some instances, limits the number of mills which may be levied by a district. For example, a district's bonded indebtedness is limited to 20 percent of the most recent assessed valuation, or 25 percent in districts with increased enrollment.[30] Hence, a reduction in assessed value in a district caused by federal land could reduce the amount of bonded debt that may be incurred by the district. In addition, bond redemption levies and override levies, unlike the school finance levy, are not equalized by state aid. The reduction in assessed value attributable to federal land may affect a district's ability to generate revenue for these purposes. Similarly, House Bill 1344, passed during the 1992 session, allows districts to levy up to two mills to pay for costs associated with asbestos and hazardous materials removal and compliance with the federal Americans with Disabilities Act. Thus, a district with reduced assessed valuation due to the presence of federal land would generate less revenue than a comparable district without federal land, all other conditions being the same.

In an effort to determine whether recipients of impact aid are impacted more severely than other districts in terms of assessed value per pupil, the state's 176 districts were ranked from high to low based on each district's assessed valuation per pupil and divided into four quartiles based on enrollment. Fourteen of the 42 districts that received impact aid payments in 1991 are also in the state's top quarter of wealthiest districts. Another eight impact aid districts placed in the second highest quarter of districts, while eight districts fell into the second lowest quarter of districts. Finally, 10 districts placed in the lowest quarter when ranked by assessed value per pupil. Twelve of the 42 impact aid districts have an assessed value per pupil above the statewide average, while the remaining 28 impact aid districts have an assessed value per pupil below the statewide average. Table 8 summarizes the districts receiving the highest and lowest amount of impact aid per pupil in each quartile, along with the average impact aid per pupil for each quartile.

Table 8

1991 Unrestricted Impact Aid

Quartile	Impact Aid District	Impact Aid Per Pupil
First		
High	La Plata-Ignacio	$701
Low	Grand-East Grand	1
Average	N/A	17
Second		
High	Montezuma-Montezuma	$72
Low	Larimer-Poudre	1
Average	N/A	14
Third		
High	El Paso-Academy	$194
Low	Boulder-St. Vrain	1
Average	N/A	25
Fourth		
High	El Paso-Fountain	$709
Low	Adams-Westminster	1
Average	N/A	37

The Use of Impact Aid to Supplant Equalization Payments

Following the passage of P.L. 874, many states began providing aid to school districts in an effort to guarantee each school district a minimum per pupil expenditure. States claimed that the combination of federal impact aid and state aid resulted in a situation where some districts were compensated twice for federal activities in the district. As a result, several states adopted measures to offset state aid to school districts that received impact aid funds.[31] The percentage of aid offset varied, with some states offsetting up to 100 percent of the impact aid received by a district.

Congress amended P.L. 874 in 1966 and 1968 in an attempt to prevent states from offsetting state aid to districts receiving impact aid funds. In 1966, Congress added a provision to the act reducing impact aid payments to school districts in direct proportion to any reduction in state aid. The House Report on the 1966 amendments stated that "impact aid funds are intended to compensate districts for loss of tax revenues due to federal connection, not to substitute for state funds the districts would otherwise receive."[32] In 1968, Congress replaced this provision with an amendment to the act prohibiting the payment of impact aid funds to school districts in any state that offset impact aid revenues. The 1968 amendments followed a January 1968 U.S. District Court decision that prevented Virginia from using impact aid revenues to offset state aid.[33]

In recognition of state efforts to increase equalization of resources among school districts, Congress amended P.L. 874 in 1974 and removed the 1968 provision that prohibited states from offsetting aid based on impact aid revenues. The 1974 amendments allowed states to consider impact aid as local revenue under state equalization formulas, subject to approval by the Secretary of Education. A state may consider funds received under the impact aid program only in proportion to the share that local revenues covered under a state equalization program are of total local revenues.[34] This proportion is obtained by dividing the local revenues of a district covered under the state's equalization program (i.e., property tax) by the district's total local revenues, excluding state and federal revenues. A state must make this determination on a district-by-district basis.[35]

Requirements for Supplanting Impact Aid

A state aid program must meet three general criteria in order to use impact aid revenues to offset state equalization payments. The program must: 1) be authorized by state law; 2) provide for the apportionment of aid among school districts; and 3) consider the relative financial resources of districts in distributing aid.[36] In addition to these three criteria, a state must also meet one of three additional criteria outlined below.

> ***Disparity limits.*** The range of revenue or expenditures per pupil among school districts in the state may not exceed 25 percent for the fiscal year of application.
>
> ***Wealth neutrality test.*** At least 85 percent of the total revenues for operating expenditures (excluding debt service, capital outlay, and Title 1 funds) for all school districts in the state must be "wealth neutral" revenues. "Wealth neutral" revenues are revenues received by a district that are not the result of a wealth advantage.
>
> ***Exceptional circumstances.*** A state program which does not conform to either of the above criteria may qualify if the Secretary of Education determines that there are exceptional circumstances relating to disparity or wealth neutrality or that taking impact aid payments into account will result in more equalization.

States without an equalization program meeting these criteria are prohibited from: 1) considering impact aid payments in determining the eligibility or amount of state aid to any district; and 2) using impact aid as a basis for providing less funds to a district than it would have received if it were not eligible for revenues under the act.

States Equalizing Impact Aid

According to the U.S. Department of Education, seven states - Alaska, Arizona, Kansas, Maine, Michigan, New Mexico, and Wisconsin - have qualified for P.L. 874 equalization in the past. The Department of Education recently disqualified Arizona. Litigation is pending between the state and the department over discrepancies in calculation of aid. In addition, Wisconsin voluntarily left the program because P.L. 874 moneys were used to supplement, rather than offset, state aid. Of the seven states that have qualified for P.L. 874 equalization, approval for five - Arizona, Kansas, Maine, Michigan, and Wisconsin - was based on the wealth neutrality test. Approval of Alaska and New Mexico was based on the disparity test.

FEES CHARGED BY SCHOOL DISTRICTS

State law permits local school boards to impose fees in certain instances. Local boards may impose fees for expendable supplies and activities, textbooks, tuition, summer school, and transportation. The imposition of fees is subject to certain conditions as provided in state law and Colorado Department of Education (CDE) rules and regulations. For example, state law prohibits local school boards from requiring a student to pay fees as a condition for enrollment in school or as a condition of attendance in any course of study.[37] A discussion of the statutes, rules, and court cases governing fees charged by schools is provided below. Information is also provided on the amount of fees collected by districts in 1990. CDE regulations require districts to separately report revenue from textbook fees, summer school fees, tuition from individuals, and transportation fees from individuals. However, these revenue classifications for fees may not cover the gamut of fees collected by school districts. For example, districts are not required to separately report revenue from fees collected for expendable supplies and activity fees. According to CDE, many districts place revenue from activity fees in a pupil activity fund, and the "other local revenue" classification may be used to account for fees deposited in the general fund. Moneys in district pupil activity funds are also discussed in this section.

Types of Fees

Textbook fees. State statute grants local school boards the option of providing free textbook use to all students enrolled in the district.[38] Indigent children must be provided textbooks free of charge. However, a board may require nonindigent pupils to provide a loss or damage deposit on textbooks. CDE rules define an "indigent" child as "any child who is eligible for a free or reduced price lunch under the National Income Poverty Guidelines."[39] Local boards may not deny a student the use of textbooks due to a parent's refusal to pay a loss or damage deposit.[40]

Nine districts reported collections of $918,787 in textbook fees in 1990. Table 9 details the collection of textbook fees by district. Of this amount, $786,367, or 85.6 percent, was collected by districts in the Denver metro category. The Jefferson County school district collected $780,531, or 84.9 percent, of the total textbook fees collected statewide. This represents an average per pupil textbook fee in Jefferson County of $11. The Fremont-Cotapaxi school district collected the highest textbook fees per pupil at $49.

The Colorado Supreme Court ruled on the constitutionality of textbook fees in a 1976 decision, *Marshall v. School District RE #3.*[41] The district brought suit to recover textbook rental fees from the parents of three children who used the district's textbooks. The parents argued that the "thorough and uniform" provision of Article IX, section 2 of the state constitution requires the free use of textbooks in public schools. Citing the statute that grants local school boards the power to provide free use of textbooks to students, the Colorado Supreme Court ruled that Article IX, section 2 of the constitution does not require school districts to furnish free textbooks to all students.

Tuition. Colorado statute entitles state residents between the ages of 6 and 21 to attend public school in their district of residence during the regular academic session free of charge. A local board may charge tuition to students who do not reside in the district of attendance and to adult pupils.[42] A local board may also charge tuition or fees for continuing education, vocational education, and community education programs.[43] If a local school board determines it would be in "the general welfare or convenience" of a student to attend school in another school district, the district may pay tuition for the student to attend school in another district. A student, or student's parent or guardian, may also pay tuition to attend school in another district. As indicated in Table 9, 52 school districts collected $3.0 million in tuition from individuals in 1990.

Summer school fees. A local school board may charge fees for courses offered during the summer term. Summer school fees may not exceed the school's per pupil operating costs during the summer term. As Table 9 shows, 19 districts collected summer school fees totalling $927,147. Of this amount, $597,420, or 64.4 percent, was collected by districts in the Denver metro category. Districts in the urban/suburban category collected $306,745, or 33.1 percent, of the total summer school fees collected. The Arapahoe-Cherry Creek school district collected an average per pupil summer school fee of $8, the highest per pupil amount of the 19 districts. Per pupil amounts are computed using all pupils, not just those attending summer schools.

Transportation fees. Nine school districts collected $680,446 in transportation fees from individuals in 1990. Of this amount, $631,152, or 92.8 percent, was collected by districts in the Denver metro category. The Jefferson County school district collected $591,987, or 87.0 percent of the total transportation fees collected. The Custer-Westcliffe school district collected the highest transportation fees per pupil at $103. A district that provides transportation services for pupils is eligible to receive reimbursement for a portion of its transportation expenses from the Public School Transportation Fund. A district's reimbursement entitlement is based on a statutory formula that considers both

mileage and excess costs. A district receives 37.87 cents per mile for pupil transportation and 33.87 percent of its excess costs, or the amount by which its total current operating expenditures exceed the amount it receives for mileage. However, a district's reimbursement entitlement may not exceed 90 percent of its total current operating expenditures. Revenue from transportation fees, with the exception of a voter approved fee or levy as described below, must be deducted from a district's total operating expenditures and thus reduces the district's reimbursement entitlement.[44]

In 1991, the legislature authorized local school boards to ask the registered electors of the district whether to impose a fee or mill levy for the payment of excess transportation costs.[45] Excess transportation costs are defined as a district's total current operating expenditures for pupil transportation minus the district's reimbursement entitlement. If the district imposes a fee for excess transportation costs, payment of the fee must be pursuant to a fee schedule adopted by the local board. In addition, a local board must waive transportation fees for any pupil who is eligible for a free or reduced lunch under the National School Lunch Act.

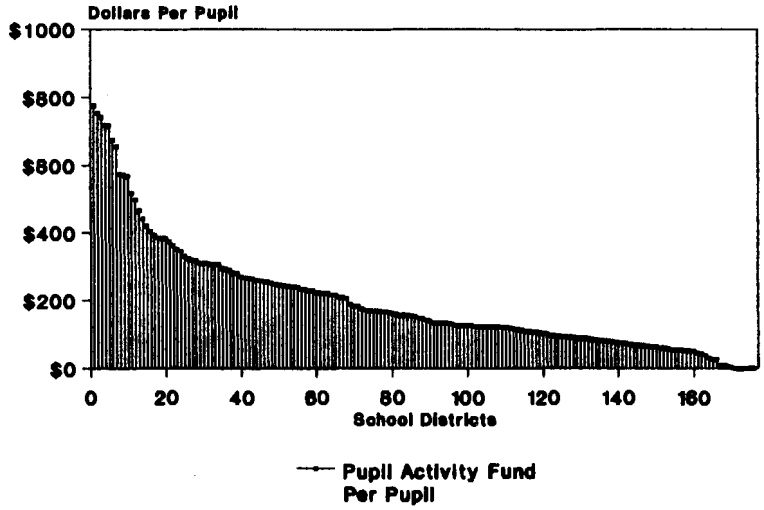
In November 1991, four districts (Adams-Brighton, Larimer-Thompson, San Miguel-Telluride, and Weld-Eaton) held elections asking voters to approve a mill levy for the payment of excess transportation costs. Larimer-Thompson asked voters to approve both a mill levy and a fee schedule. With the exception of San Miguel-Telluride, voters rejected a fee or mill levy to pay excess transportation costs. Voters in Telluride approved $9,994 in annual revenue for this purpose.

Expendable supplies fees. Local school boards are authorized to collect "reasonably necessary" fees for "expendable supplies" if such supplies are not provided free of charge. A definition of "expendable supplies" is not provided in statute or in rules and regulations. In addition, school districts are not required to separately report fees for expendable supplies. Therefore, we were unable to obtain information on the amount of fee revenue collected by districts for expendable supplies. According to CDE staff, many districts report revenue from fees for expendable supplies under an "all other local revenue" line item.

Activity fees. State law permits local boards to collect miscellaneous fees on a voluntary basis "as a condition of participation or attendance at a school-sponsored activity or program not within the academic portion of the educational program." Again, districts are not required to separately report activity fees. A district may place activity fee revenue into the district's general fund under the "all other local revenue" classification. However, it appears that many districts place revenue from activity fees into a pupil activity fund, although use of such a fund is optional. The pupil activity fund is a fund used to record financial transactions related to school-sponsored pupil intrascholastic and interscholastic athletic and related events. Balances in the fund may be carried forward from one budget year to the next. These activities are supported by revenue from pupils, gate receipts, and other fund-raising activities. The pupil activity fund may also include bookstore sales and pupil organization membership dues and fees.[46]

Graph 8, along with Table 9, detail the 1990 pupil activity fund balance per pupil by school district. As indicated, statewide pupil activity fund balances totalled $47.5 million in 1990. This amount represents a statewide average per pupil level of $88. Fund balances range from a high of $776 per pupil in the Washington-Arickaree district to a low of $0 in six school districts.

GRAPH 8
1990 PUPIL ACTIVITY FUND PER PUPIL



Graph 9 details 1990 pupil activity fund balances by setting category. Of the $47.5 million in funds in 1990, $23.0 million, or 48.4 percent, was in districts in the core city and Denver metro setting categories. These two categories represented 50.9 percent of the state's students in 1990. The pupil activity fund in the core city and Denver metro categories equalled $4 and $104 per pupil, respectively. In addition, $9.2 million, or 19.4 percent, was collected by the Jefferson County school district.

Table 9

1990 Tuition and Fee Revenue
General Fund and Pupil Activity Fund

COUNTY	DISTRICT	1990 PUPIL COUNT	TUITION	TUITION PER PUPIL	TRANS FEES	TRANS FEES PER PUPIL	TEXTBOOK FEES	TEXTBOOK FEES PER PUPIL	SUMMER SCHOOL FEES	SUMMER SCHOOL FEES PER PUPIL	PUPIL ACTIVITY FUND	PUPIL ACTIVITY FUND PER PUPIL
CORE CITY												
DENVER	DENVER	54,558.0	14,125	0	0	0	28,177	1	0	0	201,387	4
DENVER METRO												
ADAMS	MAPLETON	4,540.5	4,293	1	0	0	0	0	0	0	549,532	121
ADAMS	WESTMINSTER	10,425.5	72,825	7	0	0	0	0	16,603	2	755,272	72
ADAMS	BRIGHTON	3,807.0	12,634	3	0	0	0	0	0	0	377,629	99
ADAMS	COMMERCE CITY	5,509.0	11,114	2	0	0	0	0	18,274	3	211,555	38
ADAMS	NORTHGLENN	19,721.5	56,562	3	0	0	0	0	0	0	1,904,808	97
ARAPAHOE	AURORA	24,331.5	0	0	0	0	0	0	0	0	1,572,580	65
ARAPAHOE	LITTLETON	14,815.0	47,812	3	0	0	0	0	0	0	1,093,926	74
ARAPAHOE	CHERRY CREEK	26,937.0	15,690	1	10,922	0	0	0	208,062	8	3,440,653	128
ARAPAHOE	ENGLEWOOD	3,879.0	68,366	18	0	0	0	0	0	0	328,544	85
ARAPAHOE	SHERIDAN	1,490.5	0	0	0	0	0	0	0	0	183,278	123
BOULDER	BOULDER	20,111.5	23,093	1	23,312	1	0	0	79,215	4	1,758,586	87
DOUGLAS	DOUGLAS	11,498.0	148,187	13	4,931	0	5,836	1	12,426	1	1,428,248	124
JEFFERSON	JEFFERSON	72,295.0	635,883	9	591,987	8	780,531	11	262,840	4	9,188,207	127
TOTAL		219,361.0	1,096,459	5	631,152	3	786,367	4	597,420	3	22,792,818	104
URBAN/SUBURBAN												
BOULDER	ST VRAIN	14,073.5	14,940	1	0	0	0	0	0	0	1,251,316	89
EL PASO	FOUNTAIN	3,342.5	3,480	1	0	0	0	0	0	0	30,520	9
EL PASO	MANITOU SPRINGS	1,073.0	0	0	0	0	0	0	0	0	28,549	27
EL PASO	WIDEFIELD	6,638.5	0	0	0	0	0	0	0	0	0	0
EL PASO	COLORADO SPRING	28,506.5	509,417	18	0	0	0	0	159,936	6	2,689,080	94
EL PASO	LEWIS-PALMER	2,262.0	5,717	3	0	0	0	0	6,491	3	216,314	96
EL PASO	CHEYENNE MOUNT	2,338.5	1,974	1	0	0	10,260	4	11,450	5	280,731	120
EL PASO	ACADEMY	10,011.5	283,520	28	0	0	0	0	0	0	1,238,989	124
EL PASO	FALCON	2,375.5	5,435	2	0	0	0	0	4,850	2	159,959	67
EL PASO	HARRISON	9,350.5	217,949	23	0	0	0	0	10,090	1	563,597	60
LARIMER	POUDRE	17,157.5	40,694	2	0	0	0	0	0	0	115,881	7
LARIMER	THOMPSON	11,355.0	7,359	1	0	0	0	0	0	0	778,096	69

SOURCE: COLORADO DEPARTMENT OF EDUCATION

Table 9

1990 Tuition and Fee Revenue
General Fund and Pupil Activity Fund

COUNTY	DISTRICT	1990 PUPIL COUNT	TUITION	TUITION PER PUPIL	TRANS FEES	TRANS FEES PER PUPIL	TEXTBOOK FEES	TEXTBOOK FEES PER PUPIL	SUMMER SCHOOL FEES	SUMMER SCHOOL FEES PER PUPIL	PUPIL ACTIVITY FUND	PUPIL ACTIVITY FUND PER PUPIL
MESA	MESA VALLEY	15,718.0	30,385	2	0	0	0	0	43,632	3	150,881	10
PUEBLO	PUEBLO CITY	17,585.0	30,648	2	0	0	0	0	69,776	4	982,311	56
PUEBLO	PUEBLO RURAL	4,000.0	0	0	0	0	0	0	520	0	317,923	79
WELD	GREELEY	10,902.5	28,494	3	0	0	0	0	0	0	823,576	76
TOTAL		156,690.0	1,180,012	8	0	0	10,260	0	306,745	2	9,627,723	61
OUTLYING CITY												
ALAMOSA	ALAMOSA	2,269.0	33,550	15	0	0	0	0	0	0	123,678	55
DELTA	DELTA	3,651.0	0	0	0	0	0	0	0	0	569,406	156
FREMONT	CANON CITY	3,214.5	0	0	0	0	0	0	0	0	147,174	46
LAS ANIMAS	TRINIDAD	1,615.0	0	0	0	0	0	0	0	0	0	0
LOGAN	VALLEY	2,625.5	926	0	1,339	1	0	0	0	0	324,859	124
MOFFAT	MOFFAT	2,547.5	0	0	0	0	13,217	5	0	0	190,834	75
MONTEZUMA	MONTEZUMA	3,122.0	4,188	1	0	0	0	0	0	0	93,975	30
MONTROSE	MONTROSE	4,193.5	0	0	0	0	0	0	6,481	2	387,721	92
MORGAN	FT MORGAN	2,579.5	0	0	0	0	0	0	7,881	3	262,228	102
OTERO	EAST OTERO	1,886.5	0	0	0	0	0	0	0	0	390,616	207
PROWERS	LAMAR	2,022.5	0	0	0	0	0	0	0	0	178,942	88
TOTAL		29,726.5	38,664	1	1,339	0	13,217	0	14,362	0	2,669,433	90
OUTLYING TOWN												
ADAMS	BENNETT	772.0	3,873	5	0	0	0	0	0	0	108,061	140
ARCHULETA	ARCHULETA	972.5	0	0	0	0	0	0	0	0	75,935	78
BACA	SPRINGFIELD	366.0	0	0	0	0	0	0	0	0	88,540	242
BENT	LAS ANIMAS	750.0	0	0	0	0	0	0	0	0	167,325	223
CHAFFEE	SALIDA	1,190.5	0	0	0	0	20,931	18	0	0	127,840	107
CHAFFEE	BUENA VISTA	827.0	0	0	0	0	0	0	0	0	122,978	149
CHEYENNE	CHEYENNE R-5	358.5	0	0	0	0	0	0	0	0	87,481	244
CLEAR CREEK	CLEAR CREEK	1,349.5	9,128	7	0	0	0	0	1,750	1	213,162	158
CONEJOS	SOUTH CONEJOS	459.0	0	0	0	0	96	0	0	0	72,539	158
CROWLEY	CROWLEY	508.5	0	0	0	0	0	0	0	0	55,959	110
ELBERT	ELIZABETH	1,277.5	0	0	2,574	2	0	0	0	0	163,081	128

SOURCE: COLORADO DEPARTMENT OF EDUCATION

Table 9

1990 Tuition and Fee Revenue
General Fund and Pupil Activity Fund

COUNTY	DISTRICT	1990 PUPIL COUNT	TUITION	TUITION PER PUPIL	TRANS FEES	TRANS FEES PER PUPIL	TEXTBOOK FEES	TEXTBOOK FEES PER PUPIL	SUMMER SCHOOL FEES	SUMMER SCHOOL FEES PER PUPIL	PUPIL ACTIVITY FUND	PUPIL ACTIVITY FUND PER PUPIL
FREMONT	FLORENCE	1,618.5	0	0	0	0	0	0	0	0	82,191	51
GARFIELD	RIFLE	2,309.5	0	0	0	0	0	0	0	0	136,748	59
GARFIELD	ROARING FORK	3,296.0	7,660	2	0	0	0	0	0	0	880,287	267
GRAND	WEST GRAND	499.0	4,616	9	0	0	0	0	0	0	85,408	171
GUNNISON	GUNNISON	1,357.0	0	0	0	0	0	0	0	0	225,415	166
HUERFANO	HUERFANO	759.0	0	0	0	0	0	0	0	0	68,043	90
KIT CARSON	BURLINGTON	819.0	0	0	0	0	0	0	0	0	288,695	352
LAKE	LAKE	1,134.5	0	0	0	0	0	0	0	0	74,294	65
LARIMER	ESTES PRK	1,099.0	0	0	0	0	0	0	0	0	179,329	163
LINCOLN	LIMON	416.0	0	0	0	0	0	0	0	0	133,845	322
MORGAN	BRUSH	1,220.5	0	0	0	0	0	0	0	0	163,663	134
OTERO	FOWLER	444.0	0	0	0	0	0	0	0	0	96,596	218
OTERO	ROCKY FORD	1,274.5	0	0	0	0	0	0	0	0	66,361	52
PHILLIPS	HOLYOKE	520.0	0	0	0	0	0	0	0	0	140,326	270
PROWERS	HOLLY	341.0	0	0	0	0	0	0	0	0	98,923	290
RIO BLANCO	RANGELY	607.0	200,422	330	0	0	0	0	0	0	139,438	230
RIO BLANCO	MEEKER	664.0	0	0	0	0	0	0	0	0	122,900	185
RIO GRANDE	MONTE VISTA	1,310.0	0	0	0	0	0	0	0	0	125,653	96
RIO GRANDE	DEL NORTE	610.5	0	0	0	0	0	0	0	0	77,218	126
ROUTT	HAYDEN	472.5	0	0	0	0	0	0	0	0	49,281	104
SAGUACHE	CENTER	600.5	0	0	0	0	0	0	0	0	33,360	56
SEDGWICK	JULESBURG	345.0	0	0	0	0	0	0	0	0	91,307	265
TELLER	WOODLAND PARK	2,116.5	0	0	0	0	0	0	0	0	175,836	83
WASHINGTON	AKRON	424.5	300	1	0	0	0	0	0	0	78,627	185
WELD	JOHNSTOWN	1,123.5	6,798	6	0	0	0	0	0	0	182,049	162
WELD	FORT LUPTON	2,076.0	0	0	0	0	0	0	0	0	133,882	64
WELD	GILCREST	1,718.5	0	0	0	0	0	0	0	0	210,887	123
WELD	EATON	1,109.0	3,553	3	0	0	0	0	0	0	71,074	64
WELD	WINDSOR	1,630.0	16,436	10	0	0	0	0	0	0	175,991	108
WELD	AULT-HGHLND	754.5	0	0	0	0	0	0	0	0	87,969	117
WELD	PLATTE VLY	842.0	0	0	0	0	0	0	0	0	148,867	177
YUMA	EAST YUMA	925.0	0	0	0	0	0	0	2,150	2	195,417	211
YUMA	WEST YUMA	969.0	0	0	0	0	0	0	0	0	298,181	308
TOTAL		44,236.5	252,786	6	2,574	0	21,027	0	3,900	0	6,400,964	145

SOURCE: COLORADO DEPARTMENT OF EDUCATION

Table 9

1990 Tuition and Fee Revenue
General Fund and Pupil Activity Fund

COUNTY	DISTRICT	1990 PUPIL COUNT	TUITION	TUITION PER PUPIL	TRANS FEES	TRANS FEES PER PUPIL	TEXTBOOK FEES	TEXTBOOK FEES PER PUPIL	SUMMER SCHOOL FEES	SUMMER SCHOOL FEES PER PUPIL	PUPIL ACTIVITY FUND	PUPIL ACTIVITY FUND PER PUPIL
RURAL												
ADAMS	STRASBURG	413.0	6,272	15	0	0	0	0	0	0	126,954	307
ALAMOSA	SANGRE DECRISTO	272.5	0	0	0	0	0	0	0	0	80,421	295
ARAPAHOE	DEER TRAIL	174.5	0	0	0	0	0	0	0	0	45,483	261
ARAPAHOE	BYERS	328.0	0	0	0	0	0	0	0	0	46,774	143
BACA	WALSH	275.0	0	0	0	0	0	0	0	0	105,452	383
BENT	MCCLAVE	160.5	0	0	0	0	0	0	0	0	49,317	307
CONEJOS	NORTH CONEJOS	1,101.0	512	0	0	0	0	0	0	0	133,465	121
CONEJOS	SANFORD	335.0	0	0	0	0	0	0	0	0	36,842	110
COSTILLA	SIERRA GRANDE	301.0	0	0	0	0	0	0	0	0	50,262	167
COSTILLA	CENTENNIAL	368.0	0	0	0	0	0	0	0	0	49,419	134
CUSTER	WESTCLIFFE	298.5	0	0	30,890	103	0	0	0	0	73,979	248
DOLORES	DOLORES	330.0	0	0	0	0	0	0	0	0	57,212	173
EL PASO	CALHAN	290.0	0	0	0	0	0	0	0	0	81,643	282
EL PASO	ELLICOTT	445.5	0	0	0	0	0	0	0	0	76,436	172
EL PASO	MIAMI-YODER	172.0	0	0	0	0	0	0	0	0	41,682	242
EL PASO	PEYTON	291.0	0	0	0	0	0	0	0	0	7,891	27
ELBERT	ELBERT	126.5	0	0	0	0	0	0	0	0	26,645	211
ELBERT	KIOWA	201.0	5,400	27	0	0	0	0	0	0	45,048	224
ELBERT	BIG SANDY	246.0	0	0	0	0	0	0	0	0	81,834	333
FREMONT	COTOPAXI	225.0	0	0	0	0	10,959	49	0	0	38,097	169
GARFIELD	PARACHUTE	412.5	0	0	0	0	0	0	0	0	0	0
GILPIN	GILPIN	329.0	0	0	0	0	0	0	0	0	26,704	81
HUERFANO	LA VETA	228.5	0	0	0	0	0	0	0	0	53,605	235
JACKSON	NORTH PARK	298.0	0	0	0	0	0	0	0	0	44,453	149
KIOWA	EADS	283.0	0	0	0	0	0	0	0	0	62,863	222
KIT CARSON	STRATTON	265.0	0	0	0	0	0	0	0	0	82,684	312
KIT CARSON	ARRIBA-FLAGLER	234.5	0	0	0	0	0	0	0	0	176,830	754
LA PLATA	BAYFIELD	726.5	576	1	0	0	0	0	0	0	37,067	51
LA PLATA	IGNACIO	915.5	0	0	0	0	0	0	0	0	48,616	53
LAS ANIMAS	AGUILAR	167.5	0	0	0	0	0	0	0	0	40,129	240
LAS ANIMAS	PRIMERO	169.5	0	0	0	0	0	0	0	0	26,351	155
LAS ANIMAS	HOEHNE	284.0	0	0	0	0	0	0	0	0	0	0
LINCOLN	GENOA-HUGO	219.0	0	0	0	0	0	0	0	0	68,181	311

SOURCE: COLORADO DEPARTMENT OF EDUCATION

Table 9

1990 Tuition and Fee Revenue
General Fund and Pupil Activity Fund

COUNTY	DISTRICT	1990 PUPIL COUNT	TUITION	TUITION PER PUPIL	TRANS FEES	TRANS FEES PER PUPIL	TEXTBOOK FEES	TEXTBOOK FEES PER PUPIL	SUMMER SCHOOL FEES	SUMMER SCHOOL FEES PER PUPIL	PUPIL ACTIVITY FUND	PUPIL ACTIVITY FUND PER PUPIL
LOGAN	BUFFALO	203.0	0	0	0	0	0	0	0	0	65,010	320
LOGAN	FRENCHMAN	147.0	510	3	12,996	88	0	0	0	0	0	0
MESA	PLATEAU	501.0	0	0	0	0	0	0	0	0	58,675	117
MONTEZUMA	MANCOS	459.5	0	0	0	0	0	0	0	0	48,997	107
MONTEZUMA	DOLORES	508.0	8,039	16	0	0	0	0	0	0	42,344	83
MONTROSE	WEST END	383.5	4,068	11	0	0	0	0	0	0	89,442	233
MORGAN	WIGGINS	394.0	0	0	0	0	0	0	0	0	101,139	257
OTERO	SWINK	315.5	8,265	26	0	0	0	0	0	0	25,641	81
OTERO	MANZANOLA	264.5	0	0	0	0	0	0	0	0	32,742	124
OTERO	CHERAW	183.5	0	0	0	0	0	0	0	0	46,363	253
OURAY	RIDGWAY	200.0	0	0	0	0	0	0	0	0	49,875	249
OURAY	OURAY	182.5	0	0	0	0	0	0	0	0	39,727	218
PARK	PLATTE CANYON	1,060.5	0	0	1,495	1	0	0	0	0	74,527	70
PARK	PARK	394.0	1,120	3	0	0	0	0	0	0	23,652	60
PHILLIPS	HAXTUN	279.0	0	0	0	0	0	0	0	0	96,869	347
PROWERS	WILEY	282.5	0	0	0	0	0	0	0	0	87,950	311
PROWERS	GRANADA	251.5	0	0	0	0	0	0	0	0	66,865	266
RIO GRANDE	SARGENT	391.5	0	0	0	0	0	0	0	0	172,578	441
ROUTT	SOUTH ROUTT	349.0	0	0	0	0	0	0	0	0	53,367	153
SAGUACHE	MTN VALLEY	203.0	0	0	0	0	0	0	0	0	49,899	246
SAN MIGUEL	NORWOOD	274.5	0	0	0	0	0	0	0	0	33,692	123
SEDGWICK	PLATTE VLY	177.5	0	0	0	0	0	0	0	0	51,974	293
TELLER	CRIPPLE CREEK	296.0	0	0	0	0	0	0	0	0	39,250	133
WASHINGTON	OTIS	190.5	0	0	0	0	0	0	0	0	49,441	260
WELD	KEENESBURG	1,139.5	613	1	0	0	0	0	0	0	153,137	134
TOTAL		19,917.5	35,375	2	45,381	2	10,959	1	0	0	3,475,493	174

SOURCE: COLORADO DEPARTMENT OF EDUCATION

Table 9

1990 Tuition and Fee Revenue
General Fund and Pupil Activity Fund

COUNTY	DISTRICT	1990 PUPIL COUNT	TUITION	TUITION PER PUPIL	TRANS FEES	TRANS FEES PER PUPIL	TEXTBOOK FEES	TEXTBOOK FEES PER PUPIL	SUMMER SCHOOL FEES	SUMMER SCHOOL FEES PER PUPIL	PUPIL ACTIVITY FUND	PUPIL ACTIVITY FUND PER PUPIL
RECREATIONAL												
EAGLE	EAGLE	2,413.0	0	0	0	0	0	0	0	0	273,637	113
GRAND	EAST GRAND	976.5	1,677	2	0	0	0	0	0	0	124,193	127
LA PLATA	DURANGO	3,721.0	0	0	0	0	48,780	13	0	0	163,524	44
PITKIN	ASPEN	940.0	39,490	42	0	0	0	0	0	0	362,054	385
ROUTT	STEAMBOAT SPRIN	1,525.5	638	0	0	0	0	0	0	0	200,604	132
SAN MIGUEL	TELLURIDE	280.0	311,103	1,111	0	0	0	0	0	0	37,702	135
SUMMIT	SUMMIT	1,553.5	0	0	0	0	0	0	4,720	3	142,704	92
TOTAL		11,409.5	352,908	31	0	0	48,780	4	4,720	0	1,304,418	114
SMALL ATTENDANCE												
BACA	VILAS	57.0	0	0	0	0	0	0	0	0	21,326	374
BACA	CAMPO	68.5	0	0	0	0	0	0	0	0	24,888	363
BACA	PRITCHETT	86.0	0	0	0	0	0	0	0	0	49,124	571
CHEYENNE	KIT CARSON	135.0	0	0	0	0	0	0	0	0	54,610	405
EL PASO	HANOVER	69.0	0	0	0	0	0	0	0	0	15,325	222
EL PASO	EDISON	38.5	0	0	0	0	0	0	0	0	15,130	393
ELBERT	AGATE	48.0	0	0	0	0	0	0	0	0	34,426	717
HINSDALE	HINSDALE	53.5	0	0	0	0	0	0	0	0	0	0
KIOWA	PLAINVIEW	88.5	0	0	0	0	0	0	0	0	41,288	467
KIT CARSON	HI PLAINS	118.0	0	0	0	0	0	0	0	0	49,673	421
KIT CARSON	BETHUNE	89.0	0	0	0	0	0	0	0	0	44,294	498
LAS ANIMAS	BRANSON	36.5	0	0	0	0	0	0	0	0	14,025	384
LAS ANIMAS	KIM	68.0	0	0	0	0	0	0	0	0	44,490	654
LINCOLN	KARVAL	78.0	0	0	0	0	0	0	0	0	40,379	518
LOGAN	PLATEAU	128.0	17,500	137	0	0	0	0	0	0	41,706	326
MESA	DEBEQUE	106.0	0	0	0	0	0	0	0	0	24,341	230
MINERAL	CREEDE	96.0	0	0	0	0	0	0	0	0	71,346	743
MORGAN	WELDON	139.5	0	0	0	0	0	0	0	0	38,954	279
SAGUACHE	MOFFAT	121.0	0	0	0	0	0	0	0	0	23,107	191
SAN JUAN	SILVERTON	153.0	0	0	0	0	0	0	0	0	26,103	171
WASHINGTON	ARICKAREE	121.0	0	0	0	0	0	0	0	0	93,946	776
WASHINGTON	LONE STAR	56.5	0	0	0	0	0	0	0	0	32,403	574

SOURCE: COLORADO DEPARTMENT OF EDUCATION

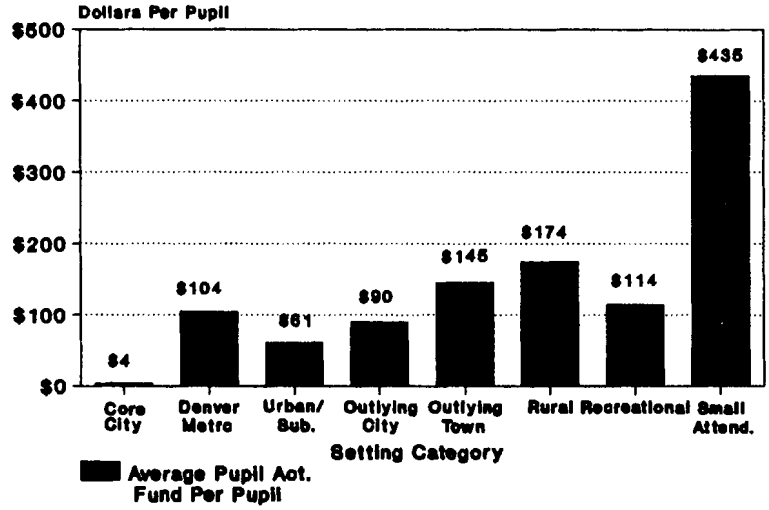
Table 9

1990 Tuition and Fee Revenue
General Fund and Pupil Activity Fund

COUNTY	DISTRICT	1990 PUPIL COUNT	TUITION	TUITION PER PUPIL	TRANS FEES	TRANS FEES PER PUPIL	TEXTBOOK FEES	TEXTBOOK FEES PER PUPIL	SUMMER SCHOOL FEES	SUMMER SCHOOL FEES PER PUPIL	PUPIL ACTIVITY FUND	PUPIL ACTIVITY FUND PER PUPIL
WASHINGTON	WOODLIN	100.5	0	0	0	0	0	0	0	0	57,744	574
WELD	GROVER	84.0	0	0	0	0	0	0	0	0	60,413	719
WELD	BRIGGSDALE	74.0	0	0	0	0	0	0	0	0	19,034	257
WELD	PRAIRIE	103.0	0	0	0	0	0	0	0	0	58,477	568
TOTAL		2,316.0	17,500	8	0	0	0	0	0	0	1,006,552	435
STATE TOTAL		538,215.0	2,967,829	6	680,446	1	918,787	2	927,147	2	47,478,788	88

SOURCE: COLORADO DEPARTMENT OF EDUCATION

GRAPH 9
1990 PUPIL ACTIVITY FUND
PER PUPIL BY SETTING CATEGORY



In 1973, the Colorado Supreme Court was asked to rule on the constitutionality of fees for activity cards, gymnasium towels, shop materials, and books. In *Pacheco v. School District Number 11 of El Paso County*, the plaintiff alleged that the imposition and collection of fees by a school district violated Article IX, section 2 of the Colorado Constitution.[47] Section 2 provides, in part, that the legislature must "provide for the establishment and maintenance of a thorough and uniform system of free public schools throughout the state." The Colorado Supreme Court upheld a lower court decision that the fees be returned to the plaintiff on the basis of the plaintiff's indigency. Thus, the court did not rule on the constitutionality of the imposition of these particular types of fees.

SPECIFIC OWNERSHIP TAX

The specific ownership tax is a state-imposed tax collected primarily at the county level and distributed by counties to individual taxing jurisdictions for local use. Each person registering a vehicle within the state is required to pay specific ownership tax on that vehicle. The tax is paid each year and, in most cases, is collected by the county treasurer. This section of the report presents a general overview of Colorado's specific ownership tax. It examines the current constitutional and statutory provisions, distribution, and history related to the imposition and collection of the specific ownership tax. It also examines specific ownership tax revenue to school districts statewide and by category.

History of the Tax

Prior to 1936, motor vehicles, trailers, and semi-trailers were subject to *ad valorem* property taxes. However, certain characteristics such as mobility, frequent changes in ownership, rapid depreciation, and short life spans, made uniform administration and enforcement of the property tax on these vehicles difficult. To simplify motor vehicle taxes, Colorado voters at the 1936 general election approved an amendment to section 6 of Article X of the state constitution imposing a specific ownership tax in lieu of the property tax on motor vehicles, trailers, and semi-trailers. The following year, the General Assembly enacted a graduated specific ownership tax.

Section 6 of Article X of the state constitution requires that a specific ownership tax be imposed on self-propelled equipment, motor vehicles, and certain other movable equipment. Article 3 of Title 42, C.R.S., sets out the specifics of the tax as described below, including classes of vehicles, tax rates within each classification, where and when the tax is to be paid, exemptions to the tax, and disposition of specific ownership tax revenue.

Imposition, Collection, and Administration of the Tax. For taxation purposes, motor vehicles are divided into five classes, as follows:

Class	Motor Vehicle Type	Collected by
A	Every motor vehicle, truck, truck tractor, semitrailer, and trailer used over any public highway as an interstate carrier whether or not under contract	state
B	Every truck, truck tractor, trailer, and semitrailer not included in class A	county
C	Every motor vehicle not included in class A or B	county
D	Every utility trailer, camper trailer, and trailer coach	county
F	All mobile machinery and self-propelled construction equipment	county

NOTE: There is no longer a class E category.

The taxable value for class A and B vehicles is 75 percent of the manufacturer's suggested retail price. The taxable value for class C and D vehicles is 85 percent of the manufacturer's suggested retail price. The taxable value for class F vehicles is determined by the property tax administrator using factors set forth in statute. Mobile homes are not subject to the specific ownership tax but are classified as residential property for property tax purposes.

The specific ownership tax is computed using the following schedule:

Years of Service	Class	Fee or Percent of Taxable Value
1st	A,B,C,D,F	2.10%
2nd	A,B,C,D,F	1.50%
3rd	A,B,C,D F	1.20% 1.25%
4th	A,B,C,D F	0.90% 1.00%
5th	F	0.75%
5th - 9th	A,B C,D	0.45% or $10.00, whichever is greater 0.45%
6th and over	F	0.50% but not less than $5.00
10th and over	A B,C D	$10.00 $3.00 0.45% or $3.00, whichever is greater

Specific ownership taxes on class A vehicles are remitted directly to the Department of Revenue and are due no later than January 1 of each year. All other specific ownership taxes – for class B, C, D, and F vehicles – are collected annually by the county clerk and recorder at the time the vehicle is registered.

Distribution of revenue. Revenue from class A vehicles is apportioned among the state's 63 counties according to the number of miles of state highways within their jurisdiction. Revenue from class B, C, D, and F vehicles is deposited with the county treasurers before distribution to individual taxing jurisdictions. Fifty cents of each vehicle registration is kept by the county as reimbursement for the cost of collection while an additional 50 cents per vehicle registration is credited to a special fund for a statewide data processing system (section 42-1-210.1, C.R.S.). The remaining moneys are apportioned annually among the county and each political and governmental subdivision within the county which imposes a property tax.

The percentage of property tax levied by each taxing jurisdiction determines the percentage of specific ownership tax revenue that each taxing jurisdiction will receive, after subtracting administrative fees. In January of each year, each county treasurer calculates the amount of property tax levied in the preceding year by each taxing jurisdiction and computes the percentage attributable to each jurisdiction in relation to the total amount of property tax collected in the county. Under the statutory formula, the amount of specific ownership tax distributed to a particular jurisdiction is based on that jurisdiction's property tax collections relative to the property tax collections of all other taxing jurisdictions in the county. Table 10 illustrates the specific ownership tax distribution formula, using Rio Blanco County as an example. In 1989, residents of Rio

Blanco County were assessed $14,014,882 in property taxes for payment in 1990 by all taxing jurisdictions in the county.

Table 10

1990 Property Taxes Levied and Specific Ownership Taxes Received by Taxing Jurisdictions in Rio Blanco County

Taxing Jurisdictions	1990 Property Tax Levied	Percent of Total	Estimated 1990 Specific Ownership Tax
County	$2,624,109	18.72%	$101,594
Cities	180,622	1.29%	7,001
Special Districts	1,870,728	13.35%	72,451
School Districts	9,339,422	66.64%	361,657
Total	$14,014,882	100.00%	$542,702

The percentages of each taxing jurisdiction's property tax collections relative to the total are used by the county treasurer to set the specific ownership tax distribution formula. In this example, persons in Rio Blanco County paid $553,612 in specific ownership taxes in 1990. After remitting $5,455 to the county clerk and $5,455 to the state treasurer, approximately $542,702 remained for distribution to taxing jurisdictions in the county based on the percentages in Table 10.

Distribution of Specific Ownership Taxes to School Districts

In 1990, school districts levied roughly 60 percent of all property taxes levied throughout the state. Schools, therefore, received roughly 60 percent of specific ownership tax revenue distributions statewide, or $94.1 million[48] of total statewide collections of $156.9 million. Under the statutory formula, the amount of specific ownership taxes apportioned to school districts within a given county is based on the property taxes collected by school districts in relation to the total property taxes collected in a county. Similarly, the amount distributed to a particular district is based on that district's property tax collections relative to the collections of all other taxing jurisdictions in the county. Table 11 further refines Table 10 by showing the distribution of specific ownership taxes to the two school districts in Rio Blanco County. Both districts serve roughly the same number of students.

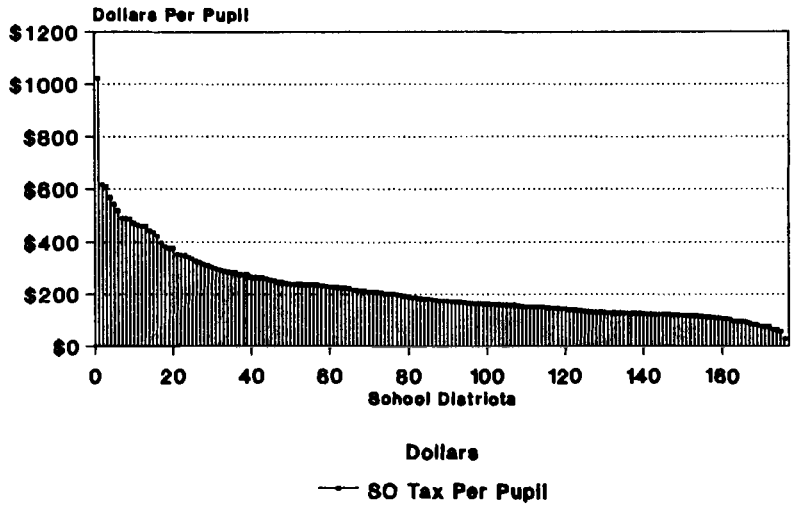
Table 11

Comparison of Property Taxes and Specific Ownership Revenue for School Districts in Rio Blanco County

School District	1990 Enrollment	1990 Property Tax Collections	Property Tax Per Pupil	1990 Share of Specific Ownership Tax	Specific Ownership Per Pupil
Meeker	664.0	$1,359,081	$2,047	$52,093	$78
Rangely	607.0	4,333,350	7,139	166,799	275

The result of the statutory formula is a wide range of specific ownership tax revenue received by school districts throughout the state. For example, in 1990 the Las Animas-Branson district received $1,023 per pupil in specific ownership moneys while the El Paso-Fountain district received only $29 per pupil. Graph 10 shows each school district's 1990 per pupil specific ownership tax revenue. The statewide average per pupil is $175.

Graph 10
1990 SPECIFIC OWNERSHIP TAX REVENUE PER PUPIL



Because each school district relies on a unique combination of local property taxes and state assistance, the statutory formula for distributing specific ownership tax revenue favors those districts which provide a greater portion of the total cost of education through property taxes. Districts which collect a lesser amount of property taxes due to a lower

assessed value rely more heavily on state assistance and therefore receive a smaller share of the specific ownership tax revenue under the statutory formula.

Distribution by Setting Category. Specific ownership tax revenue to school districts varies widely across the state, but they also vary widely within the current setting categories. Table 12 shows the average 1990 specific ownership tax revenue per pupil collected by all districts within each funding category along with the minimum and maximum per pupil amounts collected by districts within the category. The table also shows the average 1990 assessed value per pupil for each setting category.

Table 12

1990 Average Specific Ownership Revenue and Assessed Value Per Pupil, by Setting Category

Setting Category	Average Specific Ownership Per Pupil	Minimum	Maximum	Average Assessed Value Per Pupil
Core City	$245	$245	$245	$87,101
Denver Metro	181	117	283	49,903
Urban/Suburban	135	29	251	39,084
Outlying City	133	64	179	37,211
Outlying Town	176	78	397	58,714
Rural	191	57	544	54,007
Recreational	312	236	490	186,635
Small Attendance	370	160	1,023	130,764
State Total	$175	$29	$1,023	$53,945

Table 13 shows the 1990 per pupil funding levels for the current eight setting categories as well as average specific ownership revenue as a percent of per pupil funding. The minimum and maximum dollar amounts in each setting category are illustrated as a percent of the category funding level per pupil.

Table 13

1990 Per Pupil Funding and Average Specific Ownership Revenue as a Percent of School Finance Act Funding Per Pupil

Setting Category	1990 Per Pupil Funding (PPF)	Average Specific Ownership Tax as a Percent of PPF	Minimum	Maximum
Core City	$4,421	5.55%	5.55%	5.55%
Denver Metro	4,092	4.42	2.86	6.92
Urban/Suburban	3,758	3.59	0.78	6.68
Outlying City	3,788	3.51	1.70	4.72
Outlying Town	3,924	4.49	2.00	10.11
Rural	4,465	4.28	1.27	12.19
Recreational	5,051	6.18	4.68	9.71
Small Attendance	7,584	4.88	2.12	13.48

Observations About School District Specific Ownership Tax Receipts

On a statewide basis, the school district with the greatest dollar amount of specific ownership tax revenue per pupil received just over 30 times more specific ownership tax revenue on a per pupil basis than the district with the least amount. The difference is reduced by half when examined on a percentage basis because of the inherent differences in per pupil funding associated with the current setting categories. The dollar differences in per pupil funding appear to be the result of the equalization aspects of the school finance act in conjunction with the specific ownership tax distribution formula, rather than the distribution of tax revenue among the counties. In comparison to the school district range of revenue per pupil, the disparity in county per capita collections is $64.72. The county collecting the highest amount collects 3 times that of the county collecting the lowest.

In contrast to many other taxing jurisdictions that set a mill levy to generate a required amount of property tax revenue, the majority of school district property tax revenue is based on the levy set through the school finance act. State aid provides the difference between the revenue produced by the mill levy and the revenue allocation authorized through the act. Thus, school districts with low assessed values may be generating a smaller portion of property taxes, relative to other taxing jurisdictions in the county, than higher assessed value districts. Specific ownership tax collections per pupil were compared to assessed valuation per pupil for each school district to determine the degree to which patterns of movement are similar. Correlation analysis revealed a coefficient of 0.6974, which indicates that specific ownership tax revenue tends to increase as assessed values per pupil increase and vice versa.

Given the distribution formula, it appears that specific ownership tax revenue vacillate based on tax policy and revenue decisions of all the taxing jurisdictions within a county. All taxing jurisdictions within a given county "compete" for a limited amount

of specific ownership tax revenue. For example, if one taxing jurisdiction increases its mill levy and all other variables (i.e. other districts' levies, all districts' assessed valuation) remain constant, the district which increased its levy will receive a greater share of the specific ownership tax revenue at the expense of all other taxing jurisdictions. By the same token, if the assessed valuation in a certain taxing district decreases and all districts' levies remain constant, that district will lose a portion of specific ownership tax revenue to all other taxing districts because of the loss in property tax revenues. Thus, a single district may have their specific ownership tax revenue impacted through no action of their own, but through the actions of the state, other school districts, or other taxing jurisdictions.

OTHER GENERAL FUND REVENUE FROM LOCAL SOURCES

In addition to the revenues discussed in the preceding sections, school districts may receive revenue from other local sources. The Colorado Department of Education does not require districts to itemize these revenue in their reporting. However, the CDE *Financial Policies and Procedures Handbook* defines the various revenues that may be reported as other revenue from local sources. Revenue attributable to these sources are described below. Please note the data provided in this section include only other local revenue deposited in a district's general fund.

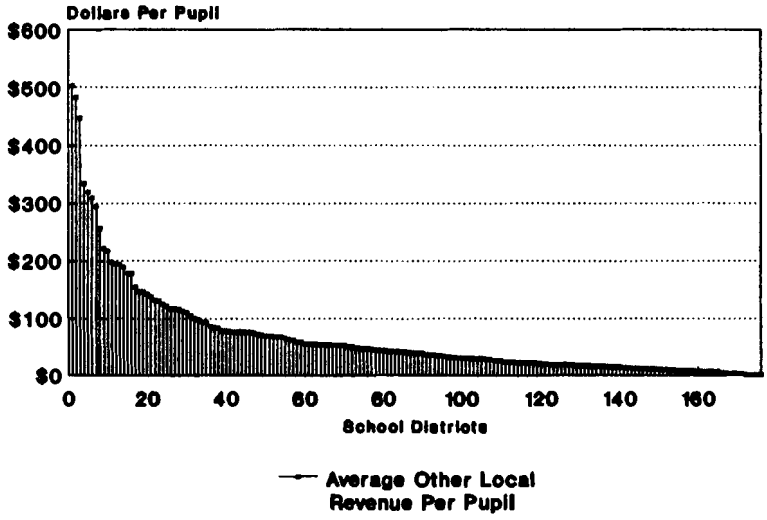
Types of Other Revenue from Local Sources

School districts reported $20.5 million of other revenue from local sources in calendar year 1990. Examples of revenue sources include rentals, contributions, income from other school districts, refunds, and transfers. Income from **rentals** includes money received from the rental of real and personal school property such as textbooks, equipment, lockers, towels, and other miscellaneous property. Rental income does not include rental payments from real property held for income purposes. **Contributions and donations from private sources** are defined by CDE to include revenue from philanthropic foundations, private individuals, or private organizations for which no repayment or special service to the contributor is expected.

Income from services provided to other school districts includes revenue from services such as data processing, purchasing, maintenance, cleaning, consulting, and guidance, but cannot include revenue from tuition and transportation services. **Refunds of a prior year's expenditure** can lead to additional revenue for districts. In order to be counted as "other revenue from local sources," **transfers from other funds** must be received unconditionally from another fund without expectation of repayment. Finally, districts may collect **miscellaneous** revenue from fines, telephone coin box commissions, and any other local sources not discussed above.

Graph 11 shows other local revenue per pupil received by school districts during the 1990 calendar year. Statewide, school districts received approximately $38 per pupil. Las Animas-Branson received more than any other district, at $504 per pupil, while five districts reported no other local revenue.

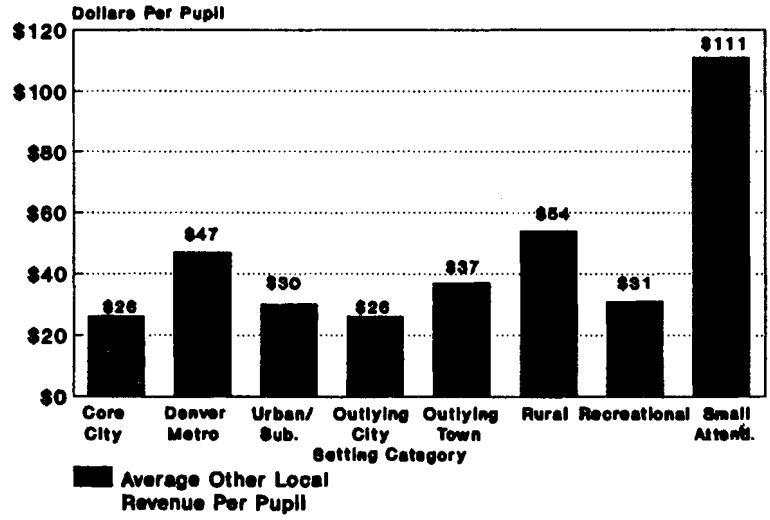
Graph 11
1990 OTHER GENERAL FUND LOCAL REVENUE PER PUPIL



Other Local Revenues by Setting Category

Graph 12 illustrates average local revenue per pupil by setting category. As shown in the graph, small attendance districts receive more than two and one-half times the amount reported by the next highest category per pupil, on average.

Graph 12
1990 OTHER GENERAL FUND LOCAL REVENUE PER PUPIL BY SETTING CATEGORY



SCHOOL DISTRICT OVERRIDE ELECTIONS

This section of the report addresses local override elections which allow school districts to exceed the equalization program funding prescribed in the school finance act, with voter approval. The current statutory provisions and history related to the override are examined, and information is provided on override elections that have occurred since passage of the Public School Finance Act of 1988.

Limit on Additional Local Revenue

When enacted, the Public School Finance Act of 1988 permitted districts to request voter approval for an increase in the district's property tax revenue in an amount equal to 5 percent of equalization program funding, or total program cost. The increase was permitted to occur only upon approval of the electorate at a general election in even-numbered years and was funded solely through property tax revenue.

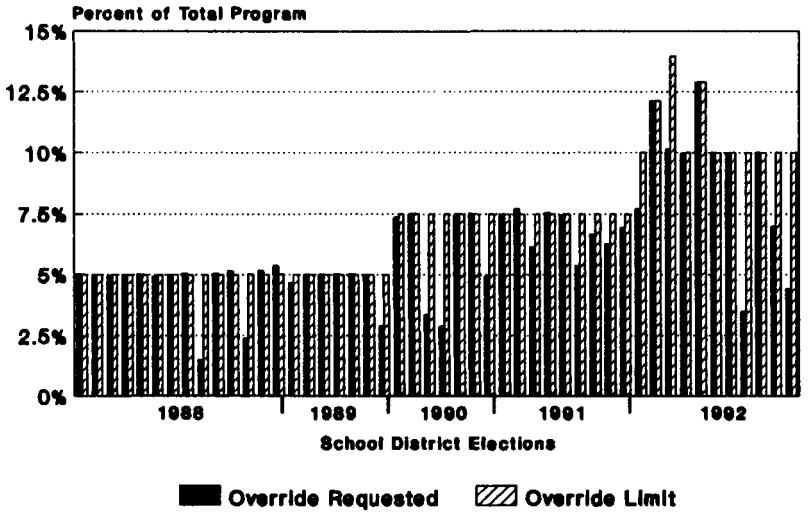
In 1989, the act was amended to expand districts' ability to request the override by allowing voters to approve overrides at a special election in November of odd-numbered years in addition to the general election. During the 1990 legislative session, the act was amended to raise the cap on revenue to 7.5 percent of each district's equalization program funding.

Most recently, during the 1992 legislative session, the act was amended to change the limitation to the greater of 10 percent of formula funding or $200,000.[49] So, while the cap was increased, the base on which the override is calculated was changed, although only for hold harmless districts. The limitation on voter approved property tax increases is cumulative. Thus, under current law, any district which has not requested voter approval for an increase in spending is allowed to request up to 10 percent of formula funding or $200,000, whichever is greater. Districts that have approved a property tax increase less than the maximum allowable amount may request voter approval for the difference between what has already been approved and the applicable cap.

Under current law, districts wishing to ask voters to approve an override have only one more chance to submit such a request to the electorate: the November 1993 election. The ability of school districts to utilize the override provision expires with the election preceding the 1994-95 budget year, according to section 22-53-117(1)(a)(II), C.R.S.

Graph 13 shows the percentage of the override request relative to the override cap for the elections held from 1988 through 1992. The graph includes data from all of the elections, regardless of their success.

Graph 13
COMPARISON OF OVERRIDE REQUESTED TO OVERRIDE LIMIT

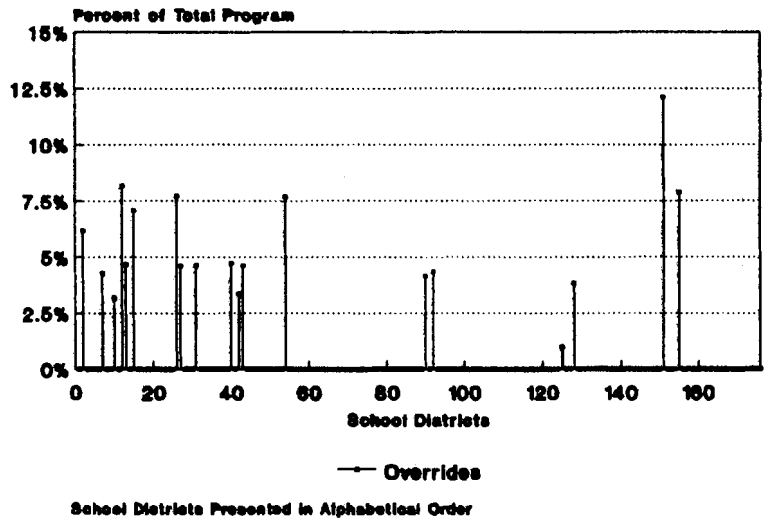


Incidence of Override Elections

Since the enactment of the 1988 act, 48 elections have been held to increase school district revenue. This figure includes eight districts which have each had two elections, and one district that has submitted the question of increased property taxes to its electorate on three occasions. Thus, 38 districts have requested voter approval for increased revenue. Additional property tax revenue has been approved in 19 districts, totalling $56.1 million, or 2.34 percent of the fiscal year 1992-93 applicable total program base. Although these 19 districts represent only 9.1 percent of the state's 176 school districts, they encompass about 40.3 percent of the FY 1992-93 funded pupil count. Graph 14 illustrates districts that have approved overrides and the percentage that the override is of FY 1992-93 total program.

Currently, one district has reached its override capacity, although other districts are approaching the limit. The Telluride school district in San Miguel County has reached the dollar limit, having passed $200,000 in overrides with three elections. The Cherry Creek district in Arapahoe County has an override equal to 8.2 percent of formula funding, followed by the Summit County school district, 7.9 percent, Boulder Valley, 7.7 percent, and Cheyenne Mountain in El Paso County, 7.1 percent.

Graph 14
SCHOOL DISTRICT OVERRIDES AS A
PERCENT OF FY 1992-93 TOTAL PROGRAM



Override Elections by Setting Category

Table 14 shows the percentage of districts that asked voters to approve overrides for each of the current setting categories. The FY 1992-93 setting category per pupil funding amount is also indicated. Please note that a district may have had more than one election.

Table 14

Percentage of Districts Requesting Overrides by Setting Category

Category	1992-93 Per Pupil Funding	Number of Districts in Category	Districts Requesting Override	Percent Requesting Override
Core City	$4,580	1	1	100.0%
Denver Metro	4,238	13	11	84.6
Urban/Suburban	3,938	16	5	31.3
Outlying City	3,930	11	1	9.1
Outlying Town	4,098	44	12	20.0
Rural	4,671	57	5	8.8
Recreational	4,952	7	3	42.9
Small Attendance	7,959	27	0	0.0
State Total	$4,247	176	38	21.6%

Table 15 lists the districts which have sought voter approval to use the override provision. The table groups districts into the current setting categories and ranks the districts within each category according to the success ratio of their override elections. The table also shows the 1990 assessed value per pupil for all districts which have asked for voter-approved overrides.

Table 15

Results of School District Override Elections, by School District in Current Setting Category, 1988-1992

County	District	Overrides Adopted 1988-1992	Total Elections			1990 Assessed Value/Pupil
			Total	Yes	No	
Core City						
Denver	Denver	$12,099,253	1	1	0	$87,101
Denver Metro						
Arapahoe	Littleton	2,998,234	1	1	0	46,570
Boulder	Boulder	7,062,468	1	1	0	76,448
Adams	Westminster	1,895,103	1	1	0	31,652
Arapahoe	Cherry Creek	10,263,000	1	1	0	70,496
Arapahoe	Englewood	555,000	1	1	0	52,511
Douglas	Douglas	2,013,000	1	1	0	57,526
Arapahoe	Aurora	7,639,028	1	1	0	38,753
Adams	Northglenn	5,400,000	2	1	1	29,241
Adams	Commerce City	0	1	0	1	40,531
Adams	Brighton	0	1	0	1	36,647
Jefferson	Jefferson	0	2	0	2	47,839
Urban/Suburban						
Larimer	Poudre	3,052,147	1	1	0	50,850
El Paso	Cheyenne Mountain	750,000	2	1	1	68,850
El Paso	Colorado Springs	0	1	0	1	54,112
Boulder	St. Vrain	0	1	0	1	42,757
Weld	Greeley	0	1	0	1	33,206
Outlying City						
Montrose	Montrose	0	1	0	1	27,809
Outlying Town						
Larimer	Estes Park	206,000	1	1	0	107,490
Chaffee	Buena Vista	155,854	2	1	1	48,001
Clear Creek	Clear Creek	264,046	2	1	1	69,174
Fremont	Florence	0	1	0	1	25,206
Rio Blanco	Rangely	0	1	0	1	402,512
Chaffee	Salida	0	1	0	1	38,563
Washington	Akron	0	1	0	1	55,892
Weld	Fort Lupton	0	1	0	1	43,913
Weld	Gilcrest	0	1	0	1	57,012
Weld	Windsor	0	1	0	1	60,337
Cheyenne	Cheyenne R-5	0	2	0	2	193,789
Rio Blanco	Meeker	0	2	0	2	47,930
Rural						
Otero	Swink	15,862	1	1	0	16,455
Park	Platte Canyon	210,204	2	1	1	36,831
Costilla	Centennial	0	1	0	1	50,948
El Paso	Peyton	0	1	0	1	38,360
Gilpin	Gilpin	0	1	0	1	62,594
Recreational						
San Miguel	Telluride	200,000	3	3	0	315,540
Eagle	Eagle	628,823	1	1	0	223,781
Summit	Summit	653,686	1	1	0	269,417
State Total		$56,061,708	48	21	27	$53,954

INVESTMENT EARNINGS

Other school district revenue sources also include earnings on the investment of moneys contained in school district funds. In 1990, Colorado school districts earned a total of $80,833,128 on investments from all funds. State statute creates the following funds for use by school districts (section 22-45-103, C.R.S.):

> ***General Fund***: all revenue, except those revenue attributable to the bond redemption fund, the capital reserve fund, the special building fund, the insurance reserve fund, and any other funds authorized by the state board of education.
>
> ***Bond Redemption***: revenue from a tax levy for the purpose of satisfying bonded indebtedness.
>
> ***Capital Reserve***: moneys allocated pursuant to section 22-53-108(3)(c), C.R.S., for long-range capital outlay expenditures. Moneys may not be used for any other purpose. Unencumbered moneys in the fund may be transferred to the insurance reserve fund by resolution of the local board.
>
> ***Special Building***: revenue from a tax levy for the purpose of construction of schools.
>
> ***Insurance Reserve***: moneys allocated pursuant to section 22-53-108(3)(c), C.R.S. for insurance purposes including loss of or damage to the property of the school district or payment of administrative expenses, loss control, workers' compensation or legal claims against the district. Unencumbered moneys in the fund may be transferred to the capital reserve fund by resolution of the local board.

Although a transportation fund is currently required by law, this fund was not required in the year for which the data are analyzed. In addition, other funds are authorized by the state board of education either as required or optional funds, including (*Financial Policies and Procedures Handbook*, Colorado Department of Education):

> ***Governmental Grants***: designated restricted state and federal grants (optional).
>
> ***Pupil Activity***: revenue from pupils, gate receipts and other fund-raising activities related to school-sponsored pupil intrascholastic and interscholastic athletic and related events (optional).

Building: proceeds of bond sales, revenue from other sources and expenditures for capital outlay for land or existing buildings, improvements of grounds, construction of buildings, additions to buildings, and remodeling.

Food Service: an enterprise fund used to record financial transactions related to food service operations.

Intra/Intergovernmental Services: revenue of special activities and services performed by a designated organizational unit within a school district's jurisdiction to secure goods and services (optional).

Trust and Agency: money and property held in trust by the school district for individuals or organizations such as clubs or student government (optional).

Investment Earnings Statewide, General Fund

Table 16 shows statewide total investment earnings from each fund for budget year 1990. General fund investment earnings represent 46.40 percent of the total investment earnings, while the building fund accounts for 23.43 percent of the total earnings. Other funds comprise the remaining 30.17 percent of earnings.

Table 16

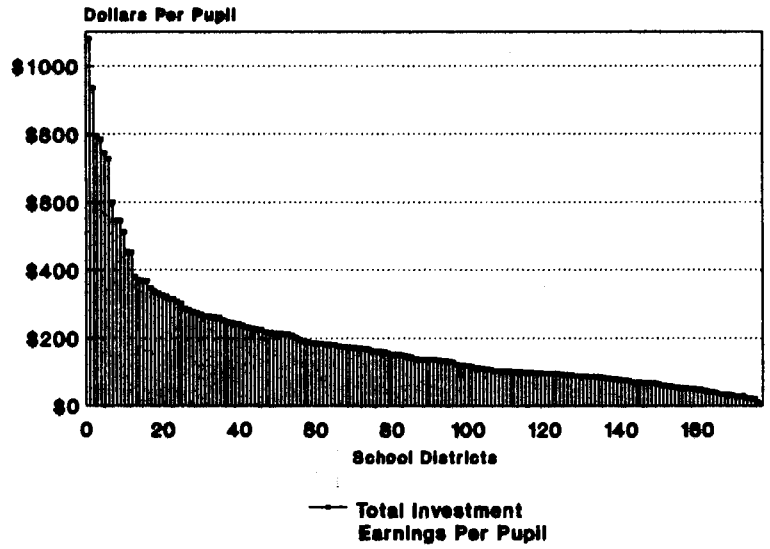
Total Investment Earnings by Fund
1990

Fund	Total Investment Earnings	Percent of Total Earnings
General	$37,509,047	46.40%
Capital Reserve	10,784,563	13.34
Pupil Activity	629,675	0.78
Insurance Reserve	3,129,203	3.87
Other Special Reserve	856,262	1.06
Building	18,936,718	23.43
Bond Redemption	5,912,023	7.31
Food Service	821,921	1.02
Other Enterprise	14,798	0.02
Component	14,497	0.02
Trust/Agency	2,075,416	2.57
Special Building	149,005	0.18
Statewide Total	$80,833,128	100.00%

Percentages may not sum due to rounding.

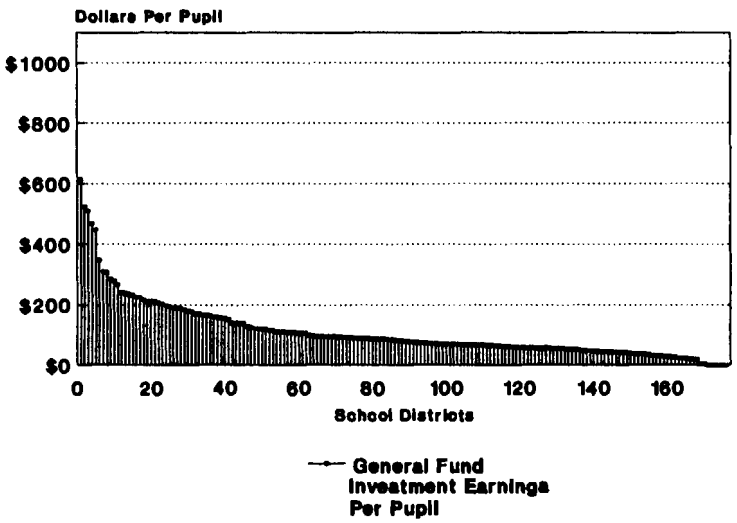
State law apparently does not require that interest earned on a particular fund be deposited in that fund. Thus, Graph 15 shows the 1990 total investment earnings per pupil, ranked from high to low. The district with the highest investment earnings per pupil is Pitkin-Aspen, earning $1,080 per pupil. The district earning the lowest amount per pupil is El Paso-Hanover, earning $10 per pupil.

Graph 15
1990 TOTAL INVESTMENT EARNINGS PER PUPIL



However, since the general fund is used to finance and account for all ordinary operations of a school district, Graph 16 isolates general fund investment earnings per pupil. Graph 16 is presented in the same scale as the preceding graph to illustrate the relative impact of investment earnings of other funds. The range of earnings is $614, from $614 in Kiowa Plainview to $0 earnings in six districts.

Graph 16
1990 TOTAL GENERAL FUND
INVESTMENT EARNINGS PER PUPIL



Investment Earnings by Setting Category

Table 17 presents the average investment earnings per pupil from the general fund, all other funds, and total investment earnings by setting category. While Table 16 shows that statewide, the general fund comprises 46.7 percent of total investment earnings, Table 17 shows that the Denver metro, urban/suburban, and recreational setting categories have general fund investment earnings per pupil that are lower than the statewide average. These three categories have, on average, a higher proportion of investment earnings attributed to the building fund than the remaining categories.

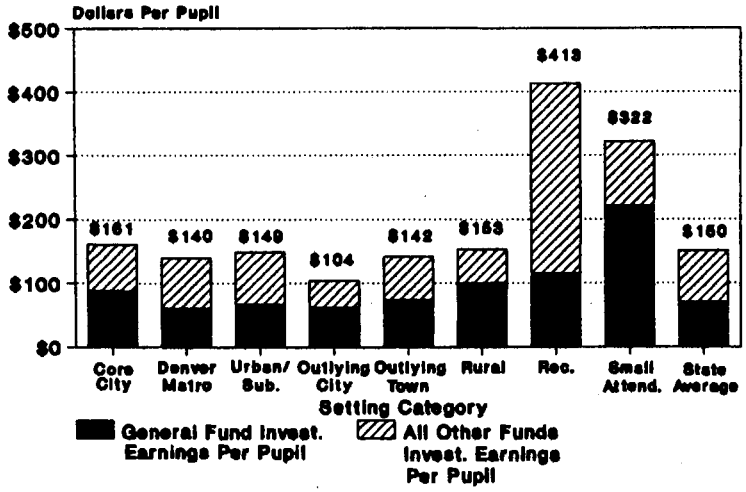
Table 17

Investment Earnings Per Pupil by Setting Category
1990

Setting Category	Investment Earnings Per Pupil on General Fund	Investment Earnings on General Fund as Percent of Total	Investment Earnings Per Pupil on All Other Funds	Total Investment Earnings
Core City	$88	54.66%	$73	$161
Denver Metro	61	43.57	79	140
Urban/Suburban	67	44.97	82	149
Outlying City	62	59.62	42	104
Outlying Town	74	52.11	68	142
Rural	100	65.36	53	153
Recreational	115	27.85	298	413
Small Attendance	221	68.63	101	322
State Total	$70	46.67%	$80	$150

Graph 17 illustrates total investment earnings per pupil (general fund plus all other funds) by setting category.

Graph 17
1990 INVESTMENT EARNINGS PER PUPIL
GENERAL FUND AND ALL OTHER FUNDS
BY SETTING CATEGORY

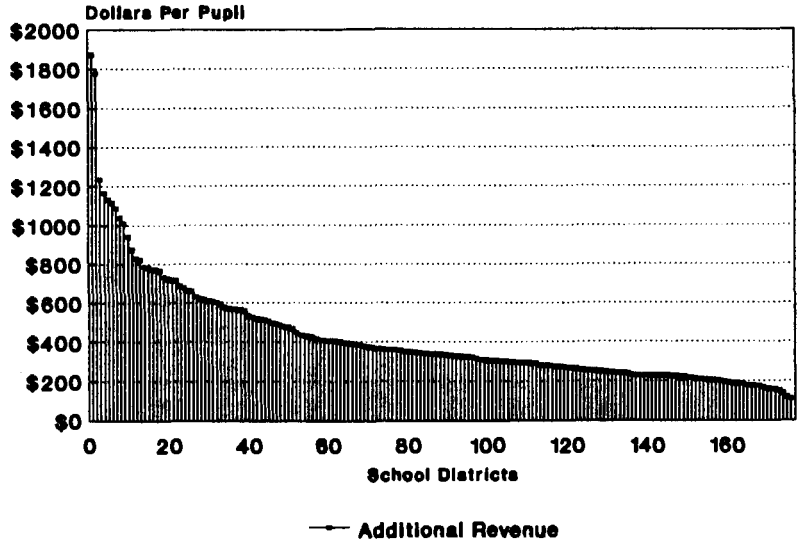


TOTAL REVENUE FROM ADDITIONAL FUNDING SOURCES

The preceding sections of this chapter discussed certain additional sources of revenue available to school districts, including unrestricted specific ownership tax revenue; general fund investment earnings; fees; federal impact aid; and other general fund local revenue. Following is a comparison of the combined impact of revenue from these additional sources, excluding revenue derived from override elections. Within this section, total program is defined as 1992-93 formula funding per pupil, by category.

On average, school districts in Colorado receive approximately $309 per pupil in additional revenue. This represents a 7.28 percent increase in available funds per pupil over the statewide average funding per pupil in fiscal year 1992-93. The range in other per pupil revenue was $1,763. Las Animas-Branson received $1,873 per pupil while Morgan-Fort Morgan received $110 per pupil. Graph 18 below shows the range of additional revenue per pupil received by the state's 176 districts.

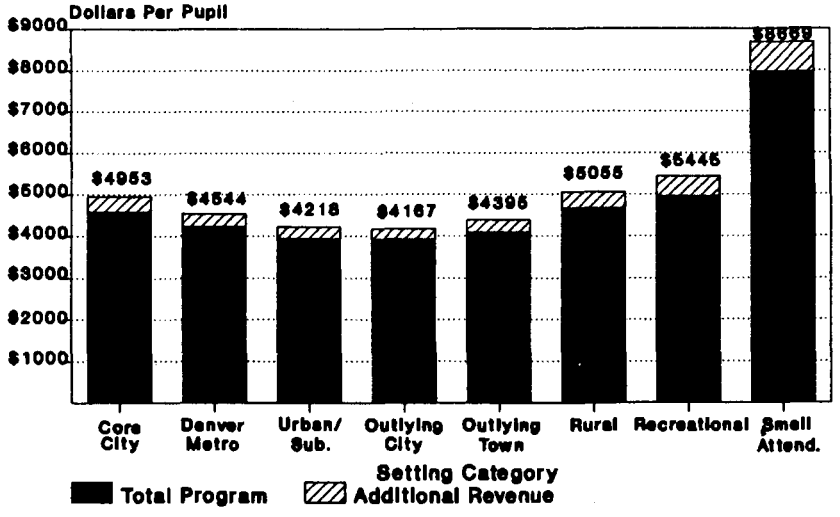
Graph 18
ADDITIONAL REVENUE PER PUPIL



Comparison of Additional Revenue Among Setting Categories

Graph 19 shows total program funding per pupil and total additional revenue per pupil by setting category. As Graph 19 indicates, districts in the small attendance category have the highest average additional revenue per pupil. On average, districts with enrollments of 150 or less receive $710 per pupil in additional revenue, more than districts in any other category. On a percentage basis, however, the additional revenue acts to increase funding in the recreational category by the greatest amount, while the outlying city category has the least percentage increase.

Graph 19
TOTAL PROGRAM AND ADDITIONAL REVENUE PER PUPIL BY SETTING CATEGORY



Using the same information in Graph 19, Table 18 highlights differences among setting categories by showing the ratio of each category's per pupil formula funding amount and the per pupil funding amount plus the category average additional revenue to the respective statewide average.

Table 18

Total Program and Total Additional Revenue, by Setting Category

Setting Category	FY 1992-93 Category Per Pupil Funding	Per Pupil Funding/State Average	FY 1992-93 Per Pupil Funding Plus Additional Revenues	Additional Revenue/ State Average
Core City	$4,580	1.08	$4,953	1.09
Denver Metro	4,238	1.00	4,544	1.00
Urban/Suburban	3,938	0.93	4,218	0.93
Outlying City	3,930	0.93	4,167	0.91
Outlying Town	4,098	0.96	4,395	0.96
Rural	4,671	1.10	5,055	1.11
Recreational	4,952	1.17	5,445	1.20
Small Attendance	7,959	1.87	8,669	1.90
State Average	$4,247	1.00	$4,556	1.00

The range in category per pupil funding prior to the inclusion of the additional revenue is 0.94. When the revenue is added, the range increases to 0.99.

Table 19 isolates the impact of additional local revenue within categories. It shows the minimum, maximum, and range of additional revenue received by districts within the current setting categories.

Table 19

Total Program Per Pupil and Total Additional Revenue Per Pupil Showing Minimum, Maximum, and Range of Additional Revenue Per Pupil Within Each Category

Setting Category	Average Additional Revenue	Minimum Additional Revenue	Maximum Additional Revenue	Range
Core City	$373	$ 373	$ 373	$ 0
Denver Metro	306	197	433	236
Urban/Suburban	280	160	1,009	849
Outlying City	237	110	450	340
Outlying Town	297	137	1,039	902
Rural	384	116	1,087	971
Recreational	493	323	1,777	1,454
Small Attendance	710	299	1,873	1,574
State Average	$309	$ 110	$ 1,873	$ 1,763

Total additional revenue per pupil for small attendance districts covers a greater range of values than in any other category. In the recreational category, San Miguel-Telluride receives $1,495 per pupil in additional revenue, more than two and one-half times the amount received by the next highest district. The range between the high and the low received by districts in each category indicates that some districts may have access to additional revenue not available to other districts. In general, the disparity in additional revenue received by districts in each category, and the large disparity in additional revenue received by all districts, appears to show that additional revenue has a disequalizing effect on school funding.

PER PUPIL OPERATING COSTS OF SCHOOL DISTRICTS

Section 22-53-105.5, C.R.S., directs the Legislative Council to analyze the per pupil operating costs of school districts in each setting category. A school district's "operating costs" are generally understood to reflect those items upon which a district expends funds for non-debt service programs. Based on the statutory language, this analysis focuses on the current setting categories for an evaluation of the manner in which districts expend operating funds for various purposes. In addition, the statutory directive appears to be similar to the analysis of school district expenditures used to compute the funding components by setting category in the Public School Finance Act of 1988. At that time, eight funding components were chosen to reflect the items upon which a district must expend funds. In the 1988 legislation, funding component values were calculated using weighted average expenditure amounts for each setting category.

This analysis uses the same methodology as was used in the 1988 act to compute per pupil and funding component amounts by setting category. Table 20 provides a comparison of fiscal year 1992-93 calculated funding component values with the actual fiscal year 1992-93 funding component values. The selection of expenditure items to represent a school district's operating costs and the methodology used to reaverage the funding components is detailed below. In addition, possible reasons for the differences in the calculated funding component values and the actual funding component values for fiscal year 1992-93 are discussed.

Methodology

In order to determine a school district's "operating costs," we examined non-debt school district general fund expenditures. These items - instructional supplies and materials and instructional capital outlay; instructional purchased services; capital and insurance reserves; instructional salaries and benefits; pupil support services; school administration; operations and maintenance; and district support services - are assumed to reflect a school district's operating costs.[50] Expenditure data on these items were used to calculate the three per pupil funding component values and the five unit funding component values contained in the act. Funding component values were computed by setting category.

For purposes of this analysis, actual audited 1990 general fund expenditure data, excluding governmental purpose grant funds, were provided by the CDE for each of the items listed above, with the exception of instructional salaries and benefits, where 1991 data were used.[51] Actual audited expenditure data for 1986, excluding governmental purpose grant funds, were used to calculate the funding component values in the act, with the exception of the instructional salaries and benefits component. In an effort to obtain the most recent data available, 1987 average teacher salaries, inflated by 20 percent to reflect the cost of benefits, were used to calculate the instructional salaries and benefits component of the act. Therefore, we used 1991 teacher salary data, once again adding 20 percent for benefits, to determine a reaveraged funding component value for instructional salaries and benefits.[52]

Per pupil and unit funding component values for each of the expenditure items outlined above were determined by calculating a weighted average of the actual 1990 expenditure data by school district for each setting category. These reaveraged 1990 per pupil and unit funding component values were then adjusted by the actual dollar changes determined by the General Assembly through the 1992-93 fiscal year. Table 20 details the reaveraged 1990 funding component values, along with the calculated and actual funding component values for fiscal year 1992-93. This process is the same methodology that was used to calculate the component values used in the 1988 act. However, the reaveraged 1990 component values were calculated using current instructional unit funding ratios. These ratios were recalculated for the outlying city category and recreational category following the transfer of the La Plata-Durango school district from

Table 20

COMPARISION OF REAVERAGED FUNDING COMPONENT VALUES AND ACTUAL FUNDING COMPONENT VALUES
FY 1992-93

	CORE CITY	DENVER METRO	URBAN/ SUBURBAN	OUTLYING CITY	OUTLYING TOWN	RURAL	REC	SMALL ATTENDANCE
INSTRUCTIONAL UNIT FUNDING RATIO	16.6	18.0	17.8	16.5	15.1	12.8	14.4	7.0
PUPIL FUNDING								
INSTRUCTIONAL SUPPLIES AND MATERIALS								
Reaveraged CY 1990	125	120	129	136	158	196	144	336
Calculated FY 1992-93	125	120	129	136	158	196	144	336
Actual FY 1992-93	111	111	111	111	111	111	111	111
Actual FY 1992-93 minus calc.	(14)	(9)	(18)	(25)	(47)	(85)	(33)	(225)
INSTRUCTIONAL PURCHASED SERVICES								
Reaveraged CY 1990	67	58	77	133	154	194	93	289
Calculated FY 1992-93	67	58	77	133	154	194	93	289
Actual FY 1992-93	14	39	56	84	87	115	47	204
Actual FY 1992-93 minus calc.	(53)	(19)	(21)	(49)	(67)	(79)	(46)	(85)
CAPITAL RESERVE/INSURANCE								
Reaveraged CY 1990	207	212	201	200	233	351	263	429
Calculated FY 1992-93	207	212	201	200	233	351	263	429
Actual FY 1992-93	202	202	202	202	202	202	202	202
Actual FY 1992-93 minus calc.	(5)	(10)	1	2	(31)	(149)	(61)	(227)
REAVG. CY 1990 TOTAL PER PUPIL FUNDING	399	390	407	469	545	741	500	1,054
CALC. FY 92-93 TOTAL PER PUPIL FUNDING	399	390	407	469	545	741	500	1,054
ACTUAL FY 92-93 TOTAL PER PUPIL FUNDING	327	352	369	397	400	428	360	517
ACTUAL FY 92-93 MINUS CALC. FY 92-93	(72)	(38)	(38)	(72)	(145)	(313)	(140)	(537)
UNIT FUNDING								
INSTRUCTIONAL SALARIES & BENEFITS								
Reaveraged CY 1990	33,743	32,238	29,293	25,266	24,235	20,478	28,732	19,727
Calculated FY 1992-93	40,689	38,882	35,348	30,516	29,279	24,771	34,675	23,870
Actual FY 1992-93	42,803	43,703	39,737	36,203	33,803	31,403	39,203	31,403
Actual FY 1992-93 minus calc.	2,114	4,821	4,389	5,687	4,524	6,632	4,528	7,533
PUPIL SUPPORT SERVICES								
Reaveraged CY 1990	3,538	3,858	3,241	2,815	1,895	1,371	3,524	850
Calculated FY 1992-93	3,569	3,889	3,272	2,846	1,926	1,402	3,555	881
Actual FY 1992-93	2,380	1,910	2,635	1,690	1,575	1,290	2,815	1,290
Actual FY 1992-93 minus calc.	(1,189)	(1,979)	(637)	(1,156)	(351)	(112)	(740)	409
SCHOOL ADMINISTRATION								
Reaveraged CY 1990	6,014	5,597	4,950	4,634	4,331	3,076	5,333	1,540
Calculated FY 1992-93	6,213	5,796	5,149	4,833	4,530	3,275	5,532	1,739
Actual FY 1992-93	5,896	5,366	4,626	4,471	4,246	3,306	5,181	2,036
Actual FY 1992-93 minus calc.	(317)	(430)	(523)	(362)	(284)	31	(351)	297
OPERATIONS AND MAINTENANCE								
Reaveraged CY 1990	9,345	8,591	7,537	7,489	6,873	6,102	7,658	6,636
Calculated FY 1992-93	9,691	8,937	7,883	7,835	7,219	6,448	8,004	6,982
Actual FY 1992-93	8,532	9,592	7,977	7,617	7,647	7,212	8,542	6,447
Actual FY 1992-93 minus calc.	(1,159)	655	94	(218)	428	764	538	(535)
DISTRICT SUPPORT SERVICES								
Reaveraged CY 1990	11,881	10,121	8,236	7,618	8,910	10,081	12,055	12,001
Calculated FY 1992-93	12,258	10,498	8,613	7,995	9,287	10,458	12,432	12,378
Actual FY 1992-93	10,986	9,371	8,546	8,311	8,566	11,096	10,381	10,921
Actual FY 1992-93 minus calc.	(1,272)	(1,127)	(67)	316	(721)	638	(2,051)	(1,457)
REAVG. CY 1990 TOTAL UNIT VALUE	64,521	60,405	53,257	47,822	46,244	41,108	57,302	40,754
CALC. FY 92-93 TOTAL UNIT VALUE	72,420	68,002	60,265	54,025	52,241	46,354	64,198	45,850
ACTUAL FY 92-93 TOTAL UNIT VALUE	70,597	69,942	63,521	58,292	55,837	54,307	66,122	52,097
ACTUAL FY 92-93 MINUS CALC. FY 92-93	(1,823)	1,940	3,256	4,267	3,596	7,953	1,924	6,247

the outlying city category to the recreational category, effective with the 1991 budget year.

Results

As Table 20 indicates, differences exist between the actual fiscal year 1992-93 funding component values and the calculated fiscal year 1992-93 component values. Differences in how school districts reported data in 1986 and 1990 may be one reason for the differences. As mentioned above, 1990 expenditure data were used to reaverage the school finance act funding component values by current setting category. This data, provided by CDE, reflects actual audited 1990 expenditures as reported by school districts using the reporting requirements specified in the CDE *Financial Policies and Procedures Handbook*. The requirement that auditors ensure that school districts comply with the procedures outlined in the FPP handbook was included in the original 1988 legislation creating the school finance act. Thus, the 1986 actual audited expenditure data used to compute the original funding component values in the act may not have been reported as consistently as the 1990 data.

Differences may also exist because expenditure data is being compared to revenue data. The fiscal year 1992-93 actual and recalculated component values detailed in Table 20 reflects revenue provided to school districts under the school finance act, while the calculated fiscal year 1992-93 component values reflect a district's 1990 general fund expenditures, less governmental designated grant funds. In 1990, the total revenue provided to all school districts under the school finance act equalled $2,131.3 million, while total general fund expenditures by school districts, less governmental designated grant funds, equalled $2,235.5 million. Thus, revenue provided to school districts under the school finance act accounted for 95.3 percent of the expenditure base to which they are being compared – total statewide school district expenditures in 1990.

In addition, differences may also occur because of a phase in of the 1988 act. Under the act's phase in, some districts did not receive the full total program amount generated using the funding component values calculated in the act. Rather, districts were brought up to the full funding component amounts over a four-year period. Thus, the reaveraged funding component values calculated for 1990 may be based on lower expenditures than the 1990 funding component values would indicate, and thus may result in lower reaveraged fiscal year 1992-93 values relative to actual values for that year.

ENDNOTES

1 Please refer to section 22-53-105, C.R.S., for a listing of the districts assigned to each category.

2 Section 22-53-105(2), C.R.S.

3 Section 22-53-195(10)(b), C.R.S.

4 The number of teachers in a given district equals certificated personnel, minus administrators, principals, and vice principals as provided in *Certificated Personnel and Related Information Fall 1991*, Table 10, Colorado Department of Education.

5 Johns, Roe L. and Alexander, Kern, *Alternative Programs for Financing Education*, National Education Finance Project, 1971.

6 White, F. and Tweeten, L., "Optimal School District Size Emphasizing Rural Areas," *American Journal of Agricultural Economics*, 1973.

7 Verstegen, Deborah A., "Efficiency and Economies-of-Scale Revisited: Implications for Financing Rural School Districts," *Journal of Education Finance*, Fall 1990.

8 Teachers are defined as all classroom teachers excluding chapter 1 and 2 teachers and special education teachers.

9 Table 4 provides a more comprehensive list of criteria that may be used to indicate the presence of at-risk students. Table 5 contains a more detailed list of various characteristics of at-risk programs.

10 Isenhart and Bechard, *Dropout Prevention*, Education Commission of the States (undated), p. 2.

11 Cowhick, Tim, *Early Intervention Efforts*, ECS Survey of State Initiatives for Youth at Risk (undated), p. 2.

12 Teacher/student ratios have been found to correlate with the incidence of dropping out; dropout rates at schools with the most favorable teacher/student ratios were less than two-thirds as great as among schools with the worst ratios. *Dropouts in America, Enough is Known for Action*, Hahn, Danzberger, and Lefkowitz, Institute for Education Leadership, March 1987, p. 13.

13 Rumberger, Russell W., *High School Dropouts: A Problem for Research, Policy, and Practice*, Stanford Education Policy Institute, School of Education, Stanford University, September 1986, pp. 15-16.

14 Lindner, Barbara, *Family Diversity and School Policy*, Education Commission of the States, December 1987, p. 6.

15 Dougherty, DeLone, and Odden, *Current Practice: Is It Enough?*, Education Commission of the States, June 1989, pp. 17-20.

16 *Dropout Prevention*, p. 1.

17 *Securing Our Future: The Report of the National Forum for Youth At Risk*, Education Commission of the States, September 1988, p. 49.

18 The discussion in this section was drawn from Sherman, Joel, *Strategies for Financing State Dropout Programs*, Pelavin Associates, Inc. Prepared for the Consortium on Education and Employment Initiatives for Dropout-Prone Youth and the Education Commission of the States, 1987.

19 *Dropouts in America*, p. 20.

20 *Ibid.*, p. 16.

21 "The Parent Principle: Prerequisite for Educational Success," *Phi Delta Kappan*, December 1990, p. 13.

Ekstrom, *et al.*, "Who Drops Out of High School and Why? Findings from a National Study," *Teachers College Record*, Vol. 87, No. 3, Spring 1986, pp. 370-1.

Keating and Oakes, *Access to Knowledge: Breaking Down School Barriers to Learning*, Education Commission of the States, August 1988, p. 4.

22 S. Rep. No. 2458, 81st Cong., 2d Sess. 1 (1950).

23 20 USCS 237(a).

24 34 CFR 222.97.

25 20 USCS 238 *et seq.*

26 20 USCS 238(d)(3).

27 20 USCS 240(f).

28 34 CFR 222.70, *et seq.*

29 20 USCS 238(e).

30 Section 22-42-104 *et seq.*, C.R.S.

31 "Public Law and State Equalization Plans: The Problems of the Legislative Prohibition of Section 5(d)(2)," Committee on Education and Labor, House of Representatives, March 1974, p. 4.

32 Elementary and Secondary Education Amendment of 1966, House Report 1814, p. 36.

33 *Shepeard v. Godwin* (1968, ED Va) 280 F Supp 869.

34 22 USCS 240(d)(2).

35 34 CFR 222.66.

36 34 CFR 222.62.

37 Section 22-32-117(2), C.R.S.

38 Section 22-32-110(1)(o), C.R.S.

39 1 CCR 4-4 (301.0).

40 Section 22-32-109(1)(u), C.R.S.

41 Colo. 553 P.2d 784 (1976).

42 Section 22-33-103, C.R.S.

43 Section 22-32-118, *et seq.*, C.R.S.

44 Section 22-32-113, *et seq.*, C.R.S.

45 Section 22-32-113(5), C.R.S.

46 *Financial Policies and Procedures Handbook*, Colorado Department of Education, p. 106.

47 Colo., 516 P.2d 629 (1973).

48 Prior to 1991, school districts were required to apportion specific ownership revenues to each fund with a mill levy (i.e., general fund or bond redemption fund). However, that requirement has since been replaced with a permissive statement on apportioning specific ownership revenue to each fund with a mill levy, according to *Financial Policies and Procedures Handbook* (Colorado Department of Education). Therefore, the data in this discussion reflect the combination of all specific ownership taxes distributed to school districts, regardless of the fund to which they were apportioned.

49 Section 22-53-117(1)(b), C.R.S.

50 District support services includes expenditures for instructional staff, general administration, pupil transportation, food services, central support, and other business and support services.

51 The Colorado Department of Education *Financial Policies and Procedures Handbook* defines governmental designated purpose grants as "grants received from federal, state, or local governments to be used for a specific purpose. Examples are Chapter I, Exceptional Children's Educational Act (ECEA), vocational education."

52 The universe of teachers used for the average salary computation was all classroom teachers, excluding Chapter 1 and 2 and special education.

APPENDIX

22-53-105.5. Study of setting categories. (1) The legislative council shall conduct a study of the setting categories for school districts established in section 22-53-105 for purposes of this part 1. Said study shall:

(a) Evaluate the categorization of each school district to determine if such school district is in the appropriate setting category;

(b) Examine the factors used in the establishment of the setting categories, as set forth in section 22-53-105 (1), and make recommendations as to whether the use of such factors constitutes a reasonable basis for distinguishing between school districts for school finance purposes and whether there should be any modifications made to the factors so considered; and

(c) Examine the characteristics of the current setting categories, as set forth in section 22-53-105, and make recommendations as to whether said characteristics are appropriate for distinguishing between school districts for school finance purposes and whether there should be any modifications made to said characteristics.

(2) For purposes of determining characteristics of each school district pursuant to subsection (1) of this section, the legislative council shall utilize:

(a) Digitized census data from the bureau of the census, United States department of commerce, including, but not limited to: Levels of income; the number of single-parent households; housing values; the dominant language spoken in households; the level of educational attainment of parents; age stratification; and housing costs; and

(b) Data regarding reduced and free meals provided pursuant to the "National School Lunch Act", 42 U.S.C. sec. 1751 et seq.

(3) As part of the study, the legislative council shall conduct an analysis of:

(a) Additional funding sources available to school districts in each setting category; and

(b) The per pupil operating costs of school districts in each setting category.

(4) The legislative council shall conduct the study within existing appropriations and shall report its findings made pursuant to this section to the general assembly no later than December 1, 1992.

METHODOLOGY

The setting category study was conducted using a computer mapping system containing census geographic boundaries established by the U.S. Bureau of the Census. Colorado school district boundaries, provided by the Colorado Division of Local Government, were loaded onto the system as the foundation of the database used to conduct the study. Following specification of the school district boundaries on the mapping system, selected census data were loaded onto the system, providing an opportunity to analyze census data at the school district level. However, the preparation of the database involved certain adjustments which are outlined below.

Differences in Geographical Databases for School District Boundaries and Census Geography

School district boundaries provided by the division of local government are based on geography consisting of a fixed set of lines running parallel to latitude and longitude lines (i.e., north-south and east-west) known as township and range. The U.S. Bureau of the Census uses natural geographical boundaries including roads, rivers, and mountains to define tracts, block groups, and blocks in the state. In many cases, these differing geographical databases are inconsistent. As mentioned previously, the computer mapping system used in this study contains only the census geographic boundaries but allows for a comparison of this geography with Colorado's actual school district boundaries.

In order to represent Colorado's school district boundaries as closely as possible, any census block (the smallest geographical unit defined by census) that was located in more than one school district was placed in the district containing the largest geographical portion of the block. Several districts are drawn as non-contiguous districts in order to capture all of the census geography which is located wholly within the boundaries of each school district.

Disaggregation of Certain Census Data

As mentioned above, the census bureau has defined geographical areas or "units" for collecting data. The smallest unit of geography used by the census bureau is the "block." Census blocks are generally bounded by streets, rivers, and other visible features. Blocks make up all other geographical units used by the census bureau, including block groups, tracts, census designated places (incorporated cities and towns), counties, and states. Census data used in this study are taken from computer Summary Tape File 1 (STF 1) and Summary Tape File 3 (STF 3). STF 1 census information was obtained from all persons and is available by the block level. STF 3 çensus information was obtained from a sample of the total population and is only available at the block group level.

Since STF 3 data is available only at the block group level and many school districts split block groups, it was necessary to disaggregate the data to the block level. STF 3 data was distributed to the block level using the proportion of population in each block to the total population of the block group. For each block group (which might include parts of more than one different school district), data from STF 3 was assigned to blocks within that group based on the percentage of the population of the block in relation to the total population of the block group. Therefore, each percentage of the block group's population was assigned a percentage of the total number of households in the block group.

CENSUS DATA

Much of the data used in the conduct of the setting category study was obtained from the 1990 census. Proxies for cost of living and concentration of at-risk children were calculated using "Census of Population and Housing, 1990: Summary Tape File 1 (STF 1) and Summary Tape File 3 (STF 3)." Census data were derived from questions asked of the entire population and from questions asked only a sample of the population. STF 1 contains data from the short-form census questionnaire consisting of questions asked of the entire population. STF 1 provides 100-percent data for population (age, race, sex, marital status, Hispanic origin, household type, and household relationship) and housing (occupancy/vacancy status, tenure, units in structure, contract rent, meals included in rent, value, and number of rooms in housing unit).

Approximately 17.7 million housing units received the long-form of the census questionnaire consisting of the same questions asked in the short-form as well as questions relating to social and economic characteristics of the population, and more comprehensive questions regarding housing. Since the long form was given only to a sample of housing units, the following sampling rates were used:

- housing units in governmental jurisdictions, such as counties and incorporated places, with an estimated population of fewer than 2,500 in 1988 were sampled at a rate of 1 in 2;
- jurisdictions having an estimated 1988 population of 2,500 or more were sampled at a rate of 1 in 6, except for very populous census tracts and block number areas that were sampled at 1 in 8.

STF 3 contains sample data weighted to represent the total population. It also contains 100-percent counts and unweighted sample counts for total persons and total housing units. Following is a description of census data used in determining particular data for the study.

COST OF LIVING

Four factors were used as proxies for cost of living in determining economic regions in the state: average monthly rent, average housing value, average household income, and average monthly cost of home ownership. Each of these factors were derived from census data as described below.

AVERAGE RENT (STF 1, elements H32 and H33)

$$\frac{\text{AGGREGATE CONTRACT RENT FOR SPECIFIED RENTER-OCCUPIED UNITS}}{\text{SPECIFIED RENTER-OCCUPIED UNITS PAYING CASH RENT}}$$

Average rent is calculated using the aggregate contract rent paid in specified renter-occupied housing units paying cash rent divided by the number of specified renter-occupied housing units, excluding those households considered to be paying "no cash rent." Specified renter-occupied housing units are all occupied housing units which are not owner-occupied whether they are rented for cash rent or occupied without payment of cash rent. "No cash rent" units are separately identified and are usually provided free by friends or relatives, or in exchange for services. Housing units on military bases also are classified in the "no cash rent" category. Contract rent is the monthly rent agreed to or contracted for, regardless of any furnishings, utilities, fees, meals, or services that may be included.

AVERAGE HOUSING VALUE (STF 1, elements H23 and H24)

$$\frac{\text{AGGREGATE VALUE OF SPECIFIED OWNER-OCCUPIED UNITS}}{\text{SPECIFIED OWNER-OCCUPIED HOUSING UNITS}}$$

Average housing value is calculated by dividing the aggregate value of specified owner-occupied housing units by the number of specified owner-occupied housing units. Owner-occupied housing units are occupied by the owner or co-owner and are considered owner occupied even if mortgaged or not fully paid for. Specified owner-occupied housing units include only one-family houses on less than 10 acres without a business or medical office on the property. The data for "specified " units exclude mobile homes, houses with a business or medical office, houses on 10 or more acres, and housing units in multi-unit buildings. Housing value is the respondent's estimate of how much the property (house and lot) would sell for if it were for sale.

AVERAGE HOUSEHOLD INCOME IN 1989
(STF 3, elements P80 and P81)

AGGREGATE 1989 HOUSEHOLD INCOME
HOUSEHOLDS

Average household income is calculated using the aggregate household income in 1989 divided by the number of households. A household includes all the persons who occupy a housing unit (house, apartment, mobile home, group of rooms, or a single room occupied as a single living quarters). Household income includes the income of all persons 15 years old and older in the household, whether related to the householder or not. Income reported in the census includes:

- Wage or salary income: total money earnings received for work during 1989.
- Nonfarm self-employment income: net money income (gross receipts minus expenses) from one's own business, professional enterprise, or partnership.
- Farm self-employment income: net money income (gross receipts minus operating expenses) from the operation of a farm by a person on his or her own account, as an owner, renter, or sharecropper.
- Interest, dividend, or net rental income: interest on savings or bonds; dividends from stockholdings or membership in associations; net income from rental property to others and receipts from boarders or lodgers; net royalties; and periodic payments from an estate or trust fund.
- Social security income: social security pensions and survivors benefits; and permanent disability benefits prior to deductions for medical insurance and railroad retirement insurance.
- Public assistance income: supplemental security income payments made by federal or state welfare agencies to low income persons who are aged, blind, or disabled; aid to families with dependent children; and general assistance.
- Retirement or disability income: retirement pensions and survivor benefits; disability income; periodic receipts from annuities; and regular income from IRA and KEOGH plans.
- All other income: unemployment compensation, VA payments, alimony and child support, contributions received periodically from persons not living in the household, military family allotments, net gambling winnings, and other kinds of periodic income other than earnings.

Income reported does not include the value of food stamps, public housing subsidies, medical care, employer contributions for pensions, withdrawal of bank deposits, money borrowed, tax refunds, gifts and lump sum inheritances, insurance payments, and other lump sum receipts.

AVERAGE COST OF HOME OWNERSHIP
(STF 3, elements H53, H56, H57, H52, H22, and H7)

$$\frac{\text{AGGREGATE SELECTED MONTHLY OWNER COSTS FOR OWNER-OCCUPIED HOMES, MOBILE HOMES, AND CONDOS}}{\text{NUMBER OF OWNER-OCCUPIED MOBILE HOMES, CONDOS AND SPECIFIED HOUSING UNITS}}$$

Average cost of home ownership is calculated by dividing the aggregate selected monthly owner costs for specified owner-occupied housing units, mobile homes, and condominiums by the number of owner-occupied mobile homes, condominiums, and specified housing units. Selected monthly owner costs are the sum of payments for: mortgages, deeds of trust, contracts to purchase, or similar debts on the property; real estate taxes; fire, hazard, and flood insurance on the property; utilities including electricity, gas, and water; and fuels (oil, coal, kerosene, wood, etc). Also included are monthly condominium fees and mobile home costs including personal property taxes, site rent, registrations fees, and license fees, where applicable. Owner-occupied housing units are occupied by the owner or co-owner and are considered owner occupied even if mortgaged or not fully paid for. Specified owner-occupied housing units include only one-family houses on less than 10 acres without a business or medical office on the property.

AT RISK

Three factors were used to compute an at-risk index for school districts. These factors – percent of children living in poverty, percent of adults without a high school diploma, and percent of children who do not speak English – are described below.

PERCENT OF CHILDREN FROM 5 TO 17 LIVING IN POVERTY
(STF 3, element P118)

$$\frac{\text{CHILDREN AGE 5 TO 17 CLASSIFIED AS "BELOW POVERTY LEVEL"}}{\text{TOTAL CHILDREN 5 TO 17 FOR WHOM POVERTY LEVEL WAS DETERMINED}}$$

The percent of children age 5 to 17 living in poverty is calculated by dividing the number of children age 5 to 17 classified as "below the poverty level" by the total number of children in households reporting income which was evaluated for above or below poverty level.

Poverty status is derived from 1989 income data. Poverty statistics provided in census documents are based on a definition originated by the Social Security Administration in 1964 and modified in 1969 and 1980. The census bureau used a set of 48 thresholds arranged in a matrix consisting of family size (from 1 to 9 persons) cross-classified by a presence and number of family members under 18. The average poverty threshold for a family of four persons was $12,674 in 1989. The thresholds are revised annually to allow for changes in the cost of living as reflected in the Consumer Price Index. The total income of each family or unrelated individual is tested against the appropriate poverty threshold. If the reported income is below the income for the appropriate threshold a household is classified as "below the poverty level." Age is based on the age of the person in complete years as of April 1, 1990.

PERCENT OF PERSONS 18 YEARS OLD AND OLDER WITHOUT A HIGH SCHOOL DIPLOMA (STF 3, element P60)

$$\frac{\text{PERSONS 18 AND OLDER WITHOUT A HIGH SCHOOL DIPLOMA}}{\text{ALL PERSONS 18 AND OLDER REPORTING LEVEL OF EDUCATION}}$$

The percentage of persons 18 and older without a diploma is calculated by dividing the total number of persons reporting not having received a diploma by the total number of persons responding to the educational attainment question. Data on educational attainment used for this element was a sample of the universe of all persons age 18 or over, based on an age to the nearest year on April 1, 1990. Those respondents without a high school diploma were all those responding as having completed less than the 9th grade, or having completed the 9th to 12th grade but not having received a diploma. High school graduates include those who have received an equivalency certificate.

PERCENT OF CHILDREN 5-17 WHO SPEAK ENGLISH "NOT WELL" OR "NOT AT ALL" (STF 3, element P28)

$$\frac{\text{NUMBER OF CHILDREN AGE 5 TO 17 WHO SPEAK ENGLISH "NOT WELL" OR "NOT AT ALL"}}{\text{ALL CHILDREN AGES 5 TO 17 REPORTING ABILITY TO SPEAK ENGLISH}}$$

The percent of children age 5 to 17 who speak English "not well" or "not at all" is calculated by dividing the number of children age 5 to 17 who were reported to speak English "not well" or "not at all" by the total number of children for which ability to

speak English was reported. The data on ability to speak English is the person's own perception about how well they speak English and, in cases where one householder fills out the census questionnaire, the response may represent the householder's perception of another household member's ability to speak English.

CLUSTER ANALYSIS

Cluster analysis forms groups of similar objects. Clusters are formed by grouping districts into larger and larger clusters until all districts are in a single cluster. The first two cases that are combined have the smallest distance (greatest similarity) between them. The clustering method used is called the average linkage between groups. It defines the distances (similarities) between pairs of clusters as the average of distances (similarities) between all pairs of cases between the clusters. Thus, it uses all information available about the relationship between the cases (districts). Prior to clustering, the data are standardized to equalize the effects of variables measured in different scales. The data are standardized to Z scores, with a mean of zero and a standard deviation of one. A Z score subtracts the mean from each value and divides by the standard deviation of all values. The measure used to calculate the distance between the data in the districts (the measure of similarity) is the Squared Euclidean distance measure, which is essentially the sum of the squared distance between the values. Specifically, the Squared Euclidean formula is as follows:

$$\text{Distance } (X,Y) = \sum_i (Xi - Yi)^2$$

Where X_i and Y_i are school district specific observations for a given variable.

Statistical Methods Used To Determine Lines Of Best Fit

Lowess is a statistical smoothing method that employs weighted least squares to fit a curve to a scatter plot. To start, an *x*-value on the scatter plot is chosen as the point of interest to which a *y*-value will be matched for the lowess curve. Next, the user establishes a percentage of the total points on the plot that will be used to create a range around the point of interest. So, if there are 40 points on the scatter plot and the user chooses 50 percent, then the 20 nearest points, as measured by their distance along the *x*-axis from the point of interest, would be used. Weights are then assigned to the points being used, with the nearest point to the *x*-value of interest receiving the highest weight and the furthest point receiving the lowest weight. A line is then fit by weighted least squares to the points being used. The *y*-value for the point on the fitted line that corresponds to the chosen *x*-value is then used as the *y*-value for the lowess curve at that *x*-value. At this time, one *x*,*y*-point on the lowess curve has been found. A new *x*-value is chosen, and the process is repeated until the entire lowess curve has been created.

Example:

Graph 20 illustrates the steps used to find one x,y point for the fitted lowess curve. There are 20 points in the scatter plot and 50 percent of the points will be used at any one time. In step 1, the point x_6 has been chosen as the point of interest. The ten closest points (50 percent of 20) to x_6 along the x-axis are isolated as the points that will be used to draw the fitted line. Step 2 assigns a weight function to the points so that the points closest to x_6 receive the most weight and those points outside of the range receive no weight. The weight given to a point is the height of the curve at x_i in the lower left panel. The following are the important features of the weight assignment:

1. The point at x_6 has the largest weight.
2. The weight function decreases smoothly as x values are further away from x_6.
3. The weight function is symmetrical around x_6.
4. The weight function declines to zero as x reaches the 50 percent boundary.

The formula used to find the weight t_i for the specific point (x_k,y_k) when computing a smoothed value at x_i is:

$$t_i(x_k) = T((x_i - x_k) / d_i)$$

Where:

x_i = the x-value that has been chosen as the point of interest.

d_i = the distance from x_i to its qth nearest neighbor along the x-axis. Where q is f_n rounded to the nearest integer and f is approximately the fraction of points to be used in the computation of the fitted value (50 percent in this case).

(x_k,y_k) = the coordinates of the point which is being weighted.

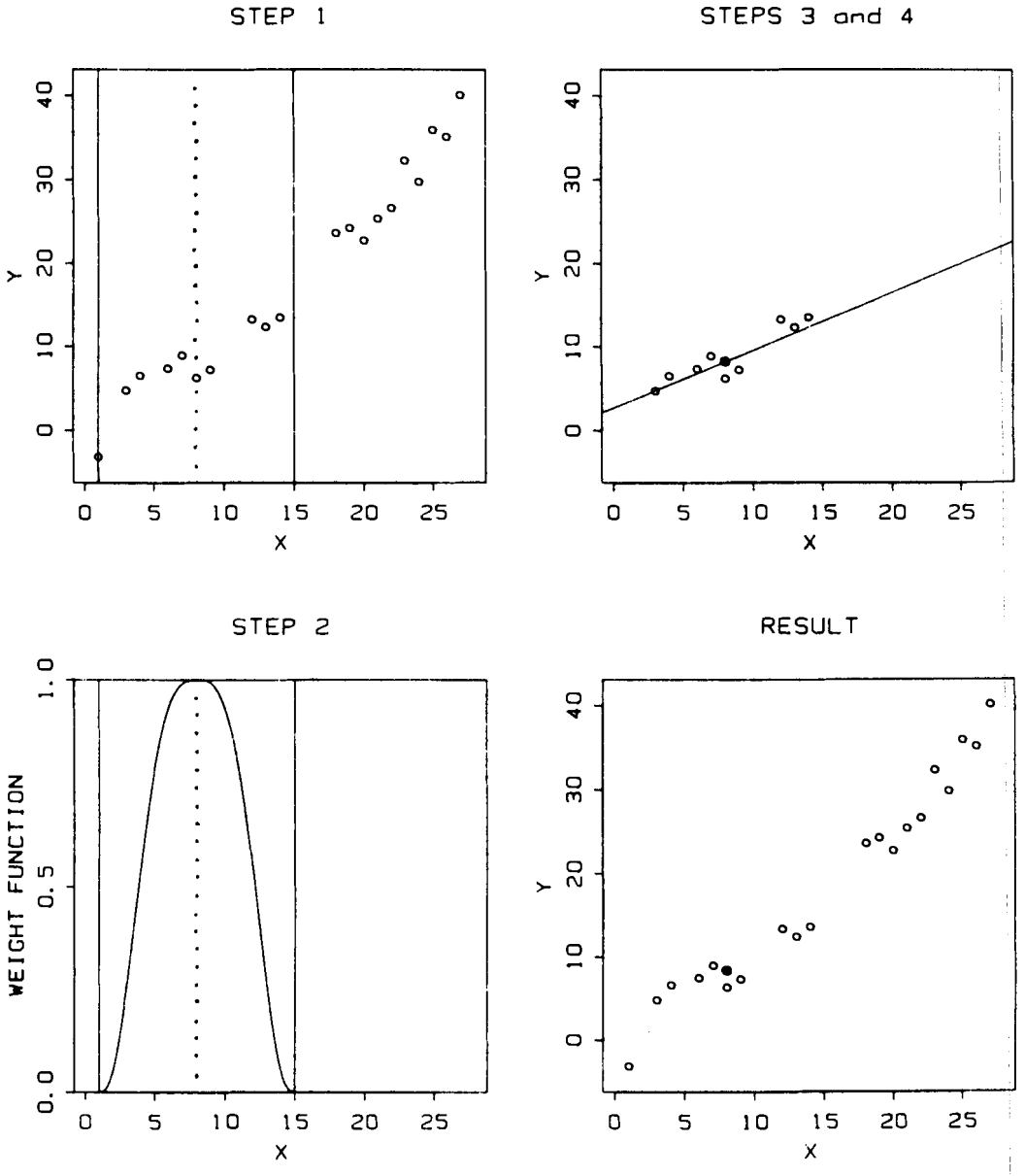
And, where the functional form of T is:

$T(u)$ = $(1 - |u|^3)^3$ for $|u| < 1$ and $T(u) = 0$ otherwise (the tricube weight function).

After the weights are assigned, a line is fit to the points on the scatter plot that have been isolated (50 percent of the values closest to x_i). The fitted line describes in a linear way how y depends on x within the interval. Steps 3 and 4 show the points within the 50 percent interval along with the fitted line. The fitted value for the lowess curve

is defined to be the value of the fitted line at $x = x_6$. This point has been added to the scatter plot and is the solid point on the line. The process is repeated for every x value until all of the points for the lowess curve have been found.

The four panels depict the computation of a smoothed value at x_6, using neighborhood weights.



Outliers

Outliers are accounted for by an iterative process that reassigns weights according to the residuals created from the original fitted values. The residual is the vertical difference between the actual points on the scatter plot and the created points on the lowess line. The formula for finding the residuals is:

$$r_i = y_i - i$$

Where:

r_i = the residual value.

y_i = the actual y value on the scatter plot.

i = the y value on the lowess line.

An outlier will be farther from the lowess line than a non-outlier and will therefore have a higher residual. Points with higher residuals receive less weight in future iterations. New lowess lines are created for each iteration, and in the process the line is smoothed so the effects of the outliers cannot be seen due to the lower weights the outliers received with each iteration.

STANDARDIZATION OF VARIABLES

Comparing variables is difficult because of differing units of measurement, such as ounces and miles, or because of a lack of knowledge about the distribution of the variables. We do not know that a score of ninety on an exam is good unless we know how all of the other people who took the exam scored. If the 90 was the lowest score it may not be as good as we originally thought. In the case of varying units of measurement, a one unit change in the number of ounces of pop one drinks may not be as important relative to a one unit change in the number of miles one walks. One way to circumvent this problem is to standardize the variables and look at only the relative differences between them. The standardized value of a variable, sometimes called the Z-score, indicates how many standard deviations above or below the mean an observation falls. The Z-score of each element is obtained by subtracting the mean from every element in the series and then dividing the difference by the standard deviation of the series. The resulting series has a mean of 0 and a standard deviation of 1. In this manner, a series is examined by its relative distance from the mean rather than by its unit measurement.