The Structure of State Aid to Elementary and Secondary Education

U.S. Advisory Commission on Intergovernmental Relations

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Executive Summary

Overview

Elementary and secondary education is the single most significant publicly provided service, in terms of budget size, for state and local governments. The fiscal importance of education alone is sufficient grounds for continuing interest in the arrangements that govern its provision, but the unique role education plays in the social and economic development of the nation also serves to keep it at the forefront of the public policy arena.

During the past two decades, the issue of equity in school finance has been hotly debated in the courts and legislatures of many states. The key question underlying this debate is: Are the educational opportunities available to children in poor school districts equivalent to and competitive with those available to children in wealthy school districts? If not, then what is the obligation of state governments to provide additional assistance to poor districts so as to ensure that every child will have access to a quality education?

While interest in equity remains intense in many quarters, there is now even greater public focus on education quality. Stated succinctly, the current questions are: Are public schools doing a sufficiently good job of educating our youth? If not, what types of policies will be required to improve elementary and secondary schools?

Answering these questions is difficult. It is a complex task to assess how the fiscal decisions made by state legislatures, state departments of education, local education authorities, and, ultimately, individuals, in their roles as consumers of education services and as voters, interact to determine how much money any school district will spend, and how the money will be spent? For example, public officials might wonder whether increasing state aid-perhaps to provide incentives to improve math and science education-will result in (1) the implementation of new initiatives, (2) greater expenditures on existing programs, or (3) a reduction in local taxes offsetting the increased aid.

In many instances, at the same time that public officials are deliberating questions of this kind, academic researchers are addressing the same issues. However, the information to be derived from this research often does not fmd its way into public policy decisionmaking. One reason for this is that the framework within which these Studies are cast is often unfamiliar to anyone without recent training in a particular research methodology For example, economic studies, such as that reported here, typically assume that households make decisions regarding alternative goods and services based on the prices they must pay for those goods and services.[2] The need to provide public goods and services through group decisionmaking processes, especially where multiple items are included in a government budget, makes it difficult to determine tax-prices for goods and services, such as education. In order to get a handle on this, analysts "build" technical and detailed mathematical and statistical "econometric" models that are designed to separate out the various factors individual consumer-voters will consider in making their decisions regarding the level and quality of public services they will 'buy."

Another reason why it can be difficult to apply academic research to questions facing policymakers arises from uncertainty about the transferability of results. Most studies of the determinants of local school spending decisions use data from an individual state for empirical analysis. Substantial diversity exists across states, however, in the institutions that govern elementary and secondary school finance. As a rule, it is not readily apparent how well the results based on one state's institutional structure will apply elsewhere. Moreover, researchers examining school finance issues in a state often have little knowledge as to how typical or atypical the institutions in that state are.

This report analyzes the intergovernmental relationships in the public financing of elementary and secondary education in the United States, focusing especially on the effects that state aid programs have had on local school district spending decisions. The

aim of the report is threefold: (1) to provide general information about trends in elementary and secondary school finance; (2) to provide information about the different state institutional arrangements for financing schools; and (3) to illustrate the role that state aid plays in econometric models of local school spending decisions, so that policymakers will be able to make better use of empirical research results.

It is important also to note a very important issue that this report does not address directly, that is, what public policy measures might improve the quality of education. This issue is simply beyond the scope of this report. However, the analysis developed here is useful for evaluating and implementing proposed initiatives for education reform, especially those that involve fii incentives that state governments might provide in an attempt to influence the performance of local schools.

Elementary and Secondary School Expenditures

The first section of the report focuses on trends in aggregate spending on K-12 public schools from 1960 through 1987 for the United States as a whole and for each of the 50 states. For the United States, spending per pupil measured in real dollars (adjusted for inflation) increased at an annual rate of 4.0 percent, almost twice the annual increase in gross national product over the same period. The pattern of this growth was 5.3 percent annually from 1960 to 1970, 3.4 percent annually from 1970 to 1980, and 3.1 percent annually from 1980 to 1987. Annual growth rates for states over this period ranged from a low of 2.6 percent for Utah to a high of 5.3 percent for New Jersey.

Over this 27-year period there was a modest trend toward equalization in average spending per pupil. That is, spending grew at a somewhat faster annual rate in states where the initial level of spending was lower. The trend toward equalization was greatest from 1960 to 1970, when the per pupil spending growth rate was also greatest. The evidence also suggests that as much as one-fourth of the variation in average per pupil spending across states that remained at the end of the 27 years can be explained by interstate differences in the cost of providing education services.[3]

Public School Revenues

Elementary and secondary schools receive most of their funds from state and locally raised revenues; the federal government provides only about 6 percent of the revenues used to finance K-12 public education. A major shift over the past quarter-century has been a reversal in the relative importance of state and locally generated revenues as a share of elementary and secondary school funding sources. States, in general, now provide almost 53 percent of the combined state-local share, whereas 25 years ago, locally raised revenues accounted for about 60 percent of the combined total. A major reason for this shift has been an increase in the level of state funding, primarily to low-wealth districts, in response to concern about equity.

By examining in detail the revenue sources on which states and school districts levy taxes to finance elementary and secondary schools, the report identifies two features that are critical to understanding the decisionmaking process that governs the provision of this service. First, while state governments raise funds that are earmarked for K-12 schools from a wide variety of sources, almost without exception, the earmarked funds are supplemented by appropriations from state general funds. The general fund appropriations of state legislatures are called ***additional*** dollars in this report. Second, while local governments also tax a variety of revenue sources for locally raised funds, ***additional*** dollars to increase the level of education services are raised principally through an ad valorem levy on property.

State Aid Programs

The major focus of this report is on current state aid programs and how they affect the level of spending in different school districts. The report devotes a reasonable amount of technical analysis to developing a framework suitable for examining this question. The analysis demonstrates that state aid programs affect local spending decisions through the way in which they affect consumer-voter choices regarding the trade-off between additional spending on public schools and the consumption of other goods and services. Moreover, state aid programs affect consumer-voters in one of two ways. They either increase the individual's overall purchasing power—that is, they provide an "income effect"-or they lower the price of providing an additional dollar's worth of school spending per pupil (the tax-price) relative to the price of other goods and services-that is, they provide a "price effect."

The traditional classification of state aid to local school districts distinguishes between ***foundation*** programs and ***power equalization*** programs.

A foundation program is a state-guaranteed minimum level of expenditures per pupil; the state will make up the difference between the guaranteed minimum level of per pupil expenditures (the foundation) and the per pupil revenues generated by the local district from its own sources.[4]

Power equalization programs provide minimum revenues per pupil for any given tax rate guaranteed by the state. Two variants of power equalization programs are the "guaranteed tax yield" (GTY) and the "guaranteed tax base" (GTB). Under a GTY program, local school districts set their own tax rate;

the state makes up the difference between the revenues generated by the local government and the state-determined minimum yield, at that tax rate. Under a GTB program, the state determines a minimum tax base per pupil. As with the GTY program, local school districts set their own tax rate; the state makes up the difference between the revenues generated by the local school district from applying that rate to its tax base and the revenues that would have been generated if the local school district had the guaranteed tax base.' For all practical purposes, both power equalization programs are identical.

A "pure" foundation program provides households with an income effect only, while a "pure" power equalization program results only in a price effect. A careful examination of existing state aid programs, however, reveals that formulas used to allocate state funds for the most part do not correspond neatly to the "pure" form of either of these traditional classifications. Most state aid programs attempt to address a variety of special circumstances that arise in the public financing of K-12 education, and to do so they often must modify substantially the simple versions of these classifications.

The report examines several variations of the two basic classifications and analyzes how these more complicated versions affect (1) the trade-offs between school spending and the consumption of other goods and services and (2) local spending decisions through the income and price effects that they exert on consumer-voters. With these variants, state aid programs can sometimes result in both income and price effects. In some cases, state aid can result only in income effects in some districts and only price effects in other districts, depending on the level of spending per pupil selected by the district. As part of this analysis, the report discusses where different states fall in this more complicated classification scheme.

The most important conclusion that can be derived from the analysis developed in this report is that in order to make informed judgments about how any state aid program affects the levels of spending across school districts, it is necessary to analyze information about (1) how the program affects consumer-voter choices; (2) the distribution of the values of the economic parameters for consumer-voters; and (3) the political institutions that govern the way in which consumer-voter demands affect school district spending levels. As the report documents in detail, each of these factors can vary signifiintly across states.

NOTES

'Households with children attending the public schools within a community are the direct beneficiaries of public education services, i.e., the "consumers" of education services. In addition, adult members of the households, regardless of the number of children in the public schools, vote for the size of the school budget, either directly through referenda or indirectly by voting for representatives who decide the school budget; i.e., they are the "voters" on public school funding. Throughout this report, the terms individual, household, and consumer-voter are used interchangeably.

[2] In the case of publicly provided services, such as education, the relevant price is called the "tax-price" by economists. The tax-price is defined as the change in a consumer-voter's tax liability associated with a change in the amount of publicly provided goods and services. The tax-prices of households depend on household characteristics and on public policies, such as tax law and intergovernmental aid.

[3] The term "cost" refers to interstate differences in the prices of inputs used to produce education services—predominantly labor. Expenditures per pupil for each state, in each time period, were adjusted by a specially constructed index of labor costs. The cost-adjusted expenditures reflect more closely actual interstate differences in the level and quality of education services provided. For a more detailed description of the cost index, see Advisory Commission on Intergovernmental Relations, *Representative Expenditures: Addressing the Neglected Dimension of Fiscal Capacity,* by Robert W. Rafuse, Jr. (Washington, DC, 1990).

'In some cases, the state will require a minimum local effort to qualify for aid. For example, local school districts must levy a statedetermined tax rate on property within the district. If the per pupil property tax yield, at the state-determined rate, is less than the foundation level, the state will make up the difference. Thus, districts with relatively low tax bases per pupil will receive more state aid than those with relatively higher tax bases. In some states, the foundation level is fully funded by the state.

[5] If the tax base or tax yield per pupil within a school district is greater than the state-guaranteed level, the district usually receives no aid.

Preface and Acknowledgments

During the past two decades, constant dollar expenditures per pupil for K-12 public education have increased by 72 percent and the primary financial responsibility has shifted from local government (57 percent in 1971) to the states (nearly 53 percent by 1988). A major factor in these trends has been the state court decisions concerned with equity and equal educational opportunity. The courts responded to the inequality in states where the levels of school funding were tied to the property tax levies in jurisdictions with widely disparate amounts of property wealth.

Perhaps the best known and most influential of these court cases was the landmark California Supreme Court decision, *Serrano* v. Priest (1971). Holding that the "right to an education in public schools is a fundamental interest which cannot be conditioned on wealth," the court invalidated the state's existing system of school funding that relied heavily on local property taxes.

In a similar case (San Antonio Independent ***School District*** v. ***Rodriguez,*** 1973), the U.S. Supreme Court held that the Texas system of school finance did not violate the equal protection clause of the 14th Amendment to the United States Constitution. Although ***Rodriguez*** took the U.S. courts out of the educational finance debate (at least for the time being), it did not foreclose arguments that the system of education finance in a particular state may violate that state's constitution. The focus of school finance litigation then shifted back to the states.

Two aspects of the U.S. Supreme Court's *Rogriguez* decision led to a flurry of state court action. First, the court indicated that federalism concerns persuaded it to defer to state legislatures on the subject of state taxing and spending. Second, the court based its decision that education is not a "fundamental interest" for equal protection purposes on the fact that education is not afforded explicit or implicit protection in the U.S. Constitution. In contrast, most state constitutions direct the state to provide for a system of free education.

Between 1971 and 1983, challenges to the school finance system were heard by Supreme Courts in 17 states. The plaintiff's claims were rejected in ten states, but were upheld, at least in part, in the other seven states.

There were no rulings handed down between 1983 and 1989, but interest in education reform did not decline. Indeed, interest was heightened following the 1983 report of the National Commission on Excellence in Education, ***A Nation at Risk,*** which concluded that American education was failing by just about any measure-test scores, preparation for the workforce, teacher performance, or comparisons with other countries.

Several education reform packages were enacted in the states, most directed toward institutional reforms: increases in pay throughout the scale, as well as merit pay for teachers, higher standards for graduation, magnet schools, and various "choice" proposals designed to introduce a degree of competitiveness into the education system. Now, a new generation of reforms is emerging that places increased emphasis on student choice options (in Milwaukee's experiment, students may use vouchers to attend private schools) and decentralization of school management and curriculum decisions. In addition, there is a growing recognition that there is more to formal education than providing schooling. Thus, some attention is now being directed toward the relationship between students' academic performance and such factors as parental involvement and access to social services, including public safety.

The reforms of the 1970s and 1980s, at least to date, have been accompanied by more tax money and a larger state role in collecting that money. As more tax resources are directed toward K-12 public education, more attention is being paid to how the money is used. There are two reactions. The first is a widespread skepticism by the public that the money is being used effectively. A recent Gallup poll reported ***in State Policy Reports*** indicates that only 22 percent of

Americans believe public schools in their community have improved over the past five years; 30 percent believe things are worse.

The second reaction goes back to *Serrano*. The equity of school funding formulas is, once again, a prominent concern. Since 1989, the school finance systems in Kentucky, Montana, New Jersey, and Texas have been declared unconstitutional; decisions are pending in 12 states; and legal challenges are being contemplated in 9 states.

This information report brings these two developments-voter behavior and school finance reform—together. It provides data on current trends in school spending and sources of revenues for education. It explains the concept of equalization and characterizes the nature of the formulas used in the 50 states for equalizing school revenues, or more specifically, fiscal bases across all jurisdictions in the state. The link to political behavior is made by analyzing school funding from the twin viewpoints of how state aid programs affect the choices of voters and the implications of alternative school financing arrangements on per pupil spending across districts (i.e., the "equalization" effects).

The report concludes that the diversity in the 50 state systems makes nationwide generalizations about school finance difficult, and that the effect of a specific state aid program on fiscal equity will depend on how the program affects the economic position of citizens and the political institutions that determine voter influence on school district spending levels.

The difficulties of putting together school formulas, with acceptable tax packages to finance them, makes this business very complex. The recent (1990) lessons in Texas (where the court was ambiguous regarding the direction of required remedies) and New Jersey (where the decision requires massive increases in state aid to poor and medium-income districts) are instructive. Although both states appear to have satisfied the court requirements for school finance reform, the process has been marked by great political strain. In Texas, it took two legislative sessions and court appointment of a "tax master" whose job was to draw up a mandatory finance plan if the legislature failed. In New Jersey, initial voter reaction to increases in state taxes to restructure school financing may result in a legislative effort to reform the reform plan before it has even been put in place.

This information report was written by Vincent Munley, professor of Economics at Lehigh University and ACIR Visiting Scholar. The author wishes to express his appreciation to the following persons who provided expert advice and comment on this study: Henry Aaron, Stephen Barro, Robert Berne, William Colman, Elliott Dubin, Jerry Fastrup, James Fox, William Fowler, Margaret Goertz, Debra Inman, Marcia Howard, Harold Hovey, Jack Jennings, Larry MacDonald, Will Myers, Nancy Protheroe, John Shannon, Gregory Rest, Robert Rotz, Tom Tobin, and Carolyn Winters.

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Introduction

Overview

The quality of education in the United States has come to the forefront as a public policy issue. Falling scores on standardized national tests, the persistence of widespread functional illiteracy among large numbers of inner-city and rural residents, and fears that a workforce ill-prepared to deal with the technological requirements of modem industrial processes will inhibit the United States from improving its competitive position in world markets have led to a spate of critical reports and heightened public concern.' Coupled with a growing conviction that something dramatic must be done to improve the nation's education system is the reality that the current federal budget deficit will limit severely the extent to which new federal fiscal resources can be brought to bear on the problem. Thus, reform proposals will of necessity focus on what changes might be made to restructure the current school finance system in a way that will allow schools to improve the quality of education.

Certain features of the U.S. education system are noteworthy from the perspective of implementing change. First and foremost is that in most states the primary responsibility for providing basic education has traditionally rested with local governments. For the United States as a whole, the distribution of revenue sources for elementary and secondary schools is approximately 5 percent federal, 50 percent state, and 45 percent local. In terms of dollars, school finance represents by far the most important intergovernmental relationship between the state and local sectors. Equally significant is the diversity across the 50 states in the degree of decentralization that characterizes the way schools are financed and organized.[2]

Any reform effort intended to have widespread success clearly must accommodate the diverse intergovernmental relationships within which schools operate in the United States.

The purpose of this report is to examine the current status of the public finance systems used to provide public elementary and secondary education.

A particularly relevant consideration to any new reform initiative is that the U.S. education system is still in the process of working its way through two decades of major change. The 1976 *Serrano* v. *Priest*[3] decision in California marked the beginning of a series of state court cases that challenged the financial structure used to support elementary and secondary education in many places.[4] Together with widespread legislative initiatives, these cases led to a revision in the way most states disburse aid to local school districts. From distribution essentially on a per pupil basis, most state systems changed to some type of a program designed to direct a larger share of state money to lower spending, less wealthy districts, thereby increasing expenditures in an attempt to enhance educational opportunity in those districts. However, despite the considerable changes enacted in state aid programs, controversy continues over this issue. Appendix 3 contains a chronology of the school finance cases.[5]

Scope of the Report

A notable legacy of the equity round of school finance reform is a considerable body of research developed in several academic disciplines. The behavioral, fiscal, institutional, and political relationships that link school administrators, local school boards, state education departments, and state legislators are as complex as they are varied across the states. Success in designing and implementing further reforms obviously will depend on understanding these relationships. As policy proposals-such as merit pay for teachers, more stringent high school graduation requirements, and expanding parental choice with regard to which public school their children attend-receive widespread consideration, the task of synthesizing what has been learned and conveying this information to those responsible for developing new initiatives becomes imperative.

This report focuses on certain public finance

issues involved in the provision of elementary and secondary education in an attempt to provide information that will serve as useful input to discussions about education reform. The report does not evaluate the various reform proposals or deal with the difficult question of how dollars spent on public schools affect the quality of education. The latter issue is not well understood, despite the substantial research effort that has been directed at it.[6]

The report begins with an examination of recent trends in public school spending and the variation in spending levels across states. The following section examines how public school revenues are raised. An examination of state aid programs and how they affect individuals' choices regarding school spending decisions follows the discussion of public school revenue sources.

NOTES

[1] The mast frequently cited of these reports is National Commission on Excellence in E&cation. A *Nation at Risk: The Impemtive for Educational Reform* (Washington, DC, 1983).

[2] See also Frederick Wirt, "Does Control Follow the Dollar? Value Analysis, School Policy, and State-Local Linkages, " *Publius: The Journal of Federalism* 10 (Spring 1980): 69-88.

[3] 135 California Reporter 345 (1976).

[4] See also Richard Briffault, "Localism in State Constitutional *Law," Annals of the American Academy of Political and Social Science* 496 (March 1988): 117-27.

[5] At the time this report was prepared, cases challenging state aid programs were being litigated in Kentucky, New Jersey, North Dakota, and Texas.

[6] See Eric A. Hanushek, "The Economics of Schooling," *Journal of Economic Literature* 24 (September 1986), for a comprehensive review of this research. The relationship between spending for public schools and education outcomes was the focus of the conference on the Economic Consequences of American Education at Lehigh University, October 19-20, 1990, sponsored by Lehigh University, the U.S. Advisory Commission on Intergovernmental Relations, and the University Council for Education Administration.

1
A School District Expenditures

Aggregate Trends

In one sense, it may be surprising-perhaps even alarming-that while average scores on standardized exams have declined in recent years, the amount of resources dedicated to education has grown substantially (Figure 1). Expenditures per pupil for K-12 public schools in the United States have increased over the past quarter-century both in nominal terms (current dollars) and real terms (constant dollars, adjusted for inflation). For the United States as a whole, between the 1959-60 and the 1986-87 academic years, these expenditures increased in real terms at an annual rate of 3.8 percent. To put this growth rate in perspective, it is useful to note that during the same time period gross national product per capita, median family income, and worker productivity, as measured by output per hour in the entire business sector, increased in real terms at annual rates of 2.0 percent, 1.2 percent, and 1.8 percent, respectively.

Conclusions about what effect increased spending has had on educational output must be made with caution, however. This is because a substantial portion of these new resources has been directed at providing greater educational opportunity for special groups, such as handicapped individuals. Programs developed for these purposes often entail significant costs that do not necessarily have a large impact on the average scores of standardized national tests, such as SAT exams.

Table 1-A presents data on the pattern of education expenditures for states during the period 1959-60 to 1986-87. Columns (a) and (d) show the initial and final average expenditures per pupil; columns (b) and (c) show the figures at the end of each decade. All expenditure values are expressed in constant 1986-87 dollars. Column (h) presents the annual growth rate in real expenditures per pupil for the 27-year period. This rate ranged from a low of 2.6 percent in Utah to a high of 5.3 percent in New Jersey.

Analyzing the pattern of education expenditure increases across states and at different times during the period provides insight about the way in which this growth in spending occurred. Columns (e), (f), and (g) show the annual growth rates for the first decade, second decade, and the final seven-year period, respectively. For the United States as a whole, during those periods, the growth in spending slowed from 5.4 percent per year to 3.1 percent to 2.9 percent.

This pattern is interesting, in part, because of the two arithmetically distinct factors that can cause expenditures per pupil to rise over time. The first is an increase in school budgets in excess of any rise in enrollment. The second is a fall in enrollment accompanied by a rising, constant, or even more moderately declining budget. During the initial first decade, when real expenditures ***per pupil grew*** at the greatest rate, enrollment also grew at an annual rate of 2.4 percent. On the other hand, during the subsequent two periods of slower growth in real expenditures per pupil, enrollment ***declined*** at annual rates of 0.9 percent from 1969-70 to 1979-80 and 0.6 percent from 1979-80 to 1986-87. Thus, the greatest growth came from rapidly expanding budgets in the 1960s.

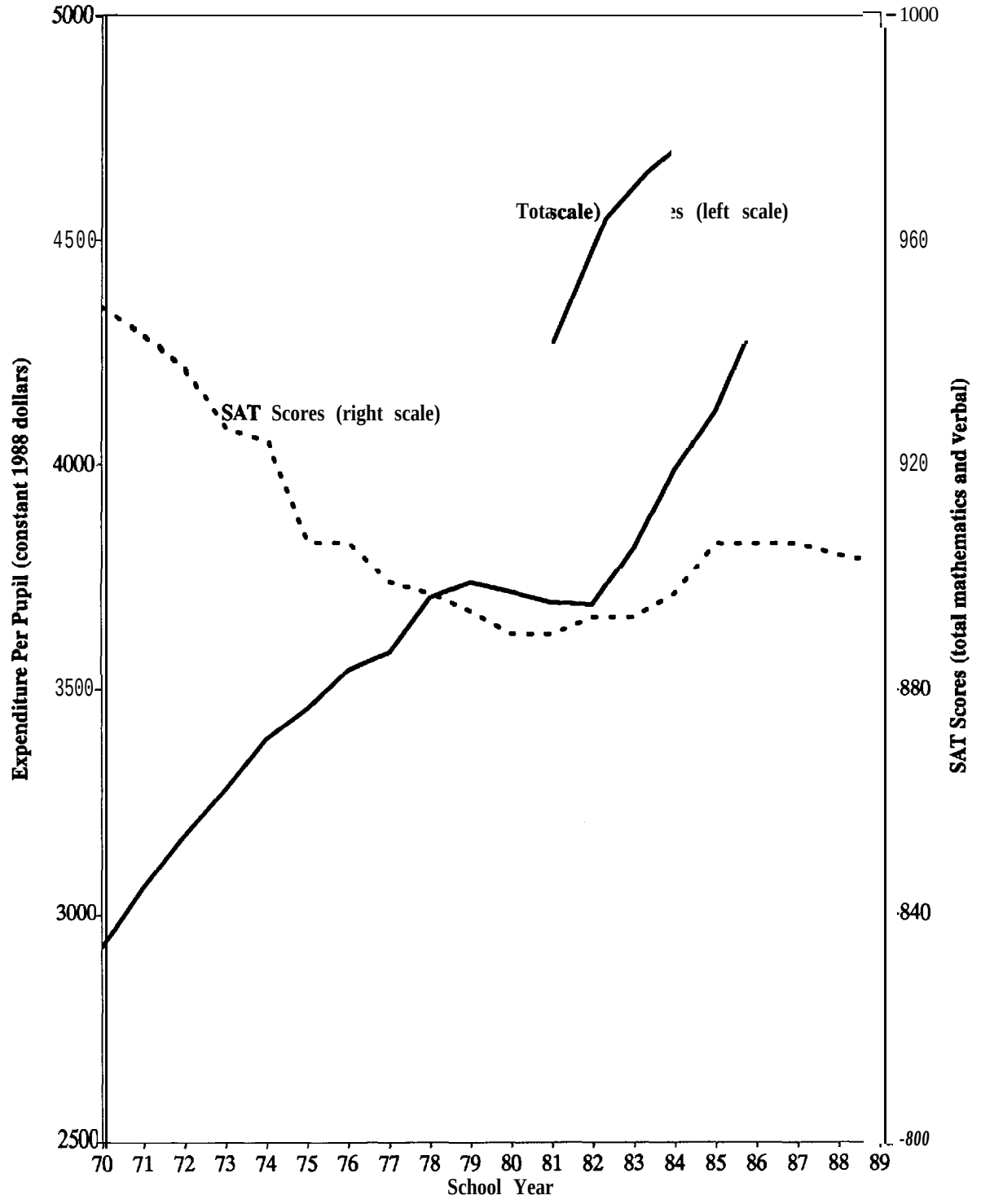
The data presented in Table 1-A (current expenditures per pupil in average daily attendance) tend to overstate the interstate differences in the level and quality of education services provided because the cost of providing a unit of education services of a standard quality varies across states. For example, teacher salaries and class sixes are major elements in the cost of providing education services.' Average teachers' salaries can vary across states (and within states) because of a number of factors:

1) Variations in the average level of wages across jurisdictions, which means that teachers' salaries will vary accordingly;

2) The strength of teachers' bargaining power relative to the hiring jurisdiction and other public employees;

Figure 1

Total Expenditure Per Pupil in ADA' (constant 1988 dollars) and Scholastic Apptitude Test (SAT) Scores, School Years Ending 1970-89



[1] Average daily attendance.

Sources: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics 1969*, and *The Condition of Education 1990* (Washington, DC, 1969 and 1990).

Table 1 -A

Current Expenditures per Pupil in Average Daily Attendance, Constant 1986-87 Dollars, School Years 1959.60, 1969-70, 1979-80, and 1986.87 Non Cost-Adjusted

State	Current Expenditures per Pupil				Average Annual Change (percent)			
	195940 School Year	1969-70 School Year	1979-80 School Year	1986-87 School Year	1959-60 to 1969-70	1969-70 to 1979-80	1979-80 to 1986-87	1959-60 to 1986-87
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
United States	$1,420	$2,403	$3,255	$3,977	5.4%	3.1%	2.9%	3.9%
Alabama	913	1,602	2,309	2,573	5.8	3.7	1.6	3.9
Alaska	2,068	3,306	6,774	8,010	4.8	7.4	2.4	5.1
Arizona	1,528	2,120	2,824	3,544	3.3	2.9	3.3	3.2
Arkansas	852	1,671	2,256	2,733	7.0	3.0	2.8	4.4
California	1,605	2,554	3,249	3,728	4.8	2.4	2.0	3.2
Colorado	1,500	2,173	3,469	4,147	3.8	4.8	2.6	3.8
Connecticut	1,651	2,801	3,468	5,435	5.4	2.2	6.6	4.5
Delaware	1,725	2,650	4,099	4,825	4.4		2.4	3.9
Florida	1,202	2,156	2,707	3,794	6.0	1::	4.9	4.3
Georgia	960	1,731	2,329	3,374	6.1	3.0	5.4	4.8
Hawaii	1,229	2,475	3,327	3,787	7.3	3.0	1.9	4.3
Idaho	1,097	1,776	2,377	2,585	4.9	3.0	1.2	3.2
Illinois	1,660	2,678	3,706	4,106	4.9	3.3	1.5	3.4
Indiana	1,396	2,144	2,697	3,556	4.4	2.3	4.0	3.5
Iowa	1,392	2,486	3,333	3,808	6.0	3.0	1.9	3.8
Kansas	1,316	2,270	3,114	3,933	5.6	3.2	3.4	4.1
Kentucky	882	1,605	2,437	2,733	6.2	4.3	1.7	4.3
Louisiana	1,408	1,908	2,568	3,069	3.1	3.0	2.6	2.9
Maine	1,070	2039	2,613	3,850	6.7	2.5	5.7	4.9
Maryland	1,487	2,704	3,722	4,777	6.2	3.2	3.6	4.4
Massachusetts	1,548	5530	4,039	5,145	5.0	4.8	3.5	4.5
Michigan	1,571	2,662	3,783	4,353	5.4	3.6	2.0	3.8
Minnesota	1,610	2,661	3,420	4,180	5.2	2.5	2.9	3.6
Mississippi	779	1,475	2,384	2,350	6.6	4.9	-0.2	4.2
Missouri	1,302	2,086	2,774	3,472	4.8	2.9	3.3	3.7
Montana	1,555	2,302	3,548	4,194	4:o	4.4	2.4	3.7
Nebraska	1,276	2,168	3,080	3,756	5.4	3.6	2.9	4.1
Nevada	1,629	2,266	2,992	3,573	3.4	2.8	2.6	3.0
New Hampshire	1,315	2,129	2,745	3,933	4.9	2.6	5.3	4.1
New Jersey	1,467	2,992	4,573	5,953	7.4	4.3	3.8	5.3
New Mexico	1,373	2,082	2,914	3,558	4.3	3.4	2.9	3.6
New York	2,126	3,907	4,961	6,497	6.3	2.4	3.9	4.2
North Carolina	898	1,803	2,514	3,129	7.2	3.4	3.2	4.7
North Dakota	1,388	2,031	2,751	3,437	3.9	3.1	3.2	3.4
Ohio	1,382	2,150	2,973	3,671	4.5	3.3	3.1	3.7
Oklahoma	1,179	1,780	2,760	3,099	4.2	4.5	1.7	3.6
Oregon	1,697	2,723	3,857	4,337	4.8	3.5	1.7	3.5
Pennsylvania	1,550	2,596	3,632	4,616	5.3	3.4	3.5	4.1
Rhode Island	1,565	2,624	3,727	4,985	5.3	3.6	4.2	4.4
South Carolina	833	1,804	2,510	3,237	8.0	3.4	3.7	5.2
South Dakota	1,313	2,031	2,733	3,097	4.5	3.0	1.8	3.2
Tennessee	901	1,667	2,343	2,827	6.3	3.5	2.7	4.3
Texas	1,258	1,838	2,745	3,409	3.9	4.1	3.1	3.8
Utah	1,221	1,844	2,374	2,415	4.2	2.6	0.2	2.6
Vermont	1,302	2,377	2,861	4,399	6.2	1.9	6.3	4.6
Virginia	1,038	2,084	2,823	3,780	7.2	3.1	4.3	4.9
Washington	1,592	2,695	3,680	3,964	5.4	3.2	1.1	3.4
West Virginia	978	1,973	2,751	3,784	7.3	3.4	4.7	5.1
Wisconsin	1,564	2,599	3,549	4,523	5.2	3.2	3.5	4.0
Wyoming	1,705	2521	3,620	5,201	4.0	3.7	5.3	4.2

Source: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics 1989* (Washington, DC, 1989), p. 158.

3) Some jurisdictions hiring relatively more experienced teachers with more education and thus paying higher salaries, on average; and

4) Some jurisdictions placing a higher value on education than others and being willing to pay a premium for attracting and keeping teachers.

Other elements used to provide education services, such as utilities, also vary in price across and within states and affect the cost of services.

Table 1-B presents the same measures as Table 1-A with the expenditure data for each state adjusted by a factor designed to account partially for interstate differences in the costs of producing a unit of education services. The adjustment factor is based on a specially constructed, state-by-state index of labor earnings. Because there is no reliable index of the prices of other education inputs, it is assumed that these prices are uniform throughout the country, hence the term partial cost adjustment.[2] However, the partially cost-adjusted expenditure data in Table 1-B reflect differences in the level and quality of education services more closely than do the non-cost-adjusted data in Table 1-A.

Ideally, one would want the cost index on an annual basis, but the index used to deflate the expenditure data is available only for 1986-87. Using a 1986-87 cost index to deflate each state's expenditure data in all years assumes that relative factor costs (employee earnings in this case) across states have remained reasonably constant over the 27-year period. Not adjusting the expenditure data at all assumes that interstate differences in employee earnings simply reflect differences in worker productivity and not (quality adjusted) factor cost differentials.

Because the index is available only for 1986-87, the expenditure per pupil values (and hence the pattern across states) are different in columns (a), (b), (c), and (d), but the annual growth rates for states in columns (e), (f), (g), and (h) are unchanged.

Interstate Comparisons

The summary statistics in Table 2-A and Table 2-B are presented separately for the 50 states and for the 48 contiguous states. The statistics omitting Alaska and Hawaii are shown because those states might be atypical in terms of expenditures per pupil for two reasons:

1) Hawaii is the only state with a single statewide school system, and Alaska provides for the direct support of all schools except in 9 borough and 24 city school districts.

2) Because of geographic separation, the prices of education inputs almost certainly differ significantly from those in the continental U.S.

The decade of the 1960s was the period not only of greatest increase in real spending per pupil but also of greatest uniformity in the rate of change across the states. To see this, it is necessary to calculate summary statistics for the distributions of expenditures per pupil and growth in expenditures per pupil across the states. Table 1-A presents the mean (average), standard deviation (a measure of relative dispersion about the mean), and coefficient of variation (c.v.) for the values in columns (a) through (h) of Table 1-A.[3] Table 2-B presents the same summary statistics for the data in Table 1-B. Panel 1 in each table presents these values based on the distribution for all 50 states (the District of Columbia is not included in this analysis); Panel 2 presents the values for the 48 contiguous states only.

Table 2-A reveals that any inference about how the variation across the states in spending per pupil has changed during the past 27 years depends on whether Alaska and Hawaii are included in the analysis. Based on all 50 states, the dispersion in spending per pupil has increased somewhat, with the c.v. dropping slightly from 22 percent in 1959-60 to 21 percent in 1969-70, and then growing to 27 percent in 198687. Based on the contiguous 48 states, the degree of dispersion has remained fairly stable, with the c.v. fluctuating between 20 percent and 22 percent.

For the cost-adjusted data in Table 2-B, the difference in the values of the coefficient of variation for columns (a), (b), (d), and (f) between the 48 and the 50 state samples is not nearly as pronounced as in Table 2-A This is further evidence that expenditure per pupil data for Alaska and Hawaii differ from that for the 48 contiguous states for cost related reasons. Notice that for the 198687 school year the coefficient of variation in expenditures per pupil for all 50 states is 0.27 (Table 2-A), whereas it is only 0.21 for cost-adjusted expenditures (Table 2-B). This suggests that as much as onequarter of the variation in average spending per pupil across states may be due to cost differentials.

Analysis of the information in Tables 2-A and 2-B suggests that there was much more variability across the states in the *rate of growth* in spending per pupil during the final seven years period than in the first two decades. The coefficient of variation for the growth rate increased from 22percent for the 1960s to nearly 50 percent for the first half of the 1980s, using either the 50-state or the 48-state distribution. During the 1970s, the coefficient of variation for spending growth rates was 22 percent across the 48 contiguous states, but 27 percent if Alaska and Hawaii are included in the analysis.

Has there been any tendency for those states where the initial per pupil expenditures were lower to increase spending at a higher rate?

If states where per pupil spending was initially lower increased spending at a more rapid rate, then

Table I-B

Current Expenditures per Pupil in Average Daily Attendance, Constant 1986-87 Dollars, School Years 1959-60, 1969-70, 1979-80, and 1986-87, Cost Adjusted[1]

State	Current Expenditures per Pupil				Average Annual Change (per cent)			
	1959-60 School Year	1969-70 School Year	1979-80 School Year	1986-87 School Year	1959-60 to 1969-70	1969-70 to 1979-80	1979-80 to 1986-87	1959-60 to 1986-87
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
United States	$1,420	$2,403	$3,255	$3,977	5.4%	3.1%	2.9%	3.9%
Alabama	983	1,725	2,486	2,770	5.8	3.7	1.6	3.9
Alaska	1,643	2,626	5,381	6,363	4.8	7.4	2.4	5.1
Arizona	1,566	2,172	2,894	3,631	3.3	2.9	3.3	3.2
Arkansas	956	1,875	2,532	3,067	7.0	3.0	2.8	4.4
California	1,540	2451	3,118	3,578	4.8	2.4	2.0	3.2
Colorado	1,504	2,179	3,479	4,159	3.8	4.8	2.6	3.8
Connecticut	1,552	2,633	3,259	5,108	5.4	2.2	6.6	4.5
Delaware	1,722	2,645	4,091	4,815	4.4	4.5	2.4	3.9
Florida	1,294	2,320	2,914	4,083	6.0	2.3	4.9	4.3
Georgia	1,008	1,818	2,447	3,544	6.1	3.0	5.4	4.8
Hawaii	1,267	2,552	3,430	3,905	7.3	3.0	1.9	4.3
Idaho	1,234	1,997	2,673	2,907	4.9	3.0	1.2	3.2
Illinois	1,547	2,496	3,454	3,826	4.9	3.3	1.5	3.4
Indiana	1,394	2,142	2,694	3,552	4.4	2.3	4.0	3.5
Iowa	1,455	2,598	3,483	3,980	6.0	3.0	1.9	3.8
Kansas	1,375	2,372	3,254	4,110	5.6	3.2	3.4	4.1
Kentucky	901	1,639	2,489	2,791	6.2	4.3	1.7	4.3
Louisian	1,386	1,878	2,527	3,020	3.1	3.0	2.6	2.9
Maine	1,289	2,457	3,149	4,639	6.7	2.5	5.7	4.9
Maryland	1,426	2,593	3,569	4,580	6.2	3.2	3.6	4.4
Massachusetts	1,601	2,616	4,177	5,321	5.0	4.8	3.5	4.5
Michigan	1,441	2,442	3,470	3,993	5.4	3.6	2.9	4.1
Minnesota	1,586	2,622	3,370	4,119	5.2	2.5	2.9	3.6
Mississippi	888	1,682	2,718	2,680	6.6	4.9	-0.2	4.2
Missouri	1,347	2,157	2,869	3,591	4.8	2.9	3.3	3.7
Montana	1,749	2,589	3,991	4,717	4.0	4.4	2.4	3.7
Nebraska	1,390	2,361	3,355	4,091	5.4	3.6	2.9	4.1
Nevada	1,659	2,308	3,047	3,639	3.4	2.8	2.6	3.0
New Hampshire	1,469	2,379	3,067	4,394	4.9	2.6	5.3	4.1
New Jersey	1,383	2,820	4,310	5,611	7.4	4.3	3.8	5.3
New Mexico	1,504	2,281	3,192	3,897	4.3	3.4	2.9	3.6
New York	2,115	3,888	4,936	6,465	6.3	2.4	3.9	4.2
North Carolina	999	2,005	2,796	3,480	7.2	3.4	3.2	4.7
North Dakota	1,546	2,262	3,064	3,828	3.9	3.1	3.2	3.4
Ohio	1,343	2,089	2,889	3,567	4.5	3.3	3.1	3.7
Oklahoma	1,234	1,864	2,890	3,245	4.2	4.5	1.7	3.6
Oregon	1,724	2,767	3,919	4,407	4.8	3.5	1.7	3.5
Pennsylvania	1,555	2,604	3,643	4,630	5.3	3.4	3.5	4.1
Rhode Island	1,656	2,777	3,944	5,275	5.3	3.6	4.2	4.4
South Carolina	926	2,005	2.789	3,597	8.0	3.4	3.7	5.2
South Dakota	1,586	2,453	3,300	3,740	4.5	3.0	1.8	3.2
Tennessee	963	1,781	2,503	3,021	6.3	3.5	2.7	4.3
Texas	1,237	1,807	2,699	3,352	3.9	4.1	3.1	3.8
Utah	1,272	1,921	2,473	2,516	4.2	2.6	0.2	2.6
Vermont	1,546	2,823	3,398	5,224	6.2	1.9	6.3	4.6
Virginia	1,056	2,120	2,872	3,846	7.2	3.1	4.3	4.9
Washington	1,558	2,637	3,601	3,879	5.4	3.2	1.1	3.4
West Virginia	1,028	2,075	2,893	3,979	7.3	3.4	4.7	5.1
Wisconsin	1,583	2,630	3,592	4,578	5.2	3.2	3.5	4.0
Wyoming	1,761	2.604	3,740	5,373	4.0	3.7	5.3	4.2

[1] Current expenditures per pupil in average daily attendance divided by index of unit cost. Cost adjustment based on elementary and secondary education factor cost index for 1979-80 in Advisory Commission on Intergovernmental Relations, ***Representative Expenditures: Addressing the Neglected Dimension of Fiscal Capacity, by Robert W. Rafuse,*** Jr. (Washington, DC, 1990).

Note: U.S. totals include District of Columbia.

Source: U.S. Department of Education, National Center for Education Statistics, ***Digest of Education Statistics 1989*** (Washington, DC, 1989), p. 158.

Summary Statistic for Education Expenditure 'h-ends, Not Cost Adjusted'

	1959-60 School Year	1969-70 School Year	Decade Annual Growth	1979-80 School Year	Decade Annual Growth	1986-87 School Year	7-Year Annual Growth	27-Year Annual Growth
All 50 States								
Mean	$1,357	$2,265	5.3%	$3,176	3.4%	$3,945	3.1%	4.0%
Standard Deviation	$304	$465	1.2%	$798	0.9%	$1,044	1.4%	0.6%
Coefficient of Variation	0.22	0.21	0.22	0.25	0.27	0.27	0.47	0.16
Omitting Alaska and Hawaii								
Mean	$1,345	$2,239	5.3%	$3,098	3.3%	$3,863	3.1%	4.0%
Standard Deviation	$292	$449	1.2%	$623	0.7%	$886	1.5%	0.6%
Coefficient of Variation	0.22	0.20	0.22	0.20	0.22	0.20	0.47	0.15

[1] All expenditure amounts are in constant 1986-87 dollars.

Source: Calculations based on data in Table 1-A.

Table 2-B
Summary Statistics for Education Expenditure 'bends, Cost Adjusted'

	1959-60 School Year	1969-70 School Year	Decade Annual Growth	1979-80 School Year	Decade Annual Growth	1986-87 School Year	7-Year Annual Growth	27-Year Annual Growth
All 50 States								
Mean	$1,395	$2,331	5.3%	$3,257	3.4%	$4,050	3.2%	4.0%
Standard Deviation	$266	$398	1.2%	$621	0.9%	$882	1.2%	0.7%
Coefficient of Variation	0.19	0.17	0.22	0.19	0.27	0.21	0.36	0.17
Omitting Alaska and Hawaii								
Mean	$1,392	$2,320	5.3%	$3,209	3.3%	$4,005	3.1%	3.9%
Standard Deviation	$268	$402	1.2%	$552	0.7%	$834	1.0%	0.7%
Coefficient of Variation	0.19	0.17	0.22	0.17	0.22	0.21	0.32	0.17

[1] All expenditure amounts are in constant 1986-87 dollars. Cost adjustment is based on elementary and secondary education factor cost index for 1979-80 in Advisory Commission on Intergovernmental Relations, *Representative Expenditures: Addressing the Neglected Dimension of Fiscal Capcity*, by Robert W. Rafuse, Jr. (Washington, DC, 1990).

Source: Calculations based on data in Table 1-B.

interstate disparities would diminish over time. To test this proposition, consider a simple regression analysis for per pupil spending increases over any time period:

$$\text{Percentage Increase} = \alpha + \beta \cdot (\text{Initial Expenditure}) + \epsilon$$

where α is the constant term for the equation, β is the regression coefficient, and ϵ is a normally distributed random error. A statistically significant estimate for b is evidence that the rate of growth in spending is linearly related to the initial expenditure level. A positive and significant estimate would indicate that the rate of growth was greater in states where the initial expenditure was higher; whereas a negative and significant estimate would indicate that the rate of growth was greater in states where the initial expenditure was lower. A statistically insignificant **estimate** for β would suggest the lack of any direct relationship between initial expenditure level and subsequent growth rate (for a discussion of the regression methods and findings, see Appendix 1).

Overall, the analysis developed here indicates that during the high growth-rate period of the 1960s there was a very modest tendency toward equalization across the states in the level of spending per pupil. This tendency was not present during the next 17

years of more moderate growth in spending. This is consistent with the trend for expenditures per pupil in Table 2-A, where the coefficient of variation for the 48 contiguous states declined from 22 percent in 1959-60 to 20 percent in 1969-70, and then fluctuated slightly over the next 17 years.

NOTES

[1] A pooled cross-section-time-series regression reveals that interstate variations in teacher salaries and the ratio of teachers per enrolled pupil explain, statistically, 85 percent of the variation in current expenditures per pupil in average daily attendance across states and over time.

'Since employee compensation accounted for 75.3 percent of general expenditures for primary and secondary education in 1987, the bias in assuming uniform nonlabor factor prices is probably not severe. For a more detailed discussion of the cost index see ACIR, ***Representative Expenditures.***

[3] The standard deviation is the square root of the sum of the squared deviations about the mean divided by the number of observations. The coefficient of variation for a distribution is defined as the ratio of the standard deviation to the mean. It is a dimensionless measure of the relative dispersion in a distribution; the higher its value, the greater the degree of dispersion.

2
School District Revenues

Aggregate Trends

Local taxes and state aid have been the traditional major source of revenue for K-12 public schools. As the figures in Table 3 indicate, the share of public school funds provided by the federal government has ranged typically between 5 percent and 10 percent. Federal funds reached a maximum of 9.8 percent in 1979-80 and have declined since then. While the combined state-local component of public school revenues has remained between 90 percent and 95 percent, there has been a change in the relative contributions made by these two sources. From 1959-60 to 1986-87, the state share contribution has increased roughly from 40 percent to 50 percent of the federal-state-local total while the locally raised share has declined from slightly more than 55 percent to slightly less than 45 percent. This reversal is due to a large extent to increases in state aid aimed at equalizing fiscal resources across school districts-a topic that will be examined in the next section.

Although states contribute about 50 percent of public school revenues in the aggregate, there is substantial variation in the ratio of state to local revenue-raising responsibility. At one extreme is Hawaii, where state revenues provide virtually all funds for the single statewide school system. At the other extreme is New Hampshire, where the state provides only about 6 percent of public school revenues. Table 4 presents data for the distribution of K-12 public school revenues by government from 1959-60 to 1986-87 for each state.[1] The table shows that the aggregate trend toward greater reliance on state funds holds true forbetter than two-thirds of the states, and that the largest regional concentration of states countering this trend is in the Southeast.

Before considering in detail the nature of state aid programs designed to promote equalization in spending across school districts, it is instructive to examine the sources of state and local revenues for public schools.

Table 3
Public School District Revenues by Source of Funds, Selected School Years 1959.60 to 1987-88

	Federal Revenues	State Revenues	Local Revenues
	(percent of total)		
1959-60	4.4	39.1	56.5
1961-62	4.3	38.7	56.9
1963-64		39.3	56.3
1965-66	4:;	39.1	53.0
1967-68	8.8	38.5	52.7
1969-70	8.0	39.9	52.1
1970-71	8.4	39.1	52.5
1971-72	8.9	38.3	52.8
197273	8.7	40.0	51.3
1973-74	8.5	41.4	50.1
197475	9.0	42.2	48.8
1975-76	8.9	44.6	46.5
1976-77	8.8	43.4	47.8
1977-78	9.4	43.0	47.6
1979-80	9.8	46.8	43.4
1981-82	7.4	47.6	45.0
1983-84	6.8	47.8	45.4
1985-86	6.7	49.4	43.9
1986-87	6.4	49.8	43.9
1987-88	6.3	49.5	44.1

Source: U.S. Department of Education, National Center for Education Statistics, ***Digest of Education Statistics 1989*** (Washington, DC, 1989), Table 138.

Source of Origin of School District Revenues

	195940			1969-70			1979-80			1986437		
	Federal	State	Local	Federal	State	Local	Federal	State	Local	Federal	State	Local
United States	3.7%	39.5%	56.8%	7.2%	40.9%	51.8%	9.2%	48.9%	42.0%	6.4%	49.8%	43.936
Alabama	8.1	69.3	22.6	15.2	63.3	21.5	12.6	69.0	18.4	11.7	66.3	22.0
Alaska	17.9	50.0	32.1	27.1	53.3	19.6	13.0	70.2	16.9	11.7	63.7	24.7
Arizona	6.8	39.5	53.7	8.2	46.4	45.4	11.1	41.6	47.3	9.0	48.3	42.7
Arkansas	8.0	47.7	44.3	18.2	44.5	37.3	14.5	53.0	32.5	11.5	54.8	33.7
California	3.6	42.7	53.7	5.3	37.3	57.4	8.7	71.2	19.1	7.1	69.5	23.5
Colorado	5.7	19.9	74.4	7.6	27.8	64.5	6.1	41.0	52.9	4.9	39.0	56.1
Connecticut	3:o	26.8	70.2	2.1	25.2	72.8	6.1	31.5	62.5	4.4	40.0	55.6
Delaware	22	78.9	18.9	7.4	71.3	21.3	13:o	64.7	22.3	7.7	69.2	23.1
District of Columbia	0.8	n.a.	99.2	30.2	n.a.	69.8	15.8	n.a	84.2	10.3	n.a	89.7
Florida	2.2	57.7	40.1	9.5	55.7	34.8	11.0	55.2	33.7	7.2	54.2	38.6
Georgia	11.1	62.8	25.1	10.5	58.3	31.1	11.8	57.6	30.6	7.1	59.7	33.2
Hawaii	13.6	69.9	16.5	9.7	87.2	3.2	12.5	85.2	2.4	11.8	88.1	0.1
Idaho	5.8	33.2	61.0	8.4	37.8	53.8	9.5	55.0	35.5	8.9	62.9	28.3
Illinois	27	18.9	78.4	5.7	34.6	59.5	12.8	41.2	46.0	4.3	39.1	56.5
Indiana	3.1	29.8	67.1	6.8	39.4	53.8	6.9	56.1	37.0	4.9	58.1	37.0
Iowa	2.9	12.1	85.0	3.6	28.0	68.4	6.7	42.2	51.0	5.1	44.5	50.4
Kansas	5.3	21.5	73.2	5.9	31.2	62.9	6.9	43.3	49.8	4.8	42.4	52.8
Kentucky	4.7	44.9	50.4	13.6	56.2	30.2	12.5	69.7	17.8	11.6	64.5	23.8
Louisiana	2.4	67.7	29.9	11.9	56.4	31.7	14.8	54.4	30.8	11.5	55.1	33.4
Maine	4.0	30.6	65.4	6.7	32.5	60.8	9.6	48.9	41.5	6.4	50.2	43.4
Maryland	6.9	36.4	56.7	6.4	35.2	58.4	8.0	40.2	51.8	5.1	38.5	56.4
Massachusetts	2.0	20.5	77.5	6.0	20.0	74.0	6.5	36.3	51.2	4.9	45.1	50.0
Michigan	2.8	43.8	53.4	3.9	45.1	51.0	7.4	42.7	49.9	5.9	34.9	59.3
Minnesota	2.7	38.2	59.1	5.3	46.0	37.3	6.1	56.6	37.3	4.2	56.9	38.8
Mississippi	9.2	52.4	38.4	21.4	53.1	22.8	24.1	53.1	22.8	10.5	65.2	24.3
Missouri	4.8	30.5	64.7	7.9	33.7	58.4	9.7	36.7	53.6	6.3	41.2	52.5
Montana	3.7	25.4	70.9	8.5	25.4	66.2	8.4	49.3	42.2	8.5	47.8	43.7
Nebraska	4.3	4.3	91.4	6.4	17.6	76.0	7.9	18.2	73.9	6.1	22.5	71.3
Nevada	9.4	56.4	34.2	8.8	36.5	54.7	8.6	58.5	32.9	4.4	39.5	56.0
New Hampshire	4.6	5.3	90.1	5.1	8.3	86.7	5.1	6.8	88.1	3.4	5.9	90.7
New Jersey	1.5	24.1	74.4	5.4	27.0	67.6	4.1	40.4	55.5	4.4	43.0	525
New Mexico	15.2	69.4	15.4	17.7	61.9	20.4	16.6	63.4	20.0	12.2	75.1	127
New York	1.2	39.3	59.5	4.7	46.4	48.9	5.0	40.6	54.4	4.8	42.4	528
North Carolina	4.7	68.3	27.0	15.6	65.7	18.7	15.2	62.4	22.3	7.9	66.0	26.0
North Dakota	1.7	31.3	67.0	9.3	25.7	65.0	7.7	46.5	45.1	9.4	50.8	39.8
Ohio	2.8	30.3	66.9	5.0	28.3	66.7	7.7	40.6	51.6	5.5	49.6	44.8
Oklahoma	7.2	422	50.6	11.8	43.8	44.4	11.8	43.8	44.4	5.6	63.5	30.9
Oregon	4.5	29.5	66.0	6.0	20.8	73.2	9.9	35.5	54.6	6.6	28.0	45.4
Pennsylvania	1.8	50.2	48.0	6.2	46.2	47.6	8.5	45.0	46.5	5.1	46.3	48.6
Rhode Island	4.0	18.1	77.9	5.9	38.8	55.4	5.9	38.8	55.4	4.5	42.6	52.9
South Carolina	5.8	70.9	23.3	14.0	59.5	26.4	14.9	56.8	28.3	8.9	56.0	35.1
South Dakota	5.3	8.6	86.1	11.7	13.1	75.2	13.9	20.8	65.3	11.8	27.2	61.0
Tennessee	3.7	54.0	42.3	11.9	48.0	40.1	14.0	48.3	37.7	11.1	44.5	44.4
Texas	4.6	49.9	45.5	9.3	46.4	44.3	11.0	50.1	38.9	7.1	47.1	45.8
Utah	5.3	41.9	52.8	7.6	52.8	38.2	7.8	54.0	38.2	6.1	54.4	39.6
Vermont	0.8	23.1	76.1	2.9	37.1	60.0	7.7	28.0	64.2	5.1	34.4	60.6
Virginia	9.5	36.5	54.0	11.1	36.4	52.5	9.5	40.9	49.6	6.7	32.9	60.3
Washington	5.7	61.1	33.2	6.6	56.6	36.8	8.6	70.8	20.6	6.3	72.4	21.3
West Virginia	4.2	54.2	41.6	12.4	48.2	39.4	10.6	60.1	29.3	7.5	69.8	22.7
Wisconsin	2.9	21.3	75.8	2.5	31.6	65.9	5.5	37.6	56.8	4.7	34.5	60.8
Wyoming	5.7	45.7	48.6	20.2	24.8	55.0	6.6	29.6	63.8	3.7	43.0	53.3

Note: 1986-87 data for Virginia are estimated.

n.a.—not applicable.

Sources: Advisory Commission on Intergovernmental Relations, ***Significant Features of Fiscal Fedemlism, 1988 Edition,*** Volume II (Washington, DC, 1988), Table 58; and U.S. Department of Education, National Center for Education Statistics, ***Digest of Education Statistics 1989*** (Washington, DC, 1989), Table 139.

Revenue Sources for State Funds

It is commonplace for state governments to derive some of the funds that are distributed to local school districts from one or more dedicated revenue sources. Some states earmark a portion of state revenues revenues from a particular tax base for school aid while other states allocate the total proceeds from a revenue source. Generalization is difficult here because there are so many variations in the dedicated sources of revenue and in the specifics of financing schemes.

Every state allocates a specified portion of either the general sales tax, personal income tax, or corporate income tax for public schools. Other revenue sources from which all or part of the proceeds flow to local schools include a statewide property tax; selected excise taxes; insurance premium fees; federal forest and mineral lease receipts; coal, oil, and gas extraction fees; lottery proceeds: and interest from a permanent school trust fund.

Although earmarked revenues are an important source of funds for many state aid programs, legislative appropriations through the general fund budget comprise the single most important component for the state share of public school revenues. General fund appropriations account for more than 80 percent of total state aid for the majority of states, and for many states they constitute the sole source of state-generated revenues. Moreover, even in states where dedicated receipts are substantial, the supplemental general fund appropriations are important.

Although it is difficult to generalize about the extent to which states rely on dedicated receipts to help fund public school aid programs, for most states, the amount of revenue raised from these sources does not determine the overall level of support. This is because, with a few exceptions, general fund appropriations finance the ***additional*** dollars that are allocated to local school districts.*

In a few states, supplemental general fund appropriations are sufficiently limited that dedicated receipts arguably might affect the overall level of state support. For the 1986-87 school year, general fund appropriations accounted for only 16 percent of total state revenues for local schools in Tennessee, 12 percent in Utah, and 4 percent in Wyoming.[3] In Alabama, estimates of dedicated receipts largely determine the amount of legislative appropriations. In California, Proposition 98, recently approved in a referendum, mandates that 39 percent of all state revenues go toward financing K-12 education. For all other states, however, it appears that the budgetary decisions of the state legislature determine the overall level of state funding for local schools.

School Districts' Own-Source Revenue

When examining the sources of locally raised revenue for public schools, it is important first to distinguish between states where school systems are fiscally independent and those where school systems are fiscally dependent on some other local government. The U.S Bureau of the Census defines independent school systems as "school districts that are administratively and fiscally independent of any other government."[4] According to this definition, in 33 states, all public schools are independent, and in 12 states, some districts are independent while others are not. Hawaii has a single system dependent on the state government, and in Alaska and Maine, some school districts in sparsely populated areas are dependent on the state government. In most of the other states with dependent school systems, they are dependent on a county or municipal government.5

Table 5 lists the number of independent and dependent school districts by state from three sources: the U.S. Bureau of the Census; the American Education Finance Association (AEFA); and the School Finance Collaborative, a joint effort by the Education Commission of the States (ECS) and the National Conference of State Legislatures (NCSL). The most obvious observation is the differences between the listings in the number of school districts in some states and whether they should be classified as independent or dependent. For California, for example, the Census Bureau enumerates 1,098 independent and 53 dependent school districts, while ECS/NCSL reports 1,025 dependent and no independent districts, and AEFA lists 1,028 districts with no classifications. It seems likely that, at least in some cases, these differences arise from determining exactly what constitutes "fiscal independence."

The most important dimension of school system independence is the ability of a district to determine autonomously the amount of local revenues to be raised for education. Typically, this involves establishing the tax rate that will be levied on each allowable tax base. State constitutions or legislative provisions, in turn, usually specify what revenue sources local jurisdictions, such as school districts, are allowed to tax.

In the case of dependent school districts, locally raised revenue is appropriated to the school district from the general fund of the municipal government on which the district is dependent. In this situation, the school district must solicit funds from the same budget that supports police and fiie protection services, local parks and recreation, health and hospital services, sanitation and trash disposal, and other functions.

There are, of course, several checks on the ability of independent school systems to raise local revenues. The first, and most obvious, is the ability of voters to elect school board members or, in the case of appointed school boards, to elect the public officials responsible for appointments.

Referendum requirements comprise a second

Table 5

Number of Fiscally Dependent and Independent School Districts

	Census		AEFA		ECS/NCSL	
	Independent	Dependent	Independent	Dependent	Independent	Dependent
Alabama	129	0	0	129		0
Alaska	0	55	0	55	129	55
Arizona	227	12	219	5	224	
Arkansas	333	0	333	0	329	51
California	1098	53	—1028—		0	
Colorado	180	0	176	0	176	10250
Connecticut	16	149	0	165	0	165
Delaware	19	0	19	0	19	
Florida	95	0	67	0	67	8
Georgia	186	0	159	27	157	27
Hawaii	0	1	0	1	0	1
Idaho	118	0	116	0	116	0
Illinois	1029	0	-994-		No Listing	
Indiana	304			1	304	0
Iowa	451	8	308	0	436	0
Kansas	324		304	0	304	0
Kentucky	178	8			178	0
Louisiana	66	0	166	8	66	0
Maine	88	194	0	283	282	0
Maryland	0	41	0	24	0	24
			0			
Massachusetts	82	354	565	437	0	367
Michigan	590	0			565	0
Minnesota	441	0	0	8	435	0
Mississippi	171	4	546	154	0	152
Missouri	561	0			548	0
Montana	547	0	554	8	554	0
Nebraska	952	0	955	0	ALL	0
Nevada	17	0	17	0	0	17
New Hampshire	160	9	159	9	161	9
New Jersey	551	71	582	24	606	0
New Mexico	88	0	0	88	88	0
New York	720	35	724	5	695	5
North Carolina	0	198	0	141	0	140
North Dakota	310	0	309		302	0
Ohio	621	0	615	8	615	
Oklahoma	636	0	No Listing		611	8
Oregon	350	0	304	0	304	0
Pennsylvania	515	0		0	499	2
Rhode Island	3	37	40	0	0	40
South Carolina	92	0	40	52	40	51
South Dakota	193	0	193	0	192	0
Tennessee	14	128	0	141	0	140
Texas	1113		1061	26	1063	0
Utah	40	8	40	0	40	0
Vermont	272	0	246	0	274	0
Virginia	0	140	0	139	0	139
Washington	297	0	298	0	296	0
West Virginia	55	0	55		55	0
Wisconsin	433	9	432	8	431	0
Wyoming	56	0	49	0	10	39

Sources: U.S. Department of Commerce, Bureau of the Census, ***Government Organization, 1987 Census of Governments,*** Volume 1, Number 1 (Washington, DC, 1989), p. XII; American Education Finance Association, ***Public School Finance Programs in the United States and Canada: 1986-1987,*** compiled and edited by Richard Salmon, Christina Dawson, Steven Lawton, and Thomas Johns (Sarasota, Florida, 1988); and Education Commission of the States/National Conference of State Legislatures, ***School Finance at a Glance,*** prepared by Deborah A. Verstegen (Denver, 1988).

Table 6

Requirements for Public Referenda on Locally Raised School District Revenues

Alabama	Tax Levy above Specified Millage Rate
Alaska	
Arizona	Tax Levy above Specified Millage Rate
Arkansas	Tax Increase
California	
Colorado	Tax Levy above Specified Millage Rate
Connecticut	
Delaware	Tax Increase
Florida	Bond Issues
Georgia	Tax Levy above Specified Millage Rate
Hawaii	
Idaho	Tax Levy above Specified Millage Rate
Illinois	Tax Levy above Specified Millage Rate
Indiana	Tax Increase
Iowa	
Kansas	Tax Increase
Kentucky	Tax Levy above Specified Millage Rate
Louisiana	Tax Levy above Specified Millage Rate
Maine	Tax Increase
Maryland	
Massachusetts	
Michigan	Tax Levy above Specified Millage Rate
Minnesota	Tax Levy above Specified Millage Rate
Mississippi	Tax Increase
Missouri	Tax Increase; Supermajority for Levy above Specified Millage Rate
Montana	Tax Levy above Specified Millage Rate
Nebraska	Annual Tax Levy for Class I & II Districts only
Nevada	
New Hampshire	Annual Budget
New Jersey	Annual Budget for Type II Districts only
New Mexico	
New York	Annual Budget for Noncity Districts only
North Carolina	Tax Increase
North Dakota	Tax Levy above Specified Millage Rate
Ohio	Tax Levy above Specified Millage Rate
Oklahoma	Tax Levy above Specified Millage Rate
Oregon	Annual Budget
Pennsylvania	
Rhode Island	Tax Increase
South Carolina	Each District Establishes Procedure
South Dakota	Tax Levy above Specified Millage Rate
Tennessee	
Texas	Tax Increase Greater than 8 percent
Utah	Tax Levy above Specified Millage Rate
Vermont	Annual Budget
Virginia	
Washington	Tax Levy above Specified Millage Rate
West Virginia	Tax Levy above Specified Millage Rate
Wisconsin	
Wyoming	Tax Levy above Specified Millage Rate

Sources: American Education Finance Association, ***Public School Finance Programs in the United States and Canada: 1986-1 987,*** compiled and edited by Richard Salmon, Christina Dawson, Steven Lawton and Thomas Johns (Sarasota, Florida, 1988); and Education Commission of the States/National Conference of State Legislatures, ***School Finance at a Glance,*** prepared by Deborah A. Verstegen (Denver, 1988).

form of direct voter control over local school taxing and spending decisions. Thirty-seven states have some type of provision for referendum input to the budget process, although the exact nature of these provisions varies considerably. In some cases, referendum approval of each year's budget is required; in other cases, a referendum is necessary only if the budget requires a tax increase. In some cases, a referendum is required only for tax levies above a certain rate, typically, the local share of the spending level of a state foundation program. In Nebraska, New Jersey, and New York, certain classifications of school districts have referendum requirements and others do not. In South Carolina, establishing referendum requirements is a local prerogative. Table 6 provides a summary of state referendum requirements.

In about 20 states, the fiscal autonomy of local school districts is constrained by constitutional or statutory provisions that limit tax rates, spending levels, or increases in annual spending. As with referendum requirements, the nature of these limits varies considerably across the states that have them. Perhaps the most well known case is California, where Proposition 13 limits both the local property tax rate and the annual increase in property tax assessments, effectively transferring the responsibility for raising additional tax dollars for public schools to the state. Similarly rigid limitations have had the same effect in Nevada and New Mexico.

A distinctive approach to limiting increases in per pupil spending exists in Indiana, Kansas, and New Jersey. In these states, the amount by which any district may increase spending depends on the district's current expenditure level. While there are variations in these restrictions, in each case, the general result is that districts with lower expenditure levels are allowed to increase spending by a greater amount than higher spending districts. Over time, this form of spending increase limitation should work to bring about greater equality in per pupil spending across school districts.

Revenue Sources for Locally Raised Funds

The ad valorem property tax is by far the most important source of locally raised revenue for schools in states where districts have independent taxing authority. It accounts for more than 80 percent of total local revenues in most cases, and in some states it is the sole tax base on which districts may impose their own levy. In addition to applying universally to (all non-exempt) real estate, this tax often covers personal property, such as automobiles and boats, and in some cases it applies to financial instruments, such as personally held mortgages.

Two institutional features of the property tax are particularly noteworthy for the study of public school

finance. The first, discussed above, involves the various constitutional and statutory limitations in place in some states that restrict the ability of independent districts to set, or raise, property tax rates. The second is the marked interstate differences in assessment practices and the nature of tax rate schedules.

In some states, property is assessed at full market value. In other states, all property is assessed at a fixed fraction of market value. Still another possibility is for each county government to assess property so that the ratio of assessed value to full value might vary within the state.[6] The situation is complicated further by the fact that some states may assess all property at the same fraction (possibly 100 percent) of market value but use different tax rates for different classes of property (e.g., agricultural, commercial, residential) and some states may tax all property at a uniform rate but apply different assessment-to-market value ratios to different property classifications. In addition, many states have homestead provisions for property tax levies, which allow a base amount of the value of residential property to be tax exempt.' Because of these varied procedures, extreme care must be exercised in any attempt to compare state effective property tax rates for school spending.

Three states allow school districts to tax personal income. In Iowa, school districts may impose an "enrichment" supplement to the local share of the state's foundation aid program. During the 1986-87 school year, 64 of the smallest of the state's 436 school districts enacted this tax.[8] This supplement is comprised in part of a surtax on the state income tax and "the surtax rate is determined by the state comptroller on the basis of the revenue to be raised by the surtax for the particular district with the surtax."[9]

In Ohio, school districts were allowed to enact an income tax for the first time in 1981. This authority was rescinded in 1983, however, with the provision that the six districts that had adopted the levy were allowed to retain it at the rate in place at that time. (Five of the districts still impose the tax). In Pennsylvania, school districts may impose an earned income tax, but the rate is limited to 0.5 percent.[10]

An important implication of these restrictions on the local income tax levies is that school districts may not set the rates. As a result, districts may not finance an increase in the level of per pupil spending by increasing the income tax. Thus, in no instance does a local income tax provide a source of additional funds for local spending on public schools.

School districts raise revenue from a variety of other sources where they have independent taxing authority. These include a local sales tax, occupation taxes, motor-vehicle license fees, mineral extraction and severance taxes, interest income, and a share of the proceeds from court fines. In some cases, school districts collect these revenues directly, in other cases, they are an apportioned share of general local revenues collected by another local government.

As in the case of the local income tax, school districts typically do not control directly the amount of revenue that is raised from these other sources. This is because the tax *rate* or fee schedule that may be levied on these bases is set by the state government. Hence, the revenues constitute the minimum levels of local funds for public education.

An important implication of this discussion-one that will play a critical role in the analysis of the next section-is that the property tax is quantitatively the most important source of locally raised revenue for independent school districts and, in general, is the sole source for raising additional own-source revenue.[11]

Identifying the source of additional funds for local spending is more complicated in the case of dependent school districts. These districts rely on appropriations from local governments. In this instance, the link between local tax dollars and school spending is simply not as direct as it is for independent districts.

Analyzing the local expenditure decision in this setting requires consideration of the potential trade-off between school spending and other local public services. In addition, analysis of expenditure decisions require explicit assumptions of how all funds are allocated through the local public fisc in the presence of unrestricted intergovernmental aid to municipalities. However, because property taxes are the single most important source of revenues for all municipal governments in most states, for the analysis that follows, it is reasonable to assume, at least as a first-order approximation, that they are the source of additional dollars in the spending decisions of dependent, as well as independent, school districts.

NOTES

'It is necessary to interpret the data in Table V with some caution. This is because of the way in which states report contributions for employee benefits, in particular for teacher pension plans and employer payments for FICA (Social Security and Medicare) Some states include state funds contributed for teacher employee benefits as part of total state aid to local school districts while other states do not. This reporting difference could have a noticeable impact on the distribution of state-local shares in the table, because these contributions account for over 20 percent of total aid for some states that include this amount. An effort is under way at the U.S. Department of Education, National Center for Education Statistics, to revise reporting procedures so that this difference will no longer exist.

2 The conclusion is based on the following reasoning: The only instance in which dedicated revenues could actually determine the level of state support is if they exceeded what the state legislature would have appropriated in their absence. In this case, of course, the state legislature would have no incentive to supplement the dedicated receipts with additional general purpose funds. On the other hand, if the legislature appropriates funds over and above

dedicated receipts, then the dedicated revenues are inframarginal to the allocation decision of how much state support local schools receive, i.e., the level of aid that the local schools would receive if the legislature did not appropriate any additional aid from general funds.

[3] American Education Finance Association, ***Public School Finance Programs in the United States and Canada 1986-1987,*** compiled and edited by Richard Salmon, Christina Dawson, Steven Lawton, and Thomas Johns (Sarasota, Florida, 1988).

[4] U.S. Department of Commerce, Bureau of the Census, *Government Organization, 1987 Census Governments,* Volume 1, Number 1 (Washington, DC, 1989), p. XII.

[5] Ibid., for an extended discussion of how dependent school districts are organized.

[6] This is true, for example, in Pennsylvania, where a state Tax Equalization Board applies a uniform procedure to determine full market values from county-determined assessed values for each school district for the purpose of allocating state aid, the formula for which depends in part on a district's property wealth per pupil.

[7] See Robert D. Ebel and James Ortbal, "Direct Residential *Property* Tax Relief," *Intergovernmental Perspective* 15 (Spring 1989): 9-14, for a discussion and compilation of state programs designed to provide tax relief for residential property.

[8] *Public School Finance Programs in the United States and Canada,* p. 121.

[9] *Iowa Tax Reporter* (Chicago: Commerce Clearing House, 1988), p. 1894.

[10] Exceptions are the Philadelphia and Pittsburgh school districts, each of which has an individual statutorily defined higher limit.

"Notable exceptions to this, among the states with independent school districts, are Alabama, where both a genera1 sales tax and selective excise taxes in some eases contribute additional local tax dollars, and Louisiana, where a general sales tax comprises the major source of funds for discretionary local spending.

3
State Aid Programs

Legal Environment

As discussed above, a significant trend in K-12 public school finance over the past 27 years is the marked increase in the relative share of revenues provided by state governments. During the 1960s and, especially, the 1970s, most states not only increased their level of funding but also altered the way in which they disbursed funds to local school districts. This realignment began with a series of state court cases, the most well known of which was *Serrano* v. *Priest* in California.

The plaintiffs in these cases typically challenged the existing structure of local school finance on the basis of its heavy reliance on property taxation. They argued that children in districts with low property wealth per pupil were denied access to educational resources, and hence educational opportunities comparable to those enjoyed by children who lived in communities with greater property wealth. Critical to this argument, of course, is the proposition that there is a direct relationship between the quality of education and spending per pupil.

Defining the appropriate standard by which to measure the degree of equity in educational opportunity across school districts is difficult conceptually and operationally.' On conceptual grounds, does pursuing equity imply that public policies should make circumstances sufficiently similar in all districts such that more resources are provided to schools in poor districts and wealthy districts are restrained from providing excess or above-average education services? Or does pursuing equity simply require that public policies be designed to provide additional resources to poor districts? On operational grounds, should actual expenditures be used to measure the degree of fiscal equity, or should some attempt be made to adjust for regional or urban-rural differences in factor prices? If expenditures are cost adjusted, is it necessary also to adjust for differences in factor quality? Should physical resources devoted to education be used as the equity measure? If so, doesn't this impose an even more serious mandate to account explicitly for differences in factor quality? Finally, perhaps educational achievement (or value added) is the appropriate equity measure. Designing public policies to promote equity defined in this way, however, would require knowledge about the relationship between spending decisions and education outcomes that is not yet available.[2]

The many court challenges-the outcomes of which varied according to state constitutional provisions-prompted widespread legislative activity. The result was a redirection of state aid allocation formulas, with greater emphasis on promoting equalization of per pupil spending across districts.

Allocation Formulas: Foundation and Power Equalization Programs

State aid programs designed to promote more equal spending across school districts fall into two broad classifications: foundation programs and power *equalization* programs.

Foundation programs establish access to a minimum level of expenditure for each pupil that is guaranteed by the state. A state may fully fund this level of expenditure or it may require each district to contribute a local share. The amount that a district must contribute depends typically on its wealth. For most foundation programs, assessed property value per pupil is the measure of wealth used, and the local share is the amount of revenue raised from a property tax where the millage rate (tax rate per $1,000 of assessed value) is uniform throughout the state.

According to this formula, the tax effort required to support the local share of the foundation spending level is the same in each district, regardless of its property wealth per pupil. Because the state contribution equals the difference between the foundation expenditure and the local share, state aid is greater for less wealthy districts where taxing at the statewide rate generates a smaller local contribution. In most states with foundation programs, districts may augment the minimum level of spending with locally raised revenues.

Power equalization programs guarantee that each district will have the ability to generate the same revenue per pupil from a given tax rate, regardless of the size of the district's tax base. Each district then determines the local tax rate. If the revenues raised locally from this levy do not amount to the program's guaranteed level, the state provides the difference. Guaranteed tax base (GTB) and guaranteed tax yield (GTY) are the two common versions of a power equalization program. Since, for any property tax levy,

$$\text{Yield} = \text{Rate} \times \text{Base}$$

is an identity, specifying either the yield or the base at any given tax rate effectively establishes the other. Thus, the two programs are equivalent analytically.

In implementing a power equalization program, two important policy elements must be addressed. The first is whether the program requires recapture. This issue arises in the case of wealthy districts where the amount of revenue generated at a given tax rate exceeds the amount guaranteed under the state aid program. Under a recapture provision, such a district must remit to the state the excess revenue generated. This money is then used, together with state funds, to provide aid to districts where locally raised revenues fall short of the equalization program guarantee.

For a power equalization program truly to equalize revenue-raising potential regardless of differences in local wealth, a recapture provision is necessary. Thus, a program with a recapture provision is sometimes referred to as a "pure" power equalization program.[3] However, recapture provisions tend to be unpopular to residents of high-wealth districts. As a result, and undoubtedly for political reasons, it has been more common for power equalization programs to allow wealthy districts to retain all locally raised revenues and for the state to provide aid to districts that raise less than the guaranteed amount of revenue at a given tax rate.

A second policy decision is whether to impose a limit on the extent to which the state aid program will augment local spending increases. From the perspective of a receiving district, a power equalization program constitutes a matching grant, where the matching rate depends on how far the amount of local revenue raised at a given tax rate falls short of the program guarantee. Districts with less wealth per pupil, for which the state must provide a greater percentage of the total revenue raised at any tax rate, receive a higher matching rate. As a result, the cost of raising an additional dollar of expenditure per pupil is the same for all districts.[4] Under an open-end matching program, no limit exists on the tax rate—and hence the total expenditure per pupil- to which the state subsidy applies. Under a closed-end matching program, a limit is imposed on the amount of expenditure to which the matching rate applies. The rationale for imposing such a cap is to limit the exposure of state budgets to the decisions of local districts.

Allocation Formulas: What Is in Place

What do current state aid programs for local school districts look like? Table 7 presents classifications developed by the American Education Finance Association (AEFA) and the Education Commission of the States/National Conference of State Legislatures (ECS/NCSL) together with one by the National Education Association (NEA). The classifications used in the table are Flat Grant (FG), Foundation Program (F), Full State Funding (FSF), Guaranteed Tax Base (GTB), Guaranteed Tax Yield (GTY), and Percentage Equalizing (PE).

Two observations about these classifications are striking, especially in light of the preceding discussion of the two basic types of state aid programs:

(1) The three rankings are similar in that each uses a more involved classification system than simply foundation program versus power equalization program. Most state aid programs are more complicated than the simple versions of the two basic programs outlined above. In fact, examining the way in which the alternative rankings in Table 7 classify state aid provides valuable insights into the many complexities that arise in configuring programs.

The AEFA classification distinguishes between state aid programs that require local fiscal effort (RLE) and those that do not (ENR). For state aid programs where this distinction is made, RLE exceeds ENR by about two to one.

The ECS/NCSL classification distinguishes between state aid programs on the basis of whether aid is distriiuted on a per pupil basis (PUE) or by a program-defined instructional unit (IUE). Instructional units typically are defined in terms of a number of pupils per teacher, with an explicit weighting for the teacher's academic degree status and number of years of teaching experience. Other items, such as an allowance for capital expenses and pupil transportation, are sometimes included in the funding formula for instructional units. For state aid programs where this distinction is made, PUE exceeds IUE by slightly better than two to one.

Table 7
State Aid Programs

State	AEFA	ECS/NCSL	NEA	State	AEFA	ECS/NCSL	NEA
Alabama	FG	F(IUE)	F	Montana	F(RLE)	F/GTY	F/GTY
Alaska	PE(ENR)	F(IUE)	F	Nebraska	FG	F(PUE)	F
Arizona	F(ENR)	F(PUE)	F	Nevada	F(RLE)	F(PUE)	F
Arkansas	F(RLE)	F(PUE)	F	New Hampshire	F(ENR)	F(PUE)	F
California	FSF	F(PUE)	F	New Jersey[1]	GTB/Y	GTB	GTB
Colorado	GTB/Y	GTY	GTY	NewMexico	FSF	F(PUE)	F
Connecticut	GTB/Y	GTB	GTB	New York	PE(RLE)	PE	PE
Delaware	FG	F(IUE)	PE/FG	North Carolina	FG	F(IUE)	F
Florida	F(RLE)	F(PUE)	F	North Dakota	F(RLE)	F(PUE)	F
Georgia	F(RLE)	F/GTB	F	Ohio	F(RLE)	F(PUE)	F
Hawaii	FSF	FSF	FSF	Oklahoma	F(RLE)	F/PE	F/GTY
Idaho	F(RLE)	F(IUE)	F	Oregon	F(ENR)	F(PUE)	F
Illinois	F(ENR)	F(PUE)	F/GTB/FG	Pennsylvania	PE(ENR)	F/PE	F/PE
Indiana	F(ENR)	F(PUE)	F	Rhode Island	PE(RLE)	PE	PE
Iowa	F(RLE)	F(PUE)	F	South Carolina	F(RLE)	F(PUE)	F
Kansas	PE(ENR)	GTY	GTY	South Dakota	GTB/Y	F(PUE)	F
Kentucky	FG	F/PE	F/GTY	Tennessee	F(RLE)	F(PUE)	F
Louisiana	F(RLE)	F(IUE)	F	Texas[2]	F(ENR)	F(PUE)	F
Maine	F(ENR)	F(PUE)	F/GTB	Utah	F(RLE)	F/PE	F/GTY
Maryland	F(RLE)	F(PUE)	F	Vermont	F(RLE)	F(PUE)	PE
Massachusetts	F(ENR)	F/PE	F	Virginia	F(RLE)	F(PUE)	F
Michigan	GTB/Y	GTY	GTY	Washington	FSF	F(PUE)	F
Minnesota	F(RLE)	F(PUE)	F	West Virginia	F(RLE)	F(IUE)	F
Mississippi	F(RLE)	F(IUE)	F	Wisconsin	GTB/Y	GTB	GTB
Missouri	F(RLE)	F/GTB	F/GTB	Wyoming	F(RLE)	F(IUE)	F

Legend

Type of Program

F-Foundation
GTB-Guaranteed Tax Base
GTY-Guaranteed Tax Yield
PE-Percentage Equalizing
FG-Flat Grant
FSF-Full State Funding

Foundation Unit

PUE-Pupil Unit Equalizers
IUE--Instructional Unit Equalizers

Local Spending Constraint

RLE-Required Local Effort
ENR-Effort Not Required

[1] In June 1990, the New Jersey aid program changed to a combination of a foundation grant with required local effort and a guaranteed tax base.

[2] The Texas legislature modified the existing formula to a combination of a foundation grant with required local effort and a guaranteed tax yield. The new formula went into effect in September 1990. See Bob Bullock, "From the Capitol to the Schoolhouse: An Analysis of the 1990 Education Finance Act," *Fiscal Notes* 90 (July 1990): 1-7.

Sources: American Education Finance Association, ***Public School Finance Programs in the United States and Canada: 1986-1***987, compiled and edited by Richard Salmon, Christina Dawson, Steven Lawton and Thomas Johns (Sarasota, Florida, 1988); Education Commission of the States/National Conference of State Legislatures, ***School Finance at a*** Glance, prepared by Deborah A. Verstegen (Denver, 1988); and National Education Association, ***Search: Understanding State School Finance Formulas*** (Washington, DC, 1987).

Some of the classification categories in the table were discussed earlier. Both AEFA and ECS/NCSL utilize as classifications guaranteed tax base and guaranteed tax yield. As noted above, however, the difference between these two types of power equalization programs lies only in the way in which equalization is defined.

All three rankings include a separate classification for full state funding. As noted above, Hawaii has a single statewide school district funded from the state budget. AEFA also classifies California, New Mexico, and Washington as providing full state funding on the basis that:

> If the government provided a high level of total revenue receipts (over two-thirds) coupled with fiscal equalization programs that deducted much of the remaining local revenue from state allocations, the states employing such programs were classified as

full state funded.[5]

The Nevada program would also qualify as fully state funded under this definition were it not for the fact that most school district revenue is raised by a locally administered property tax (even though the rate is uniform throughout the state).

The AEFA ranking classifies the programs in Alabama, Delaware, Kentucky, Nebraska, and North Carolina as a flat grant on the basis that they "do not take into consideration the fiscal capacities of individual school districts to support public elementary and secondary education."[6]

The AEFA ranking defines as a final classification a percentage equalization program. This category includes state aid programs in Alaska, Kansas, New York, Pennsylvania, and Rhode Island. Under a percentage equalization program, each district receives a certain amount of aid per pupil (or instructional unit) that is calculated to give a higher aid ratio to districts with less fiscal capacity. The AEFA ranking divides this grouping further into cases where at least a certain level of expenditure is required (New York and Rhode Island) and where no particular level of local effort is required (Alaska, Kansas, and Pennsylvania). According to the AEFA classification scheme:

> If the local school districts had the power to select the per unit expenditure levels, the percentage-equalization program can be described as *District-Power Equalization. . . .*[7]

(2) There are several instances in which the three rankings fail to agree on the classification of a particular state aid program. Moreover, in several instances, the ECS/NCSL and NEA rankings provide more than one classification for a program. The principal reason for these apparent anomalies is the same as the one that was used to explain the first observation. Most state aid programs are simply too complicated for indisputable classification according to rudimentary versions of the two basic programs outlined above.

Aid to local school districts in most states consists of a basic instructional aid program plus categorical aid for a variety of special purposes. The organizational structure for accomplishing objectives, however, varies considerably across the states. Consider, for example, states with foundation aid programs, which are by far the most common type of program according to any of the three rankings in Table 7.

As noted above, in states where foundation aid is distributed on the basis of instructional units, the IUE definition varies across states. In states where aid is distributed on a per pupil basis, the items included in the foundation spending vary among the states. For example, in some cases, transportation and capital outlay allowances are included in foundation support, while in other cases, these items are in separate categorical grants. In still other cases, states do not provide direct support for capital outlays. Some states combine a first-tier foundation program to support a basic level of expenditure with a second-tier power equalization program for districts that choose to provide a higher level of expenditure or to provide for expenditure items not included in the first-tier foundation program.

Two other observations about state aid programs are not apparent from any of the rankings in Table 7, but are nonetheless important:

(1) For per pupil based programs, the total amount of state aid that a district receives is equal to the amount of state aid per pupil multiplied by the number of pupils. However, states use a variety of techniques *to* measure the number of pupils in a district for the purpose of determining state aid, each of which raises some questions: First, should the number of pupils be measured on one day or as an average for several selected days throughout the school year? Should the number of pupils be measured by average daily attendance (ADA) or average daily membership (ADM). ADM approximates a measure of total enrollment, while ADA includes only pupils present on the day(s) when measurement occurs. In determining total state aid, using ADA penalizes districts with high rates of absenteeism. Should there be a weighting system for different grades? If so, how should it be done? A common scheme assigns a weight of 0.5 to kindergarten, a weight of 1.0 to elementary school, and a weight somewhere between 1.0 and 1.5 to secondary school.

(2) State aid programs commonly include provisions designed to address special circumstances. Examples include additional aid based on low population density designed to assist rural districts and additional aid based on high population density designed to assist urban schools. Another example is additional aid to assist districts with rapidly increasing enrollments.

In some instances, such special provisions are contained in the basic state aid program, for example, as a factor included in the determination of a foundation expenditure level. In other instances, these provisions are implemented through special categorical aid that supplements the basic program. In yet other instances, and quite commonly, these objectives are accomplished through hold-harmless provisions.[8] One reason for this

type of provision is to provide relief for districts experiencing rapid declines in enrollment. Another frequent use of hold-harmless provisions is to provide a minimum flat grant per pupil to wealthy districts that otherwise would not qualify for any aid under a foundation or power equalization program.

This discussion suggests an extraordinarily important conclusion to be drawn from the diversity in the structure of state aid programs. That is, extreme caution must be exercised when making cross-state comparisons about the degree of fiscal effort that state governments provide in support of K-12 education.

NOTES

[1] For an excellent, detailed discussion of the complex issues involved in assessing equity in school finance, see Robert Berne and Leanna Stiefel, ***The Measurement of Equity in School Finance*** (Baltimore: Johns Hopkins University Press, 1984), especially Chapter 2

[2] The difficulty associated with determining how spending affects educational outcomes has led the courts generally to define equity in terms of expenditures per pupil. See Daniel Rubinfeld, "Judicial Approaches to Local Public Sector Equity," in Peter Mieszkowski and Mahlon Straszheim, eds., ***Current Issues in Urban Economics*** (Baltimore: Johns Hopkins University Press, 1979).

[3] See, for example, Robert F! Inman, "Optimal Fiscal Reform of Metropolitan Schools," ***American Economic Review*** 68 (March 1978).

[4] Except in the absence of a recapture provision, where the cost is lower for wealthy districts.

[5] American Education Finance Association, ***Public School Finance Programs in the United States and Canada 1986-1987,*** compiled and edited by Richard Salmon, Christina Dawson, Steven Lawton, and Thomas Johns (Sarasota, Florida, 1988), p. 5.

[6] Ibid.

[7] Ibid.

[8] Hold-harmless provisions typically place a limit on the percentage increase (or decrease) in the amount of aid that a district receives from one year to the next.

4
State Aid and Local Spending

The Local Spending Decision

Perhaps the most obvious question to pose at this point is: How do existing state aid programs affect the level of spending per pupil in different school districts. Particularly, to what extent does state aid supplement or even stimulate local spending, or substitute for local dollars, providing local tax relief rather than increasing school spending?

This is a difficult question. To answer it properly requires knowledge of how state aid affects consumer-voter demands for education spending and the way in which those demands affect budget decisions.

The latter issue has been the subject of research in the field of public choice, the scope of which exceeds the focus of this report.' One relevant conclusion can be drawn from this literature, however. The way in which individual demands affect budgetary decisions depends critically on the institutional structure that governs the process. Those institutional structures are several and varied.[2]

Given the diverse institutional environments within which school spending decisions are made, it is not easy to generalize about how consumer-voter demands affect school budgets. That consumer-voters have an impact on local spending decisions seems inarguable. Therefore, it is both possible and worthwhile to consider in some detail the way in which state aid affects the demand for school spending. This demonstrates the role that state aid plays in the framework that underlies the numerous econometric studies of the determinants of local school district spending. An understanding of this framework, in turn, allows for better use of the results of these studies as an input for decisionmaking.

State Aid and the Consumer-Voter

Consider first the choice that an individual faces between different levels of publicly provided education and other goods and services. According to the standard paradigm of microeconomic theory, each consumer faces the constraint that expenditures on education plus expenditures on other goods and services, including other public services, cannot exceed income.[3] For publicly provided goods, like education, individual consumers do not select the level provided; rather, they consume their community's uniform level, as determined through the political process.

The cost to individuals of publicly provided goods depends on the tax system used to finance them. As pointed out above, in the overwhelming majority of states, *additional* dollars of local revenues for public school finance are raised through an ad valorem property tax. If consumer-voters perceive that all taxes on commercial and industrial property are borne by nonresidents of the school district, then the tax-price that any individual must pay for an additional dollar of spending per pupil throughout the district will equal the share of the local per pupil tax base that he or she owns.[4]

State aid affects choices by changing an individual's income and tax-price for education (Appendixes 2A through 2E present formal analyses of consumer-voter budget constraints under various forms of state education aid). After the distribution of state aid, consumer-voters are free to choose the combination of education services and other goods that most closely matches their preferences. The resulting level of education services for the community will depend on how these individual choices are transformed into education budgets through the political process.

Distributions of Income and Tax-Price

The analyses in Appendixes 2A through 2E demonstrate how alternative state aid programs affect choices regarding school spending through the way in which they affect income and tax-price. In light of this, it seems appropriate to ask: What do the

distniutions of these economic parameters (income and tax-price) look like across school districts? That is, do representative consumer-voters in low-income districts generally also face a high tax-price for school spending (because of low property wealth per pupil)? Is the opposite true? Are these parameters unrelated? Moreover, since the selection by a state government of a particular type of program determines whether one or both of these parameters will be affected, it seems reasonable to wonder about the extent to which they are, or are not, correlated.

The distribution of these two parameters across school districts will differ, of course, across states. It is not readily apparent, a priori, to what extent the overall patterns in various states will exhibit similar characteristics. One general observation is possible, however: The amount of variance that characterizes the distribution of either parameter should be larger in states where school districts are defined over smaller populations than in states where school districts are defined over larger populations. Defining school districts over larger populations will generally internalize local differentials and thus even out disparities in income and property wealth *across* districts. For example, in Hawaii, where there is a single statewide school system, there are no such differentials.

It was noted above (see Table 4) that the largest concentration of states countering the national trend toward a greater reliance on state funds as a source of school district revenues is in the Southeast. It is interesting to note that eight of the ten states where more than half of all school districts are defined as coterminous with one or ***more*** county governments also are located in the Southeast.[5] In most states where school districts are not coterminous with county governments, they comprise a smaller municipal unit. Considered together, these two factors may suggest at least a partial explanation for the lack of movement toward more reliance on state funding in the Southeast. That is, it might be the case that defining school districts as broad, countywide jurisdictions leads to less pronounced disparities in income and property wealth, and hence there is less pressure to promote equity through state spending" However, other factors may be involved, including political factors.

Analyzing differences in the distributions of income and tax-price for representative consumer-voters is difficult in part because obtaining the information required to compute tax-prices generally requires more effort than obtaining information about income. As derived above, even under the simplifying assumptions that (1) house values can serve as a proxy for an individual's taxable property and (2) all taxes on commercial and industrial property are exported to nonresidents of the district, calculating an individual's tax-price requires information about house value, total property value in the school district, and the number of pupils.

The Case of Pennsylvania

Because the data collection requirements involved in calculating tax-price are substantial, this report presents an analysis of the distributions of income and tax-price across school districts for one state only-Pennsylvania.

There was a number of reasons for choosing Pennsylvania, which had 504 local independent school districts during the 1979-80 academic year. Property taxes are the sole source of ***additional*** dollars for the local share of school spending. The state taxes all property at a uniform rate and excludes personal property, such as automobiles and boats, making the assumption that house value can serve as a proxy for an individual's property value quite reasonable. Most of the data required to calculate tax-price are available from published sources-at least for the individual in each school district who owns the median valued house or is a member of the household with the median income.

Pennsylvania school districts are independent municipal units and in general are not coterminous with any other single municipal government. Thus, it is possible to analyze how the distributions of income and tax-price would change if school districts were redefined to be coterminous with the 67 county governments.'

Figure 2 presents the distributions of the tax-price for an additional $1.00 school spending per pupil to the individual who owns the median valued house for Pennsylvania's actual 504 school districts and hypothetically defined countywide school districts. Figure 3 presents the distributions for median household income.

The two distributions for tax-price are centered at about $0.80. This suggests it costs about $0.80 to raise school spending by $1.00 per pupil for the person who owns the median valued house in a school district that is located near the center of the distribution. Remember, however, that this calculation is based on the assumption that all taxes on commercial and industrial property are exported to nonresidents. If some of the burden of taxes on commercial and industrial property is borne by school district residents, then the entire distribution would shift to the right. The distribution of tax-prices for the individuals owning the median valued homes in Pennsylvania's local school districts is quite symmetrical. The tax-price in a district at the low end is only about half that at the center, while the tax-price in a district at the high end is 1.5 times that at the center. Thus, the highest and the lowest tax-prices differed by a factor of 3 for the actual districts during the 1979-80 school year.

Redefining school districts as coterminous with county governments would reduce the variance in tax-price. The coefficient of variation for the county distribution is 0.20, compared to 0.25 for the local school districts. This hypothetical redefmition produces a distri-

Figure 2

Tax-Price of Raising $1 Per Pupil for Voter with Median Valued House

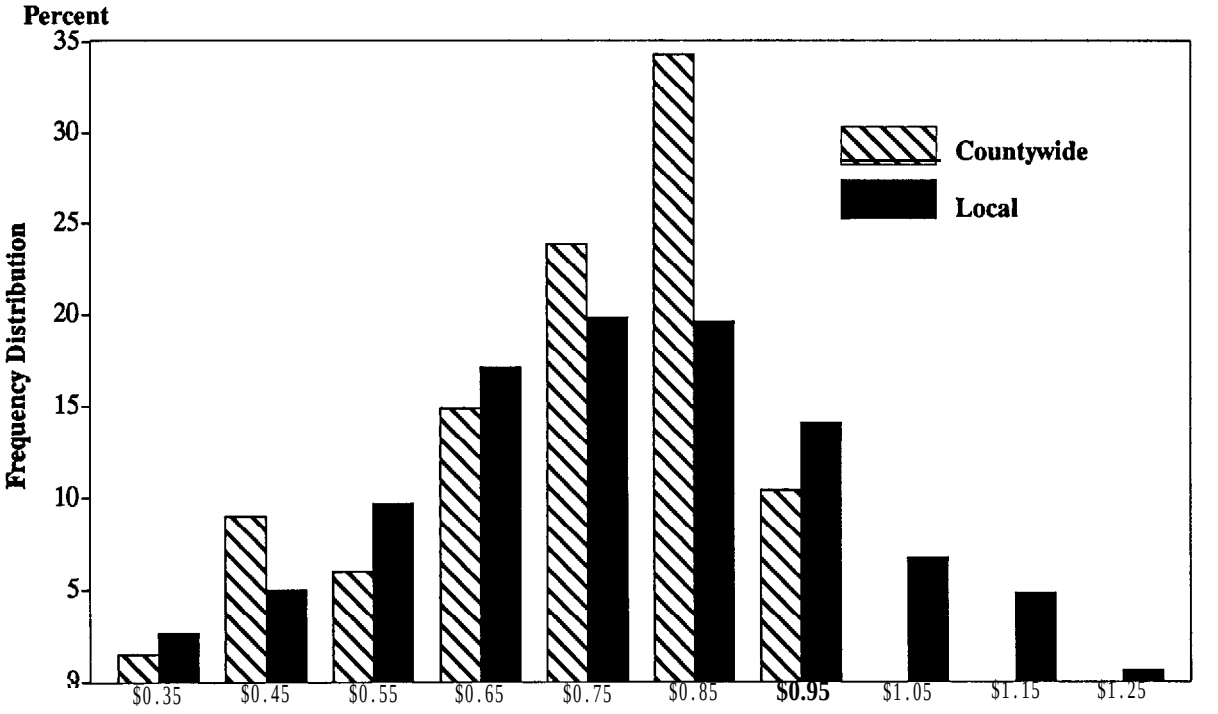
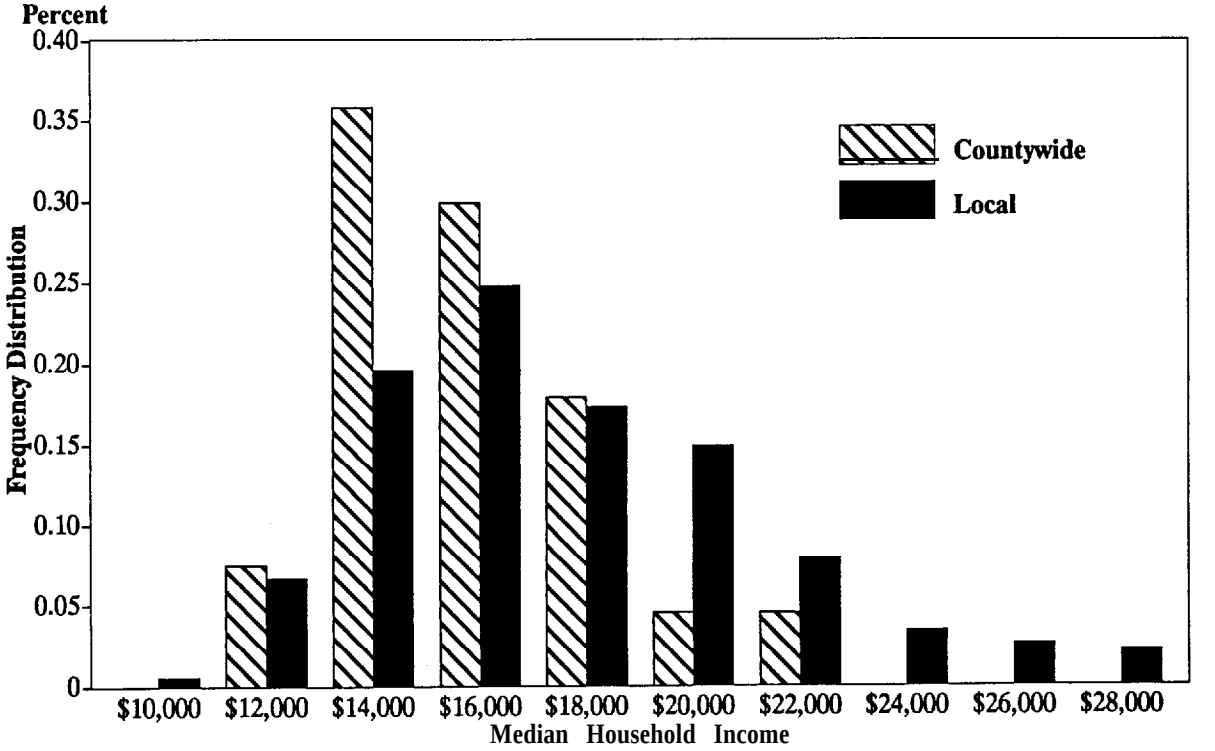


Figure 3

Median Household Income



bution of tax-prices that is skewed to the left. This means that increasing the size of school districts in this way would reduce substantially the tax-price. of school spending for voters in actual districts with low property wealth, but it would not increase the tax-price in some high-wealth areas to the same extent.

The distributions for the median household income in 1980 are both skewed to the right. Again, redefining school districts as coterminous with county governments reduces the distribution's variance. The coefficient of variation for the county distribution is 0.14, compared to 0.22 for the local school districts. It appears that redefining school districts as countywide would once again have more impact at the high end of the distribution. In this case, however, reducing variance to a greater degree at the upper end of the distribution fails to work in a way that would presumably lead to higher spending in poorer districts. In fact, the percentage of districts where median family income is less than $13,000 remains the same after this hypothetical redefinition.

What is the relationship between the two economic parameters? For the 504 school districts, the partial correlation coefficient between median tax-price and median household income is 0.17. This indicates that there is a slightly positive relationship. Districts where median tax-price is low tend to be those where income is low, and vice versa.* For the hypothetical countywide school districts, the correlation coefficient between median tax-price and median income is 0.10. This is positive but even smaller.

This positive relationship between tax-price and income indicates the existence of many districts where many consumer-voters have low incomes but also face a low price for school spending. This may explain why Pennsylvania's state aid program uses both income and property wealth per pupil (rather than say a pure foundation program) in determining the amount of per pupil aid provided to each district?

NOTES

'Over the past two decades, most studies designed to explain how local public expenditures are determined have been based on the median voter model. Within this model, the level of local public sector output is determined by the voter, whose private demand is the median when the demands of all voters are ranked in an ordered array. See Randall G. Holcombe, "The Median Voter Model in Public Choice Theory," 61 (May 1989), for a recent critique of this analytical framework. For an example of this model applied to the determination of local school spending (New York State data), see Vincent G. Munley, "Has the Median Voter Found a Ballot Box He Can Control," ***Economic Inquiry 22*** (July 1984). For an example of an alternative framework, often referred to as the bureaucratic supply model, also applied to the determination of school spending (Oregon data), see Thomas Romer and Howard Rosenthal, "Median Voters or Budget Maximizers: Evidence from School Expenditure Referenda," Economic ***Inquiry 20 (October*** 1982).

[2] In some states, school districts are countywide; in other states, they are smaller, autonomous local governments. In some states, school district officials are elected by popular vote; in other states, school district officials are appointed by other elected officials. In some states, school districts have independent taxing authority; in other states, school districts receive appropriations from general county or municipal budgets. In some states, voters have direct control over school spending decisions as a result of public referendum requirements; in other states, they do not. Even in states where a referendum is required, the requirements vary considerably. In some cases, approval of each-year's budget is necessary. In other cases, approval is necessary only if the district proposes a tax increase. In still other cases, capital expenditures require referendum approval, but operating expenditures do not.

[3] The model is: $Y = p_e \cdot X_e \simeq p_i \cdot X_i$, where Y is the individual consumer-voter's income, p_e is the tax-price for education for the consumer-voter, X_e is the quantity of education services consumed, p_i are the unit prices of other goods and services, and X_i are thequantitiesofother goods and services.

[4] If individuals perceive that residents hear some portion of the tax on commercial and industrial property, then the tax-price derived in Appendix A 1 must be modified to take this into account. The seminal study about how individuals perceive the extent to which nonresidential property taxes are exported and how this affects spending on public schools is Helen F. Ladd, "Local Education Expenditures, Fiscal Capacity, and the Composition of the ***Property*** Tax Base," ***National Tax Journal*** 28 (June 1975). For a more recent treatment of this issue, see Ronald F. Ferguson and Helen F. Ladd, "Measuring the Fiscal Capacity of U.S. Cities," in H. Clyde Reeves, ed., ***Measuring Fiscal Capacity*** (Cambridge, Massachusetts: Lincoln Institute of Land Policy, 1986).

[5] U.S. Department of Commerce, Bureau of the Census, ***Government Organization, 1987 Census of Governments,*** Volume 1, Number 1 (Washington, DC, 1989), Table 19.

[6] The proportions of K-12 funding provided by state governments are among the highest in the Southeast.

'The following sources were used for these calculations: T&x-Price: Median House Value-U.S. Department of Commerce, Bureau of the Census, ***1980 Census of Population, General Housing Characteristics,*** Table 45; Market Value of Taxable ***Property-33rdAnnual Certification of the Pennsylvania State Tar Equalization Board;*** Number of Pupils data provided by Pennsylvania Department of Education (for independent school districts), and ***1980 Census of Population, General Social and Economic Characteristics,*** Table 175 (for counties); Median Income data-1980 ***Census of Population, General Social and Economic Characteristics,*** Table 180.

[8] An example of a district with both a low median tax-price and a below average median income is the city of Philadelphia, where median income was $13,169 and median tax-price was $0.46.

[9] An example of a careful analysis of how income and property wealth vary across school districts in the context of evaluating alternative state aid formulas is Thomas F. Pogue and John L. Solow, "School District Fiscal Capacity," Public Policy Center, University of Iowa, November 1988.

5
Conclusion

The Equalizing Effect of State Aid

While differing in the way in which they affect consumer-voter choices between school spending and the consumption of other goods and services, most of the variations of state aid programs analyzed here share a common purpose: They are intended to promote equity across school districts in the resources that are available for education. In order to accomplish this, they dispense a greater amount of aid to districts that without state funds presumably would provide a lower level of per pupil spending. To what extent have they succeeded? The reviews are mixed.

With regard to power equalization programs, Richard Murnane concludes that:

> it seems clear that the main lesson from the first ten years of school finance is that GTB fiance plans which lower the price of education to property poor communities, but leave the communities free to choose between more spending on education or lower tax rates, will not produce an equalization of per pupil spending levels across school districts and will not result in all districts spending enough to provide their students with a strong basic academic program.'

Murnane recommends that states adopt foundation programs with a high (required) foundation level of spending per pupil. Ronald Fisher agrees with Murnane and provides several examples to illustrate why both power equalization programs and foundation programs without high required foundation levels can fail to result in equalized spending across districts.*

The reason for this conclusion has to do with the responsiveness of local spending to state aid. As the analysis presented here has shown, state aid affects consumer-voter choices through its effect on income and tax-price. Foundation programs have only an income effect; power equalization programs have a price effect and an income effect. Most studies of the demand for school spending, however, find that locally determined levels of expenditure per pupil are not overwhelmingly responsive to changes in either of these parameters. Most of the evidence suggests that a 10 percent decline in the tax-price leads to an increase in spending per pupil between 2 percent and 5 percent, and that a 10 percent increase in income leads to an increase in spending between 6 percent and 10 percent.[3]

At first glance, it may appear that foundation programs are superior because they increase income and that school spending is somewhat more responsive to increases in income. Most foundation programs do not increase the income of a consumer-voter enough, however, to stimulate a large equalizing effect in per pupil spending across districts. Consider some reasonable figures. For the 1987-88 school year, the average current expenditure per pupil for the entire United States was about $4,200. The average state share of school district revenues was about 50 percent. Median household income in 1987 for the entire United States was about $26,000. Next, consider a representative consumer-voter in a poor district where a foundation state aid program is designed to have a large impact on school spending. Let this individual have a household income 25 percent below the national average ($19,500), with a relatively high tax-price of school spending per pupil of $1.25. Also let the state provide a per pupil grant equal to 75 percent of the national average of *total* spending (combined federal-state- local) per pupil. The increase in income that is generated by the foundation grant (under conditions designed to favor the stimulative nature of its effect) for this consumer-voter is almost $3,950, or about 20 percent of $19,500.'

This, in turn, would lead to an increase in school spending of only between 12 percent and 20 percent above what it would have been ***in the absence of any state aid.***

This example may understate somewhat the effect that state aid has on spending by school districts. Some evidence exists that lump sum intergovernmental grants stimulate spending to a greater degree than increases in income-contrary to what economic theory predicts.' According to this phenomenon, referred to as the "flypaper effect" because it implies that grant money sticks where it hits, intergovernmental grants may have an effect about four times as great as income increases. More recent studies, however, suggest that much of the flypaper effect observed in early empirical estimates may have been a result of incorrectly specified econometric models.[6]

The critical feature of Murnane's recommendation is a high required foundation spending level. Fisher concurs, but he suggests that a power equalization program with a required minimum tax rate for all districts is a means of accomplishing the same result. The reason for prescribing a stick rather than a carrot lies in the effect that price reductions and income increases have on school spending decisions+ The empirical evidence suggests that, given the way in which these programs are typically structured, state aid is used more to reduce local taxes than to increase school spending.

Robert Berne views the results that existing state aid programs have had on the degree of equity in school spending with somewhat more optimism.' His analysis of trends in equity leads him to conclude that the results have been mixed. He suggests that state programs in at least some cases have prevented a deterioration in the condition of equity that would have otherwise occurred because of other forces affecting school spending during the 1980s. He notes that it is important to judge the results of state aid programs according to what would have occurred in their absence, not simply in terms of what has occurred in their presence.

According to the analysis developed here, the effect that any state aid program has on the degree of equity that characterizes school district spending levels will depend on: (1) how the program affects consumer-voter choices; (2) the distribution across school districts in the values of the economic parameters for consumer-voters; and (3) the political institutions that govern the way in which consumer-voter demands affect school-district spending levels. A judgment about the success or failure of any particular state aid program requires a careful analysis that (1) deals explicitly with each of these considerations; (2) estimates the effect that the program has had on school spending levels; and (3) simulates spending levels in districts in the absence of state aid (or perhaps under an alternative state aid program)."

Finale

The most important observation about the status of public school finance in the United States is the great diversity of programs and institutional arrangements. The level of state responsibility in raising revenues, the structure of state aid programs, and the institutions that govern the political process through which school district budgets are determined all vary considerably across states. This diversity makes it difficult to formulate nationwide generalizations about how this important public service is financed. There are too many permutations of these factors to make a simple evaluation meaningful.

On September 22, 1983, the Advisory Commission on Intergovernmental Relations approved the following recommendation:

The Commission recommends that states and the localities continue experimentation in developing appropriate funding patterns in light of their distinctive circumstances. The Commission further recommends that in this process they should address the equity issue, both in terms of revenue raising and of equal access to a quality education.

It appears that the circumstances that led to this recommendation continue to exist. Proposals that are intended to promote excellence in education-if they are to be implemented with success-will have to accommodate this diversity.

NOTES

'Richard J. Murnane, "An Economist's Look at Federal and State Education Policies," in John Quigley and Daniel Rubinfeld, ***eds., American Domestic Priorities: An Economic Appraisal*** (Berkeley: University of California Press, 1985), p. 133.

[2] Ronald C. Fisher, ***State and Local Public Finance*** (Glenview, Illinois: Scott, Foresman and Company, 1988), Chapter 18.

[3] Ibid., Chapter 14, for a review of this literature.

[4] ((.75) • [illegible] • ($1.25)) = $3,937.50.

[5] See Edward M. Gramlich, "Intergovernmental Grants: A Review of the Literature," in Wallace E. Oates, ed., The ***Political Economy Fiscal Fedemlism*** (Lexington, Massachusetts: D.C. Heath Co., Lexington Books, 1977) for an early review of the literature. Paul N. Courant, Edward M. Gramlich, and Daniel L. Rubinfeld, "The Stimulative Effects of Intergovernmental Grants: Or Why Money Sticks Where It Hits," and Wallace Oates, "Lump-Sum Intergovernmental Grants Have Price Effects." in Peter Mieszkowski and William H. Oakland, eds., ***Fiscal Fedemlism*** (Washington, DC: The Urban Institute, 1979); and Thomas Romer and Howard Rosenthal, "An Institutional Theory of the Effect of Intergovernmental Grants,"

National Tax Journal 33 (December 1980) all develop theoretical models that explain why this might occur.

[6] See Sharon B. Megdal, "The Flypaper Effect Revisited: An Econometric Explanation," *Review of Economics and Statistics* 69 (May 1987), and Ernest M. Zampelli, "Resource Fungibility, the Flypaper Effect, and the Expenditure Impact of Grants-in-Aid," Review *of Economics and Statistics* 68 (February 1986).

[7] Robert Berne, "Equity Issues in School Finance," *Journal of Education Finance* (Fall 1988).

*See Thomas Romer, Howard Rosenthal, and Vincent Munley, "Economic Incentives and Political Institutions: Spending and Voting in School Budget Referenda," National Bureau of Economic Research, Working Paper #2406, for an example of such an analysis.

Appendix 1

Appendix Table 1-A presents the results obtained from estimating this equation for the 27-year period and for each sub-period using (1) all 50 states and (2) the contiguous 48 states as the basis for estimation for expenditures per pupil. Appendix Table 1-B presents the same results for cost-adjusted expenditures per pupil. The results in Appendix Table 1-B generally exhibit greater statistical significance than those in Appendix Table 1-A. In both tables, the results exhibit greater statistical significance when Alaska and Hawaii are excluded. Together, these observations corroborate the supposition that education expendi

Appendix Table 1 -A

Relationship **between Expenditure Per Pupil Level (Not Cost Adjusted) and Subsequent Growth Rate in Expenditure Per Pupil**

All 50 States	48 Contiguous States
27-Year Percent Change = α + β . (1959-60 Expenditure Level)	
α = 4.67	α = 4.97
β = -0.000479	β = -0.000734
se(β) = 0.000289	se(p) = 0.000292
|t| = 1.66	|t| = 2.51
R^2 = 0.05	R^2 = 0.12
10-Year Percent Change = α + β . (1959-60 Expenditure Level)	
α = 7.94	α = 8.03
β = -0.001925	β = -0.002027
se(β) = 0.000488	se(β) = 0.000511
|t| = 3.94	|t| = 3.96
R^2 = 0.24	R^2 = 0.25
10 year percent Change = α + β . (1969.70 Expenditure Level)	
α = 3.05	o! = 3.92
β = 0.000144	β = -0.000277
se(β) = 0.000282	se(p) = 0.000232
|t| = 0.51	|t| = 1.20
R^2 = 0.005	R^2 = 0.03
7 year percent Change = α + β . (1979-80 Expenditure Level)	
α = 2.95	α = 2.46
β = 0.000040	β = 0.000213
se(p) = 0.000261	se(β) = 0.000344
|t| = 0.15	|t| = 0.62
R^2 = 0.0004	R^2 = 0.008

Source: Based on the data in Table 1-A.

Appendix Table 1 -B

Relationship between Expenditure Per Pupil Level (Cost Adjusted) and Subsequent Growth Rate in Expenditure Per Pupil

All 50 States	48 Contiguous States
27 year percent Change = $\alpha + \beta$. (1959-60 Expenditure Level)	
α = 4.88	α = 4.89
β = -0.000659	β = -0.000706
se(β) = 0.000363	se(β) = 0.000346
$\|t\|$ = 1.82	$\|t\|$ = 2.04
R^2 = 0.06	R^2 = 0.08
10 year percent Change = $\alpha + \beta$. (1959-60 Expenditure Level)	
α = 8.62	α = 8.51
β = -0.002357	β = -0.002303
se(β) = 0.000544	se(β) = 0.000546
$\|t\|$ = 4.34	$\|t\|$ = 4.22
R^2 = 0.28	R^2 = 0.28
10 year percent Change = $\alpha + \beta$. (1969-70 Expenditure Level)	
α = 3.99	α = 4.26
β = -0.000262	β = -0.000415
se(p) = 0.000328	se(p) = 0.000255
$\|t\|$ = 0.80	$\|t\|$ = 1.62
R^2 = 0.01	R^2 = 0.05
7 year percent Change = $\alpha + \beta$. (1979-80 Expenditure Level)	
α = 1.67	α = 2.32
β = 0.000464	β = 0.000228
se(p) = 0.000260	se(p) = 0.000259
$\|t\|$ = 1.78	$\|t\|$ = 0.88
R^2 = 0.062	R^2 = 0.016

Source: Based on the data in Table 1-B.

ture data for Alaska and Hawaii should be evaluated separately because of cost differentials and because of greater reliance on state-dependent schools.

In spite of the disparity in statistical significance across the four cases analyzed in the tables, the qualitative conclusions are quite similar in each instance. For the 27-year period, the coefficient of the initial expenditure level is negative. This estimate is statistically significant at the 10 percent level in Appendix'lhble 1-A when all 50 states are used, and at better than the 1 percent level for the 48 contiguous states in Appendix Table 1-A. It is statistically significant at better than the 1 percent level in both cases in Appendix Table 1-B. These results suggest that the growth in spending per pupil was greater in states where the initial expenditure level was lower.

Perhaps more striking is the pattern of results obtained for the sub-periods. For the decade of the 1960s, the effect of initial expenditure level on the annual growth rate in per pupil spending is negative and significant at better than the 1 percent level, regardless of whether or not Alaska and Hawaii are included and whether or not expenditures per pupil are cost adjusted. For the subsequent two periods, the coefficient is for the most part not significant at a generally accepted level of statistical inference. (It is marginally significant for the second lo-year period, when expenditures are cost adjusted and Alaska and Hawaii are excluded.)

In interpreting these results, it is important to distinguish between (1) the statistical significance and (2) the relative magnitude of the effect of differences in initial expenditure level on subsequent growth rates in per pupil spending. The fact that the coefficient of initial expenditures is statistically significant at better than the 1 percent level for the first lo-year period means that if in fact there was **no** relationship between initial expenditure level and subsequent growth rate, then the probability of obtaining this result by pure chance is less than one in

100. Thus, the evidence supporting the existence of a relationship is quite strong.

On the other hand, the magnitude of the estimated relationship is not particularly great. Consider for example that the estimated coefficient based on expenditures per pupil for the 48 contiguous states over the 27-year period is -.00073. This translates to a higher annual growth rate of 0.73 percent for a $1,000 difference in initial expenditure per pupil. From Table 2-A, the standard deviation in 1959-60 expenditure per pupil for the 48 contiguous states was $292. Based on this, the expected annual growth rate differential between a state initially spending two full standard deviations below the average and one spending two full standard deviations above the average-a very substantial difference— would be slightly less than one percent. Within the context of an average growth rate from 1959-60 to 1986-87 of 4.0 percent per year, the impact of this relationship appears modest.

Appendix 2

Derivations of the Effect that Alternative State Aid Programs Have on the Income Constraint of a Representative Consumer-Voter

The diagrams in Figure 4 illustrate graphically the trade-off that consumer-voters face between additional spending per pupil on publicly provided education and private consumption of other goods and services. In the vernacular of economics, this trade-off represents an individual's income constraint.

The vertical intercept is income divided by the price per unit of other goods and services, shown as G' in each panel. This represents the maximum amount of other goods that could be purchased if the level of school spending were zero. The horizontal intercept is income divided by the price per unit of education expenditures, shown as E' in each panel. This represents the maximum amount of education spending possible such that no income remains to purchase other goods and services. The slope of the income constraint is the ratio of the tax-price of school spending to the price of other goods. The steeper the slope, the higher is the tax-price of school spending relative to other goods. Diagrammatically, this is illustrated by the fact that when the slope of the income constraint is less steep, a smaller amount of other goods and services must be forgone in order to provide an additional dollar of spending per pupil.

The nine panels in the figure illustrate different situations regarding income and the tax-price of school spending. They could portray, for example, representative consumer-voters in different school districts. The three columns from left to right represent successively higher levels of income (shown as a parallel shift away from the origin of the income constraint). Thus, for each of the three diagrams in any column, the distance from the origin to G' (the maximum amount of other goods and services that could be purchased in the absence of any school spending) is identical. The three rows from top to bottom represent successively lower tax-prices (shown as income constraints with the same vertical intercept but less steep slopes), corresponding perhaps to individuals with similar houses in districts with progressively higher total property value per pupil. Thus, moving down any of the three identical income columns illustrates that otherwise similar consumer-voters in districts with greater property wealth are able to purchase a higher level of spending per pupil for the same amount of forgone other goods and services.

If each consumer-voter could select the level of school spending per pupil, then he or she would select the most preferred combination of school spending and other goods consumption along his or her respective income constraint. In practice, of course, this is not possible. Individuals instead attempt to choose this level indirectly (1) by voting on school budgets in referenda or (2) by voting in local school board elections for candidates who support a level of spending that is close to their own choice. Within this framework, it is possible to examine how different state aid programs affect the choices available to consumer-voters.

2A. Trade-Off Faced by Consumer-Voter: No State Aid

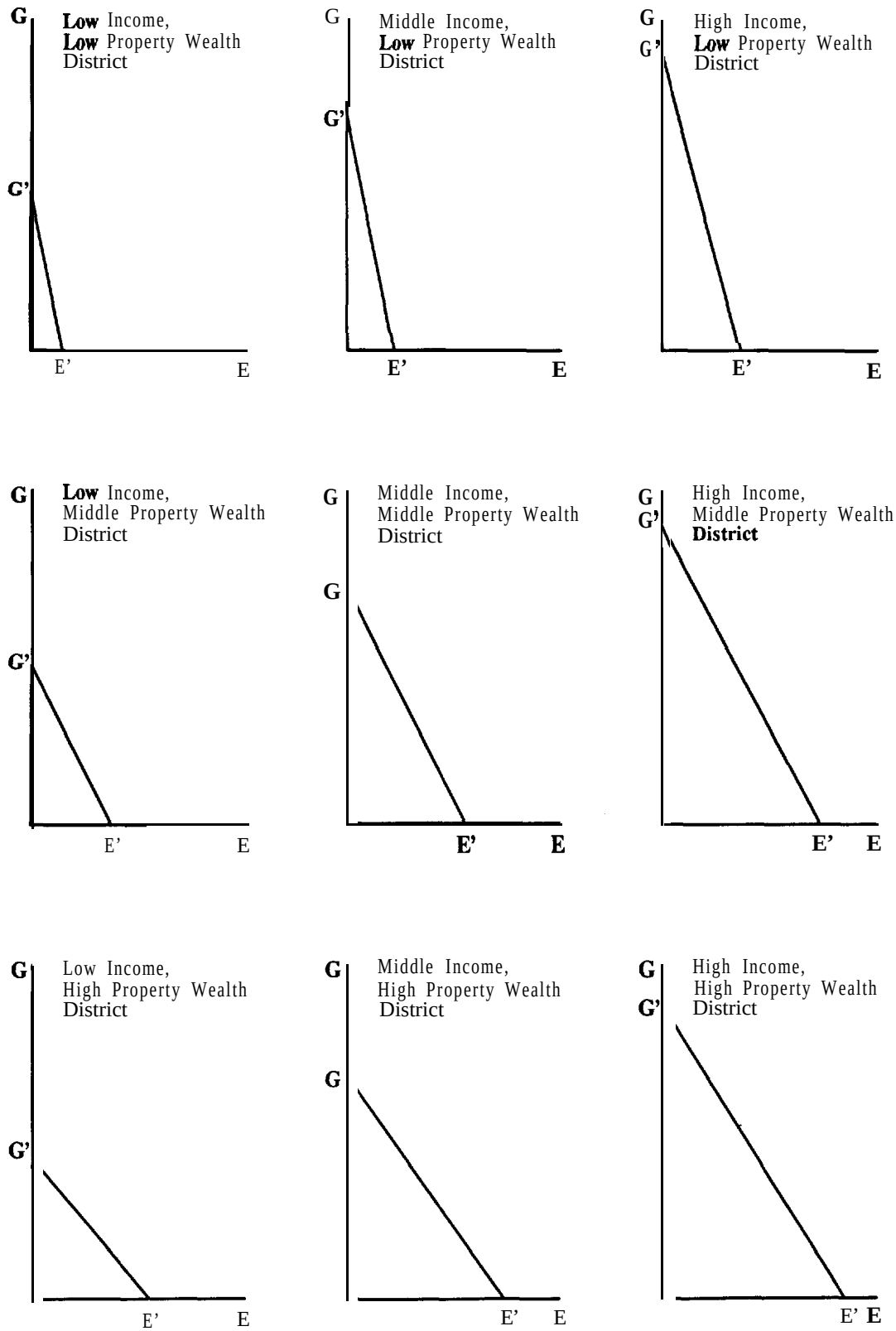
If consumer-voters perceive that all taxes on commercial and industrial property are borne by nonresidents of the school district, then their income constraint is:

$$I = P_g G + tH$$

where I is the individual's income, P_g is the unit price of other goods and services, G is the amount of other goods and services consumed, t is the school district tax rate, and H is the consumer's taxable property. Since for most individuals the principal form of property subject to local taxation is their house, house value (H) here proxies taxable property.

In the absence of state aid, school districts face the budget constraint that total expenditures must equal total locally raised revenue, or:

Income Constraints **with No State Aid**



$$NE = tV$$

where N is the number of pupils, E is the level of expenditure per pupil, t is again the local property tax rate, and V is the total value of taxable property in the district. Solving this equation for t yields:

$$t = E/(V/N)$$

Substituting thisvalue fort into the income constraint for a consumer-voter in turn yields:

$$I = P_gG + [H/(V/N)]E$$

In this formulation, it is clear that the tax-price-the term by which E (level of expenditure per pupil) is multiplied to obtain total expenditures on publicly provided education-to each consumer-voter of increasing the level of educational expenditure per pupil in the district by one dollar is equal to the value of the individual's house (or taxable property), H, divided by the total value per pupil of taxable property in the district (V/N).

Solving the individual's income constraint for G yields:

$$G = (I/P_g) - \{[H/(V/N)]/P_g\}E$$

This is the linear relationship illustrated in the nine panels of Figure 4.

The form of state aid that is most simple to analyze is a flat grant per pupil. An example of a flat grant per pupil is a foundation program where the foundation expenditure is fully funded by the state. State aid in North Carolina closely approximates a flat grant program, and flat grants comprise a substantial portion of the aid programs in Delaware, Kentucky, and Nebraska.

The panels in Figure 5 illustrate the effect of this type of aid program on the individual's trade-off for the nine situations regarding income and tax-price that are depicted in Figure 4. In this figure (and in Figures 5 through 10 below) the solid line represents an individual's income constraint without any state aid, and the heavy dashed line represents the income constraint with the state aid program. From the individual's perspective, this effect is identical to an increase in income, with the stipulation that the level of spending per pupil selected must at least equal the amount that can be purchased with this income transfer. (Appendix 2B presents a formal derivation of this result.)

In each panel of Figure 5, S represents the state aid flat grant per pupil. Its effect is shown as the horizontal displacement of the individual's income constraint by the distance from G' to point (b). This displacement is equal to the distance from the origin to S on the E axis. E* represents the maximum amount of spending per pupil possible, including the portion financed through state aid. The amount of income equivalent generated in this way is shown in diagrams by the vertical distance between G' and G*. G* represents the maximum amount of other goods and services that could have been purchased in the absence of a stipulation that the grant must be used for school spending. The income equivalent is proportional to a consumer-voter's tax-price for school spending (see Appendix 2B). This can be seen by the fact that the vertical distance between G' and G* decreases from row 1 to row 2 to row 3, as the tax-price declines.

2B. Flat Grant Per Pupil

If the state provides a flat grant of S per pupil, then the school district's budget constraint is:

$$NE = tV + NS \qquad (1)$$

and the income constraint of a consumer-voter is:

$$I = P_gG + [H/(V/N)](E-S) \qquad (2)$$

It is possible to manipulate this equation algebraically and rewrite the income constraint as:

$$I + [H/(V/N)]S = P_gG + [H/(V/N)]E \qquad (3)$$

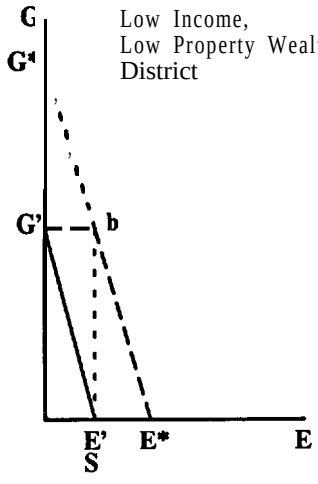
This is identical to the pre-aid income constraint except that the term [H/(V/N)]S has been added to the left hand side of the equation-the consumer-voter's income.

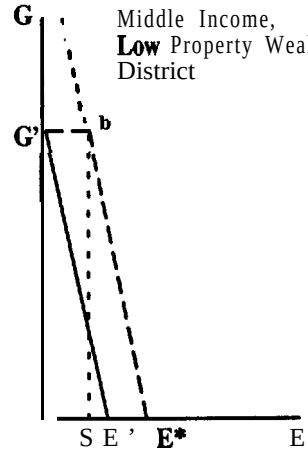
Writing the income constraint in this way shows that from the perspective of a consumer-voter, state aid in the form of a flat grant corresponds to an increase in income, with the restriction that this incremental income must be used to consume additional school spending. The amount of income equivalent received by an individual through this in-kind transfer is equal to the size of the flat grant per pupil, S, multiplied by the tax-price [H/(V/N)], to the consumer-voter of increasing school spending per pupil by one dollar. Thus, for any level of flat grant per pupil provided throughout a state, the magnitude of the income increase that a consumer-voter receives is proportional to his or her tax-price for education spending.

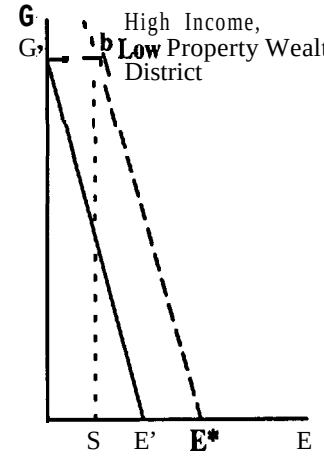
According to all three rankings in Table 7, foundation programs are by far the most common form of state aid. The panels in Figure 6 illustrate the effect that a foundation program has on the trade-off that consumer-voters face between local spending on public schools and the consumption of private goods and services for the same nine situations that were depicted in Figures 4 and 5. (Appendix 2C presents a formal derivation of this result.)

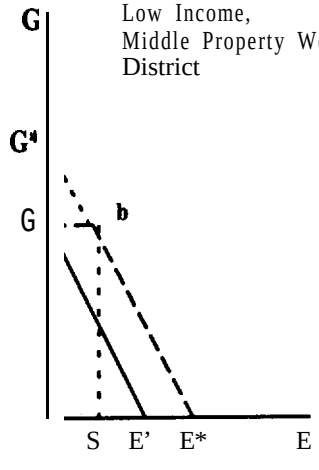
F in each panel indicates the foundation level of expenditure per pupil. As the figure is drawn (for the

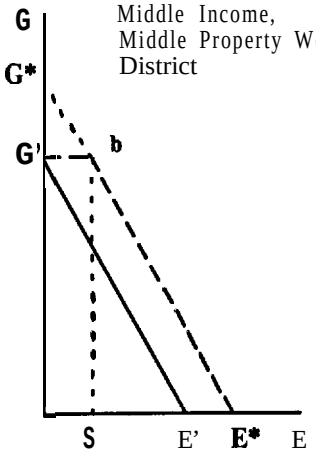
Figure 5
Income Constraints with Flat Grant State Aid

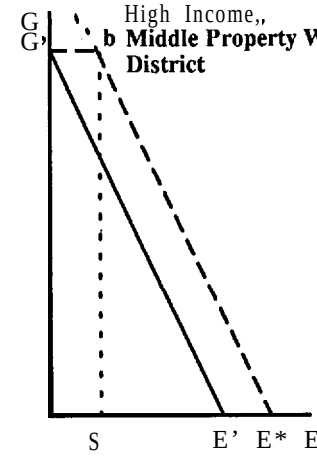


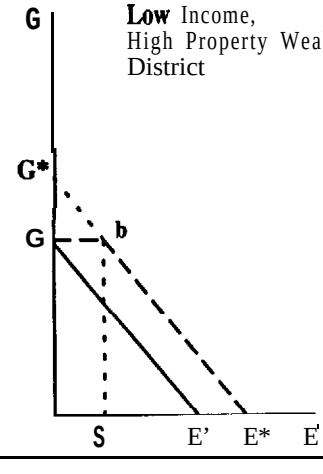


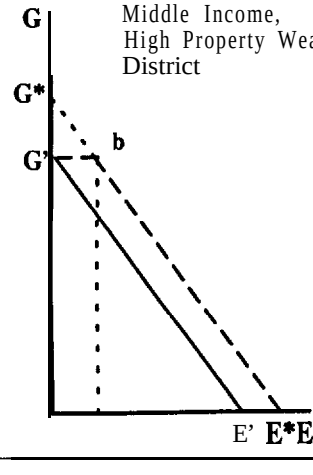












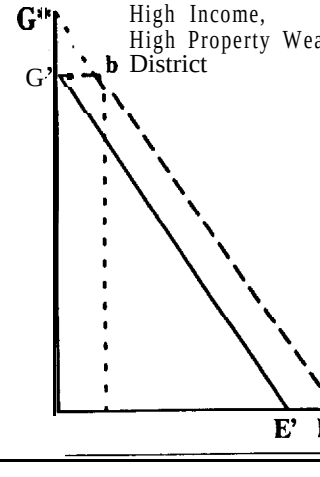
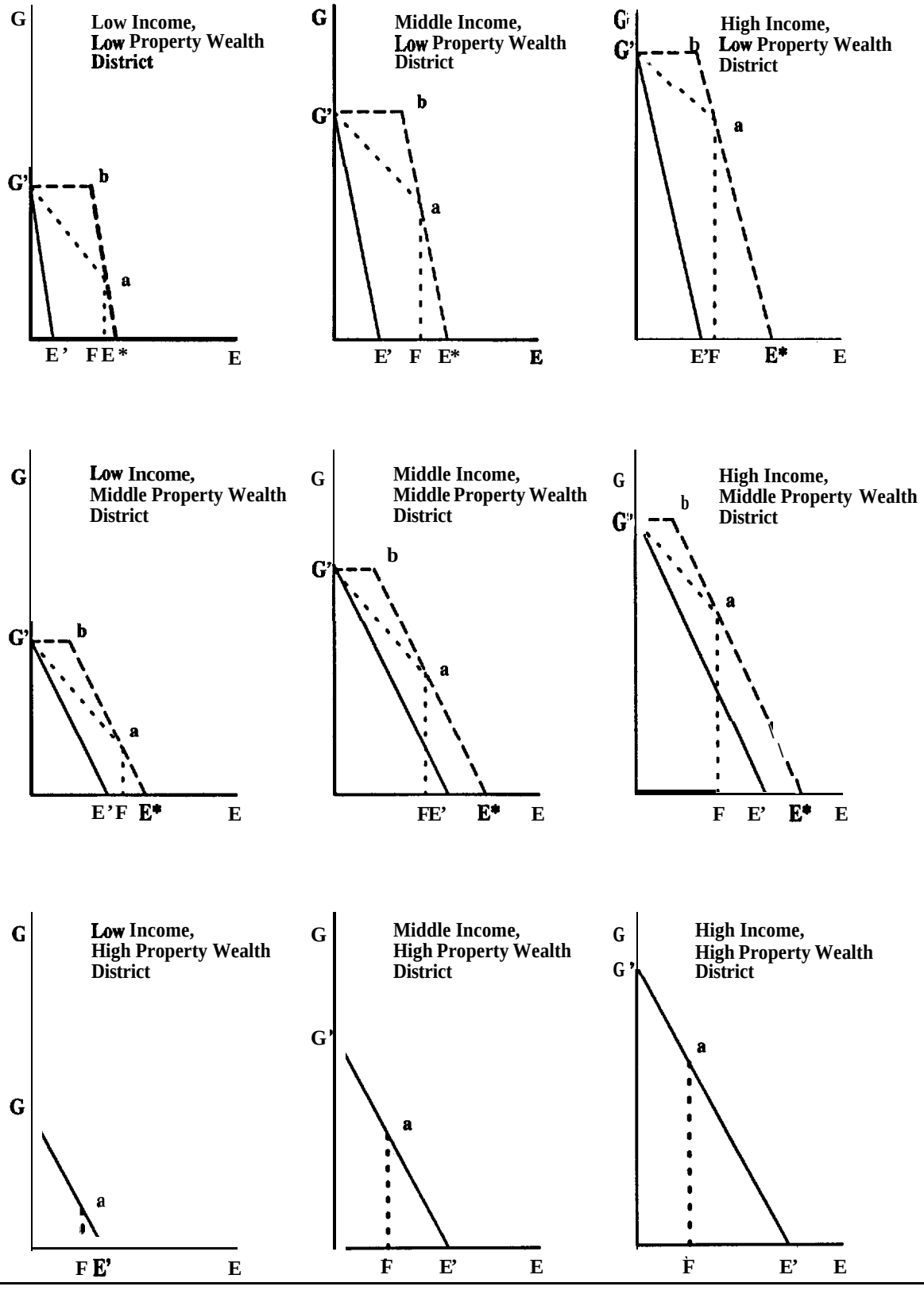


Figure 6
Income Constraints with Foundation Program



sake of illustration), the tax rate applied uniformly throughout the state to raise the local share of foundation level spending is set equal to the pre-aid tax rate for the three panels that represent high property-wealth districts (the bottom row of the figure). Notice that the line segment from G' to point (a) in each panel has the same slope; that is, the tax rate required to achieve the foundation spending level is identical in all nine cases. Another way to see this is to observe that the vertical distance between G' and point (a) in all panels is the same. Because the local share is generated at a uniform tax rate in all districts, the amount of other goods and services that must be forgone by owners of similarly valued houses to provide the foundation level of spending is the same regardless of income and tax-price.

The horizontal displacement from G' to point (b) of the income constraint again indicates the amount of aid per pupil received from the state. If a foundation program imposes a local-effort requirement, then individuals can attempt through voting in school budget referenda and/or school board elections to secure their preferred combination of spending per pupil and consumption of other goods from among those located along the segment of the income constraint between point (a) and E'. If no local effort requirement is imposed, then any combination between point (b) and E' represents a potential outcome.

In the absence of a local-effort requirement, a foundation program has much the same effect as a flat grant program. That is, from an individual's perspective, this effect is identical to an increase in income, with the stipulation that the level of spending per pupil selected must at least equal the amount that can be purchased with this income transfer. The main distinction between the two programs is that a foundation program provides a larger income transfer to individuals who face a higher tax-price for school spending (see Appendix 2C). In the presence of a local-effort requirement, a foundation program provides the same income-equivalent transfer but with the more stringent stipulation that the level of spending per pupil selected must at least equal the foundation level established by the state aid program. The overall impact of this more stringent stipulation on spending in any district will depend, of course, on how high the foundation expenditure level is relative to the amount that would have been selected locally in its absence.

Notice that under this "pure" version of a foundation program, individuals in districts characterized by low income but high property wealth receive no state aid. This is illustrated by the panel in the lower left of the figure. In this case, the state aid program has an impact on consumer-voters only if there is a local-effort requirement. Such a provision restricts the possible combinations of spending per pupil and other goods consumption that are attainable to that segment of the income constraint between point (a) and E'. An example of such a situation might be a large city with a considerable amount of industrial and commercial property but where many residents have low incomes and own modestly valued homes. Another example might be a rural area with a high property wealth per pupil ratio.

2C. Foundation Program

Under a "pure" foundation program, the amount of state aid that a district receives is equal to:

$$SN = FN - rV$$

where S is the level of state aid per pupil, N is again the number of pupils, F is the foundation level of expenditure per pupil, r is the tax rate that each district must levy to support the foundation program, and V is again the total value of property in the district. The amount (rV) is usually referred to as the local share in a foundation program. As shown in the AEFA classification scheme in Table 7 of the report, a foundation program may or may not require each local district to raise and spend this amount. Under a foundation program a school district's budget constraint is:

$$N.E = tV + N[F - r(V/N)]$$

Rearranging terms yields:

$$t = [E - F + r(V/N)]/(V/N)$$

Substituting this into an individual's income constraint in turn yields:

$$I = P_gG + [H/(V/N)]E - \{[H/(V/N][F - r(V/N)]\}$$

or

$$I + \{[H/(V/N][F - r(V/N)]\} = P_gG + [H/(V/N)]E$$

Notice that this is identical to the individual's original income constraint except that the term:

$$\{[H/(V/N][F - r(V/N)]\}$$

is added to income on the left hand side of the equation. This term is equal to the tax-price of an additional dollar of spending per pupil [H/(V/N] multiplied by the how much the amount per pupil raised locally at the foundation program's uniform tax rate [r(V/N)] falls short of the foundation level of expenditure per pupil. Thus, from the perspective of a consumer-voter, a foundation program appears similar to a flat grant program except that the income equivalent of the in-kind transfer depends to an even greater degree on a school district's property wealth per pupil. Property wealth affects the amount of income equivalent through its role in defining an individual's tax-price and establishing the amount by which locally raised revenues fall short of the foundation expenditure level.

As discussed above, many state aid programs address such cases through special provisions, either by adjusting the definition of the foundation level of expenditure to provide for these circumstances or by supplementing the basic aid program with categorical grants. In addition, some states modify the way in which the local share of foundation level spending is calculated to take into account differences in income. Doing so makes the way in which state aid affects the income constraints of consumer-voters resemble more closely the operation of a percentage equalization program (described below) than a "pure" foundation program.

The other traditional categorization of state aid to local school districts is a power equalization program. As discussed above, a power equalization program can be implemented through the definition of a guaranteed tax base or a guaranteed tax yield. In either case, the program guarantees a constant relationship between the amount of revenue raised per pupil and the tax rate levied by a school district, regardless of the property value per pupil in the district. If locally raised revenues fall short of the guaranteed amount, then the state aid program provides the difference. If locally raised revenues exceed the guaranteed amount, then the district must remit the difference to the state-if the program has a recapture provision. In the absence of a recapture provision, the district retains the excess revenues.

The effect of a power equalization program on an individual's income constraint is illustrated in Figure 7, where the nine panels depict the same income and original tax-price conditions as the previous three figures. (Appendix 2D presents a formal derivation of this result.) As the figure is drawn, the post-aid uniform tax-price in all districts is lower than the pre-aid tax-price for the low and middle property-wealth districts (the first and second row), but higher than the pre-aid tax-price in the high property-wealth districts (the bottom row).

This type of program corresponds to a matching grant, where the matching rate is proportional to the amount by which the local tax base per pupil falls short of the guaranteed tax base. Unlike a flat grant program and a foundation program, the effect of a power equalization program does not resemble an income transfer; rather, its effect is to alter the relative price ratio between publicly provided education, on the one hand, and private goods and services, on the other. The amount of aid per pupil that a district receives in this situation-as perceived by any consumer-voter-is represented by the horizontal distance between the pre-aid and post-aid income constraints measured from the point on the post-aid income constraint that corresponds to the level of spending per pupil selected by the district.

The line between G' and E^* in the bottom row illustrates how a recapture provision affects consumer-voters in high property tax districts; that is, it reduces the combinations of school spending per pupil and other goods consumption that are available. In the absence of a recapture provision, the income constraints of individuals in these districts would remain unchanged from the pre-aid situation.'

Two important observations should be emphasized at this point. The first involves the fundamental difference in the way that foundation programs and power equalization programs affect consumer-voter choices between the level of local public school spending per pupil and the amount of other goods and services that can be consumed. A foundation program increases the purchasing power of individuals, with the stipulation that the amount of state aid provided must be spent on education. It does not change the tax-price of providing education relative to the price of other goods and services. Power equalization programs, on the other hand, lower the tax-price of education relative to other goods and services. In the standard terms of economics, foundation aid provides a (lump sum) income effect while power equalization aid provides a price effect.

A second important observation is that (at least for the recent years covered by the AEFA and ECSMCSL publications cited in Table 7) "pure" power equalization programs are even less common than "pure" foundation programs. Only in Connecticut, Kansas, Michigan, and Rhode Island does the basic component of state aid operate in a manner consistent with the type of power equalization program illustrated in Figure 7.[2] Moreover, in Connecticut, Kansas, and Rhode Island, the measure of property wealth used to define the matching rate is adjusted by some measure of income.

2D. Power Equalization Program

Under a power equalization program, the amount of aid per pupil that a district receives is:

$$s = t(V^*/N) - t(V/N)$$

where V is the value of property in the district and V^* is the program's guaranteed tax base. N is again the number of pupils in the district. The amount of revenue raised per pupil $[t(V^*/N)]$ at any tax rate is the guaranteed tax yield under the alternative definition of a power equalization program.

Under a power equalization program, a school district's budget constraint is:

$$NE = tV + N[t(V^*/N) - t(V/N)]$$

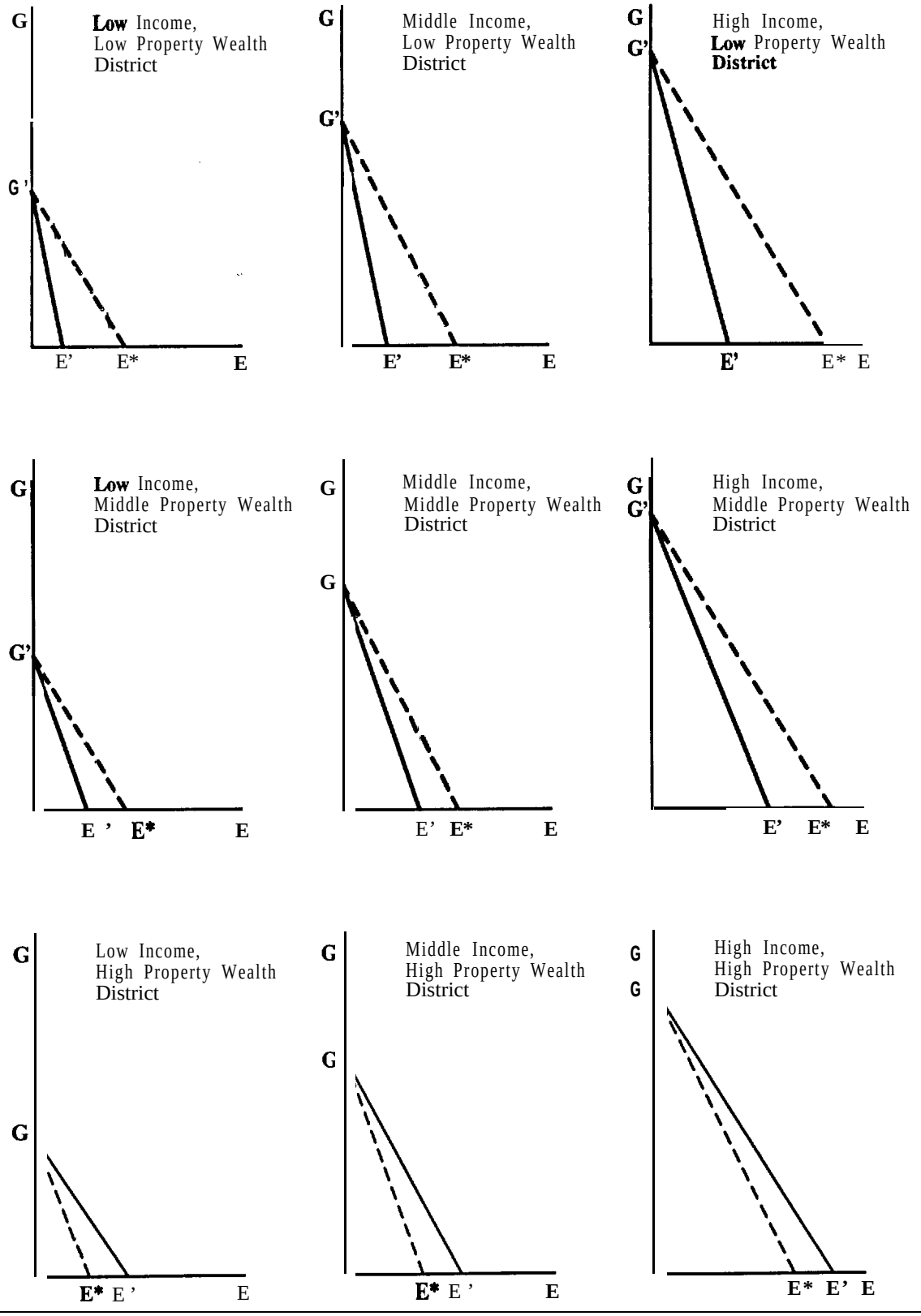
or simply:

$$NE = tv^*$$

Solving this for t and substituting the result into an individual's income constraint yields:

Figure 7

Income Constraints with Power Equilization Aid Program



$$I = P_gG + [H/(V^*/N)]E$$

Notice that under a power equalization program the price of increasing educational expenditure per pupil by one dollar becomes the same for individuals in all school districts.

As previously noted, many states employ aid programs that are variations of one of these two basic categorizations. The way in which three common variations affect the income constraints of consumer-voters is illustrated in Figures 8, 9, and 10.

2E. Percentage Equalization Program

A percentage equalization program defines a state aid ratio (SAR) for each district as:

$$SAR = 1- k(fc/FC)$$

where k is a constant selected by the state, fc is the district's per unit fiscal capacity, and FC is the state's fiscal capacity. Under a percentage equalization program, the amount of aid per pupil that a district receives is:

$$S = E"[1-k(fc/FC)]$$

regardless of its level of expenditure per pupil. A school district's budget constraint in this situation is:

$$NE = tV + NE"[1-k(fc/FC)]$$

Rearranging terms yields:

$$t = \{E - E"[1 - k(fc/FC)]\}/(V/N)$$

Substituting this into an individual's income constraint in turn yields:

$$I = P_gG + [H/(V/N)]E - \{[H/(V/N][E"[1 - k(fc/FC)]]\}$$

or

$$I + \{[H/(V/N][E"[1 - k(fc/FC)]]\} = P_gG + [H/(V/N)]E$$

Notice that, analogous to the analysis of a pure foundation program in 2C above, this is identical to the individual's original income constraint except that the term

$$\{[H/(V/N][E"[1 - k(fc/FC)]]\}$$

is added to income on the left hand side of the equation. This term is equal to the tax-price of an additional dollar of spending per pupil, [H/(V/N], multiplied by the amount of per pupil grant defined by a district's aid ratio. For districts with low property/income ratios relative to the state average, this per pupil grant will be large compared to districts with greater property/income ratios.

Figure 8 illustrates the effect of a power equalization program where the guaranteed tax yield applies only up to (is "capped" at) a designated level of spending per pupil. The level of spending per pupil at which state aid is capped is indicated by point M along the E axis. This results in a kink in the income constraint of a representative consumer-voter at the level of spending per pupil where the guaranteed tax yield ends. To the left of the kink, the tax-price (slope) depends on the level of the guaranteed tax base. To the right of the kink, the tax-price is what it would have been in the absence of any state aid program; that is, it has the same slope as the pre-tax income constraint. This type of program is an example of a closed-end matching grant.

A closed-end matching grant provides a price effect to consumer-voters in districts where per pupil spending is below the capped level (depicted by point [a] and expenditure per pupil level M in each panel of the figure), while it provides an income effect in districts where spending exceeds this level. State aid programs in Colorado, Illinois, New Jersey, and Oregon operate as closed-end matching grants. It is interesting to note that both the AEFA and ECS/NCSL rankings in Table 7 classify the Illinois and Oregon programs as foundation aid. A possible reason for ranking the Illinois program as foundation aid is that the level of expenditure at which the matching component is capped is so low that virtually all districts exceed it. In this sense, the price effect is not effective, and, as in the case of foundation aid, the program provides only an income effect. In Oregon, state aid is technically called a foundation program. The foundation expenditure level is not determined exogenously, however; rather, it is a function of a district's spending per pupil up to an established limit. Thus, it operates like a closed-end matching program.

Figure 9 illustrates the effect of a two-tier state aid program, where the first tier is foundation aid and the second tier is a guaranteed tax base or a guaranteed tax yield. E° in each panel corresponds to the first-tier foundation level of spending per pupil. State aid programs in Missouri and Oklahoma operate in this manner. As in the previous case, this results in a kink in the income constraint of a representative consumer-voter. In this case, however, a price effect is also provided when districts exceed the foundation expenditure level. Given that Missouri and Oklahoma both require local effort (see Table 7), districts must always choose a combination that is on the segment of the individual's income constraint from point (a) to E*.

The Wisconsin program is yet another variation of one of the two basic categorizations. It is a two-tier guaranteed tax base program, where the guaranteed tax base is lower for the second tier. Under this program, the income constraints of a representative consumer-voter would be similar to those in Figure 8,

Figure 8

Income Constraints with "Capped" Power Equalization Aid Program

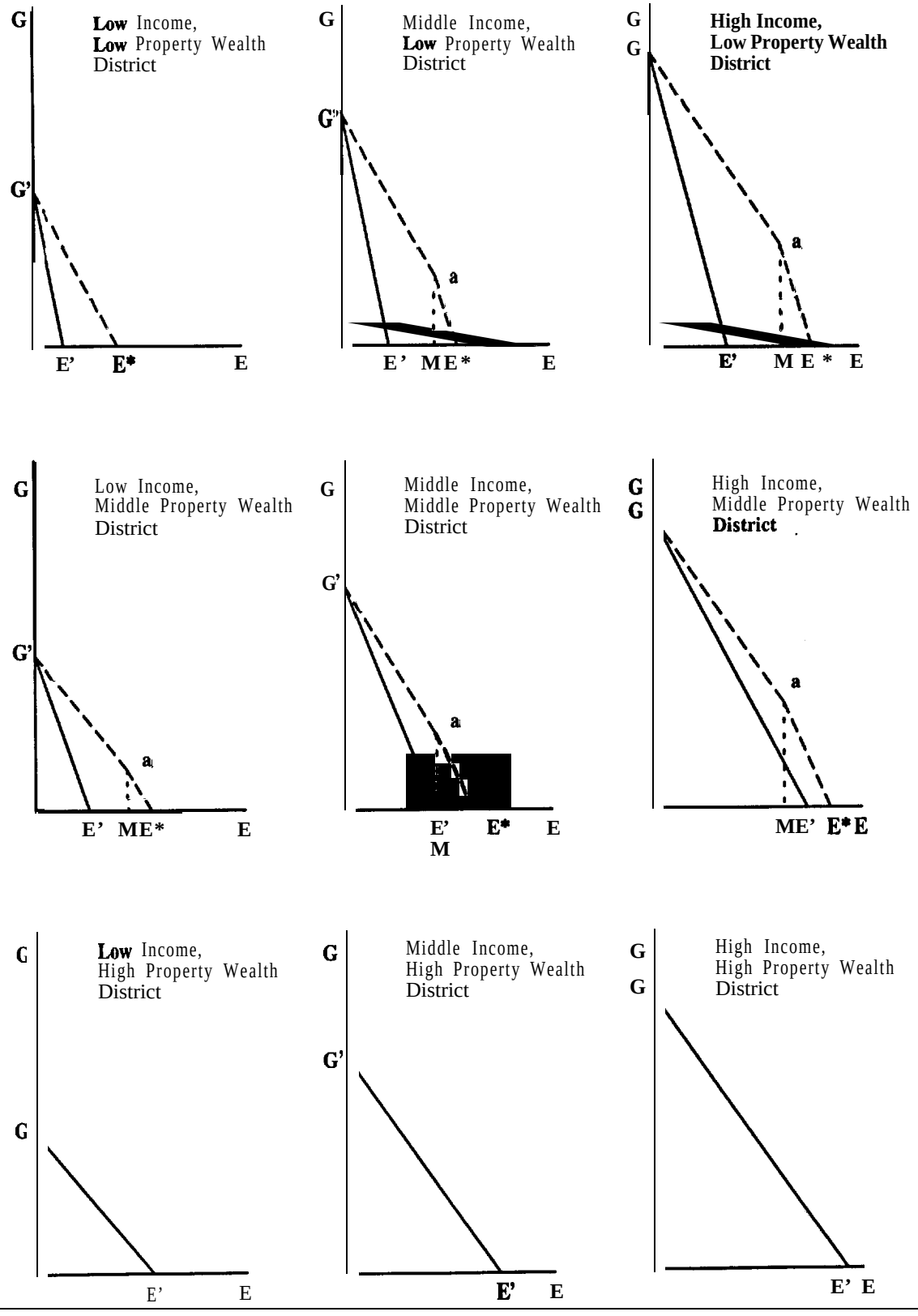
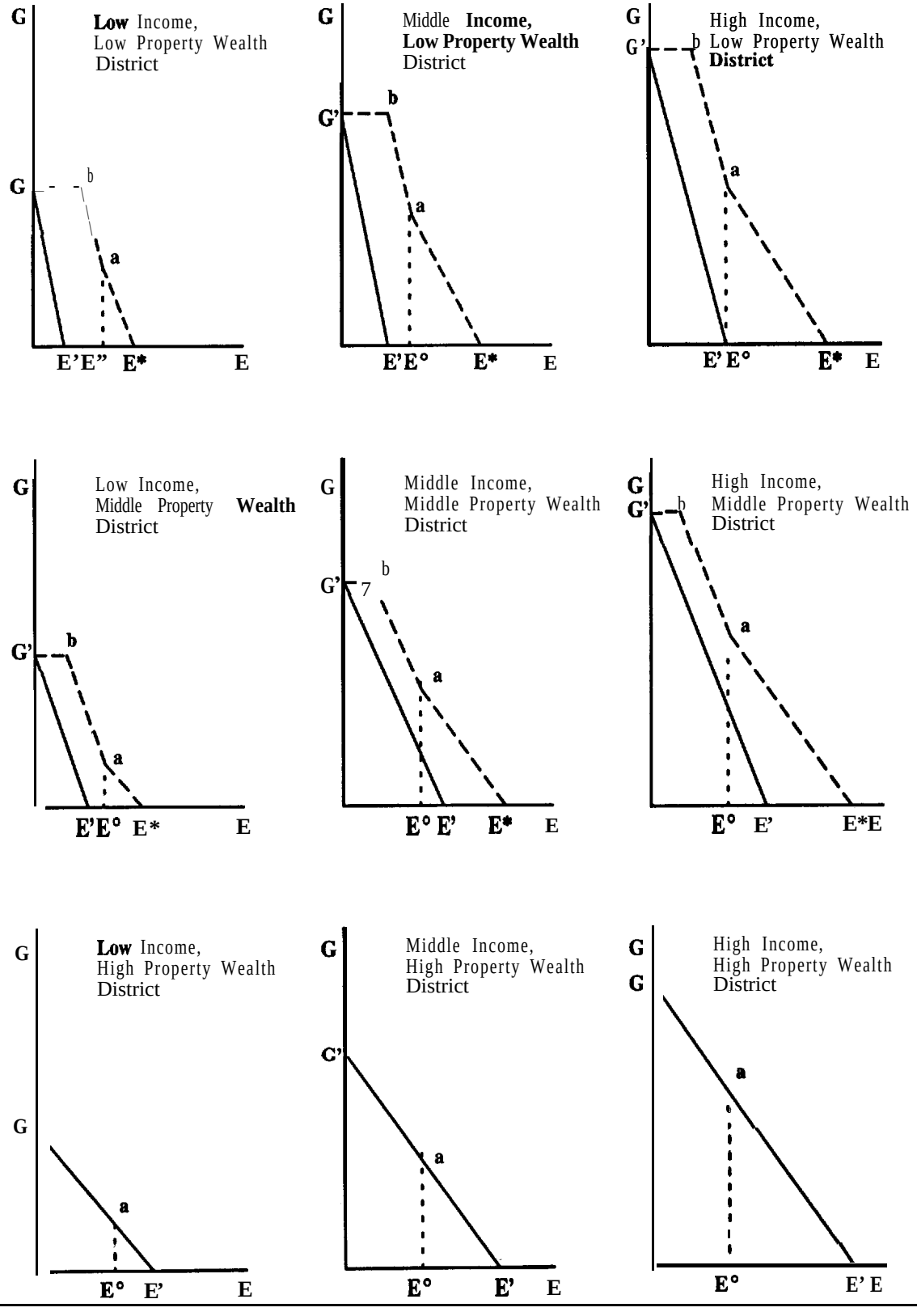


Figure 9

Income Constraints with Two-Tier Aid Program: Tier l-Foundation, Tier 2-Power Equalization



except that the tax-price (slope) beyond point (a) would be the same for individuals with comparably valued houses in all districts. Because this program provides for recapture in the second tier, where recaptured funds are deducted from first-tier aid, the income constraints would be similar for individuals in all districts except those where the local tax base exceeds the higher, first-tier guarantee. This program thus provides price effects for all consumer-voters other than those in districts with very high property wealth.

The allocation formulas in Georgia, Montana, Texas, and Utah are another variation of the two basic types of state aid programs-a first-tier foundation program supplemented by a second-tier power equalization program. Unlike the Missouri and Oklahoma programs, however, these four states impose a cap on the level of spending per pupil to which the power equalization tier applies. Thus, the effect of these programs on the income constraints of consumer-voters would appear as a juxtaposition of the situations depicted in Figures 8 and 9. The income constraint would begin at G' and follow to points (b) and (a) as in Figure 9. Then, at a higher level of expenditure per pupil, it would kink again and have a steeper slope (tax-price equal to the pre-aid income constraint) as at point (a) in Figure 8. The income constraint would thus have two kinks and three straight-line segments. This provides for a price effect to consumer-voters only in districts where the power equalization tier is in effect, that is, those individuals located on the middle segment between the two kinks. Consumer-voters in other districts would experience an income effect only.

An example of an even more complex program—at least in terms of the number of kinks that it creates in the income constraint of a representative consumer-voter-is the South Dakota allocation formula. State aid in South Dakota is disbursed according to a foundation program, where the tax rate required to provide the local share of foundation spending increases by discrete increments at 26 different levels of expenditure per pupil. From the perspective of a consumer-voter, this creates a post-aid income constraint that would appear shifted away from the pre-aid constraint in a way similar to the traditional foundation aid case depicted in Figure 6, and then as a staircase with vertical risers but steps that each slope down and to the right (at the pre-aid tax rate).

The final type of state aid to local school districts is a percentage equalization program. The AEFA classification scheme in Table 7 places the programs in Alaska, Kansas, New York, Pennsylvania, and Rhode Island in this category. According to AEFA, a percentage equalization program defines a state aid ratio for each district based on that district's fiscal capacity.[3] The greater a district's fiscal capacity, the lower is its aid ratio.

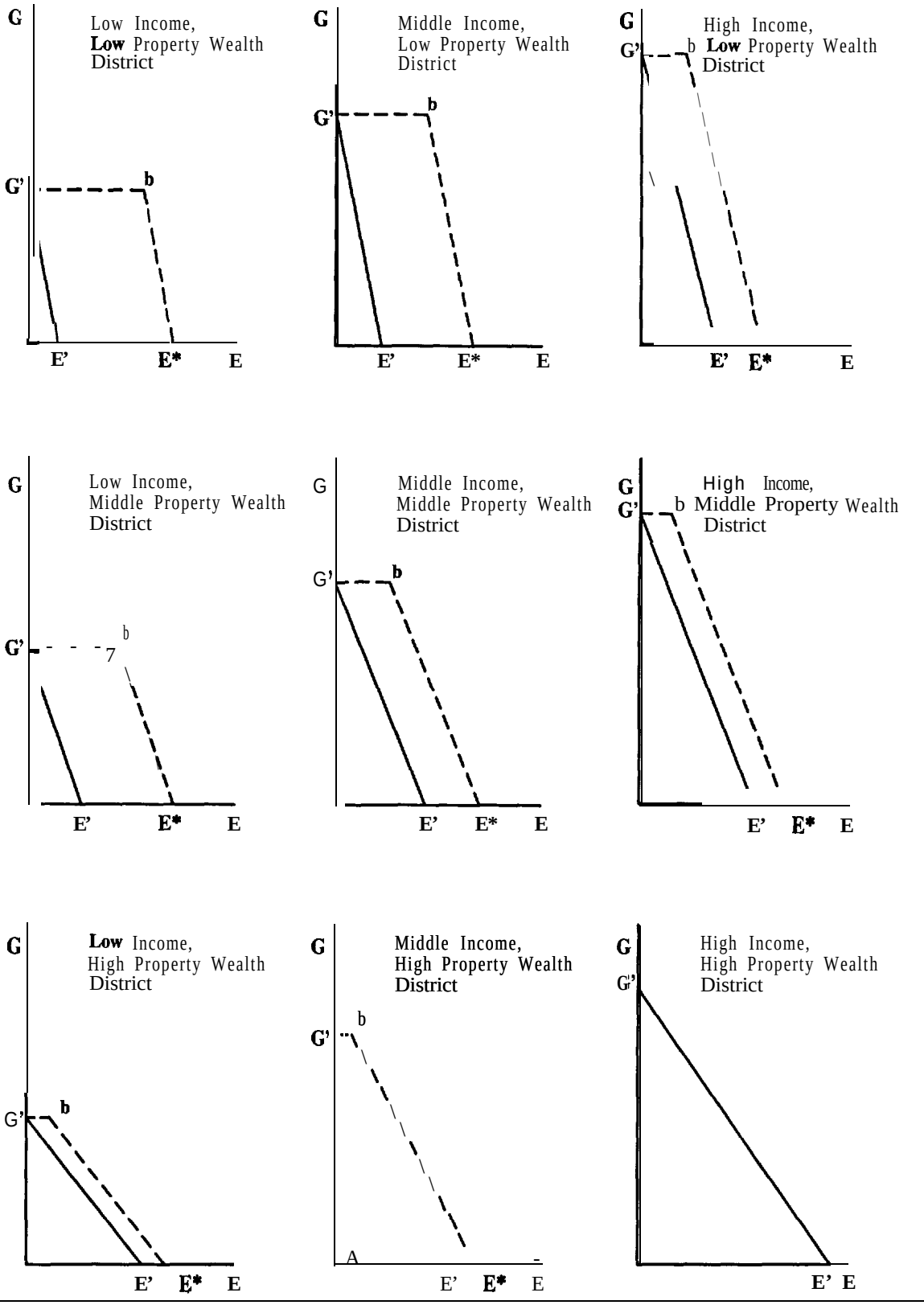
At first glance, it seems that allocating funds on the basis of a state aid ratio defined in this manner would result naturally in a power equalization program. It does so for the Kansas and Rhode Island programs because the aid ratio applies to the level of spending per pupil selected by each district. As noted above, the Kansas and Rhode Island programs differ from other power equalization programs in that within the allocation formula the wealth measure used to define the matching rate is adjusted to take into account differences in income across school districts. This is presumably the reason for classifying these programs as percentage equalization rather than guaranteed tax base or guaranteed tax yield.

Under the Alaska, New York, and Pennsylvania programs, however, the state aid ratio is multiplied by a fixed level of expenditure per pupil that is determined by the state. The New York and Pennsylvania programs define a district's fiscal capacity relative to statewide fiscal capacity as a weighted average of property value per pupil and income per pupil.[4] Figure 9 illustrates how state aid allocated to local school districts in this way affects the income constraints of consumer-voters. An important observation about this type of percentage equalization program is that, as in the case of a pure foundation program, the state aid provides an income effect but no price effect to consumer-voters. Notice that the amount by which the size of the grant per pupil (the horizontal distance between G' and point [b] in each panel) shifts the income constraint to the right depends on both the income level and the per pupil property value in a consumer-voter's district. If the representative consumer-voters in all panels own similarly valued homes, then the greatest impact of state aid is on an individual residing in a low-income, low property-wealth district (top panel on left).

An important difference between this case and that of a pure foundation program arises from the way in which the two programs affect consumer-voters in low-income, high property-wealth districts (bottom panel on left). In the case of a pure foundation program, the state aid has no effect on the consumer-voters in such districts (refer back to Figure 4). A percentage equalization program, however, provides an income effect to these consumer-voters. Exactly the same result occurs under a foundation program when the property measure used to determine a district's local share is adjusted to take into account differences in local income. The allocation formulas in Alabama, Maryland, New Hampshire, Vermont, and Virginia are examples of income-modified foundation programs where state aid affects consumer-voters in different districts in the same way as the percentage equalization program illustrated in Figure 10.

Finally, the state aid program in Alaska nominally falls into the category of percentage equalization. The fiscal capacity measure on which the program allocates aid, however, depends solely on local property

Figure 10
Income Constraints with Percentage Equalization Program



per pupil and not on local income. As a result, from the perspective of consumer-voters, the program affects the choice between school spending and the consumption of other goods and services in exactly the same way as a pure foundation program illustrated in Figure 6.

NOTES

[1] As discus& above, recapture provisions tend to be unpopularwith residents of high property-wealth districts, and they tend to be difficult politically to implement. In researching for this report, the author was able to find only two instances of a recapture provision in the descriptions of state aid programs compiled by AEFA and ECS/NCSL. The first case is Michigan, where recapture reduces the amount of supplemental categorical grants (but never by more than 60 percent). The other case is Wisconsin, where recapture occurs in the second-tier guaranteed tax base of a two-tier GTB program. In this instance, the second-tier recapture is deducted from the amount of first-tier aid. Thus, locally raised revenues are not actually returned to the state government in either case. Two-tier state aid programs are described below.

[2] The classification of state aid programs in this report is based on the detailed descriptions provided by the American Education Finance Association and the Education Commission of the States/National Conference of State Legislatures. See American Education Finance Association, ***Public School Finance Programs in the United States and Can& 1986-1987,*** compiled and edited by Richard Salmon, Christina Dawson, Steven Lawton, and Thomas Johns (Sarasota, Florida, 1988); and Education Commission of the States/National Conference of State Legislatures, ***School Finance at a Glance,*** prepared by Deborah A. Verstegen (Denver, 1988). In most cases, these descriptions are based on the programs in place for the 1986-87 school year. Since then, state aid to local school districts in Connecticut has been changed to a foundation program.

[3] ***Public School Finance Programs*** in ***the United*** States ***and Canada,*** p. 5.

[4] In New York State, it is a 50 percent-50 percent weighted average, while in Pennsylvania, it is 60 percent property value per pupil-40 percent income per pupil.

Appendix 3

School Finance Litigation, 1968-1990

The following chart was compiled by the Education Commission of the States to provide a concise picture of the school finance litigation activity of the past two decades. The information permits comparison of time frames, plaintiff involvement and claims, rulings, and the context of the cases

Procedural History indicates time periods between the filing date and the decision, and the judicial activity the case may have undergone. Although the length of time may vary, it is evident that many of these cases can be long, drawn out, and remanded to lower courts.

Case Name/Plaintiffs shows who is typically interested and involved with bringing such lawsuits. School districts, school boards, and administrators often take part, but one should not dismiss the influence of parents and students as primary plaintiffs.

The *ruling* column identifies the basis on which the constitutionality of the public school finance system was upheld or overturned. Lawsuits were based on the grounds that the state finance system violates the equal protection clauses of the state or federal constitution and/or special constitutional provisions relating to education. Because the equal protection clause of the U.S. Constitution does not prohibit unequal treatment, only unjustified unequal treatment, a state may be able to justify its current funding system, depending on various factors, even if spending disparities exist between school districts. Plaintiffs have attempted to use the language of the education clause, i.e, "thorough and efficient," "uniform," etc. to support their argument that the state has not met its responsibility, and claim that disparities in available resources or lack of adequate funds do not allow such an education to be provided and therefore violate the constitution.

History/Context/Developments describes briefly the situation existing at the time of the suit, particular claims by the plaintiffs, details of the case and developments that may or may not have resulted from the court's decision. (NOTE: not all responses to litigation are included in this version.)

For further information, contact Mary Fulton at the Education Commission of the States, (303) 2993679.

Terminology

Authorized revenue base-specific level of per pupil revenue a district is allowed to raise; used in Colorado's previous finance formula in which amount was based on 1973 spending.

Education clause violation-failure of the state to provide the system of education to all students mandated by the education clause of the state constitution, i.e., "thorough and efficient," "adequate," or "general and suitable."

Educational overburden-a claim by school districts (generally urban) that the higher percentage of economically and educationally disadvantaged students attending school in their districts is not only an additional financial burden but one that requires special services and effort as well. They also often claim that federal Chapter 1 (compensatory education) funds may not be enough to cover overburden.

Equal protection clause violation-a law or activity that exhibits unjustified unequal treatment, i.e., when a court determines that the state fails to show a compelling interest in maintaining the current school finance system in which all children in the state are not provided with equal educational opportunities.

Fiscal neutrality-a court-defined standard that holds that the quality of a child's education should not be dependent on the wealth of a school district but on the wealth of a state as a whole. The standard was developed to provide the judiciary system with a manageable basis on which to determine the constitutionality of a school finance system, and it was first

used in the California *Serrano* v. *Priest case* (1971).

Fundamental right-a right that is "explicitly or implicitly" guaranteed in the U.S. Constitution, i.e., the right to vote, to a fair trial, to privacy and free speech, etc.; the U.S. Constitution does not consider education a fundamental right. If a fundamental right is involved when a law or activity is in question, strict judicial scrutiny under the equal protection clause may be applied.

Hold-harmless guarantee-a provision to ensure that districts (commonly the more affluent or those that have a significant decrease in enrollment) do not receive less state aid than in previous years. This is generally applied when a state revises the school finance formula, and is often accompanied or followed by a phase-in approach that allows for gradual reduction in state aid.

Municipal overburden-describes that situation in which districts (primarily large urban areas) are faced with competing costs for services (e.g., police, transportation, recreation, infrastructure needs, utilities) leaving fewer dollars for educational expenditures. Districts claim that special provisions should be made available to compensate for overburden.

Pupil weighting-a method of adjusting enrollment figures and therefore state education aid dollars to reflect the assumed cost differences of providing educational services to certain classes of students (e.g., physically handicapped, gifted, small schools, grade levels, compensatory education); usually incorporated into a state's school finance formula to create more equitable state funding.

Rational relationship basis-a standard used to show the rational relation to a "legitimate" governmental interest of a certain law or activity. In school finance cases, the state merely has had to show a rationality for the method of financing public education under the equal protection clause analysis. The preservation of local control often has served as a rational basis for the finance system although disparities are shown to exist.

Strict scrutiny-a high level of judicial analysis under the equal protection clause in which a fundamental right or a suspect class is involved. The law or activity must relate to a "compelling state interest" and there must be no other less discriminatory policy possible.

Suspect classification-an isolated, readily identifiable group subject to purposeful and unequal treatment by the state. The U.S. Supreme Court recognizes three suspect classes: race, alienage, and national origin. If a suspect class is involved when a law or activity is in question, strict judicial scrutiny under the equal protection clause may be applied. In a few school finance cases, courts have considered property wealth a suspect class.

School Finance Litigation Chart

State	Procedural History	Case/Plaintiffs	Ruling	History/Context/Developments
Arizona	1973, St. Supreme Ct. 1972, County Superior Ct. 1971, filed	***Shofstal* v. *Hollins*** ***plaintiffs*** students and parents from Maricopa County	**Upheld** education fundamental right "rational and reasonable basis" teat sufficient to uphold system	trial court granted summary judgment that the finance system discriminated against taxpayers in Maricopa under equal protection clause; judgment to take effect at close of 1974 legislative session; effective July 1, 1974, legislature repealed entire school financing statutory framework trial court denied students' claim of denial of right to an education Supreme Court reversed trial court's order to revise finance system and upheld system; remanded case for further proceedings added pupil weighting element to existing foundation program (1974, 1980 reforms)
Arkansas	1983, St. Supreme Ct. 1981, trial ct. 1977, filed	Alma *School Dist. No. 3* v. ***Dupree*** ***plaintiffs*** 11 school districts, students from one of the districts and members of the local school boards	**Overturned** violated equal protection and education clauses education fundamental right unequal education opportunity among districts no rational relationship between finance system and educational needs of districts	plaintiffs claimed inequities in distribution of funds and educational opportunities plaintiffs complained about state not providing aid for capital construction, strict limit on bonded indebtedness, method offundingvocational education court findings: (1) higher priority to be placed on equity than local control, (2) found disparities in staff, class size, curriculum, remedial services, facilities, material, equipment after circuit court invalidated finance system, legislature established Governor's Commission on Public School Finance to develop proposals for more valid finance system to be implemented in '83 session commission recommended: incorporate categorical programs into general aid system through pupil weights; local fiscal capacity to include measure of income and property wealth legislature passed statewide education reform package in 1983; part of package combined existing foundation program with a pupil weighting system
California	1971, St. Supreme Ct. 19??, St. Superior Ct. 1968, filed	***Serrano* v. *Priest*** ***plaintiffs*** students and parents from LA County school districts	**Overturned** violated equal protection clause education fundamental right property wealth a suspect classification applied fiscal neutrality standard	landmark case; court decision based partly on "fiscal neutrality" standard; provided courts with "judicially manageable" standard to determine constitutionality of school finance systems first state public school finance system declared unconstitutional; first major school finance case filed in state rather than federal court 1972—legislature increased state aid as part of new finance formula; moved to a foundation program
	1976, St. Supreme Ct.	***Serrano v. Priest II***	**Overturned** affirmed 1974 trial court ruling that finance system violated equal protection clause	1974, trial court declared current financing system unconstitutional despite increase instate aid enacted in 1972; quality of education remained function of local school district wealth legislature unable to implement Assembly Bill 65 (1977)-a new finance formula measure, due to Proposition 13 (1978) which limited property tax rates to 1% of full cash value of real taxable property and reduced available revenue
	1986, Appellate Ct.	***Serrano v. Priest III***	**Upheld**	state had complied with Serrano II mandate to improve equity-95% of school districts fell within maximum expenditure disparity of $200 per pupil in 1982-83

School Finance Litigation Chart

State	Procedural History	Case/Plaintiffs	Ruling	History/Context/Developments
Colorado	1982, St. Supreme Ct. 1979, district ct. 1977. filed	*Lujan* v. *Colorado State Board of Education* *plaintiffs* 68 students from 16 low-wealth districts	**Upheld** did not violate equal protection or education clauses education not fundamental right	suit attacked use of flat grants and Authorized Revenue Base (ARB) supreme court reversed district court ruling that finance system was unconstitutional local control viewed as rational basis for existing disparities and as a legislative purpose of education financing statutes education clause did not mandate equal expenditure per pupil legislature enacted HB1341, Public School Finance Act of 1988; moved from a guaranteed yield to a foundation program with district "setting categories"; a pending lawsuit was withdrawn legislature established Colorado Commission on School Finance to review, analyze and evaluate HB1341
Connecticut	1977, St. Supreme Ct. 1974, St. Superior Ct. 1973, filed	*Horton* v. *Meskill* *plaintiffs* students in Canton, CT	**Overturned** violated equal protection and education clauses education fundamental right	court declared it was not appropriate to rely on local property tax to finance educationwithout regard to local ability tosupport adequate education; also caused tax disparities 1978, trial court set May 1, 1979, deadline for enactment of constitutional plan for financing schools Public Act 79-128 enacted April, 1979, included guaranteed tax base formula and minimum expenditure requirement; replaced flat grant program
	1982	*Horton v. Meskill II*		focused on which parties were able to intervene in the case
	1985, St. Supreme Ct.	*Horton v. Meskill III*	**Upheld**	plaintiffs challenged Public Act 79-128 (1979) on basis of long phase-in period, "hold-harmless" clause for wealthy towns and continued disparities in local expenditure supreme court remanded to superior court in 1986 with guidelines for determining constitutionality of subsequent amendments neither side continued to pursue case 1989, legislature passed education enhancement act -increased education spending and created new finance formula (SB539) which replaced guaranteed tax base with foundation formula
Georgia	1981, St. Supreme Ct. 1981, St. Superior Ct. 1974, filed	*McDaniel* v. *Thomas* *plaintiffs* members of 3 local school boards and students	**Upheld** did not violate equal protection or education clauses education not fundamental right	supreme court reversed trial court decision that held finance system unconstitutional-violated fiscal neutrality standard equal protection language not present in education section of state constitution, therefore, such analysis not applicable preservation of local control viewed as rational basis supporting finance system although system was upheld, court concluded steps should be taken to equalize educational opportunities and solutions must come from lawmakers; legislature's role to interpret mandate of "adequate" education as stated in education clause the Basic Quality Education law of 1985, a state education reform act, included funding equalization measures; dramatically increased state and local contribution to education
Idaho	1975, St. Supreme Ct. 1973, lower ct. ??? 1972, filed	*Thompson v. Engleking* *plaintiffs* students and parents from Pocatello School Dist. No. 25	**Upheld** did not violate equal protection or education clauses education not fundamental right	reversed 1973 trial court decision that finance system violated state constitution education clause

School Finance Litigation Chart

State	Procedural History	Case/Plaintiffs	Ruling	History/Context/Developments
Kentucky	1989, St. Supreme Ct. 1988, circuit ct. 1985, filed	*The Council/or Better Schools* v. Rose *plaintiffs* 66 low-wealth and rural districts	*Overturned* entire state system of school finance and governance violates state constitution's education clause	initiated as school finance case in which plaintiffs claimed wide expenditure disparities existed between districts landmark decision declaring entire state education system unconstitutional school system underfunded and inadequate; cited: poor national and regional rankings in pupil expenditure and achievement, low teacher salaries, high dropout rates minimum foundation and power equalization program allowed wide variations in financial resources, resulting in unequal educational opportunities legislature permitted local districts to levy optional taxes, exacerbating inequities; great local waste and mismanagement existed struck down school finance system; laws creating school districts, school boards, state education department; laws and regulations concerning teacher certification and school construction established task force composed of legislators and representatives from governor's office to comply with court order that legislature devise plan to provide adequate and equitable funding for school system by mid-July 1990 three committees formed-curriculum, finance, governance-headed by outside consultants education and tax reform bill (HB 940) passed in March 1990 and signed by governor in April HB 940 included performance-based system of rewards and sanctions for schools and teachers, reorganization of state department of education, limit on amount districts could spend, revision of foundation and power equalization program, raised minimum mill rate
Maryland	1983, St. Ct. of Appeals 1981, circuit ct. 1979, filed	*Somerset County Board of Education v. Hornbeck* *plaintiffs* members of local school boards, superintendents, mayor of Baltimore, students and parents	**Upheld** did not violate equal protection or education clauses	state court rejected claims of municipal and educational overburden; education clause did not mandate equal per pupil funding or expenditure state court reversed trial court's decision, which held the finance system violated education clause trial court recognized: poor districts remained underfunded while no spending limit was placed on other districts; claims of municipal and educational overburden; variation of property wealth created spending disparities; low percent of state contribution to education, most of which was unequalized
Montana	1989, St. Supreme Ct. 1988, trial ct.	*Helena School Dist. No. 1, et al, v. State of Montana, et al.* *plaintiffs* 65 school districts	**Overturned** violated education clause	court held: foundation program relies too heavily on property tax levies and denies equal educational opportunity to students in poor districts in compliance with court order, legislature passed bill (HB 28) during July 1989 special session which revised school finance formula HB 28: appropriated $375 million for K-12 in FY91; increased state support by adopting foundation schedules $67.2 million higher than FY89; instituted a local levy cap (up to 35% of foundation amount) HB 28 financed by mandatory 95 mill levy (previously 45 mills), 5% surtax on individual and corporate income taxes and reallocation of other taxrevenues plaintiffs filed brief: (1) contended that ruling extends beyond general fund to capital outlay and transportation, which HB 28 does not address; (2) argued HB 28 is not permanent, stable funding source, does not address teacher retirement inequities and won't adequately reform per student spending inequities; (3) requested court to extend declaration of constitutionality of enacted provisions until July 1, 1991, to allow for HB 28 to go into effect, collect more accurate data and allow legislature more time to address issues

School Finance Litigation Chart

State	Procedural History	Case/Plaintiffs	Ruling	History/Context/Developments
Michigan	1984, St. Ct. of Appeals 19??, circuit ct. 1982, filed	*East Jackson Public Schools v. State of Michigan* *plaintiffs* 20 school districts and students	Upheld did not violate equal protection or education clauses education not fundamental right	plaintiffs alleged reliance on state equalized valuation (SEV) of taxable property allows for disparities; state does not equalize for expenditure differences that result in unequal education programs court held that to provide free public education is not synonymous with providing equal financial support
New Jersey	1973, St. Supreme Ct. 1972, County Superior Ct. 1970, filed	*Robinson v. Cahill* *plaintiffs* mayors, members of city councils and school boards of 5 cities, a student and a taxpayer	**Overturned** violated equal protection and education clauses	plaintiffs asked for: finance system to be ruled unconstitutional and revised; district boundaries to be redrawn; and for property tax system to be ruled unconstitutional to extent it was used to fund public schools plaintiffs' claims against finance system: violated education clause., unequal tax burden on low property-value districts, violated fiscal neutrality standard, racial discrimination first case to rule finance system violated education clause of state constitution; did not provide "thorough and efficient" education system in compliance with court order to establish reforms, legislature enacted Public School Education Act of 1975 (S.1516) funds for public schools were enjoined and schools were closed for 2 weeks after legislature failed to assure full funding for new act by July 1, 1976; legislature enacted income tax to fund act and injunction was lifted
	1990, St. Supreme Ct. 1981, filed	*Abbott v. Burke* *plaintiffs* students in 4 urban districts	**Overturned** violated education clause system unconstitutional as applied to poorer urban districts	plaintiffs contended Public School Finance Act of 1975 was not properly funded and allowed financial disparities to remain excessive; state argued local school districts were guilty of educational mismanagement superior court dismissed suit in 1983; appellate court ruled in favor of the plaintiffs in 1984; state supreme court reversed appellate court decision in 1985 and remanded to administrative law judge state supreme court ruled that administrative remedies must be exhausted before court could rule on merits of suit August 1988, administrative law judge ruled school finance system unconstitutional-violated education clause; decision forwarded to commissioner of education, who upheld state's position supreme court ruled finance system unconstitutional as applied to poorer urban districts; 28 districts identified court also held: minimum aid provisions unconstitutional; act must be amended to assure funding in poor urban districts at level of property-rich suburban districts-funding cannot depend on ability of district to tax and must be guaranteed and mandated by state; funding must provide for special educational needs of poor urban districts court addressed areas of categorical, transportation, pension, and capital outlay aid court recognized deficiencies in curricula; need for better services and programs, including early childhood dismissed deficiencies in education being primarily related to mismanagement rather than expenditure per pupil differences July 1990, legislature enacted Quality Education Act of 1990, based on governor's recommendations act allocates $1 billion in additional state aid (funded through income and sales tax increase); phased-out minimum aid to wealthy districts: wealthy districts to absorb their costs for teacher pensions; set high foundation level ($6,835 for elementary and additional amounts for secondary for 91-92); established "special needs" districts; accountability measures

School Finance Litigation Chart

State	Procedural History	Case/Plaintiffs	Ruling	History/Context/Developments
New York	**1982, St. Ct. of Appeals** 1981, Appellate Division of St. Supreme Ct. 1978, County Supreme Ct. 1974, filed	*Board of Education, Levittown v. Nyquist* *plaintiffs* boards of education and students from 27 districts and 4 large cities	**Upheld** did not violate equal protection or education clauses education not fundamental right or interest	plaintiffs from large urban districts claimed municipal and educational overburden state court of appeals reversed two lower court decisions court recognized existence ofsignificant disparities; "judicially imprudent" to rule unconstitutional, partly due to lack of proper remedy preservation of local control viewed as rational basis supporting finance system no requirement for education to be equal in every district, must only provide minimal, acceptable facilities and services
Ohio	1979, St. Supreme Ct. 1977, county ct. 1976, filed	*Board of Education of the City School District of Cincinnati v. Walter* *plaintiffs* Cincinnati board of education, district' superintendent, parents, students	**Upheld** education not fundamental right preservation of local control rational basis supporting finance system	plaintiffs alleged: burden on districts to raise. excessive portion of education funds to meet requirements-dependent on voter approval of tax levies, rather than on cost to provide thorough and efficient education plaintiffs claimed municipal and educational overburden plaintiffs challenged fiscal penalty-reduced state aid for district's inability to meet mandated educational standards supreme court reversed county court decision court reluctant to judge whether system "thorough and efficient"-function of General Assembly education opportunity not absolutely denied
Oklahoma	1987, St. Supreme Ct. 1980, filed	*Fair School Finance Council of Oklahoma v. Oklahoma* *plaintiffs* 38 school districts, students, taxpayers	**Upheld**	constitutional limit on property tax level and other restrictions complicated property-poor district's ability to raise adequate amount to support educational services: plaintiffs claimed great financial disparities among districts existed flat grant program provided same amount of aid to all districts, and foundation program failed to close gaps 1981, legislature revised finance system-pupil-weighting scheme using foundation and guaranteed tax base; 1982, added $150 million to finance system
Oregon	1976, St. Supreme Ct. 1975, circuit ct. 1972, filed	*Olsen* v. Oregon *plaintiffs* class action suit on behalf of all public school children in state except in high wealth districts; taxpayers	**Upheld** did not violate education clause preservation of local control served as rational basis supporting finance system	plaintiffs claimed flat grant program had disequalizing effect and finance system violated fiscal neutrality standard court ruled that the interest impinged upon-educational opportunity-was outweighed by objective to maintain local control
Texas	1973, US Supreme Ct. 1971, district ct. 1968, filed	*San Antonio Independent School District v. Rodriguez* *plaintiffs* parents from Edgewood School District: class action suit on behalf of poor and minority students	**Upheld** education not fundamental right of US Constitution and did not require strict scrutiny under 14th Amendment (equal protection clause)	district court ruled finance system unconstitutional under equal protection clause of 14th Amendment-significant disparities in school expenditure existed US Supreme Court declared system did not deny opportunity to obtain basic minimal skills rejected "poor students" or "poor school districts" as suspect class cited importance of local control historic case that eliminated federal courts as receptive forum to school finance cases since education is not a fundamental right under US Constitution and cannot be held to strict scrutiny provided guideline for state courts: if importance of education is mentioned in state constitution, such language allows for, but does not necessitate, fundamental interest status of education

School Finance Litigation Chart

State	Procedural History	Case/Plaintiffs	Ruling	History/Context/Developments
	1989, St. Supreme Ct. 1988, Ct. of Appeals 1987, district court 1984, filed	*Edgewood Independent School District* v. *Kirby* *plaintiffs* 67 districts and 14 families	**Overturned** violated education clause	history: (1) May 1989, legislature appropriated additional $450 million to equalize districts over 2-year period-court recognized low impact on system that spends $12 billion annually; (2) 1977-84, legislature distributed $1.1 billion in equalization aid; (3) 1984, passed education reform act HB72—revised school funding system-created two-tier system which funded based on pupil units, increased equalization aid and general funding to poor districts; system remained underfunded basis of suit: inequity of and reliance on local property taxation 1987, trial court held in favor of plaintiffs; 1988, third court of appeals reversed decision; 1989, state supreme court unanimously reversed court of appeals and declared school finance system unconstitutional supreme court affirmed use of "fiscal neutrality" standard, but qualified: school districts must have "substantially equal access to similar revenues per pupil at similar levels of tax effort" state finance program-foundation school program, does not cover cost to meet state-mandated minimum requirements, no allotments for school facilities or debt service court held, "... state's school financing system is neither financially efficient nor suitable in the sense of providing for a 'general diffusion of knowledge' statewide"-violated education clause state comptroller ordered to stop payments to public schools after court imposed deadline of May 1, 1990, for legislature to devise plan to reduce wide funding diiparitiesbetween districts and achieve efficient system -or at least to generate equalization money for 90-91 school year and then concentrate on permanent solution next legislative session legislature and governor failed to reach consensus by May 1 deadline; court appointed "special master" to develop plan in case consensus could not be met toworkwithin existing resources, "special master" proposed plan to shift state aid from wealthy to poor districts during fourth special legislative session, SB 1 was enacted, which revised finance system and addressed other areas of education SB 1 (1) maintains two-tier foundation and guaranteed yield program, (2) changed pupil-weighting system, (3) raised guaranteed yield, (4) changed pupil count measurement, (5) included $4 billion in new funds over 5-year period, (6) allows "equity standard" to change based on accountable-t study, (7) addressed issues relating to governance, school-based management, regulation waivers, early childhood
Washington	**1974.** St. Supreme Ct. 1972, filed	*Northshore School District* v. *Kinnear* *plaintiffs* school districts, students, parents, taxpayers	**Upheld** did not violate equal protection or education clauses	plaintiffs alleged violation of fiscal neutrality standard and disparities in expenditure, education quality, and tax rate "uniform and general" system requires only certain minimum educational opportunity dissenting judge found state aid to have nonequalizing effects and be in violation of education clause; laid ground for subsequent lawsuit

School Finance Litigation Chart

State	Procedural History	Case/Plaintiffs	Ruling	History/Context/Developments
	1981, County Superior Ct. 1978, St. Supreme Ct. 1977, Superior ct. 1977, filed	*Seattle School District No. 1 of King County v. Washington* *plaintiffs* 24 school districts, education associations and advocacy groups, and others	Overturned violated education clause	plaintiffs contended that 40% of Seattle's education budget depends on passage of annual referendum; without passage, cannot meet state requirements 1978, supreme court held trial court's decision declaring school finance system unconstitutional -violated education clause supreme court stated that legislature had duty to define "basic education" and provide for funding through regular and dependable taxes 1981, plaintiffs filed suit in state supreme court claiming state failed to define and fund basic education case transferred back to county superior court, which ruled "basic education" must include handicapped, bilingual and remedial programs; revenue shortfalls not legitimate excuse for failure to provide adequate funding state has since adopted finance plan relying heavily on state support
Wisconsin	1976, St. Supreme Ct.	*Buse v. Smith* *plaintiffs* "negative aid" school districts, taxpayers, school board members, parents, residents	Overturned "negative aid" provision violated uniformity clause of a state constitution tax article	plaintiffs challenged "negative aid," or "recapture" provision of 1973 School Finance Act supreme court struck down negative aid provision; violated principle of state constitution article in that taxes levied in one district could not be used for direct benefit of other school districts or for sole benefit of the state
	1989, St. Supreme Ct.	*Kukor v. Grover* *plaintiffs*	Upheld	plaintiffs contended finance system did not take into account special needs of districts that enroll high percentage of "at risk" students court held that resolving inequities among districts is responsibility of legislature, not courts
West Virginia	1982, circuit court 1979, St. Supreme Ct. 1977, circuit court 1975, filed	*Pauley v. Bailey* *plaintiffs* parents and students of Lincoln County	Overturned violated equal protection and education clauses education fundamental right wealth as suspect classification	1979, state supreme court reversed trial court's dismissal of plaintiffs complaint and remanded case to circuit court circuit court of Kanawha County found finance system unconstitutional: -did not provide equitable and adequate funding for thorough and efficient system —costs for programs such as special education, remedial education, early childhood must be reflected in funding formula -inadequacies and inefficiencies (as defined by educational inputs) resulted from finance system and related to varied educational resources and expenditures among counties —reliance on locally funded excess levies to provide "thorough and efficient" system was unconstitutional -state failed to provide adequate funding for school construction -taxation and assessment of property is not equal or uniform addressed not only financial and educational equity, but quality and substance of education court ordered executive and legislative branches to develop master plan to create equitable, hi quality education system in regard to staff, facilities, courses and to correct offering disparities by 1983 master plan for education, which addressed roles of state and local education agencies, educational facilities and changes in finance system approved by trial court in 1983

School Finance Litigation Chart

State	Procedural History	Case/Plaintiffs	Ruling	History/Context/Developments
Wyoming	1980, St. Supreme Ct. 1979, trial court 1978, filed	***Washakie County School District No. 1 v. Herschler*** ***plaintiffs*** 3 districts and school board members, taxpayers, parents, students	**Overturned** violated equal protection and education clauses education fundamental right	court supported claim that disparity in financial resources is related to quality of education court declared, "no trial is necessary in this case because, as a matter of law, the statutory structure is inherently defective" court ordered legislature to adopt constitutional system of finance by July 1, 1983 revised school funding system in 1983, including a recapture provision

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