

School Finance and California's Master Plan for Education

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Foreword

In 1999, the State Senate and Assembly established the Joint Committee to Develop a Master Plan for Education—Kindergarten through University. The Joint Committee’s charge was to expand the Master Plan for Higher Education, which was originally implemented in 1960, to include K–12 education. Of course, the state has changed a good deal since the Master Plan was first conceived. In 1960, California’s public school system was the envy of the nation, and partly for that reason, it was never part of the Master Plan deliberations. Higher education, on the other hand, was characterized by confusion and conflict. The authors of the original Master Plan predicted that their proposals would save higher education from “destruction by unbridled competition.” Today, the tables are turned. California’s college and university systems are the envy of other states, but K–12 education is the subject of frequent and intense criticism. To be sure, the K–12 system’s problems cannot be traced to unbridled competition. (Indeed, some critics would argue that the lack of competition has been its downfall.) But however we account for the misfortunes of the K–12 system, most observers would agree that it faces formidable challenges.

School Finance and California’s Master Plan for Education is meant to help policymakers face some of those challenges. Shortly after Senator Dede Alpert, co-chair of the Joint Committee, asked for PPIC’s help in April 2000, Jon Sonstelie assembled a team of scholars to investigate school finance and governance concerns identified by legislative staff. This report is the result of that team’s efforts. The findings, which provide an evenhanded look at the links between resources, costs, and student achievement, were presented to the Joint Committee staff and its Working Group on Finance and Facilities between September 2000 and April 2001. Further work is now under way at PPIC to assess the common characteristics of schools with high-achieving students and to develop cost schedules and quality models for the state’s K–12 schools.

PPIC is pleased to participate in this important reform of the state's K–12 system. The need for that reform is undeniable. Even as the state grapples with energy and environmental concerns, education remains high on the list of issues that must be addressed thoroughly, imaginatively, and with an eye toward the future. There is much more work to be done—for the Joint Committee and for PPIC. We are pleased to be a part of the process and trust that our contributions will help build a successful K–12 system for all Californians.

David W. Lyon
President and CEO
Public Policy Institute of California

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Although this report reflects the contribution of many people, the authors are solely responsible for its content.

1. Introduction

by Jon Sonstelie and Peter Richardson

In May 1999, the California Legislature formed the Joint Committee to Develop a Master Plan for Education—Kindergarten through University. The Joint Committee’s charge is to expand the California Master Plan for Higher Education, which has guided the state’s postsecondary systems with excellent results since 1960, to include the state’s primary and secondary schools.¹ According to State Senator Dede Alpert, chair of that committee, the chief reason for expanding the Master Plan in this way is to provide the legislature with a broad framework in which to place particular K–12 reforms. To perform its charge, the Joint Committee established seven working groups that are scheduled to report in December 2001. The Joint Committee will then hold hearings and develop a new Master Plan in 2002.

In April 2000, Senator Alpert asked the Public Policy Institute of California (PPIC) to conduct support research for the Joint Committee. PPIC agreed and worked with the Joint Committee’s staff to outline several areas for investigation, including the concept of adequacy as a principle for school finance, alternative approaches to school governance, and local revenue options for school districts. The following papers, which were delivered between August 2000 and April 2001 to the Joint Committee staff and Working Group on Finance and Facilities, are the products of that investigation. The purpose of this volume is to make their findings available to more general audiences.

These audiences need not be expert in school governance and finance to appreciate the magnitude of the Joint Committee’s task. The scope of the new Master Plan, for example, will be much broader than its precursor’s. In addition to covering the state’s vast Community College, California State University (CSU), and University of California (UC)

¹For discussion of the Master Plan’s origins, see Douglass (2000).

systems, the new plan will include approximately 1,000 school districts ranging from single-school rural districts to Los Angeles Unified, which serves three times as many students as the entire UC system. Both the nature and the scale of this expansion raise an immediate question: Under what conditions might the state's achievement in higher education translate into success at the primary and secondary levels? To put this question more pointedly, is extending the Master Plan in this way a matter of wishful thinking or is there reason to believe that what worked for California higher education in 1960 might help the state's K–12 schools today?

It is too early to answer this question, but K–12 education today shares at least one problem with higher education before 1960: the problem of unclear governance roles. The Master Plan's chief accomplishment was to differentiate the missions of the three segments of higher education, but the plan also clarified the roles of the state's bodies and agencies in university and college governance. Before 1960, what are now the CSU campuses fell under the aegis of the State Board of Education and the Superintendent of Public Instruction (SPI), and the legislature also exerted significant budget and policy control over these colleges.² By creating what became the CSU Board of Trustees, the Master Plan delivered these colleges from the State Board of Education and SPI and set reasonable and sustainable limits on what the legislature could and could not do in higher education. As Lawrence Picus's essay makes clear (Chapter 2), similar limits and delineations of policymaking authority are largely lacking in K–12 education today, and the Legislative Analyst cites this problem in her call for a new approach to the Master Plan.³

A less obvious question is why the original Master Plan omitted K–12 education in the first place. According to the Joint Committee testimony of Dr. Clark Kerr, President of the University of California in 1960, that omission reflected the health of the K–12 system at that time.

²As a creature of the California State Constitution, the University of California already enjoyed considerable autonomy from the legislature and other state bodies.

³Legislative Analyst's Office (1999a).

In 1960 we were concentrating only on higher education. And you are, I think quite wisely, looking at the totality of education . . . I might say we concentrated only on higher education partly because we then thought that primary and secondary education were in very good condition in California, that we had the best primary and secondary systems in the whole United States. That's no longer true today.⁴

Indeed it is not. Compared to funding levels in other states, California's per pupil spending has been falling since the late 1970s, and even after implementing Governor Wilson's class-size reduction order, California's pupil-teacher ratio is significantly higher than the rest of the nation's. As Julian Betts and Anne Danenberg show in Chapter 4, the link between school resources and student outcomes is far from clear; but it is perhaps no coincidence that student achievement in California during this period suffered relative to achievement in other states, even when California's unique demographic profile is taken into account.⁵ In short, Dr. Kerr's diplomatic assessment draws the curtain of charity before the problems of K–12 education in California today.

What happened to California's schools between 1960 and now? Part of the answer can be found in Chapter 5, which begins with an outline of the major changes in California's school finance system over the last 30 years. In 1968, California school districts levied their own property taxes, which generated half of their revenue. However, property tax bases differed dramatically across school districts, and the plaintiffs in *Serrano v. Priest* argued that these wealth differences led to violations of the equal protection clause of the Fourteenth Amendment. The California Supreme Court agreed, touching off a series of reforms designed to achieve revenue equity across school districts. Predictably, these reforms enlarged the state government's role in school finance. Six years later, Proposition 13 reassigned control of the property tax to the state, further strengthening Sacramento's fiscal authority. In a very short time, California went from a system in which each school district determined its own revenue to one in which the state decided every district's revenue.

⁴Written Testimony of Dr. Clark Kerr, August 24, 1999, available at <www.sen.ca.gov/ftp/SEN/COMMITTEE/JOINT/MASTER_PLAN/_home/KerrTrans.

⁵For details and discussion, see Sonstelie, Brunner, and Ardon (2000).

As fiscal authority shifted to Sacramento, so did control over education policy. This shift had two chief effects. It led to conflict between the state and local school boards, and it magnified chronic conflicts between the SPI, the State Board of Education, the governor and his cabinet, and the legislature. These “turf wars,” along with the very real problems experienced at the local level, eventually prompted the Legislative Analyst’s call for a new Master Plan that covered K–12 education.

General Themes and Policy Precepts

If the scope of the new Master Plan is broad, PPIC’s role in its development is highly focused. Upon agreeing to provide support research, PPIC commissioned reports in the areas specified by the Joint Committee staff. The first area, adequacy-based school finance, is taken up by Heather Rose (Chapter 3), Julian Betts and Anne Danenberg (Chapter 4), Kim Rueben and Jane Herr (Chapter 5), and Jon Sonstelie (Chapter 6). School governance issues are treated in Lawrence Picus’s essay, which is especially attuned to the ways in which governance and school finance arrangements condition one another. Local revenue options are considered in Susanna Loeb’s survey (Chapter 7), Sonstelie’s essay on the property tax (Chapter 8), and Eric Brunner’s essay on the parcel tax (Chapter 9).

Because a brief summary precedes each of these pieces, we will not rehearse their specific findings here. More useful, perhaps, is a discussion of the general themes that emerge from the essays. The first such theme is the importance of learning from other states and their experiences. California is unique in many ways, but it suffers from the view that other states have nothing to teach it. As Heather Rose notes, California pioneered equity-based reform in the 1970s, but it was a relative latecomer to the standards movement and adequacy-based reform in subsequent decades. Jon Sonstelie suggests that California can learn a great deal from Oregon’s Quality Education Model. Julian Betts and Anne Danenberg urge the state to construct a Texas-style data system to track student achievement. Susanna Loeb surveys local revenue options in other states, such as the local income tax in Ohio. These and other examples highlight the potential benefits of looking to other states and learning from their policy successes and failures.

The second emergent theme is the importance of distinguishing state and local governance roles. Because fiscal and policymaking authority has shifted from local school districts to Sacramento, the state government must be especially clear about where its responsibilities begin and end. It must also divide these responsibilities effectively among its various policy actors and agencies. Lawrence Picus's essay reflects what seems to be an emergent consensus that the state should set standards for school performance, assess that performance fairly and consistently, and ensure that school districts have the resources necessary to achieve adequate outcomes. The districts, in turn, should determine how their schools can best achieve those standards. This delineation of responsibility offers a clearer sense of accountability than exists today. More important, perhaps, is what it prevents: namely, a stream of ad hoc policy changes from Sacramento that directly alter methods and practices at the school level.

The third theme that emerges from this work is the continued importance of probing links between school resources and student outcomes. Under adequacy-based school finance, the state would ensure that school districts have the resources necessary to obtain adequate results. One problem with this approach, however, is that studies on school resources and student outcomes do not reveal a strong link between the two. That is, there is no clear production function that would allow state policymakers to make x investment today to obtain y result z years from now. As a result, defining an adequate level of resources is less a science than an art. As Julian Betts and Anne Danenberg note, the weak relationship between inputs and outputs may very well reflect the need for better data collection, especially in California. Until those data are collected and evaluated, however, adequacy-based approaches to school finance will require sound professional judgment along with the best data and analysis currently available.

The fourth and final theme is the continued importance of local revenue options in California. Many state and local authorities have assumed that the *Serrano* decisions or Proposition 13 preclude all such options except the parcel tax and voluntary contributions. To be sure, these measures restrict or eliminate a wide variety of local revenue

options. In particular, *Serrano* forbids school revenue differences based on disparities in property wealth across districts, and Proposition 13 constrains property tax increases as well as new general taxes. But as Sonstelie's second essay shows, the state can reconfigure the property tax to allow districts to raise additional money for specific local needs. Likewise, Eric Brunner shows how communities can assess a new kind of parcel tax without violating Proposition 13 or *Serrano*. Finally, Susanna Loeb reviews a variety of other revenue options, including the local income tax, that need not violate either set of guidelines.

Envisioning a New School Finance System

These four themes form a starting point for developing a new system of school finance. As an example of where that development might lead, we outline one such system based on the governance principle articulated by Picus: The state government establishes standards for schools, and local school districts determine how best to allocate resources to meet those standards.

This governance principle has a natural corollary for school finance: The state ensures that school districts have resources adequate to meet its standards. A school finance system could implement this corollary through the concept of base revenue, which is the revenue a school district must have to obtain adequate resources.

In our illustrative system, base revenue is a per pupil amount. It differs across districts because resource costs vary and because different students require different resources to meet state standards. For example, base revenue might average \$6,000 per pupil across the state. In regions with high salary costs, it might be \$6,500 per pupil. In districts with many disadvantaged students, base revenue might be \$7,000 per pupil. The factors used to adjust base revenue are small in number and are based on objective assessments of resource costs. If base revenues are both flexible and adequate to local needs, categorical programs are unnecessary.

Base revenue is financed through a combination of state and local taxes. Because districts may wish to do more than meet state standards, they may raise additional revenue subject to two conditions. First, tax bases must be equalized across districts, so that the same tax rate

produces the same revenue per pupil in every district. This tax base equalization, which is required by the *Serrano* decision, is accomplished through a state aid program that makes up the difference between local supplementary revenue and the amount a district would raise if its supplementary tax rate were applied to a standardized tax base.

The second condition is a limit on the supplementary tax rate. The limit prevents large differences in supplementary revenue across districts and therefore maintains reasonable equity across districts. More important, the limit on supplementary revenue supports the central role of base revenue. Without a limit, political support for base revenue could erode, as districts address their core needs through supplementary revenue. Also, the limit itself gives the legislature feedback on the adequacy of base revenue. If base revenue were inadequate, most school districts would increase their supplementary tax rates to the limit, signaling the willingness of taxpayers to spend more on their schools. If most districts chose not to levy a supplementary tax rate, base revenue may be more than adequate, and the legislature could consider decreasing it.

Initial Steps

If the state wished to implement a system along the general lines of our example, it could begin by taking the following two steps.

Step 1: Develop a Cost Schedule and Quality Model

In an adequacy-based system, resource needs determine revenue allocations. To implement such a system without sacrificing local governance, the state must know what these resources cost. The first requirement of an adequacy-based system, then, is a reliable cost schedule. As Chapter 6 demonstrates, California has good data on some costs but not others. After developing better cost data through a pilot study of a few school districts, the state could assemble this information in the form of a spreadsheet. It could then use this information to adjust base revenue across districts.

An adequacy-based system also requires a quality model. Once the state knows what resources cost, it must consider which bundles of resources districts need to provide an adequate education to their

students. Toward this end, the state may wish to review Oregon's Quality Education Model with an eye toward adapting it to California's unique circumstances. More specifically, it should consider developing its own model based on a survey of individual school districts. Compared to the centralized approach taken by Oregon, this approach is more compatible with the notion that school districts should determine the methods by which they satisfy state standards.

Step 2: Investigate Local Revenue Options

The essays in this volume examine three local revenue options for schools: revamping the property tax, redesigning the parcel tax, and implementing a local income tax. Of the three, property tax reform may be the best option. To implement it, however, the state must change the way it finances all local governments, not just school districts. Although this reform would be a massive undertaking, it is sorely needed and long overdue. The state could begin by studying a new property tax system of the sort proposed in Chapter 8. This study would examine how changes in the property tax allocations for schools would affect other local governments as well as how state revenue might be used to engineer a transition from the current system to the proposed system.

These two steps should not be mistaken for magic wands or silver bullets. Rather, they are best seen as necessary conditions for a sound school finance system. This system, in turn, is a necessary condition for success in the state's primary and secondary schools. If that success is half as impressive as that enjoyed by California's colleges and universities since the 1960 Master Plan, Californians will have ample reason to celebrate.

2. Educational Governance in California: Defining State and Local Roles

by Lawrence O. Picus

Summary

In response to widespread concern over the performance of the state's public schools, education officials have enacted numerous reforms and developed a range of new accountability mechanisms. Despite these efforts, serious concerns about California's schools remain. These concerns can be traced to many factors, but several observers have noted that the state's inability to carry out a continuous and coherent educational reform program is at least partly due to its splintered governance structure.

The features of this governance structure have been shaped by a series of legal and political watersheds as well as specific legislative responses to them. As a result of these developments, California's educational policymakers now face four major and interrelated challenges. First, they must strike the proper balance between state and local authority. Second, they must clarify the division of policy responsibilities at the state level. Third, they must devise a workable school finance system. Finally, they must consider their approach to collective bargaining in light of these and other challenges.

Regarding the first challenge, the recent experiences of other states point to an emergent consensus on the proper balance between state and local authority: namely, that states should establish overall policy goals, determine standards, measure school performance, and implement accountability systems. Local districts, in turn, should determine the best way to meet state standards. Although this sort of consensus has not

yet emerged regarding market-based alternatives (such as charter schools and vouchers), the recent literature indicates that some of these alternatives may be effective as well.

At the state level, agencies and policymakers must devise ways to complement one another's efforts. The current governance structure is characterized by unclear lines of authority between the Superintendent of Public Instruction (SPI), the State Board of Education, the California Department of Education, and the Secretary for Education. Also, the legislature has played an increasingly active role in determining educational policy and funding priorities. This crowded policy arena has made the governor the key policy actor in K–12 education.

Two options for improving educational governance seem promising. The first requires a willingness to change the State Constitution. Under this plan, the SPI would be appointed by the State Board of Education, whose members would be either appointed by the governor and approved by the legislature or elected in their own right. Under the second option, which does not require any change to the constitution, an elected SPI would focus on promoting accountability and local control, collecting and disseminating information about the schools, and serving as an independent advisor to the governor and legislature. The Secretary for Education would be responsible for implementing state policy, enforcing regulations, and administering certain functions of the California Department of Education. The State Board of Education could be recast as a long-term policy board, focusing on the overall direction of the K–12 education system. Under this arrangement, most of the responsibility for long-term policy and day-to-day administrative responsibility would be shifted to the governor and his appointees.

Funding will continue to be a legislative responsibility. Although court decisions, initiatives, and resistance to increased taxes will constrain any new funding system, the current one has become increasingly difficult to justify. Largely because school funding is now a state affair, the legislature has become a key player in educational policy and reform. Accordingly, the legislature can aid educational reform by reviewing its approach to categorical programs, eliminating many of them, and resisting the urge to add new ones. It would also do well to review the adequacy-based funding systems of other states, especially those that

develop prototypical schools, estimate their costs, and use that information to develop state education budgets.

Finally, educational policymakers must continue to consider the effects of collective bargaining in their deliberations. Although statewide bargaining and salary schedules might seem to follow from the current approach to school funding, such measures would work against the principle of allowing localities to achieve standards according to their own methods. In keeping with the proposed division of responsibilities between the state and school districts, local school officials and union representatives could negotiate the best ways to improve student performance in their respective districts.

Introduction

In response to widespread concern over the performance of California's public schools, education officials have enacted numerous reforms and developed a range of new accountability mechanisms. Despite these efforts, serious concerns about California's schools remain. These concerns can be traced to many factors, but several observers have noted that the state's inability to carry out a continuous and coherent educational reform program is at least partly due to its splintered governance structure.

Any analysis of this governance structure must deal with four key factors. The first is the split between state and local control. Many legislators publicly support a system in which the state provides resources to schools and then holds them accountable for results. Yet the sheer number of state-level categorical programs, each accompanied by its own reporting system, suggests a different reality to the average school or district administrator. Despite continued talk of local control and its virtues, recent developments indicate that state-level policies, financial incentives, and regulations increasingly guide the provision of educational services in California.

The second key factor in educational governance is the number of state agencies involved in policymaking. Like many states, California has a Superintendent of Public Instruction and a State Board of Education. The respective duties of these entities are not defined in the state constitution, however, and relations between them have been

characterized by conflict since the early 20th century (Haberman, 1999). Over the last 30 years, this conflict has been complicated by the actions of the legislature, which has taken an increasingly active role in educational policy and funding priorities. The recent addition by executive order of a Secretary for Education to the governor's cabinet has added a new element to an already complicated governance structure. Moreover, the conflicts and complications of the current arrangement have been magnified by Sacramento's growing role in school finance, administration, and regulation.

Two other factors—the school finance system and collective bargaining agreements with teachers—are not features of California's educational governance structure as such, but they also play key roles in educational policy and will affect reform efforts in important ways.

This essay focuses on these four factors and how they have shaped the state's approach to educational governance. It goes on to outline a slightly different approach as well as some of the changes this new approach would entail. The first section highlights the importance of school finance on the overall governance structure. The second section provides a brief summary of current research on educational governance and how other states are addressing similar challenges. The third section analyzes these research findings within the context of California educational governance, suggesting the places where current policy initiatives in other states might or might not work. The final section steps back from specific initiatives to review the state's most challenging policy problems and possible solutions.

School Finance, State Control, and Educational Reform

California's educational governance structure does not exist in a financial vacuum; indeed, many of its features cannot be understood without a clear idea of how school funding has evolved over the last three decades. The current school finance system does not lend itself to summary, but most experts would agree that three major events—the *Serrano vs. Priest* decision in 1972, the passage of Proposition 13 in 1978, and the passage of Proposition 98 in 1988—have been especially

important in shaping it. Taken together, these events have shifted control of school funding from local school districts to the state government. This shift, in turn, has coincided with the growing role of Sacramento in educational governance.

Serrano v. Priest

Originally filed in 1968, the *Serrano* case is the “grandfather” of all equity-based school finance cases in the United States. Alleging that the system of funding schools in California violated the equal protection clause of the California constitution, the *Serrano* plaintiffs secured a ruling requiring substantial improvements in school revenue equity in California. Specifically, the court ordered that school district revenue differences related to property wealth be reduced to no more than \$100 per student. This figure has been adjusted for inflation since that time, and today it is estimated to be \$343 per student (EdSource, 2000a).

The legislature reacted to the *Serrano* ruling by maintaining the foundation approach to school funding but limiting the amount of money school districts could raise. That limit was allowed to grow at varying rates so that per pupil revenue levels would converge over time. The initial legislative response to *Serrano* had a number of loopholes, including the possibility of districts overriding the revenue limit. Furthermore, the varying rates of spending increases were such that 20 years might have passed before the state was in compliance with the *Serrano* requirements. Although AB 65 was passed in 1977 to address these problems, that legislation was rendered moot by the June 1978 passage of Proposition 13. Despite a number of modifications, the basic system of revenue limits established in response to the first *Serrano* ruling continues today.

Proposition 13

Proposition 13 was designed to reform the property tax rather than the school finance system, but its indirect effect on that system has been profound. Its immediate effect was to reduce property tax collections, the chief source of local school revenue. It also limited property taxes to 1 percent of assessed value and restricted that value’s rate of growth. More important, perhaps, the legislative responses to Proposition 13 and

its fiscal consequences effectively converted the property tax into a state tax. Although local governments continue to collect the property tax, the rules guiding its collection and distribution are established by the legislature. County tax collectors distribute the property tax revenues they collect using formulas established in Sacramento. In 2000, an estimated 84 percent of school district revenue was controlled by the state either through direct appropriations or property tax allocations (EdSource, 2000b). The remaining 16 percent was composed of federal funds (9 percent), local miscellaneous funds such as community contributions, interest income, developer fees, and fees from parcel tax elections (5 percent), and the lottery (2 percent). Because Proposition 13 limits the growth in assessed value of a property to 2 percent per year unless the property is sold, property tax revenues do not increase at the same rate as property values across the state. This pattern puts downward pressure on the growth of school spending.

Proposition 98

In 1988, voters approved Proposition 98, which essentially dedicates a fixed portion of the state's general fund resources to education. As modified by Proposition 111, this system has three tests that ensure either the same proportion of the general fund as the previous year or the same amount of revenue adjusted for the cost of living and any change in the number of students. The third test allows adjustments to the Proposition 98 level of funding in the event of severe state revenue declines or increases. Following the passage of Proposition 98, the legislature has tended to allocate what is required to schools, but no more. Only in recent years of state surpluses have education appropriations exceeded the Proposition 98 minimums.

The school finance system created by these three events—the *Serrano* decision, Proposition 13, and Proposition 98—weathered the recession of the early 1990s, and it continues to provide substantial stability in educational funding. However, this stability has come at the expense of local control. Today the state directs the allocation and use of most school revenue, and spending increases are largely determined through the state legislative process rather than at the local level (Finkelstein, Furry, and Huerta, 2000, p. 47). Some California localities have

supplemented school allocations with local appropriations and parcel taxes, but these revenues amount to less than 5 percent of total K–12 education spending.

The Distribution of Revenue to School Districts

The current school finance system may be resilient, but few would defend its coherence or overall efficacy. Furthermore, its equity continues to be challenged. Under the current system, revenue differences resulting from characteristics other than property wealth (such as district type and size or student needs) are not included in the equity calculation required by the *Serrano* decision. As a result, efforts to fund programs outside the revenue limit have proliferated. These efforts include at least 130 current state or federal categorical programs that fund special needs or programs in districts that meet certain criteria (EdSource, 2000b). In 2000–2001, over half the state appropriation for K–12 education was earmarked for these categorical programs. If all of these programs met identified student or district needs, this approach to school finance would be easier to justify. However, there is little evidence that, taken together, these programs improve the system’s overall equity. Indeed, an analysis of school district spending in 1999–2000 demonstrates that total district revenues bore little relationship to the number of disadvantaged children served by that district (EdSource, 2000b). In effect, legislators have circumvented the equity requirements of *Serrano* by creating narrow categorical programs that benefit specific districts or schools.

These categorical programs are not always reviewed or updated in light of student needs or district characteristics. In many cases, district entry into established categorical programs is restricted, and annual adjustments are based solely on cost-of-living adjustments (COLAs) rather than changes in the characteristics that qualified districts in the first place. This is typical even when categorical programs make excellent sense in terms of district need. Until the passage of AB 602, for example, special education funding was based on historical spending patterns adjusted by a COLA. Transportation funds are still based on funding for the prior year with little consideration of how the number of students transported or the distance traveled has changed.

Recent research has documented the disappointing results of California's school finance system. Evans, Murray, and Schwab (1999) conclude that California has achieved equity by "leveling down" high-revenue districts. Sonstelie, Brunner, and Ardon (2000) confirm this result and chart the steady decline of California's per pupil spending levels relative to those of other states. Without arguing for a strong link between per pupil spending and student performance, they also note that student test scores in California have also shown relative declines over this same period, even after adjusting for the demographic changes within the state. Although experts may disagree about the best way to account for these trends, there is little doubt that California's per pupil spending is the lowest among the nation's ten largest states and well below the national average.

As California moves toward a system of stronger accountability, the relationship between school finance and educational governance is especially significant. Unfortunately, the current funding system is largely out of step with the state's reform and accountability efforts. One exception to this pattern is the monetary incentives included in recent reform legislation linking money for teachers, students, and schools to high performance on state standardized tests. In a state where small changes to the system can cost billions of dollars, coordinating the funding system with other reform efforts is a significant challenge. Without this coordination, however, improved student performance will be that much more difficult to achieve.

Governance Issues

Changes in school finance have shifted control away from local school districts to the state government. In recent years, other states have undergone similar shifts, prompting a renewed national discussion of the proper relationship between state agencies and local school districts. This topic received considerable attention with the publication of the National Commission on Governing America's Schools report (ECS, 1999). In essence, the report argues that the state should establish goals, standards, and assessment methods and that local districts should focus on the best ways to meet these standards.

Although this division of responsibilities sounds straightforward, striking the right balance between state standards and local implementation is often difficult. Kirst, Hayward, and Fuller (2000) maintain that school districts have been squeezed from above by increasing state authority and from below by increasing pressure from parents, employee unions, interest groups, and private agencies. However, this approach to educational governance is preferable to others. A completely local system faces a battery of practical problems. Because school funding is now a state responsibility, the state cannot be blamed for its interest in how well those funds are used. Also, many families in California move across districts every year, and they are entitled to some assurance that educational standards will remain reasonably consistent. Finally, the state has a legitimate interest in ensuring that a K–12 education anywhere in California is sufficient to prepare students for such experiences as entering college or the workforce.

A system of total state control faces similarly serious problems. Chief among them is the temptation to implement state-mandated programs and policies that do not recognize the unique characteristics of districts, schools, and even students. The student population in California has never been more diverse, and a “one size fits all” approach to teaching is unlikely to meet with success. Indeed, many school administrators cite a loss of local flexibility as a major difficulty in achieving better student performance.

In addition to addressing the relationship between states and local school districts, the ECS report discusses “market-based” approaches, including school choice, vouchers, and charter schools. Even here, however, the report recommends that the state provide accountability standards and measures of student achievement across schools and districts. Other governance structures include Wang and Walberg’s (1999) recommendations that states and local school boards create basic standards, and that schools devise the best way to meet those standards. Schools that fail to achieve these standards would be subject to sanctions and reconstitution. Other commentators have recommended that the relationship between the school board and the superintendent more closely resemble that between a corporate CEO and board of directors

(Carver, 2000) or that more authority be placed in the hands of local school personnel and their communities (Edwards, 2000).

New Zealand's experience with this sort of decentralization is instructive. In 1989, the government transferred operating responsibility for schools from the Department of Education to each school's elected governing board. In 1991, parents were given expanded school choice in an effort to create a more competitive culture within the education system. After finding that approximately one-quarter of these schools did not meet student performance goals, Fiske and Ladd (2000) conclude that an important component of any governance structure is the central organization's capacity to support and direct schools that cannot perform at high levels on their own.

Closer to home, Texas and North Carolina have implemented accountability systems whose first steps include the dissemination of public information about school performance. The Texas Education Agency web site contains data on every school in the state and clearly measures each school's annual performance against state standards. The state backs up this effort with calls for specific actions from schools that do not meet established goals. Districts with schools identified as "not acceptable" must establish and implement improvement plans immediately. If these plans fail to improve student performance, the state may take over the operation of the schools. When combined with widely available information on school performance, such sanctions have created an environment in which student success and learning is paramount.

The results of these and other reform efforts point to an emergent consensus: namely, that states should establish overall policy goals, determine standards, measure school performance, and implement accountability systems. Local districts, in turn, should determine the best way to meet state standards. Although this sort of consensus has not yet emerged regarding market-based alternatives, the recent literature indicates that some of these may be effective as well.

The Options for California

How well do these and other findings mesh with California's governance system? Returning to the four factors outlined in the

introduction, this section discusses options for state and local accountability, for the organization of state agencies with responsibility for education, for school finance, and for employee relations.

Options for State and District Accountability

California has enacted a number of accountability reforms in recent years. A special legislative session in 1999 enacted the Public Schools Accountability Act (PSAA), which has three main components. The first and best known is the Academic Performance Index (API). Based on the results of the SAT-9 (Stanford Achievement Test, Ninth Edition) taken by most students in each school, the API provides a single index number to rate the performance of each school. The score is used both to compare schools and to measure growth over time. Although additional factors are to be added to this index, today it relies on only one standardized test.

The target API score for each school is 800. Each school scoring 800 or above on the API is expected to at least maintain its scores at that threshold in the future. Schools scoring below 800 are assigned a growth target, which is 5 percent of the difference between its current API and 800. Each school also receives two numbers between 1 and 10, with 10 being the highest value. Both numbers are based on percentile rankings. The first number indicates a school's relative rank among all schools, and the second number indicates how well a school has performed compared to 100 schools serving a similar student population.

The second component of the PSAA is the Immediate Intervention/Underperforming Schools Program. This component provides assistance for schools in the bottom half of performance statewide for two consecutive years. In 1999–2000, 3,144 schools were designated as underperforming. Of these, 77 received federal school improvement funds, and another 350 received state planning grants of \$50,000 to hire an external evaluator and create an action plan for improvement subject to approval by the local school board and the State Board of Education. In 2000–2001, an additional 430 schools are expected to receive this state support.

The third component of PSAA is the Governor's Performance Award Program, which grants funds to schools that meet or exceed API growth

targets. A second program provides grants of up to \$25,000 per staff member to be used as bonuses for teachers and administrators in underperforming schools that meet or exceed API performance growth targets established by the state. Distribution of the funds is subject to district collective bargaining agreements. For 2000–2001, a total of \$50 million is to be distributed under this program, although the final distribution formula has not yet been determined.

Although these programs provide incentives for schools to improve performance, they are conducted within the confusing framework of state regulations and budget restrictions. Moreover, adequate financial support for all schools identified as underperforming is not available through the Immediate Intervention/Underperforming Schools Program. As a result, some underperforming schools will not have the advantage of state assistance in developing their improvement plans.

More generally, these accountability programs require better integration and focus. Substantial money is available to schools that perform better than expected, and there is also money available for schools that are not succeeding. However, SAT-9 does not align well with the state's existing curriculum frameworks and standards. Better coordination between these elements will increase accountability and offer educators, policymakers, and the general public a more accurate view of how well the public schools are performing.

The legislature can help by supporting a system based on state standards but local implementation. In particular, a Master Plan could review and eliminate certain statutory requirements regarding content and teaching methods. The Master Plan must also be clear about the components of the accountability system and how they relate to school standards. The measurement system should be straightforward, and its results must be made public in a timely and accurate manner. Finally, incentives and sanctions should be articulated clearly and in advance and be made available to all schools.

Options for the Organization of State Agencies

Another challenge for the Master Plan is to delineate the responsibilities of the state's policy actors. Recent court rulings have indicated that the State Board of Education should establish goals for

public education but not be involved in micro-management, whereas the SPI should manage the day-to-day operations of the California Department of Education and execute board policies. The role and operational responsibilities of the Secretary for Education are less clear, however, and the legislature is free to enact new programs according to its own views. Much of the actual implementation of these programs is left to the California Department of Education, the fifth party in the state governance structure. Although the department's responsibilities have increased over the last decade, its budget has been reduced by nearly 50 percent. In recent years, the governor has been the most powerful force in determining the state's education policy. Governor Wilson's class-size reduction order exemplifies this point, and some observers have argued that Governor Davis's power in education policy has "soared to unprecedented heights" (Kirst, Hayward, and Fuller 2000, p. 89).

The problems with this governance structure are well known. In 1996, the Constitution Revision Commission's report noted that the state's educational system has no focal point for responsibility, little flexibility for local districts, and no single official or entity accountable for public schools at either the state or local level. The result is a system in which schools receive a torrent of mixed signals. Despite considerable rhetoric to the contrary, state policy in California is more a series of requirements and mandates than a combination of clear goals, adequate support, and local flexibility.

In an effort to clarify responsibilities at the state level, the Legislative Analyst's Office (LAO) has recommended that the state reduce the roles of these agencies and find ways for them to complement one another more efficiently (Hill, 1999). In particular, the LAO suggests that the SPI focus on promoting accountability and local control, collecting and disseminating information about the schools, and serving as an independent advisor to the governor and legislature. The Secretary for Education would be responsible for implementing state policy, enforcing regulations, and managing many or all of the functions of the California Department of Education. This arrangement would improve accountability to the governor. Finally, the LAO suggests that the State Board of Education be recast as a long-term policy board, focusing on the overall direction of the K-12 education system. The board would

monitor the implementation and effectiveness of state and federal programs and recommend a comprehensive plan for administering K–12 programs.

These recommendations do not require major constitutional changes. The SPI would remain an elected official accountable to the public at large. That office's management function would be transferred to the administration, thereby reducing the existing tension between the State Board of Education and the SPI and allowing the latter to focus on public advocacy.

An alternative model would be to make the SPI responsible to the State Board of Education. The SPI would be appointed by the board, which could be appointed by the governor and approved by the legislature or elected by the public. This arrangement eliminates questions about the operation of the California Department of Education, allows the board to establish state education policy, and directs the SPI to carry out that policy. However, this model essentially eliminates the role of the Secretary for Education and gives the State Board of Education considerable independence from both the governor and the legislature. Because the SPI would not be an elected official in his or her own right, this arrangement would be less problematic for an elected governor, whose influence would depend to a large extent on whether board members were appointed or elected by the voters.

This option simplifies policymaking by reducing the number of policy actors at the state level. The role of the SPI is essentially that of a manager, and the State Board of Education might fulfill the advocacy role identified by the LAO, particularly if the board were elected. A possible disadvantage is that the governor might exercise less influence over educational management and policy. This change could lead to conflict and, eventually, the establishment of an educational policy office more directly under the governor's control. That development, in turn, would lead to the type of confusion that exists today.

Each of these scenarios is silent on the role of the legislature. If it decides to play a large role in the governance of California schools, the legislature might prefer a model in which the State Board of Education appointed the SPI. The membership of the State Board of Education would be appointed by the governor and approved by the legislature.

Alternatively, the legislature might seek to approve the SPI as well. Any such option would require a change in the state constitution, which stipulates that the SPI be elected.

Options for School Finance

Creating a coherent governance structure entails changing the way schools are funded. The legislature has tinkered with the distribution formula for decades, adding new layers of categorical programs to a poorly financed foundation program. The result is a maze of often competing programs, each with its own spending and reporting requirements. These requirements often prevent districts from designing integrated programs to meet specific student needs. Further tinkering with the current system is unlikely to support key educational reforms. Without a more systematic approach to determining adequate funding levels, California may remain a low-spending state for the foreseeable future.

Fortunately, the strong economy has led to rapid increases in school funding, including an 11.4 percent increase for the 2000–2001 school year (EdSource, 2000b). Furthermore, policy options do exist. As Heather Rose’s essay in this volume makes clear (Chapter 3), many of these options focus on determining adequate funding levels. Odden and Picus (2000) suggest that a school finance formula designed to provide an adequate education for all children would improve equity as well as student outcomes. Perhaps the most promising adequacy-based options rely on what has come to be called the “professional judgment” model. In this approach, panels of educators develop prototypical schools that they believe will enable up to 90 percent of those schools’ students to meet state performance goals. Once the costs of these prototypes are determined, the legislature can use them as a reference point in determining the state’s education budget. Although districts and schools might choose not to emulate the prototypes in their allocation decisions, they would be held accountable for student outcomes. Actual funding might be adjusted for student, teacher, and district characteristics such as student disabilities, limited English fluency, low income, or special talents and gifts. Additional adjustments could also accommodate other cost differences across the state.

Because the state government already allocates the lion's share of school revenue in California, this sort of funding system would be relatively easy to establish. Once the legislature agreed on an adequate funding level for California's schools, it could determine the amount of property tax revenue and general fund resources needed to support that system. Although this approach would eliminate the need for some categorical programs, the benefits of others should be considered when designing the prototypes and acceptable adjustments to them. To make sure that the needs of students remain at the forefront of the funding system, the prototypical schools and their costs would be reviewed regularly.

Although this model does not address local revenue generation beyond the so-called adequacy level, providing these options may be important to state policymakers. Such local options would have to be consistent with the *Serrano* requirements as well as the precepts of the Master Plan. In particular, districts could not exploit differences in property wealth to generate local revenues. If local revenue options were allowed, the state would still have to maintain adequate funding for all schools. One problem leading to the *Serrano* suit was the fact that the state's foundation program provided funding for less than half of what the average school district was spending on each student. If districts were forced to rely on local revenue options to meet basic needs, the system would invite complaints that its funding was inadequate.

Options for Employee Relations

Another issue at the forefront of governance discussions is collective bargaining, which is often cited as an obstacle to new programs or allocations. At the same time, the legislature has occasionally tried to evade the requirements of local bargaining agreements by mandating how new funds will be spent. This tactic may be one reason for the large number of categorical programs in existence today.

Collective bargaining is unlikely to disappear, and any new approach to governance must be prepared to accommodate it. The question is, should collective bargaining continue to be conducted at the district level, or should there be one statewide collective bargaining agreement? In a system of locally controlled school districts, statewide collective

bargaining seems out of place. In a state-controlled system such as California's, however, statewide bargaining might seem to be more suitable.

Paradoxically, the biggest drawback to a statewide bargaining agreement is the prospect of a statewide salary schedule. As part of its attempt to fund education as required by its Supreme Court, the state of Washington established such a salary schedule in the early 1980s. Over time, the schedule created substantial inequities in teacher compensation as a result of large cost-of-living disparities across the state's urban and rural areas.

More important, perhaps, statewide collective bargaining works against the principle of allowing localities to achieve state standards by their own methods. In keeping with that principle, the state might eliminate certain statutory requirements and let local districts and their bargaining units determine the relative tradeoffs of each. Unless the Master Plan intends to increase state authority over local decisionmaking, the state might prefer to allow local school officials and union representatives to work out the best ways to improve student performance in their districts.

Conclusion

California's educational policymakers face four major and interrelated challenges. First, they must strike the proper balance between state and local authority. Second, they must clarify the division of policy responsibilities at the state level. Third, they must devise a workable school finance system. Finally, they must consider their approach to collective bargaining in light of these and other challenges.

Rather than attempt an exhaustive discussion of these challenges and the proposals designed to address them, this essay has sought to distill the key features of each challenge, point to the research that bears on each, consider the relevant experiences of other states, and suggest options based on that research and those experiences. It has also sought to emphasize the interrelationships among the four challenges. For example, the question of state and local authority cannot be addressed without also considering the ways in which school finance developments have dramatically altered that relationship. Those developments have

also magnified the decisionmaking problems at the state level. Such interrelationships suggest that systemic reforms, especially in the area of school funding, may be required to meet these challenges. At a minimum, changes in one area should be made only after considering their effects on other parts of the system.

Given these challenges and the complexities that accompany them, which solutions seem most promising? The research and recent experiences of other states recommend a system in which the state government sets standards, monitors progress, and holds school districts accountable for student performance. The role of school districts, in turn, would be to develop methods for achieving and surpassing these state standards.

State agencies and policymakers must also devise ways to complement one another's efforts. The LAO suggests that the SPI should promote accountability and local control, collect and disseminate information about the schools, and serve as an independent advisor to the governor and legislature. The Secretary for Education would be responsible for implementing state policy and enforcing regulations. Many of the current functions of the California Department of Education would be transferred to this executive agency. Finally, the State Board of Education could be recast as a long-term policy board, focusing on the overall direction of the K–12 education system. This arrangement acknowledges that the governor is—and perhaps should be—the key policy player in K–12 education. Although the SPI would play an important role in promoting accountability, most of the responsibility for long-term policy and day-to-day administrative responsibility would be shifted to the governor and his appointees.

Funding will continue to be the legislature's responsibility, and here many would maintain that there is much work to do. Although court decisions, initiatives, and resistance to increased taxes are obstacles to any new funding system, the current one has become increasingly difficult to justify. Most observers regard it as antiquated, overly complex, and incompatible with other reform efforts. Because school funding is now a state rather than a local responsibility, the legislature has become a key player in school reform. At the very least, it should review its approach to categorical programs, eliminate many of them, and resist the urge to

add new ones. It would also do well to review adequacy-based funding systems of other states, especially those that develop prototypical schools, estimate their costs, and use that information to develop state education budgets.

Finally, educational policymakers must continue to consider the effects of collective bargaining in their deliberations. Although statewide bargaining and salary schedules seem to follow from the current approach to school funding, such measures work against the principle of allowing localities to achieve standards according to their own methods. In keeping with the proposed division of responsibilities between the state and local school districts, the state should allow local school officials and union representatives to negotiate the best ways to improve student performance in their respective districts.

California's education system today is the embodiment of state control. The governance system must shift its emphasis from managing policy through resource allocation to measuring results on the basis of student outcomes. This is a substantial paradigm shift for policymakers, and one that will require a great deal of dialogue and deliberation before it can be implemented.

3. The Concept of Adequacy and School Finance

by Heather Rose

Summary

Beginning in the early 1970s, California transformed its system of school finance. Although this transformation resulted in broad equity in school district funding, many of the benefits envisioned by its proponents failed to materialize. Since that time, student performance and per pupil spending have fallen relative to performance and spending in other states, and once again California will review its school finance system.

The concept of adequacy has figured prominently in many recent discussions of school finance reform. Although the adequacy movement is an outgrowth of earlier reform efforts, its methods differ from those of its precursors. The concept of adequacy consists of two basic elements—outcomes and resources—joined in a distinctive way. Specifically, adequacy-based proposals begin by defining high-minimum outcomes for student performance and then gearing resource decisions to those outcomes.

Adequacy-based proposals tend to share several features. One is their preference for absolute rather than relative standards. Unlike equity-based approaches, which are by definition relative, these proposals rely on relatively fixed, external yardsticks (such as test scores and graduation rates) to evaluate school performance. In this sense, the concept of adequacy can be traced to the standards movement of the 1980s. Another shared feature of adequacy-based proposals is their focus on disadvantaged students. This focus is a predictable consequence of establishing high-minimum outcomes. Because student outcomes are highly correlated with socioeconomic status, efforts to establish or raise

minimum outcomes are likely to target low-income and minority children.

Although several states have attempted to define and price an adequate education, their methods have varied significantly. Ohio identified districts that met certain outcome criteria, calculated the average per pupil spending levels for those districts, adjusted that average for special costs, and defined adequate funding according to those adjusted averages. However, most of the districts in Ohio with revenues at those levels did not meet the state's outcome criteria, and there is little reason to think that other districts will do better. Wyoming assembled a panel of experts to decide which inputs were necessary to provide an adequate education, but that panel explicitly disregarded cost considerations and had few assessment devices by which to define adequate outcomes. Oregon also assembled a panel to identify the school features believed to be essential to a quality education at the elementary, middle, and high school levels. That panel also developed prototypical schools with these features and estimated their costs. The legislature was then encouraged to use these estimates as a reference point to determine the state's total education budget.

Taken together, these and other experiences suggest four important and interrelated questions facing adequacy-based reform in California. First, how can the state translate educational standards into measurable outcomes? Second, how solid is the connection between resources and outcomes, and what are the risks of overestimating the strength of that connection? Third, what do we know about the cost of *quality* inputs, including personnel? Finally, do the benefits of achieving these standards justify the costs? The current state of research does not answer these questions definitively so much as emphasize their centrality.

A sound school finance system is a necessary but not a sufficient condition for educational success. Because education is a richly human process, no system or combination of inputs can guarantee minimum outcomes or replace reasoned deliberation about what constitutes a quality education. In California, this deliberation is likely to focus on inputs, over which the state has considerable control, rather than outcomes, which are more difficult to observe, understand, and improve

through state-level policy adjustments. This focus, in turn, requires a reliable, flexible cost model, which is outlined in Chapter 6.

Introduction

In 1971, California became the first state to declare its system of local school finance unconstitutional. In *Serrano v. Priest*, the California Supreme Court ruled that fiscal inequities resulting from differences in property wealth violated the equal protection clauses of both the U.S. Constitution's Fourteenth Amendment and the California State Constitution. Two years later, the U.S. Supreme Court ruled that education is not a fundamental right guaranteed in the U.S. Constitution and is therefore not subject to its equal protection clause. In California, however, the *Serrano* decision withstood the higher court's ruling because the State Constitution explicitly identifies education as a state responsibility.

In the aftermath of the *Serrano* decision, California transformed its system of school finance. However, most states chose not to follow California's program of equity-based reforms, in part because these reforms failed to achieve many of their original goals (Sonstelie, Brunner, and Ardon, 2000). The reasons for the failure were various and complex. Many can be traced to policy changes in other domains, especially property tax reform, as well as to economic developments outside the control of any set of policymakers. Also, many reformers had wrongly assumed that the revenue disparities targeted by *Serrano* were systematically related to race and income. In fact, a high proportion of poor and minority students attended schools in high-revenue urban districts. Consequently, reducing revenue inequality at the district level did little to help disadvantaged students as a whole. Although California managed to achieve and maintain broad equity in school district funding, it ultimately did so in large part through relative declines in per pupil spending. For these and other reasons, many of the benefits envisioned by reformers in California failed to materialize, and other states drew their conclusions accordingly.

As equity-based reforms produced mixed results, many reformers began to focus on a new concept: adequacy, or the notion that school funding should be geared to minimum educational outcomes. But what

does adequacy mean in a policy context? What social and educational conditions gave rise to it, and what might it entail for public education in California? This essay answers these questions by focusing on the concept of adequacy, its history and evolution, and how it came to supplant equity as a basis for school finance reform. It also outlines the efforts other states have made to enact adequacy-oriented policies. Finally, it discusses the challenges these states have encountered and how they might bear on California's efforts to improve its school finance system and public education generally.

What Is Adequacy?

The concept of adequacy includes two distinct but related components: outcomes and resources. Instead of focusing on equalizing inputs, the adequacy movement requires that school policy and finance be geared toward high minimum outcomes for each student (Clune, 1994). In practice, these outcomes are often measured by test scores, graduation or attendance rates, or some combination of such criteria. The second component of adequacy focuses on the resources necessary to achieve these high-minimum outcomes. Guthrie and Rothstein (1999) define this second component as a "per pupil resource amount sufficient to achieve some performance objective." Odden (1998) breaks down adequate financing into two parts: "the level of base spending needed to teach the average student to state standards" and additional resources needed to bring students with special needs up to the same standards. Unlike policies based solely on either equity or standards, the adequacy movement links definitions of adequate resources to those of adequate outcomes.

Another feature of adequacy-based reform is its tendency to rely on absolute rather than relative standards. Because adequate test scores and graduation rates can be defined independently of what transpires at any particular school or district, adequacy is primarily concerned with comparing student outcomes to external and fixed standards rather than to performance levels at other schools or districts. This feature of adequacy-based reform distinguishes it from an equity-based approach, which tends to rely more on relative standards to determine how well a school or district is doing (Berne and Stiefel, 1999).

Yet another feature of adequacy-based policy is its focus on students at the low end of the outcome distribution. This focus is the predictable consequence of guaranteeing minimum achievement levels. Given the strong correlations between the socioeconomic status of students and their educational outcomes, low-income and minority students are the main focus of adequacy-driven reforms (Berne and Stiefel, 1999).

The History of Adequacy

Although the concept of adequacy has figured prominently in school finance discussions only since the early 1990s, it is far from new. Many of its elements derive from earlier reform movements, some of which date back to the Progressive era. Tracing the history of these movements reveals how today's concept of adequacy has absorbed their influences, but it also shows how the proponents of adequacy have reframed their objectives in light of the sometimes disappointing results of earlier efforts.¹

The foundation plans of the early 20th century are the ancestors of today's adequacy funding policies. These plans guaranteed that all school districts had at least a minimum foundation level of resources per pupil. Under these plans, school districts typically taxed property in their jurisdictions. If a district's property tax rate met the state's specified rate but its property tax revenue fell short of the foundation level, the state made up the difference. Foundation plans were meant to ensure that differences in assessed property values did not prevent students in low-wealth districts from obtaining the minimum amount of resources. This arrangement guided California's system of school finance until the 1970s, and it continues to be an important element in the finance systems of many other states.

In one sense, the relationship between adequacy-based policy and this older approach is quite straightforward. Simply put, adequacy proponents maintain that today's foundation levels are insufficient to achieve minimum educational outcomes. The difference between the two views, however, is equally important. According to Guthrie and

¹Minorini and Sugarman (1999a, 1999b) provide an excellent legal and historical framework for adequacy-based reform. This section draws greatly from their work.

Rothstein (1999), foundation plans did not define adequate per pupil resources according to an in-depth study of students' needs but rather by how much state revenue was available. Whereas foundation plans used available revenue to determine minimum resources, adequacy approaches use educational outcomes to make that determination.

Another difference between adequacy proposals and foundation plans concerns the distribution of resources. Early foundation plans guaranteed a minimum amount of resources per pupil, but they did not guarantee greater resources for low-achieving students. Indeed, they did not guarantee equal resources per pupil. Because localities in California set their own tax rates, school districts could and often did exceed the foundation level of per pupil spending. Furthermore, high-wealth districts often exceeded that level even when their tax rates equaled those of low-wealth districts. This feature of local school finance culminated in the district revenue disparities targeted by the *Serrano* lawsuit.²

Although the *Serrano* case was ultimately successful, it faced a serious legal battle along the way. In *San Antonio v. Rodriguez*, a Texas case very similar to *Serrano*, the U.S. Supreme Court rejected the notion that education was protected under the Fourteenth Amendment's equal protection clause. The *Serrano* decision was upheld by appeal to the state constitution, but the *Rodriguez* ruling set the tone for other states and their equity concerns. After *Rodriguez*, reformers began to focus on the education clause in many state constitutions, which guarantees a "thorough and efficient" education. Directly addressing this clause, these reformers maintained that school district resources were inadequate to guarantee such an education.

Other factors also led reformers away from equity arguments.³ Many states adopted some version of district power equalization, which guaranteed that the same tax rate would yield the same tax revenue regardless of a school district's property wealth. District power equalization had many opponents, who correctly viewed the plan as taking revenue away from rich districts and giving it to poor districts.

²Sonstelie, Brunner, and Ardon (2000) provide an account of school finance policy in California before and after the *Serrano* decision.

³See Minorini and Sugarman (1999b) for further discussion of these factors.

Such “Robin Hood” approaches to school finance eventually encountered substantial political opposition in several states.

The California experience also scared other states away from its particular version of equity-based reform. To many observers, that experience was an example of reform gone wrong. Whereas the goal of many reformers had been to increase school funding, California went from one of the highest-spending states on public education to one of the lowest-spending. At the same time, student test scores in California fell relative to those in other states, and these relative declines remained even after controlling for student demographic characteristics (Minorini and Sugarman, 1999a; Sonstelie, Brunner, and Ardon, 2000). It is not clear, however, that other states would have followed the California pattern of relative declines in per pupil spending. The passage of Proposition 13 forced California’s equity-based reform to work within strict tax limits, an important factor in California’s relative decline in per pupil spending.

Further leading to the demise of equity-based reform was the growing body of research showing that low-income and minority students did not disproportionately live in low-wealth school districts (Sonstelie, Brunner, and Ardon, 2000, p. 38). Indeed, many low-income and minority students lived in inner cities with rich commercial property tax bases. Thus, increasing the resources of low-wealth school districts did not benefit these urban students. Furthermore, district power equalization policies eliminated the commercial property subsidy and thereby diverted resources from these inner-city schoolchildren. The motivation for equity-based reforms waned in light of these research findings.

Equity advocates also came to realize that, despite the state’s attempts to equalize per pupil spending, wealthy families had found other ways to pay more for their children’s education. Many funded after-school programs, made voluntary contributions to schools, or sent their children to private schools. In the words of one set of observers, the “rich could not be stopped” (Minorini and Sugarman, 1999b, p. 185). Rather than trying to curb the spending of wealthy districts, many reformers began to ponder new strategies to help students in need.

Although these and other developments were factors in the shift from equity to adequacy among school finance reformers, the turning

point may have been the 1983 report by the National Commission on Excellence in Education. *A Nation at Risk* maintained that U.S. students were neither keeping up with their foreign counterparts nor learning enough to become productive members of society. This message prompted parents and policymakers alike to press for standards-based reform (Minorini and Sugarman, 1999b, p. 186). In many ways, the standards movement of this period gave rise to the concept of adequacy. Like the standards movement, the concept of adequacy is centered on high-minimum outcomes. Unlike the standards movement, however, adequacy-oriented policy links those outcomes to the resources needed to achieve them.

The link between outcomes and resources is especially important in California, where the state government finances and sets standards for public schools but assumes no direct responsibility for achieving those outcomes. In this sense, the transition to a state-controlled system of public education, begun in the 1970s with the *Serrano* decision and property tax reform, is incomplete. Under these circumstances, it would be surprising if school districts did *not* petition the state for more resources to achieve state-mandated goals.

To sum up, today's concept of adequacy blends many of the features and goals of earlier reform movements. Beginning with the Progressive era, school finance policy guaranteed minimum levels of resources to districts. Later reformers sought equity by guaranteeing equal resources across school districts. In California, however, this policy failed to achieve many of its original goals. Although many aspects of the adequacy movement can be related to equity concerns, its proponents have reframed their goals in response to the standards movement and relied on different constitutional mechanisms to achieve them.

State Experiences with Adequacy-Based Reform

Because the U.S. Supreme Court has essentially ruled that school finance is not a federal issue, adequacy-based reform has taken place at the state level. As described by Minorini and Sugarman (1999a), several states have attempted to define and price an adequate education. This section focuses on the experiences of three such states: Ohio, Wyoming, and Oregon.

Learning by Example: The Case of Ohio

In *DeRolph v. State* (1997), the Ohio State Supreme Court ruled that the state's school finance system violated the state's constitution and ordered the General Assembly to develop a "thorough and efficient" system. In response, the state adopted an approach recommended by Augenblick (1997) to determine the cost of funding schools under this new scheme. Augenblick first identified school districts that met certain outcome criteria. Specifically, these districts had to achieve a dropout rate of less than 3 percent, an attendance rate of 93 percent, and a certain passage rate on a series of proficiency tests. He then concluded that the average per pupil spending in the schools that met those criteria should provide any school with a sufficient level of resources to achieve those outcomes. Finally, he adjusted that level of resources for districts with special needs, such as high transportation costs or a high percentage of disabled students.

Because of its simplicity, Augenblick's method is under consideration in Illinois and Mississippi (Guthrie and Rothstein, 1999). The California Legislative Analyst's Office also regards this method as promising (LAO, 1999a). Yet Augenblick's approach suffers from a serious flaw. By considering the spending of only those districts that meet his criteria, he overlooks the fact that many other schools spend the same amount of money but do not achieve the desired outcomes.

Using the base-level spending level data that Augenblick provides in his report, Table 3.1 shows the number of schools that meet the criteria and the number that do not for different school spending ranges. The average per pupil spending for districts that meet the criteria is about \$3,800.⁴ Yet as Table 3.1 demonstrates, only 30 of the 104 districts spending between \$3,800 and \$4,300 meet the adequacy outcome criteria. Given this pattern, there is little evidence that increasing spending to \$3,800 will help lower-spending districts meet the criteria. Indeed, the evidence suggests that 71 percent of districts will not meet the criteria even at that level of spending. In short, Augenblick's funding

⁴Because of weighting differences, this figure differs slightly from Augenblick's estimate of the average spending. Nonetheless, the main point holds.

Table 3.1
Spending per Pupil and Student Outcomes in Ohio School Districts,
1996–1997

District Spending per Pupil, \$	No. of Districts Meeting Ohio's Outcome Criteria	No. of Districts Not Meeting Ohio's Outcome Criteria	% of Districts Meeting Ohio's Outcome Criteria
0–2,799	1	60	2
2,800–3,299	12	137	8
3,300–3,799	43	161	21
3,800–4,299	30	74	29
4,300 and above	16	73	18
Total	86	432	17

SOURCE: Augenblick (1997).

NOTE: The district spending per pupil is base expenditure per pupil for fiscal year 1996.

method is unlikely to achieve the desired high-minimum outcomes in each district.

Augenblick's plan appears even less promising when placed against the backdrop of California's recent history. The chief consequence of such a plan would be to push more schools toward average funding levels. However, the results of equity-based reform in California indicate that this effect means little by itself. Over the last 20 years, more California schools have been funded at or near the state average, but the state has experienced relative declines in both student performance and per pupil spending. Thus, Augenblick's plan should hold little appeal for California, where the average level of funding is already relatively low, and where the majority of schools funded at that level have not achieved high outcomes.

The Professional Judgment Model: The Case of Wyoming⁵

In *Campbell County v. The State of Wyoming*, the state Supreme Court ruled that Wyoming's entire system of public school finance was unconstitutional. The court ordered the legislature to identify a basket of educational goods and services that should be available to all students

⁵See Guthrie and Rothstein (1999) for a more detailed discussion of this case study.

regardless of the student's school district, to determine the cost of that educational package, and to fund it regardless of the cost.⁶ To comply with the orders, the legislature first established a proper educational basket of goods. This basket was a slightly modified version of the State Board of Education's existing educational standards, which covered several academic subjects (including reading, writing, mathematics, and applied technology) and many skill areas (including problem-solving, keyboarding, creativity, and personal financial management skills) (Guthrie and Rothstein, 1999, pp. 217–218). The standards for high school graduation included four years of English and three years each of mathematics, science, and social studies. Districts were also required to have programs to identify and help “at-risk” students and to supply health, media, and guidance services.

Once this adequate educational package was established, the state legislature set out to determine its cost. The state adopted the professional judgment method, assembling a panel of teachers, administrators, and other public officials to determine which school inputs were necessary to provide students with an adequate education. The panel was instructed to disregard the cost of the factors they deemed necessary. At the heart of its prototypical school, the panel recommended an average class size of 16 students and a total school size of 200 to 400 students. The panel argued that such small class sizes combined with additional resources for teacher training would reduce the need for special aid programs for mildly disabled, gifted, and low-income students as well as those with limited English proficiency. Instead of such programs, the panel envisioned that well trained teachers would be able to identify the needs of their students and then tailor their instruction in a small classroom setting.

Once these factors were specified, they were priced to determine the overall cost of an adequate program. Many input prices, such as teacher salaries, were determined by the current average costs (Guthrie and Rothstein, 1999, pp. 242). This base-level cost was then adjusted by a

⁶The court ruled that “because education is one of the state’s most important functions, lack of financial resources will not be an acceptable reason for failure to provide the best educational system. All other financial considerations must yield until education is funded.”

cost-of-living index to account for regional and environmental pricing differences. For example, an adjustment for teacher salaries would “provide teachers with an ability to purchase a comparable market basket of goods and services,” regardless of the region in which the teacher was living (Guthrie and Rothstein, 1999, p. 247). Once these per pupil costs were determined, the funds were distributed to schools as a block grant. Although schools were not explicitly required to spend their resources as the prototypical school would, Guthrie and Rothstein (1999) point out that state regulators might be prone to scrutinize low-performing schools that do not follow the prototype.

An advantage of the professional experts model is its focus on adequate inputs rather than adequate outcomes, which are sometimes more difficult to agree upon and measure. Because Wyoming lacked adequate standardized achievement tests to measure certain outcomes, this difficulty was especially pronounced. However, one disadvantage of this approach stands out. Because the panel was told to ignore the cost of inputs, they had no incentive to come up with only the minimum requirements. In fact, the governor vetoed the first school funding plan passed by the legislature in 1997, and almost a year passed before the governor and legislature could agree on a funding level (Minorini and Sugarman, 1999a, p. 61).

The Model Schools Approach: The Case of Oregon

The Quality Education Model in Oregon is another example of an attempt to determine adequate school funding levels (Oregon Legislative Assembly, 1993). Unlike the Ohio and Wyoming cases, Oregon did not pursue school finance reform as the result of a court order. Instead, a series of ballot initiatives and legislative mandates designed to reduce property taxes and equalize spending across school districts had shifted a large portion of the school financing authority from local districts to the state. Rather than patch together elements of the previous finance system, the legislature chose to review the entire school finance system to determine how much money schools needed to provide students with a quality education.

The legislature presented a council of educators, business leaders, parents, teachers, and lawmakers with two goals. First, the council was

to identify the school features and environments they believed led to a quality education. Second, the council was to develop prototypical elementary, middle, and high schools containing these features and determine their costs. These costs, in turn, would serve as a reference point for the legislature as it determined the total education budget.

The broad goal of the council was to devise a plan that would provide all students with a quality education in a safe, motivating environment. The council agreed that Oregon's quality education should include a specific academic content, rigorous performance standards, and a mechanism to assess student achievement. The council then translated these broad guidelines into school prototypes, which included the following features:⁷

- A class size of 20 students for elementary schools and 29 students for middle and high schools.
- One computer per six students.
- One counselor per 250 students at middle schools and high schools.
- Additional instruction time (including summer school programs) for students with the most need and motivation.
- Adequate professional development to help teachers teach to standards.
- Additional staff for coordinating volunteers, community outreach, and campus security.

The panel believed that a school with the recommended resources would enable 90 percent of its students to meet Oregon's achievement standards. Because the legislature was keenly aware of its other budgetary needs, the Oregon council constantly weighed the costs and benefits of their recommendations. The estimated cost for a prototypical school was \$6,853 per pupil (Oregon Legislative Assembly, 1999, p. 48). Although there is no evidence that 90 percent of the students would pass the proficiency test if provided with the resources of the model school, the

⁷See Oregon Legislative Assembly (1999), pp. 7–9, for more detail and pp. 50–72 for actual budgets.

Oregon example shows a concerted effort at the state level to determine an adequate funding level for its school system.

Table 3.2 summarizes the methods used by these three states. The main advantage of Ohio’s method is its simplicity. It calculates the adequate expenditure per pupil through a simple statistical procedure, which is transparent and easy to understand. The disadvantage is that this method assumes a relationship between district resources and student outcomes that may not exist. Wyoming and Oregon substitute professional judgment for statistical methodology in determining an adequate level of resources for schools. This process is less straightforward than Ohio’s but more appropriate if the statistical relationship between inputs and outputs is weak. Also, the use of prototypical schools in those states makes the definition of adequate resources more tangible. The chief advantage of Oregon’s approach over that of Wyoming is that Oregon’s Legislative Council considered the cost of schools in making its recommendations, whereas Wyoming’s expert panel specifically ignored costs.

Table 3.2
Approaches to Adequacy in Three Representative States

	Method	Outcome	Advantages	Disadvantages
Ohio	Statistical; district-level data	Minimum spending per pupil	Simplicity	Assumes relationship between revenues and student outcomes
Wyoming	Professional judgment	Prototype schools	Does not require reliable statistical relationship	Panel ignored costs in developing prototypes
Oregon	Professional judgment	Prototype schools	Does not require reliable statistical relationship	May discourage local innovation

Challenges Facing Adequacy Programs

As these case studies suggest, there is no single way to implement a school finance program based on the concept of adequacy. Even so, such

programs are likely to face many common challenges. One of the first challenges is establishing a list of high-minimum outcomes. Opinions differ about what constitutes an adequate education, and though consensus is not impossible, it requires cooperation among many different groups.

Once these outcomes are determined, they must be measured. States need reliable, authoritative assessment methods that remain constant over time and cover a wide range of student outcomes. Many observers fear that schools will emphasize easily measured competencies at the expense of less-measurable (but equally valuable) educational experiences. Other observers maintain that state-specified competencies would be a good starting point for measuring low-minimum outcomes, especially for inexperienced teachers and students at the low end of the outcome distribution.

Apart from the difficulties of defining and measuring student outcomes, there is the problem of determining the resources necessary to achieve them. A major flaw with adequacy-oriented reform is its assumption that resources and student performance are related in a straightforward, systematic, and measurable way. This assumption is not universally accepted. One recent study found that teacher experience and certification levels in California may have a slight effect on student test scores but that the socioeconomic status of students is a much better indicator of their outcomes (Betts, Rueben, and Danenberg, 2000). The same study finds a very weak correlation between class size and student achievement. A more detailed review of the relationship between inputs and outcomes appears in Chapter 4; here it suffices to note that the research results on this relationship are mixed.

Even if the relationship between inputs and outcomes were stronger, it would be difficult to determine the total costs of redeploying resources to achieve specific educational outcomes. For example, if teacher experience were highly correlated with student outcomes, it is not clear how much it would cost to recruit enough experienced teachers to raise student outcomes in schools with low-achieving students. The available data show only current spending, not the amount required to attract more experienced teachers to such schools. Determining these costs would be an important component of adequacy-based reform.

Once the desired outcomes have been defined, measured, and priced, the issue of affordability must be addressed. By linking outcomes to resources, the adequacy movement closes the loop left open by the standards movement. Yet affordability is rarely addressed in adequacy discussions, and in the case of Wyoming, the expert panel was explicitly instructed to disregard it. In the face of scarce public resources, taxpayer resistance, and competing public needs, this sort of cost-benefit analysis cannot be neglected. Rather, the loop must be expanded to accommodate the link between taxpayer costs and educational standards. Once we know the cost of achieving educational standards, we must ask whether the benefits of achieving them justify that cost. So far, many states (including California) have been willing to establish those standards without asking that question.

Another concern about adequacy-oriented reform is its effect on the local control of schools. Insofar as outcomes and allocations are determined at the state level, local participation and innovation are unlikely to flourish. As teachers and administrators look to the state for standards, assessment, and funding, they risk becoming less accountable to local residents and their concerns.

Conclusion

Although California's school finance system has changed dramatically over the last 30 years, few would argue that it is stronger now than it was a generation ago. Having attained broad equity in school district revenue since that time, California must now address its dual problems of low performance (especially among its disadvantaged students) and low per pupil spending. Given California's current position, it is no surprise that better outcomes and adequate funding are the driving forces behind school reform today.

Adequacy-based reform is one way to address these critical concerns. By focusing on high-minimum outcomes and gearing resource decisions to them, adequacy proponents seek to extend the opportunity to achieve these outcomes to all students. In many ways, this goal is consistent with earlier reform efforts, which sought to reduce revenue inequalities and thereby ensure equal educational opportunities. Like these earlier efforts, however, the adequacy-based approach risks making faulty assumptions

about the problems it seeks to rectify. In particular, it risks assuming a stronger relationship between outcomes and resources than is warranted by the empirical evidence. Clearly, the state has a duty to provide adequate facilities, programs, materials, and opportunities to all of its residents. But the relationship between inputs and outputs may not be strong enough to guarantee high-minimum outcomes through the reallocation of resources at the state level.

Although several states have attempted to define and price an adequate education, their methods have varied significantly. Taken together, however, their experiences suggest four important and interrelated questions facing adequacy-based reform in California. First, how can the state translate educational standards into measurable outcomes? Second, how solid is the connection between resources and outcomes, and what are the risks of overestimating the strength of that connection? Third, what do we know about the cost of *quality* inputs (including personnel)? Finally, do the benefits of achieving these standards justify the costs? The current state of research does not answer these questions definitively so much as emphasize their centrality.

A sound school finance system is a necessary but not a sufficient condition for educational success. Because education is a richly human process, no system or combination of inputs can guarantee minimum outcomes or replace reasoned deliberation about what constitutes a quality education. In California, this deliberation is likely to focus on inputs, over which the state has considerable control, rather than outcomes, which are more difficult to observe, understand, and improve through state-level policy adjustments. This focus, in turn, requires a reliable, flexible cost model, which is outlined in Chapter 6.

4. An Assessment of Resources and Student Achievement

Julian R. Betts and Anne Danenberg

Summary

Although California has striven to equalize revenue across school districts, disparities in student achievement and school resources—broadly defined to include teacher quality as well as revenue—remain large. This essay asks whether increasing school resources in low-achieving schools can reduce or eliminate these achievement gaps in California.

We begin by reviewing the national and state-level evidence on the relationship between school resources and student achievement.

Although the research results are mixed, most studies indicate a weak relationship between resources and achievement, especially compared to the strong correlation between student performance and socioeconomic status (SES). The most recent research using California data shows that teacher education, experience, and full credentialing are associated with only modest gains in student performance.

With these California findings in mind, we simulate the benefits and costs of increasing resources in low-performing schools. We focus in particular on the achievement gap between California schools whose fifth-grade students score at the 25th percentile and 50th percentile on reading and math tests. Holding all other factors constant and equalizing teacher characteristics at the two sorts of schools, we predict that 1.3 percent more fifth-grade students at the low-achieving school would score at or above the median on standardized math and reading tests than is currently the case. This change would reduce the achievement gap by about 10 percent. We also estimate the benefits and costs of a more dramatic change in school resources: namely, raising teacher

characteristics at low-achieving schools to the 90th percentile level for teacher qualifications statewide. In our simulation, this change reduces the achievement gap by about one-third.

The cost of this more dramatic increase in teacher qualifications is approximately \$300 per student, or 6 percent of per pupil spending at such schools. However, this estimate must be taken with caution. Unobserved factors may be driving the observed correlations between school characteristics and student outcomes. If so, additional school resources may not have the predicted effects on student performance. Also, the actual costs of increasing teacher qualifications in this way would probably be much higher, as salaries would have to rise by an unknown amount to attract and retain the requisite number of qualified, experienced teachers. Finally, we cannot predict how much additional compensation would be needed to place these teachers in the neediest schools within districts. Given current salary arrangements between teachers and districts, intra-district salary bonuses might be necessary to attract a large number of certified, highly educated, and experienced teachers to low-performing schools.

In light of these and other uncertainties surrounding the relationship between school resources and student achievement, the essay concludes with three recommendations for implementing and assessing large school reforms. First, such reforms should be phased in over five or six years. In the initial years, participating schools would be selected randomly. The state would then be able to evaluate the effectiveness of a reform by comparing student outcomes in participating and nonparticipating schools. This approach also allows for midcourse corrections before reforms were implemented statewide.

Second, California should develop a statewide student data system that allows policymakers to track improvements in student achievement over time. Such a “longitudinal” database, which Texas has had for several years, would greatly improve our knowledge of cost-effective school spending. It would also improve the Academic Performance Index, which is used to assess school quality in California, and do much to reconcile the divergent estimates of the dropout rate currently provided by the California Department of Education.

Third, we recommend that the state continue to use the Stanford 9 test as part of its statewide testing system. This continuity makes it possible to assess the long-term effects of recent reforms, such as class-size reduction and the new state accountability system. Together, these three measures could shed new light on how to narrow inequality and raise achievement in California schools.

Introduction

Since the early 1970s, California has done much to equalize revenue across school districts (Sonstelie, Brunner, and Ardon, 2000). Yet large disparities in both student achievement and school resources—broadly defined to include teacher characteristics and curriculum as well as school revenue—still remain. Both sorts of disparities are strongly related to SES. In general, students from low-SES families perform worse on standardized tests than other students. At the same time, school resources vary positively and systematically with student SES. Compared to other students, those from low-SES families attend schools with less educated and less experienced teachers. Low-SES students also attend high schools that offer fewer advanced courses (Betts, Rueben, and Danenberg, 2000).

These findings raise the question: How much of the achievement gap in California can be traced to inequalities in school resources? This study addresses that question in two steps. First, it reviews the evidence on the relationship between school resources and student outcomes. Second, it asks how much California would need to spend to reduce or eliminate this achievement gap. This second question is implicit in adequacy-based reforms both in California and other states.¹ California's Public School Accountability Act of 1999, for example, allows schools with particularly low test scores to receive additional funds through the Immediate Intervention/Underperforming Schools Program (II/USP). Many other education bills and programs also provide additional resources to low-achieving schools or to those with high proportions of economically disadvantaged students with the expectation that these extra resources will boost academic performance.

¹For discussion of adequacy-based reform, see Chapter 3.

However, the relationship between school resources and student outcomes is not nearly as clear as the one between SES and student achievement. As a result, the extent to which increased spending can reduce or eliminate California’s achievement gap is uncertain. Because some of this uncertainty can be traced to the ways California gathers data and implements educational reforms, we conclude the essay with three recommendations regarding data collection and program implementation.

The Evidence on School Resources and Student Outcomes

Research on the relationship between school resources and student outcomes has been conducted intensively for almost four decades. Although the research results are mixed, they yield two basic lessons. First, school resources as we define and measure them do not account for large, systematic differences in student performance. Second, student SES overshadows all school-related factors in determining student achievement. The following discussion highlights the key national and state-level evidence for these conclusions.

National Evidence

Most of what we know about school resources and student achievement comes from studies using national datasets. One early and influential study, now known as the Coleman Report, examined variations in test scores across a huge sample of students in the mid-1960s (Coleman et al., 1966). The authors found that differences in class size, teacher education, and teacher experience accounted for very little of the large disparities in test scores across schools. Instead, the key factor appeared to be large variations in student SES. The Coleman Report generated considerable controversy, and researchers since that time have used different datasets to test its results. Although this later literature sometimes finds that school resources do affect student achievement, the report’s main finding—that resources matter less than the socioeconomic status of students—has weathered these replication attempts well.

In a series of influential summaries of test-score research, Hanushek (1986, 1996) concludes that a small proportion of studies have found that additional school resources lead to significantly higher achievement.² Table 4.1, from Hanushek (1996), summarizes some of his findings. For many measures of school resources, such as class size, most studies find no significant link to student achievement. Other studies even find a link suggesting that more resources are associated with lower achievement. Of the various school resources examined in these studies, teacher experience is found most regularly to have a significant positive relation with student achievement. Overall spending per pupil and teacher salary are the school resources found to matter the second and third most often. Few studies have found that teacher education affects student achievement.

Other national studies reach different conclusions. A key example is a recent study by Grissmer et al. (2000), which models the average test scores in each state that participated in National Assessment of Educational Progress (NAEP) between 1990 and 1996 as a function of class size, teacher education, teacher experience, and several other

Table 4.1
Distribution of Estimated Effects of School Resources
on Student Performance

Resource	No. of Estimates	% Positive and Statistically Significant	% Negative and Statistically Significant	% Statistically Insignificant
Teacher-pupil ratio	277	15	13	72
Teacher education	171	9	5	86
Teacher experience	207	29	5	66
Teacher salary	119	20	7	73
Expenditure per pupil	163	27	7	66
Administrative inputs	75	12	5	83
Facilities	91	9	5	86

SOURCE: Hanushek (1996), Table 3.

²Although Hanushek's claims have been influential, they are not universally accepted. See, for instance, the exchange between Hedges and Greenwald (1994) and Hanushek (1994).

measures of educational resources. They find that class-size variations explained more of the achievement gap than did variations in other measures of school resources, including teacher education and experience. In addition, the authors find that the test-score gap between minorities and whites was smaller in states with smaller class sizes. In light of these findings, the authors maintain that the most efficient use of education dollars is to reduce pupil-teacher ratios in states with high proportions of minority and disadvantaged students, encourage pre-kindergarten, and provide more adequate teaching resources. They also conclude that substantial productivity gains can be made with the current teaching force if working conditions are improved.

The Grissmer study draws on a large number of student test scores, but it measures resources at the state rather than at the school or district level. Even after combining state-level reading and math scores with the NAEP results, the study relies on only 271 observations. Thus, the results should not be seen as definitive. Klein et al. (2000) examine NAEP data from a slightly different set of years in the 1990s and find that Texas, which the Grissmer report ranks at the top of participating states, outpaced the national average in only one of four tests they examined.³ Darling-Hammond (2000) examines NAEP data from 1990 to 1996 and finds that teachers' credentials and experience were the two most important factors explaining interstate variations in test scores, with class size being far less important. These conflicting conclusions indicate that aggregating data at the state level has its limitations. Small changes in the specifications and time period can lead to very different results. Furthermore, these data do not capture the striking variations across schools and districts, especially in a state as large and diverse as California.

In addition to the large body of research on school resources and test scores, a smaller literature examines the relation between school resources and the earnings of students after they leave school and enter the labor force. It may seem odd to ask whether school resources affect students' wages years later, but a key goal of public schooling is to prepare students for successful work lives. It is also possible that the link between school

³For a critique of these two studies, see Hanushek (2001).

inputs and test scores is weak because tests do not measure the gains in skills that will prepare students for successful work lives. In the end, earnings may be a more useful measure of student success than test scores.

A number of studies have found a relation between adult males' earnings and school resources in their state of birth, but the literature is by no means unanimous (Betts, 1996). Work by Betts (1995), Grogger (1996), and others shows that when school resources are measured at the school actually attended, the relationship between school inputs and earnings is not statistically significant. More to the point, the estimated effect of raising school spending on students' subsequent earnings is extremely small. This is true regardless of whether one measures school resources at the school actually attended or in the district attended or whether one instead uses the person's state of birth to create a rough proxy for school resources.

It is also useful to examine whether school resources are related to the amount of schooling students ultimately attain. Betts (1996) reviews this relatively small body of research and finds weak evidence that school resources affect educational attainment.

In short, four decades of intensive research at the national level suggests a relatively weak relationship between school resources on the one hand and student achievement, educational attainment, and future earnings on the other.

State-Level Evidence: Tennessee and Class-Size Reduction

Perhaps the most famous state-level experiment of the last two decades is Tennessee's class-size reduction of the 1980s. Students in kindergarten through third grade were randomly assigned to one of three groups. The first group had class sizes as low as 15 students; the second group had class sizes in the low 20s and one teacher's aide per class; and the third group had class sizes in the low 20s. Since then, numerous studies have compared test scores for the three groups.

The results indicate that students placed in the small classes learned more quickly than other students. Most of the gains accrued to students in the first year they were in smaller classes, and low-SES students gained somewhat more than others. However, these gains virtually disappeared

after students were returned to regular-sized classes (Krueger and Whitmore, 1999). Specifically, students in smaller classes had a 4.5 percentile point advantage over other students at the end of third grade, but this advantage had diminished to 1 percentile point by the end of eighth grade. (For example, students that ranked in the 50th percentile on a national test would have risen to the 51st percentile.) In percentage terms, the deterioration in the test-score advantage was slightly higher for students receiving free lunch and slightly lower for black students.

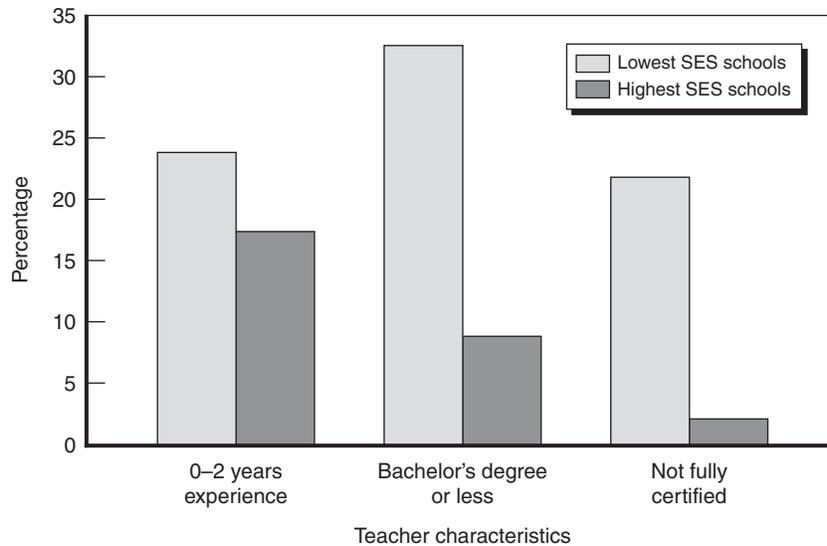
The Tennessee experiment offers the most persuasive evidence to date for reducing class size. Even so, the results suggest that such reductions produce very modest gains, especially if students are placed in larger classes in later grades.

Evidence from California

A number of recent studies have examined school resources and student achievement in California. For example, Betts, Rueben, and Danenberg (2000) analyze the distribution of resources and test scores at the school level for 1997–1998. They found that teachers serving low-SES students were considerably less prepared and experienced than teachers serving other students (Figure 4.1).⁴ They also found that low-SES schools had relatively low test scores, raising the question of whether their low achievement was caused by a lack of resources or by the direct effects of poverty.

Regression analyses suggest that school resources did affect achievement, but only slightly. Figure 4.2 shows the predicted effects on student performance when, holding all other factors constant, a typical school moves from the 25th to the 50th and then to the 75th percentile in SES, class size, or teacher characteristics. As the first trio of bars indicates, the predicted effects of SES on student achievement are large. Schools at the 75th percentile in SES would have 57.5 percent of their students performing above national norms, compared to just 26.8 percent of students at schools at the 25th percentile. The remaining bars show the predicted effects of changing measures of school resources. All

⁴In this study, SES is measured by the percentage of students receiving full or partial lunch assistance.

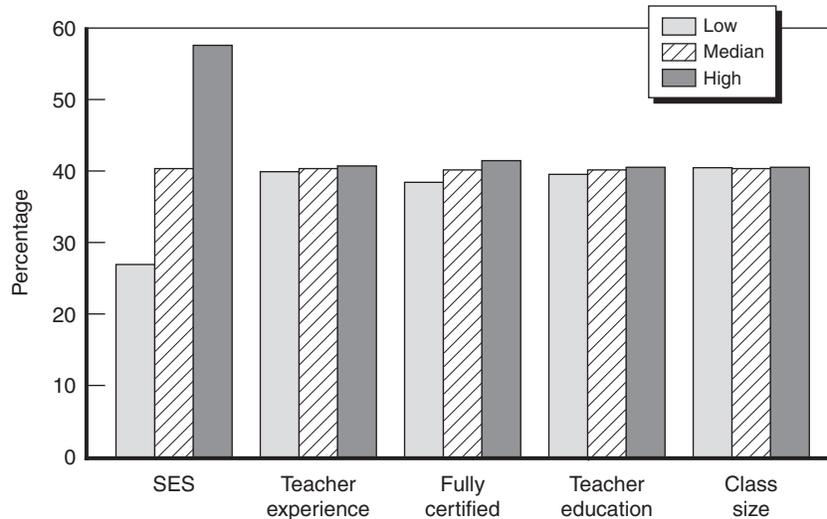


SOURCE: Betts, Rueben, and Danenberg (2000).

Figure 4.1—Teacher Characteristics and Student Socioeconomic Status in K-6 Schools, 1997-1998

variables in the figure except for class size have a statistically significant effect on student achievement. But the predicted effects of changing teacher credentials, experience, education, or class size are minor compared to the effect of student SES.

The CSR Research Consortium (1999, 2000) has also studied the effect of recent class-size reductions in California. As the consortium authors note, limitations in the state’s student data system along with the wholesale implementation of the reform itself prevent them from drawing firm conclusions. Their first two reports provide some evidence that third-grade test scores have risen modestly because of class-size reductions. In the first year of the study, the CSR Research Consortium (1999) compared test scores in the state test, the Stanford 9, between students at elementary schools that had implemented class-size ceilings of 20 students with students at schools that had not yet adopted the reform. However, the students at schools that did not implement class-size reduction in the first year came from lower-SES families, making any



SOURCE: Betts, Rueben, and Danenberg (2000).

NOTE: Low, median, and high levels of resources refer to the resource level at the schools ranked at the 25th, 50th, and 75th percentile of the resource in the state. LEP = limited English proficiency.

Figure 4.2—Predicted Percentage of Fifth-Grade Non-LEP Students Scoring Above the National Median in Reading, by Student, Teacher, and School Characteristics

simple comparison problematic. The authors attempt to adjust statistically for this problem but express reservations about the reliability of their results. The second CSR Research Consortium report (2000) uses a more complex comparison technique to estimate the effects of class-size reduction. Again, the authors find statistically significant but modest effects of class-size reduction and indicate that the lack of a true comparison group prevents them from generalizing their results.

In short, research in California and the nation as a whole has failed to overturn the main finding of the Coleman Report (1966). Compared to SES, school resources appear to play a modest role in determining variations in student achievement. Many observers regard the class-size reductions in California as improvements in school quality, but the effects appear to be smaller than in the Tennessee experiment.

Estimated Costs of Narrowing the Student Achievement Gap

With these results in mind, we turn to the question of how much California would need to increase school resources to reduce or eliminate achievement gaps. Using data from other PPIC work,⁵ we simulate the allocation of additional resources to low-scoring schools and gauge the effects of these changes on test scores. The three central questions for the simulation are:

- How much would we need to increase resources at schools at the 25th percentile of student achievement to match test scores at schools at the 50th percentile?⁶
- Which measures of teacher quality appear to be the most cost-effective ways of increasing student achievement at low-performing schools?
- How much would such increases in school resources cost the state?

We omit class size from the analysis because the results of Betts, Rueben, and Danenberg (2000) indicate that it had no significant effect on student achievement.

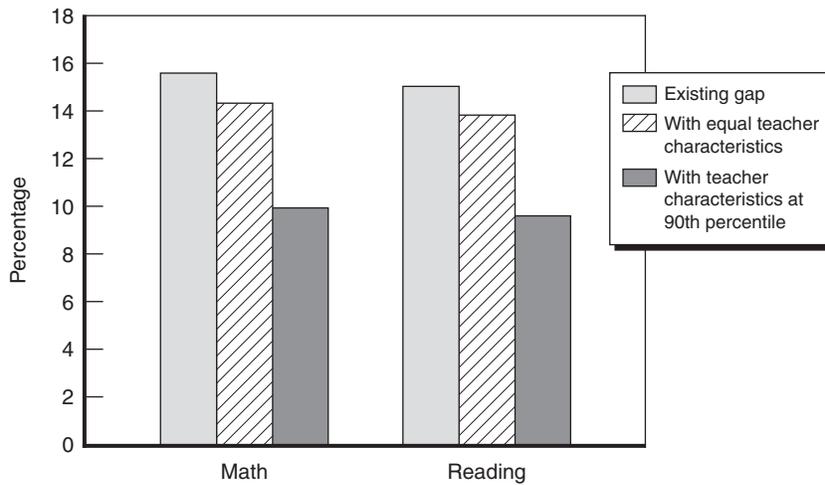
It should be noted that the simulation is meant to be illustrative rather than prescriptive. Credentialed, experienced, and highly educated teachers cannot be produced by fiat or compelled to teach at particular schools. Instead, supply and demand, collective bargaining agreements, and other labor market and policy considerations govern these arrangements. This exercise simulates student outcomes if teacher

⁵Specifically, we use school resource estimates from Betts, Rueben, and Danenberg (2000), teacher salaries from Rueben and Herr (Chapter 5), and overall school costs from Sonstelie (Chapter 6).

⁶The simulation examines the performance of fifth graders on reading and math tests in spring 1998. We compare the average characteristics of schools that rank between the 45th and 55th percentile of test scores with those of schools that rank between the 20th and 30th percentile of test scores. We can think of these schools as representing the “middle” or “median” schools in the former case and “bottom-quarter” schools in terms of student achievement.

characteristics could be distributed without regard for these considerations.

Figure 4.3 shows the achievement gap in the percentage of students at or above the national median scores in reading and math under various scenarios. The light gray bars show the actual gap in this achievement measure between the schools at the 25th and 50th percentiles of student achievement. These gaps are roughly 15 percent, which is to say that schools at the 25th percentile of school achievement have 15 percent fewer students scoring at or above the national median than do schools at the 50th percentile. The cross-hatched bars show a very slight reduction in the predicted gap if teacher characteristics were equalized across the two types of schools. The gap in math scores is predicted to drop from 15.6 percentage points to 14.3 percentage points, whereas the gap in reading achievement is predicted to drop from 15.1 percentage points to 13.8 percentage points—gains of only 1.3 percent more students scoring at or above the national median for each test.



NOTE: The achievement gap is the difference in scores between median and low-achieving (25th percentile) schools. Scores are measured by the percentage of students scoring at or above the national median.

Figure 4.3—Achievement Gap and Teacher Characteristics

The darkest bars show the predicted gap if policymakers were able to make much more significant changes in teacher quality at low-performing schools. Specifically, they indicate predicted outcomes if the state could raise teacher quality at these schools to match teacher quality at schools that rank in the 90th percentile for teacher characteristics. Even when we increase resources to these levels, the predicted increase in test scores at the low-performing schools is rather modest—on the order of 5 percent to 5.5 percent more students would score at or above the median. According to these calculations, even very large increases in teacher quality would not eliminate the achievement gap; rather, they would decrease the gap by about a third.

Table 4.2 presents the estimated benefit, cost, and benefit-cost ratios of improving teacher qualifications. Each of the three teacher characteristics—experience, educational attainment, and full credentialing—is considered separately. Benefits are defined as the predicted gain in the percentage of students scoring above national norms. Additional costs are derived from salary schedules in Rueben and Herr (Chapter 5), and the benefit-cost ratio is the ratio of these two terms.⁷ Our sample of low-performing schools includes about 10 percent of all elementary schools in the state.

Table 4.2 suggests that, at least for fifth-grade math and reading achievement, the benefit-cost ratios for teacher characteristics vary substantially. Having a fully credentialed teacher in every classroom has the greatest benefit relative to its cost, followed by increasing the percentage of teachers with a master's degree. For reading achievement, reducing the number of teachers with at most a bachelor's degree and increasing teacher experience are the third and fourth most cost-effective reforms. For math achievement, these last two measures are reversed; teacher experience ranks third and increasing the percentage of teachers with at most a bachelor's degree ranks fourth.

As the table indicates, to improve math scores, the cost of improving teacher characteristics in this way comes to just over \$306 for each student at these low-performing schools. For reading, the costs are virtually identical. Given that average spending per pupil in 1997–1998

⁷The details of the approach appear in the appendix at the end of this essay.

Table 4.2
Benefits and Costs of Changing Each Teacher Measure Independently

Measure	Benefit (Additional % of Students Scoring in Top Half)	Per Pupil Incremental Cost, \$	Benefit/Cost Ratio
Math			
Increase years of experience	1.18	173.77	0.007
Increase % with a master's degree	1.82	76.19	0.024
Reduce % with a bachelor's degree	0.31	26.59	0.012
Reduce % not fully certified	2.30	29.63	0.078
Total	5.61	306.19	0.018
Reading			
Increase years of experience	1.58	171.18	0.009
Increase % with a master's degree	0.99	74.00	0.013
Reduce % with a bachelor's degree	0.11	30.71	0.003
Reduce % not fully certified	2.74	28.49	0.096
Total	5.42	304.37	0.018

NOTE: The incremental costs in the second column refer to the total predicted costs of improving the various measures of teacher preparation to the 90th percentile observed among all California elementary schools. We include all schools ranked between the 20th and 30th percentile of state test scores, or about 11 percent of all elementary schools, in these cost calculations.

for the typical elementary school was \$4,881 (Sonstelie, 2000), this spending increase seems modest. However, it must be emphasized that these changes would only narrow, not eliminate, the achievement gap. Furthermore, schools that perform below the 25th percentile would require larger increases for the same proportion of students to reach national norms. Finally, our figures represent the cost to a district of a more credentialed, educated, and experienced staff given its salary schedule. To attract such a staff, however, a district would probably have to raise its salary schedule. We have not included this extra cost in our calculations. Detailed longitudinal studies of teachers' careers in California over many years could shed light on how much the supply of teachers might respond to such changes in salary schedules. Unfortunately, California at present lacks a data system that tracks teachers over time in this way.

Data Collection and Program Implementation

The simulation above shows how policymakers can use existing research to predict the likely effects of changing school resources on student achievement. The utility of this research depends on the thoroughness and accuracy of the data used to perform the simulation. If the analysis omits important determinants of student achievement, the results may be unreliable. Yet the way in which California currently collects data and implements major education reforms makes it difficult to identify these important determinants. As a result, we learn surprisingly little about the effectiveness of these reforms. For example, a lack of student-level data on gains in performance over time creates large uncertainties. In our simulation, too, the observed variation in school resources in any given year may pick up unobserved variations in other characteristics of students, parents, teachers, or school administrators. Although the simulation should give pause to those who believe that equalizing school spending can by itself eliminate the achievement gap, the lack of adequate data for the analysis leaves many questions unanswered.

As a consequence of these methodological difficulties, California policymakers are often forced to rely on national research that may not be wholly relevant to California. For example, the class-size reduction (CSR) initiative appears to have been based on a demonstrably uncertain body of literature that is mostly national in nature. Although the Tennessee class size experiment has drawn national attention, Tennessee's student population differs in important ways from California's. These differences raise the possibility that class-size reduction in California might have quite different effects from those observed in Tennessee. Moreover, the Tennessee experiment reduced class size from about 23 to 15, whereas the California reform reduced class sizes from the upper 20s to 20. If the effects of class size on achievement are nonlinear, the Tennessee experiment might not provide an accurate guide to outcomes in California.

California policymakers deserve considerable credit for commissioning a formal evaluation of the CSR initiative. Because the reduction in class sizes was not phased in over time, however, it will be

extremely difficult to evaluate its effects. The central problem is the lack of a control group against which to compare the gains in achievement of students placed in smaller classes. As mentioned above, the first CSR evaluation could only compare test scores of students in small classes to those of students who did not get smaller class sizes. However, the latter group of students does not represent a valid comparison group. As the CSR Research Consortium authors are careful to indicate, the students in larger classes were a highly non-random group: Schools with more disadvantaged students were markedly less likely to reduce class size in the first year of the program. So the finding that students in larger classes have lower test scores may in part arise simply because of these students' relative disadvantage.

In later years, state evaluators can compare the achievement of students who received up to four years in small classes compared to just one, two, or three years for older cohorts. But a problem with comparing test scores of older and younger students is that these students will vary in their familiarity with test-taking, which affects test scores over time. Koretz (1996) recounts evidence that rising test scores in one school district reflected growing student (and teacher) familiarity with the test form. Because California has used the same test form since spring 1998, we cannot simply compare different student cohorts that have had differing degrees of exposure to the Stanford 9 test. This problem threatens to invalidate the evaluation of the relationship between test scores and class-size reduction in California.

A related and severe problem affecting the CSR evaluation is that the state's student test score databank does not follow individual students over time. This forces analysts to compare different cohorts of students in two different years. This is a potentially dangerous approach because different cohorts could vary in achievement for reasons quite unrelated to schools and teachers. The lack of a statewide database of this sort also creates problems for the Academic Performance Index, which the state uses to rank public schools. If test scores fall in second grade at Lincoln Elementary between 1999 and 2000, are teachers doing a less effective job as time passes, or does the decline represent some unobservable change in the students and their capabilities? We can never know with

certainty. The only solution is to examine gains in test scores for individual students over time.

We propose several straightforward reforms that would vastly improve the ability of California to analyze the effectiveness of school resources and evaluate major educational reforms. If even a part of these proposals were implemented in the new Master Plan, it could revolutionize the quality of education research in California. It would also lessen the state's current reliance on out-of-state research that might not apply to California's student population.

Our proposal has three parts:

1. Any major educational reform should be phased in over five or six years. If more schools apply for the new program in initial years than the state can accommodate, the state should select schools randomly through a lottery.

This reform will achieve several goals. First, the phase-in can save money by lowering up-front costs and allowing for cost-saving midcourse corrections based on early evaluations. Second, schools that do not win the lottery create a group against which the schools undergoing reform can be compared. This change would allow for the first truly valid evaluations of education reforms. Also, a lottery will be perceived as fairer to schools compared to an opaque selection process. Of course, if policymakers wanted to direct the initial stages of a program to a particular group of schools, say, those with low test scores, they could still do so by restricting the program to those schools or, less drastically, by having a series of lotteries with different odds of "winning" for schools in different categories. Perhaps most usefully, the state could select a "stratified" random sample of schools in its lottery. It would sample schools across the socioeconomic spectrum; rural, suburban, and urban schools; small and large schools. In this way the state could scientifically determine whether a specific reform worked better in some types of schools than others.

This approach might become all the more important given recent discussions in Sacramento about the possibility of moving away from categorical, top-down reforms to a more decentralized block-grant approach. Statewide evaluations of the sort we propose could do much to prove or disprove the notion that "one size fits all" in school reform.

If the evaluations suggested that, in fact, one size did not fit all, then the evaluations would at the same time provide strong clues to each district about what might work best in its schools. Notably, few districts could afford to conduct similar evaluations on their own and would probably lack a sufficiently large number of schools to learn anything with the same degree of precision.

2. The state must maintain one or more consistent measures of achievement statewide over many years. In particular, it should continue to use the Stanford 9 test even as it expands other components of the school accountability system.

California has a history of introducing and then abandoning state test instruments. It is easy to find fault with any of the existing or proposed forms of state tests. But without continuity, policymakers are doomed to learn little about trends in achievement or the effectiveness of reforms such as CSR or recently implemented expansions in teacher training.

Our recommendation applies to current measures of student performance as well to new ones being phased in, such as the high school exit exam. But it is especially important to maintain the current Stanford 9 test, even if it is not geared to the recently adopted state content standards. The Stanford 9 is the only way that we can track student performance from the late 1990s forward. It is also the only component of the future proposed version of the API that provides comparison to a nationally representative comparison group.

3. California should create a database that tracks the achievement and transcripts of individual students over time.

Although such proposals may raise concerns in some quarters about confidentiality and fairness, a longitudinal system similar to the one we propose has been in use in Texas for some years and has survived legal challenge. There are four important reasons why California must move to such a system soon. First, evaluations of education reforms such as CSR would be greatly improved if they were based on analysis of gains in achievement student by student, instead of relying on comparisons of successive cohorts.

Second, nonexperimental analyses of the effect of school resources on student outcomes, such as that in Betts, Rueben, and Danenberg (2000),

would be far less prone to uncertainty if they were based on gains in the scores of individual students.

Third, the state accountability system places great reliance on the Academic Performance Index. Yet under the current system, a school's API ranking might fall from one year to the next simply because of unobserved student mobility between one school and another. Because inner-city schools tend to have relatively high student mobility, the API is likely to provide a relatively less accurate measure of changes in school quality over time for such schools. If the API were based on gains in achievement among individual students who had spent two years in the school, it would eliminate such distortions.

Fourth, the inability of California to follow individual students over time has seriously affected the quality of even the most basic education data available to legislators and other policymakers. To give one example, California's database on dropout rates is weak. High schools have difficulty verifying whether students who leave have dropped out, moved to other districts, or left the country. According to the California Department of Education, between 1995–1996 and 1998–1999 the one-year dropout rate averaged about 3.5 percent. This figure implies that by the time a ninth-grade cohort reaches the end of its senior year, just over 13 percent of students will have dropped out. But if we compare enrollment in ninth grade with the actual number of high school graduates four years later, we obtain a dropout rate of 30 percent. (This estimate applies to any cohort graduating in the late 1990s.) This second dropout estimate is more than double the rate from the first method. If California moved quickly to create a longitudinal database with a unique student identification code, we could do much to reconcile this discrepancy.

A statewide longitudinal data system would do much to solve such critical problems. California School Information Services (CSIS), an experimental longitudinal data system in which a number of districts currently participate, might form the kernel of a more ambitious statewide system. However, at present, CSIS covers only a minority of students in California; one California Department of Education official warns that it might take another ten years before California has implemented a statewide electronic student data system (Asimov, 1999).

In sum, three simple reforms could transform California from a net importer of education policy research to a leader in the field. Given the amount of money California spends on its educational system, more accurate, disaggregated analyses upon which to base estimates of benefits and costs for resource allocation in California are crucial. The legislature could consider adopting an oversight law that is triggered by any educational reform that costs more than, perhaps, \$100 million a year when fully implemented. The legislation would require that such a reform be phased in slowly over five or six years, with a lottery mechanism for selecting early participants. The resulting evaluation would compare outcomes in schools that won and lost the lottery to provide a reliable assessment of the effect of the given educational reform. In addition, the legislation might automatically set aside financial resources for a state-sponsored evaluation of new reforms.

Conclusion

Thirty-five years of educational research has consistently shown that school-level variations in student SES explain more of the achievement gap than do variations in measures of school resources such as class size, teacher education, and teacher experience. Some research has found that specific measures of school inputs “matter,” either for test scores, graduation rates, or future earnings, but the effects, when present, are small. Even in the more sophisticated recent research, poverty still drives most of the large variations in student achievement across schools.

This fundamental fact has given rise to the notion of “educational adequacy.” Exact definitions of this concept vary, but in its purest form, educational adequacy means that schools with high proportions of disadvantaged students require greater-than-average resources to provide an adequate education. In other words, three decades of court-induced revenue equalization have not done enough. The decision to spend more than average on schools in disadvantaged areas is a political one. But the facts are clear: Funding equalization will not equalize test scores across schools.

We therefore examine how increasing resources at schools near the 25th percentile of California test scores might move achievement at these schools toward achievement of schools near the 50th percentile of

California test scores. First, we confirm that equalization of resources between these two types of schools would barely put a dent in the test-score gap. If resources were equalized, for example, we predict that the existing gap of 15.1 percent in the percentage of fifth-grade students scoring at or above national norms in math would shrink by only 1.25 percent—to 13.8 percent.

Second, we examine what an “adequate” level of resources might look like by simulating the extent to which one could reduce this test score gap by increasing teacher qualifications at low-achieving schools. (Class size does not have a statistically significant effect on test scores in fifth grade, so we focus instead on teacher preparation.) If we raise teacher preparation at these low-achieving schools to the level observed in schools with the most experienced, most highly educated teaching staffs, we find that the test-score gap between low-performing and median schools drops by one-third.

These gains in student achievement appear to come at a rather modest cost. In the low-scoring schools, spending per pupil would have to rise by just over \$300 per pupil. However, this estimate provides a lower bound on the true costs, which could easily be twice or even five times as great as we have estimated. We have assumed that low-achieving schools could simply hire more educated, more experienced, and fully credentialed teachers. Our cost calculations therefore assume that the only cost to the school would be the higher salaries such teachers command. But as Betts, Rueben, and Danenberg (2000) report, schools with low test scores, often in the inner city or rural areas, sometimes suffer severe shortages of qualified teachers, even if salaries do not lag far behind those paid in high-achieving schools. In general, fully credentialed, highly experienced, and highly educated teachers in California prefer to work in schools with high test scores and low levels of student disadvantage. As a result, it may take higher-than-average salaries to attract such teachers to the schools in greatest need.

A recurring theme throughout the analysis has been uncertainty about the effect of school resources on student achievement in the nation and in California. We discuss some of the roadblocks preventing social scientists and policymakers from obtaining more precise and accurate measures of the relative effectiveness of various types of school resources.

There have been three perennial problems in California. First, California lacks a systematic way of evaluating important reforms such as class size reduction or teacher training programs. Suppose that a claim is made that a specific educational reform has made California schools better. The skeptical listener should ask, "Better than what?" For instance, test scores in California's elementary schools have risen considerably since the spring of 1998, when the new state test was implemented. Could the class-size reduction program that began several years ago have generated these gains? Perhaps, but it is extremely difficult to know for sure. How much would test scores have risen if class size had not been reduced? It is almost certain that test scores would have risen anyway, given research findings that when a new test is introduced, scores increase over the first few years because teachers and students become more familiar with the test format. In the case of the Stanford 9, the problem is compounded by the fact that the same test questions have been used in a given grade each year.

To allow for more accurate evaluations of important educational reforms such as CSR, we recommend that all major new education initiatives be phased in over five or six years. In the early years, schools should be chosen to participate using a lottery. This system provides policymakers with a group of schools against which to compare gains in student outcomes at the schools that undertake the reform. This comparison would provide a compelling test of whether taxpayers' dollars were being spent productively. This change would also save taxpayers money in the early years, and research results from the first five years of the evaluation could allow for improvements to the program before it was implemented statewide.

California also lacks a statewide database, similar to that used by Texas, that follows individual student progress over time. State-mandated evaluations currently rely on average achievement at each school and so are subject to error. Similarly, the API measures do not take account of students who switch schools within a district. Because disadvantaged students change schools relatively frequently, the API may be biased against schools that serve large populations of such students. A statewide student-level database could solve this problem permanently.

Similarly, such a dataset could help to resolve longstanding controversies about the high school dropout rate in California.

Finally, California should continue to use the Stanford 9 test for some time to come. Without this continuity, it will prove impossible to evaluate important reforms such as the class-size reduction initiative or the school accountability program implemented in 1999.

Appendix

Differences Between Low-Performing and Medium-Performing Schools

We begin the simulation by examining the differences between the two groups of schools. We first rank all California elementary schools that offer grade 5 by their grade 5 math and reading scores. Table 4.3

Table 4.3
Characteristics of Low-Performing and Middle-Performing Schools,
1997–1998

	Low- Performing School	Medium- Performing School	Difference
Math			
% of non-LEP students at or above national median	26.26	41.32	15.06
% of students receiving free/reduced-price lunch	77.16	59.48	-17.68
Average years of teacher experience	11.62	12.43	0.81
% of teachers with at least a master's degree	24.00	26.46	2.47
% of teachers with at most a bachelor's degree	25.93	19.56	-6.37
% of teachers not fully credentialed	16.09	10.78	-5.31
Average class size	24.81	25.02	0.22
Reading			
% of non-LEP students at or above national median	26.38	41.93	15.55
% of students receiving free/reduced-price lunch	80.41	60.25	-20.16
Average years of teacher experience	11.61	12.47	0.86
% of teachers with at least a master's degree	24.55	26.12	1.57
% of teachers with at most a bachelor's degree	28.70	19.88	-8.82
% of teachers not fully credentialed	17.24	11.42	-5.82
Average class size	25.39	24.95	-0.44

SOURCE: Data sources are described in Appendix A of Betts, Rueben, and Danenberg (2000).

shows the average test scores, socioeconomic status (measured by the percentage of students receiving free or reduced-price lunch), class size, teacher experience, teacher education, and teacher credentials for 20th to 30th percentile and 45th to 55th percentile schools. Because much of the variation in test scores among schools in California reflects differences in the percentage of students who have limited English proficiency (LEP), we focus on the gap in test scores of non-LEP students. Meaningful variations in test scores, SES, and school resources emerge from this comparison. Clearly, the two biggest differences between these two sets of schools are the 15 percentage point gap in the share of students scoring at or above the national median in reading and math, and the roughly 20 percentage point gap in the share of students who receive free or reduced-price lunch. School resources, especially related to teacher background, also differ, but to a lesser extent.

Expected Benefits from Change in Teacher Characteristics

We calculated the increase in the percentage of students expected to score at or above the national median if we were to increase the average resources at the low-performing school to the average level observed at the medium-performing school, which we define as schools scoring between the 45th and 55th percentile of students at or above the national median. We start by taking an enrollment-weighted average of selected characteristics in two groups of elementary schools that include grade 5 and have test scores in the two ranges that represent a low-performing school (20th to 30th percentile) and a median-performing school (45th to 55th percentile). This selection yields 12,498.9 full-time equivalent (FTE) teachers in 379 low-performing schools that had fifth-grade reading tests, and 12,463.32 FTE teachers in 398 low-performing schools that had fifth-grade math tests. We then calculate the difference between the average resource levels for the low-performing group of schools and the medium-performing schools and multiply the difference by the expected gain (loss) per unit for each characteristic to obtain an expected gain or loss in the percentage of students who would score at or above the national median.

Table 4.4 shows what an equalization of resources would produce. We use the results from Betts, Rueben, and Danenberg (2000) to predict

Table 4.4

Changes in Resources from Low-Performing School to Medium-Performing School Level and Expected Gain in Percentage of Students Scoring at or Above the National Median, 1997–1998

Characteristic	Low-Performing School	Medium-Performing School	Difference	Predicted Loss from 1-Unit Change ^a	Benefit (Difference ^a Gain)
Math					
Average years of teacher experience	11.62	12.43	0.81	0.235	0.19
% of teachers with at least a master's degree	24.00	26.46	2.47	0.086	0.21
% of teachers with at most a bachelor's degree	25.93	19.56	-6.37	-0.013	0.08
% of teachers not fully credentialed	16.09	10.78	-5.31	-0.143	0.76
Average class size	24.81	25.02	0.22	0.035	0.01
Total predicted % of additional students scoring in top half					1.25
Reading					
Average years of teacher experience	11.61	12.47	0.86	0.315	0.27
% of teachers with at least a master's degree	24.55	26.12	1.57	0.048	0.08
% of teachers with at most a bachelor's degree	28.70	19.88	-8.82	-0.004	0.04
% of teachers not fully credentialed	17.24	11.42	-5.82	-0.159	0.93
Average class size	25.39	24.95	-0.44	0.042	-0.02
Total predicted % of additional students scoring in top half					1.29

NOTE: A low-performing school is defined as being between the 20th and 30th percentile of scores.

^aMath data are from Betts, Rueben, and Danenberg (2000), Table 8.2. Reading data are from Betts, Rueben, and Danenberg (2000), Table 8.1.

how much student achievement would rise at schools with low test scores if they received the level of school resources observed at schools with typical test scores in California. The top part of the table shows results for math achievement, and the bottom part shows the results for reading. Betts, Rueben, and Danenberg (2000) found that larger class size has an unexpected positive relationship to test scores and was not statistically significant. But we include changes in class size simply to illustrate the relative predicted effects of changing class size and the various measures of teacher preparation.

The first two columns of numbers in Table 4.4 simply repeat the resource level shown in Table 4.3 for the low-scoring and median-scoring schools. The third column shows the increase in the resources that would be needed at the low-scoring schools for them to have the same resources as the median-scoring schools. Column 4 shows the predicted change in the percentage of students scoring at or above the national median from a one-unit change in the stated school resource. These estimates are based on the regression analysis in Betts, Rueben, and Danenberg (2000). For an example of how to interpret these numbers, the number in the first row tells us that if average teacher experience rises by one year, the share of students predicted to score at or above the national norm in math would rise modestly, by 0.235 percent. To calculate the predicted effect from improving each measure of teacher preparation, we multiply the change in resources from column 3 by the predicted effects of a one-unit change in the resource, in column 4, to give the predicted change in column 5. The table shows that most of the predicted gains from equalizing resources come from narrowing the gap in the percentage of teachers who are not fully credentialed. At the bottom of each section of the table the sum of the predicted changes in the share of students at or above national norms is calculated. For both math and reading, resource equalization is predicted to increase the percentage of students at or above the national median by just over one percentage point. It became immediately apparent that the expected gain of 1.25 to 1.3 percent more students scoring at or above the national median would be so small that we would need to increase teacher resource levels beyond the equalization point for these two groups of schools.

Given the small benefits expected from equalizing resources between low- and medium-scoring schools, we estimated the expected benefit of increasing the average level of teacher resources at the low-performing schools to the 90th percentile of school resources observed statewide. Table 4.5 shows the changes in resources in the simulation, along with the predicted changes in student achievement and the gap in student achievement between the low-performing schools. The top half of the table performs the simulation for equalizing math achievement; the bottom half repeats the analysis for reading achievement.

We also repeated this exercise calculating the difference between resources at the same low-performing schools and high-performing schools, defined as the group of schools between the 85th and 95th percentile of *test scores* in California.

In Table 4.6, we show the expected benefit from increasing the average resource level of a low-performing school to that of a high-performing school. Again, the expected gains are small—on the order of 2.5 to 3 percent more students are expected to score at or above the national median. We did not discuss this simulation in the main text because of space constraints.

Expected Costs

New Salary Schedule. Table 4.7 shows the average salary schedule we used to assign costs to teachers. Building upon the average salaries calculated by Rueben and Herr (Chapter 5), we collapsed education and experience categories to match data from the Professional Assignment Information Form (PAIF) filled out by or on behalf of teachers. The PAIF has only six educational categories, whereas the J-90 form used by Rueben and Herr has numerous combinations of education and experience, which they collapsed into 30 distinct cells. We further collapsed this salary schedule into the 15 cells shown in Table 4.8 by taking a weighted average across the salaries in Rueben and Herr's categories that corresponded to education levels that would have salaries equivalent to a master's or more in the PAIF data.

Table 4.5
Changes in Resources from Low-Performing School to Statewide 90th
Percentile Resource Level and Expected Gain in
Percentage of Students Scoring at or Above
the National Median, 1997–1998

Characteristic	Low- Performing School	90th Percentile Statewide	Difference	Predicted Gain or Loss from 1-Unit Change ^a	Benefit (Difference ^a Gain)
Math					
Average years of teacher experience	11.62	16.64	5.02	0.235	1.18
% of teachers with at least a master's degree	24.00	45.16	21.16	0.086	1.82
% of teachers with at most a bachelor's degree	25.93	1.87	-24.06	-0.013	0.31
% of teachers not fully credentialed	16.09	0.00	-16.09	-0.143	2.30
Average class size	24.81	20.00	-4.81	0.035	-0.17
Total predicted % of additional students scoring in top half					5.45
Reading					
Average years of teacher experience	11.61	16.64	5.03	0.315	1.58
% of teachers with at least a master's degree	24.55	45.16	20.61	0.048	0.99
% of teachers with at most a bachelor's degree	28.70	1.87	-26.83	-0.004	0.11
% of teachers not fully credentialed	17.24	0.00	-17.24	-0.159	2.74
Average class size	25.39	20.00	-5.39	0.042	-0.23
Total predicted % of additional students scoring in top half					5.19

NOTE: A low-performing school is defined as being between the 20th and 30th percentile of scores.

^aMath data are from Betts, Rueben, and Danenberg (2000), Table 8.2. Reading data are from Betts, Rueben, and Danenberg (2000), Table 8.1.

Table 4.6

Changes in Resources from Low-Performing School to High-Performing School Level and Expected Gain in Percentage of Students Scoring at or Above the National Median, 1997–1998

Characteristic	Low-Performing School	High-Performing School	Difference	Predicted Gain or Loss from 1-Unit Change ^a	Benefit (Difference ^a Gain)
Math					
Average years of teacher experience	11.62	13.44	1.82	0.235	0.43
% of teachers with at least a master's degree	24.00	29.52	5.52	0.086	0.47
% of teachers with at most a bachelor's degree	25.93	13.11	-12.82	-0.013	0.17
% of teachers not fully credentialed	16.09	5.82	-10.27	-0.143	1.47
Average class size	24.81	25.49	0.69	0.035	0.02
Total predicted % of additional students scoring in top half					2.56
Reading					
Average years of teacher experience	11.61	13.58	1.97	0.315	0.62
% of teachers with at least a master's degree	24.55	29.48	4.93	0.048	0.24
% of teachers with at most a bachelor's degree	28.70	12.11	-16.59	-0.004	0.07
% of teachers not fully credentialed	17.24	4.28	-12.95	-0.159	2.06
Average class size	25.39	25.74	0.36	0.042	0.01
Total predicted % of additional students scoring in top half					3.00

NOTES: A low-performing school is defined as being between the 20th and 30th percentile of scores. A high-performing school is defined as being between the 85th and 95th percentile of scores.

^aMath data are from Betts, Rueben, and Danenberg (2000), Table 8.2. Reading data are from Betts, Rueben, and Danenberg (2000), Table 8.1.

Baseline Cost Estimation. Each FTE teacher is assigned to a cell in Table 4.7 according to his or her combination of experience and education to compute a baseline salary cost in reading and math for the low-performing groups of schools. Table 4.8 shows the baseline salary matrix for the teachers in each education and experience combination for schools that have grade 5 reading and math test scores. Using Rueben and Herr’s estimate of average health benefits and Sonsteli’s estimate of retirement and workers’ compensation benefits, we further estimated a baseline cost for the combination of average experience and education observed at the low-performing group of schools. Following these authors, we estimate that some of these benefits costs are proportional to wages, equaling 12.19 percent of wages, whereas other costs are fixed.

Table 4.7
Average Annual Teacher Salary, by Experience and Education,
1997–1998
(in dollars)

Years of Experience	At Most a Bachelor’s Degree	Bachelor’s Degree + 30 Units	Master’s Degree or More
0–2	29,873	30,893	32,839
3–5	31,892	33,860	36,610
6–10	36,163	39,262	43,316
11–19	38,004	42,536	50,004
20 or more	38,645	43,426	53,238

SOURCE: Chapter 5.

Simulated Change in Teacher Characteristics. Next we simulated how teachers would be expected to shift cells if we increase from the average level of characteristics seen at the low-performing school to the 90th percentile of characteristics seen in the state. To do this, we first moved individual teachers across experience categories. In the first stage, we moved teachers from the years of experience category “0–2” as required to reduce the percentage of teachers who lacked full credentials. The J-90 form, which collects salary data from districts, does not indicate how the possession or acquisition of credentials is reflected in the salary schedule, yet lacking a full credential has a strong negative relationship to test scores. After analyzing the distribution of teachers lacking full

credentials, we find that low experience and lack of credentials are positively and fairly highly correlated (0.46) and that the majority of teachers without a full credential also have low experience. We thus use a proxy for lack of a credential, measured as the percentage of teachers with fewer than three years of experience, to estimate the numbers of teachers who would move from being uncredentialed to credentialed to incorporate them in the salary matrix. We do not treat teacher experience and the percentage of teachers with full credentials as completely separate policy tools in the sense that improving one component of teacher experience cannot in practice be done without improving the other component. Then we calculated the remaining increase in average years of experience that was required to raise average experience to the needed level and reallocated teachers accordingly.

Next, we changed the percentage of teachers in education categories to match the 90th percentile statewide. We reallocated teachers from one education level to the next higher level in proportions so that the overall mix of experience ranges for at most a bachelor's degree and at least a master's degree were maintained after the shift. For instance, if 4 percent of teachers with a minimum of a master's degree had 0–2 years experience before the shift, then the same percentage would have this experience level after the shift.

We multiplied the elements of the new matrix of the numbers of teachers in each cell by the corresponding elements in the baseline salary matrix and added the estimated benefits package to calculate an increased cost for the simulated set of teacher characteristics. We then subtracted the baseline cost from the new cost. The cost differences were divided by the number of pupils in the low-performing schools for math (268,690 students) and reading (271,425 students) to estimate per pupil incremental costs.

Costs for Simulated Change in Teacher Characteristics. Column 2 in Table 4.2 shows the incremental costs for changing each characteristic. We calculated each of these separately by estimating the total cost of funding a school at the given level and then subtracting the baseline cost from Table 4.8. We do not show these tables with total cost estimates because of space constraints. However, these tables are available upon request.

Benefit to Cost Ratios

After estimating the expected benefits and costs, we calculated a benefit to cost ratio by dividing the expected benefit by the estimated cost per pupil. In addition to calculating a change in all characteristics, we calculated the expected benefit and cost of changing each characteristic independently of the others one by one. For example, all other things being equal, we wanted to see how much it would cost if only the experience of teachers were increased. This allowed us to calculate the benefit to cost ratios for each change to estimate which characteristic would be most cost-effective to change. In practice, we found very little difference in the total cost per student when we changed all teacher characteristics separately rather than independently.

Larger class size has an unexpected positive relationship to test scores (see Tables 4.4 and 4.5). Furthermore, class size was not significant in the regression results from Betts, Rueben, and Danenberg (2000). Therefore, in the simulation we increase only the measures of teacher preparation listed above, leaving class size unchanged.

5. Teacher Salaries in California

by Kim S. Rueben and Jane Leber Herr

Summary

Because teacher salaries make up about 40 percent of a typical district budget, they are a critical part of public school costs. These salaries vary substantially and along several dimensions, and this essay describes this variation and analyzes some of its major sources. This description and analysis is part of a larger PPIC effort to outline a flexible and reliable cost model for elementary and secondary education in California.

Two key sources of teacher salary differences are educational attainment and experience, which tend to increase together. In 1997–1998, statewide average salaries varied from \$29,873 for new teachers with a bachelor’s degree to almost \$56,000 for highly experienced teachers with a bachelor’s degree and 90 additional units of coursework. The school district with the highest salary for new teachers paid almost twice as much as the lowest-paying district, and this range was even larger for experienced teachers.

Salary differences based on additional education varied widely depending on experience levels. For inexperienced teachers, the average salary difference between the lowest level of educational attainment and the highest was around \$5,100. The corresponding range for the most-experienced teachers was around \$17,000. The smaller range for new teachers may reflect recent hikes in minimum starting salaries, whereas the broader salary range for experienced teachers probably reflects the perceived benefits of continuing study for teachers.

Salary variation at each level of education and experience was relatively modest. About 90 percent of districts paid new teachers at each level of educational attainment salaries that fell within 15 percent of the

average. A similar proportion of districts paid their more experienced teachers salaries that fell within 20 percent of the listed averages.

Regional differences were also an important factor in teacher salary disparities. For example, salaries were relatively low in Northern California and the Central Valley, where private sector salaries are correspondingly low. However, this correspondence broke down in more expensive parts of the state. Although teacher salaries were higher in Orange County and the San Francisco Bay Area than elsewhere, the gaps between these salaries and those in the private sector were wider than those in other regions.

The local demand for teachers may affect teacher salaries as well. In particular, teacher shortages in certain areas appear to have put upward pressure on starting salaries. These shortages were most severe in Southern California, where relatively high starting salaries probably reflected the need to attract a greater number of teachers.

Another factor in teacher salary differences was district size. In general, salaries tended to be higher in larger districts. In accounting for salary variation, however, district size was only half as important as regional differences. Once regional variation was controlled for, we found no significant salary differences across districts with more than 1,500 students.

Like salaries, nonsalary benefits varied according to region and district size. Teachers in regions with low salaries tended to receive larger district contributions for nonsalary benefits. This variation seemed to be driven more by the lower costs of a given benefit in urban areas than by differences in the types of benefits offered. In general, large districts faced lower benefit costs than smaller districts. Differences in nonsalary benefits tended to narrow (but did not eliminate) differences in total compensation across regions.

Salary disparities and other cost differences are not reflected in the state's allocation formula. Rather, the state allocates funds to districts on a per pupil basis. Other states (including Texas, Colorado, Florida, Ohio, and Wyoming) now adjust school district funding to account for such differences in educational costs, including those related to teacher compensation. Such cost differences are considered in Chapter 6.

Introduction

This report is part of a larger PPIC effort to outline a flexible and reliable cost model for elementary and secondary public education in California. Because teacher salaries make up about 40 percent of a typical district budget, they are a critical input in this model. These salaries vary substantially and along several dimensions, and a useful cost model must consider both the patterns of that variation and its key sources.

This essay contributes to that effort by examining differences in teacher salary schedules across the state. After considering the general characteristics of these schedules, it outlines various sources of cost differences for teachers. Two major factors in teacher salaries are educational attainment and experience, which are reflected directly in the salary schedule data. However, teacher salaries also respond to local labor market conditions, and we therefore consider regional differences in teacher salaries. We also compare these salaries to those in the private sector region by region.

A fourth factor, also related to local labor market conditions, is teacher shortages, which tend to put upward pressure on salaries. If districts cannot hire enough credentialed teachers at the prevailing wage, they often hire teachers on emergency or waiver credentials. The proportion of teachers with such credentials is a useful indicator of teacher shortages, and we therefore include that information in our analysis. A fifth factor is district size: in particular, whether large districts pay more than small districts. Finally, we look at differences in benefits packages received by teachers across the state.

Salary Differences Resulting from Education and Experience

The data for this report are collected from the California State Department of Education form J-90, “Selected Certificated Salaries and Related Statistics,” which provides district-level average salaries as well as salary levels for teachers with different levels of education and experience. Each district may specify its own categories for educational attainment and level of experience. In many cases, a district’s categories represent

levels at which teachers receive salary increases. Each district also indicates how many teachers are at each salary level, which benefits are available to teachers, and how much these benefits cost the district. Although districts are not required to complete the J-90 form, 86 percent of school districts and county offices of education did so in 1997–1998, and these responses covered 99 percent of the state’s enrolled students.

Salary schedules do not always reflect total wages. Teachers can earn additional income by coaching, acting as student council advisors, teaching in certain summer school programs, or helping with other extracurricular programs. Some districts also offer bonuses to teachers with perfect attendance or who act as mentors or master teachers. The J-90 has room for districts to specify reasons for bonuses and the amounts awarded. About one in four districts listed at least one type of bonus; for these districts, the average bonus was \$1,200. Although Muncey and Conley (1999) find that bonus programs are becoming more prevalent, the J-90 base salary information remains the most useful and systematic data available for our purposes.

Taken together, the 839 districts filing J-90 forms for 1997–1998 reported a total of 119 educational attainment categories and 40 steps, or levels of experience.¹ (The median district listed five education categories and 17 steps.) The sheer variety of categories and steps prevents straightforward comparison across districts, and we therefore collapsed the data into six education levels and five experience levels. (For the methodological details on this conversion, see the appendix at the end of this essay.) Table 5.1 lists the six categories of educational attainment. The first category represents teachers with a bachelor’s degree or less, and the sixth category includes teachers with at least 90 units above the bachelor’s degree. Table 5.1 also includes information on the number of FTE teachers in each group. Table 5.2 presents the five experience levels. The first level includes teachers with up to two years of experience, and the fifth level represents teachers with 20 or more years on the job.

¹Although 839 school districts filed J-90 reports, we have focused in this analysis on the 829 school districts that provided complete salary and benefits information.

Table 5.1
Education Categories

Level of Education	Education Levels Included	No. of FTE Teachers
Bachelor's degree	Less than bachelor's degree; bachelor's degree plus credential; bachelor's degree to bachelor's degree + 17 units	32,874
Bachelor's degree + 30 units	Bachelor's degree + 18 to 44 units	40,759
Bachelor's degree + 45 units	Bachelor's degree + 45 to 58 units; master's degree; bachelor's degree + 15 units + master's degree to bachelor's degree + 54 units + master's degree	42,766
Bachelor's degree + 60 units	Bachelor's degree + 60 to 69 units	43,563
Bachelor's degree + 75 units	Bachelor's degree + 70 to 87 units	38,709
Bachelor's degree + 90 units or more	Bachelor's degree + 90 units or more; bachelor's degree + 60 units + master's degree or more; master's degree + 15 units or more; Ph.D.	58,180

Table 5.2
Experience Categories

Years of Experience	No. of FTE Teachers
0–2	45,675
3–5	36,459
6–10	61,158
11–19	69,934
20 or more	43,626

Table 5.3 presents statewide average salaries for each of the 30 possible combinations of education and experience. We weighted these salaries by the number of teachers employed at each district. Average salaries ranged from \$29,873 for new teachers with a bachelor's degree to almost \$56,000 for highly experienced teachers with at least 90 additional units of coursework. Table 5.3 also includes salary ranges for each combination of education and experience. The district with the highest salary for new teachers paid almost twice as much as the lowest-paying district. These ranges were even larger for experienced teachers.

Table 5.3
Statewide Average Teacher Salaries, by Education and Experience
(in dollars)

Years of Experience and Range	Education Level					
	Bachelor's Degree	Bachelor's Degree + 30 Units	Bachelor's Degree + 45 Units	Bachelor's Degree + 60 Units	Bachelor's Degree + 75 Units	Bachelor's Degree + 90 Units or More
0-2 Range	29,873 20,400-38,425	30,893 20,400-39,439	32,221 20,400-41,095	33,123 20,400-41,095	33,944 20,400-43,242	35,000 20,400-45,114
3-5 Range	31,892 22,400-40,989	33,860 22,400-42,900	35,624 22,400-44,867	36,778 22,400-46,577	37,779 22,400-49,244	39,004 22,400-49,244
6-10 Range	36,163 22,600-46,803	39,262 23,141-48,310	41,490 24,500-52,852	42,794 24,500-54,108	43,985 24,500-54,891	45,447 24,500-58,644
11-19 Range	38,004 22,600-53,392	42,536 23,141-55,960	46,204 24,500-58,869	48,340 24,500-62,120	49,974 24,500-62,851	52,753 24,500-62,851
20 or more Range	38,645 22,600-53,923	43,426 23,141-56,878	47,636 24,500-61,294	50,453 24,500-66,000	52,597 24,500-68,940	55,824 24,500-68,940

A teacher with 20 or more years experience in the highest-paying district received more than double the salary of a similarly experienced teacher in the lowest-paying district. Despite these large ranges, 90 percent of districts paid their new teachers salaries that fell within 15 percent of the listed averages at each education level, and the same proportion of districts offered their experienced teachers salaries that fell within 20 percent of the listed amounts.

Salary differences based on additional education varied widely depending on experience levels. For newer teachers, the average salary difference between the lowest level of educational attainment and the highest one was \$5,127. The corresponding range for the most experienced teachers was over \$17,000. The smaller salary range for new teachers could reflect state monetary incentives for districts maintaining a minimum starting salary. This minimum salary was increased to \$32,000 in the 1999–2000 legislative session and then increased again to \$34,000 in the most recent budget. The higher salary floor for all teachers, regardless of educational attainment, would tend to compress salary differences at the low end of the experience spectrum. At the other end of that spectrum, the relatively broad salary range probably reflects the perceived benefits of continuing study for teachers.

Perhaps because of these perceived benefits and the salary incentives that follow from them, levels of education and experience tend to increase together. Whereas two out of five teachers with 20 or more years of experience had earned 90 units beyond the bachelor's, only one out of 46 new teachers had already done so. Also, some districts freeze teachers at a given experience level if they do not receive additional education credits.² As Table 5.4 indicates, the majority of teachers with up to two years of experience have a bachelor's; teachers with six to ten years of experience are most likely to have a bachelor's degree and 45 additional units (or a master's degree); and teachers with 20 or more years experience are most likely to be in the highest categories of educational attainment.

²We thank Barbara Miller of EdSource for pointing out this fact.

Table 5.4
Total Number of Teachers, by education and Experience

Years of Experience	Bachelor's Degree	Education Level						Total
		Bachelor's Degree + 30 Units	Bachelor's Degree + 45 Units	Bachelor's Degree + 60 Units	Bachelor's Degree + 75 Units	Bachelor's Degree + 90 Units or More		
0-2	22,347	12,599	6,373	2,391	928	1,036	45,675	
3-5	6,150	11,172	9,506	4,960	2,161	2,510	36,459	
6-10	3,522	11,750	14,155	10,972	8,670	12,090	61,158	
11-19	668	4,480	9,898	15,668	15,869	23,351	69,934	
20 or more	188	758	2,833	9,572	11,081	19,193	43,626	
Total	32,874	40,759	42,766	43,563	38,709	58,180	256,852	

Salary Differences Across Regions and Types of Districts

We now examine the importance of regional differences, the local demand for teachers, and district size. Although the salary patterns are similar for teachers at various points on the education-experience spectrum, for simplicity's sake we focus on three representative points in that spectrum: new teachers with a bachelor's degree; teachers with six to ten years of experience, a bachelor's, and 45 additional units; and teachers with 20 or more years of experience, a bachelor's degree, and 90 or more units.

Regional Differences

We might expect salary disparities to reflect cost-of-living differences and the local demand for teachers. Certain areas of California are much more expensive to live in than others, and some districts have trouble attracting a sufficient number of teachers with the preferred levels of education and experience. To investigate these differences, we broke the state into 11 geographic regions (see Table 5.5).³ The number of districts reporting for each region ranges from 24 in Orange County to 149 in Northern California. The average daily attendance (ADA) in each region varies from a little over 100,000 students in the Central Coastal Region to 1.5 million students in Los Angeles County.⁴

The regional differences were similar for all three groups of teachers. The lowest salaries were found in the northern counties, and the highest salaries were found in Southern California and the San Francisco Bay Area. Average salaries for new teachers with low levels of education range from \$27,568 in Northern California to \$30,788 in Los Angeles County. The most experienced and most educated teachers make \$49,610 in Northern California and \$59,044 in Orange County. Table 5.5 presents

³Chambers and Fowler (1995) use the School and Staffing Survey to estimate differences in the relative costs of hiring teachers nationally. In this study, based on 1990–1991 data, the cost index for California's teachers was 109 as compared to a national rating of 100. Within the state, teacher costs ranged from 77 to 119.

⁴Table 5.13, at the end of this essay, identifies the counties in each region, the total ADA for each region, and how many districts within each region reported relevant salary information.

Table 5.5
Average Teacher Salaries, by Region, Education, and Experience

Region	No. of Districts	ADA	% of Teachers Not Fully Certified	Bachelor's Degree, 0–2 Years	Bachelor's Degree + 45 Units, 6–10 Years	Bachelor's Degree + 90 Units or More, 20 + Years
Northern California	149	169,696	2.0	27,568	36,748	49,610
Sacramento Area	51	300,609	3.1	28,189	37,812	53,027
San Francisco Bay Area	137	845,160	6.0	29,749	40,612	55,417
North Central Valley	79	252,608	4.8	29,574	39,284	52,702
South Central Valley	130	399,066	7.9	29,556	39,425	52,063
Central Coast	29	100,244	7.7	27,247	38,656	53,663
South Coast	49	220,193	4.4	29,590	41,643	55,818
Los Angeles County	75	1,500,645	17.4	30,788	43,466	57,345
Orange County	24	400,489	5.7	30,096	43,940	59,044
San Bernardino/Riverside	53	616,756	11.3	30,526	43,139	58,181
San Diego/Imperial	53	475,408	2.8	28,998	41,061	56,629

average salaries for teachers with these levels of education and experience for each region.

To determine whether these disparities were driven by cost-of-living differences, we also compared teacher salaries to those of private sector workers in the same regions.⁵ Using Los Angeles County as an index and focusing on teachers with a bachelor's degree, 45 additional units, and six to 10 years of experience, Figure 5.1 graphs salaries for teachers and full-time, college-educated private sector workers within each region. In Northern California, for example, private sector wages were about 75 percent of those in Los Angeles whereas teachers' salaries were about 82

⁵Using information from the outgoing rotation groups for the Current Population Survey, we estimated log wage equations for California full-time private sector workers who were surveyed from 1996–1999. These regressions included control variables for the gender, level of education, and experience of workers and regional indicator variables. These regional indicator variables represent the percentage difference between average wages in the region and average wages of similar workers in Los Angeles County.

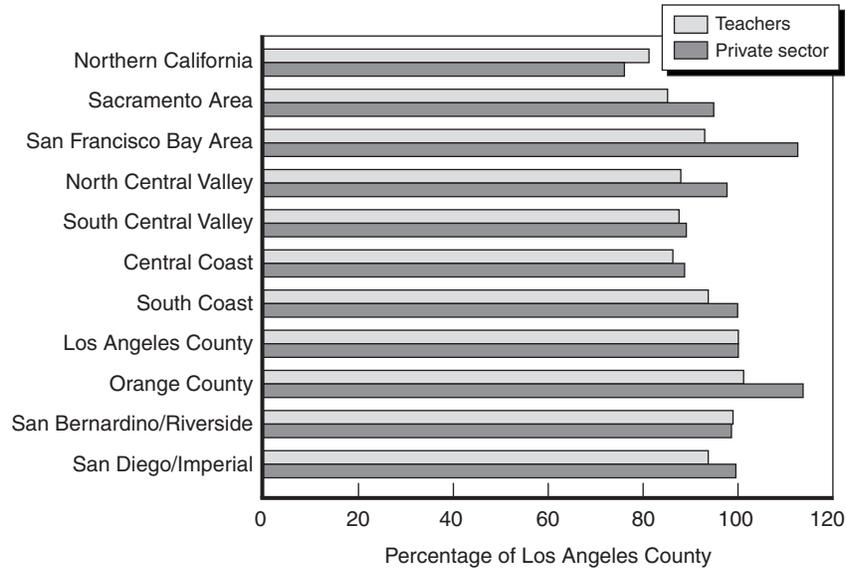


Figure 5.1—Private Sector and Teacher Salaries, Relative to Los Angeles County

percent of those in Los Angeles. In general, we found that the lower salaries for teachers in Northern California and the Central Valley corresponded to lower private sector salaries in those regions. However, this correspondence did not hold for more expensive areas. Whereas private sector workers in Orange County earned 10 percent more than equivalent workers in Los Angeles County, Orange County teachers were paid less than 3 percent more than their Los Angeles counterparts. Likewise, private sector workers in the San Francisco Bay Area also earned 10 percent more than similar workers in Los Angeles, but Bay Area teacher salaries actually lagged those in Los Angeles.

So far we have focused on salary variation across regions, but we found significant variation within regions as well. Table 5.6 presents ratios of the highest salary to the lowest salary in each region at our three representative points on the education-experience spectrum. (A ratio of 1 would mean that all districts within a region offered the same salary for a given level of education and experience.) In addition to measuring

Table 5.6
Ratio of Minimum and Maximum Salaries Offered Within Regions

Region	Bachelor's Degree, 0–2 Years	Bachelor's Degree + 45 Units, 6–10 Years	Bachelor's Degree + 90 Units or More, 20 + Years
Northern California	1.49	1.66	2.08
Sacramento Area	1.23	1.34	1.34
San Francisco Bay Area	1.63	1.57	2.41
North Central Valley	1.35	1.60	1.44
South Central Valley	1.34	1.69	1.94
Central Coast	1.36	1.59	2.12
South Coast	1.29	1.70	1.87
Los Angeles County	1.29	1.33	1.28
Orange County	1.34	1.36	1.36
San Bernardino/Riverside	1.30	1.33	1.31
San Diego/Imperial	1.58	1.93	2.56
Total state	1.88	2.16	2.81

these intra-regional disparities, the table shows that variation across regions was greater than variation within regions.

Local Demand for Teachers

Another factor driving salary differences was the local demand for teachers. For a variety of reasons, some districts have more difficulty than others recruiting a sufficient number of qualified teachers. If the proportion of teachers working without full certification is one measure of teacher shortages, Table 5.5 suggests that districts in Southern California have felt these shortages most keenly. In Los Angeles County, over 17 percent of teachers lacked full certification, and in San Bernardino/Riverside, the figure was over 11 percent. These regions also offered the highest salaries for new teachers. These higher starting salaries probably reflect the need to attract a greater number of teachers to these fast-growing areas. Northern California had the lowest proportion of teachers without full certification as well as the lowest starting salaries.

District Size

In considering the role of district size in salary differences, we used the definitions of small, medium, and large districts presented by the California Department of Education (1999b).⁶ We also broke the smallest group into a rural and nonrural subcategory. (A small rural district is one with fewer than 1,500 students and in which over half of the schools self-identified as rural.) Table 5.7 compares average salaries for our three representative types of teachers. We find that salaries for new teachers increased with district size. For more educated and experienced teachers, salaries increased along with district size up to 20,000 students, after which teacher salaries declined slightly.

We used regression analysis to disentangle the size effects from the aforementioned regional effects and to assess their relative importance. We found that regional effects were twice as important as size effects. Although salaries for midlevel teachers were approximately \$6,000 less in

Table 5.7
Average Teacher Salaries, by School District Size, Education, and Experience
(in dollars)

Type of District	No. of Districts	Bachelor's Degree, 0–2 Years	Bachelor's Degree + 45 Units, 6–10 Years	Bachelor's Degree + 90 Units, 20 + Years
Small, rural districts (ADA < 1,500)	118	27,279	36,155	47,531
Other small districts (nonrural, ADA < 1,500)	238	28,229	38,341	49,926
ADA 1,500–4,999	216	28,567	39,793	53,716
ADA 5,000–9,999	125	29,644	41,668	56,190
ADA 10,000–19,999	80	29,871	42,153	57,166
ADA 20,000–44,999	41	30,173	41,739	56,723
ADA 45,000 +	11	30,671	42,302	56,095

⁶The department's management bulletin distinguishes between elementary, secondary, and unified districts of various sizes. For analytical purposes, we performed our analysis across all three types of districts based solely on size.

Northern California than in Southern California, two-thirds of this difference was related to regional differences and one-third was related to district size differences. The only size effects that seemed to matter were for the smallest school districts, where salaries were \$2,000 lower than in larger districts. Once regional differences were controlled for, we found no significant salary differences across districts with more than 1,500 ADA.

Nonsalary Benefits

Most districts provide nonsalary benefits that might heighten or mitigate salary differences found across districts or regions. Unlike salaries, which vary according to experience levels, the same benefits package is usually provided to all teachers within a particular district. The J-90 files provide information on five different benefits offered by school districts: health insurance, dental insurance, life insurance, vision programs, and other assorted benefits. Other benefits included salary or income protection, long-term disability programs, prescription drug programs, mental health programs, or cash payments for workers who waive health or other benefits. Table 5.8 lists statewide average benefits offered for the 829 districts reporting information on benefits and salaries. On average, districts paid an additional \$4,455 for nonsalary benefits. The most prevalent and expensive benefit was health insurance; 94 percent of reporting districts made a contribution at an average cost of

Table 5.8

Number of Districts Offering Nonsalary Benefits and Average District Costs

Type of Benefit	No. of Districts Offering Benefit	No. of Districts Contributing Toward Benefit	Average Benefit Cost, \$	Average District Contribution, \$
Total benefits	829	780	4,737	4,455
Health	826	776	3,744	3,535
Dental	765	697	714	675
Vision	681	609	167	164
Life	408	377	67	67
Other	188	173	306	283

\$3,500. Slightly more than 90 percent of districts provided dental insurance, with an average direct contribution of \$714.

Table 5.9 compares average total cost and average district contributions for nonsalary benefits across regions. It also indicates the proportion of districts within each region that offered different types of plans. The average cost of these benefits was highest in Northern California (\$5,236) and the Central Coast (\$5,649) and lowest in Los Angeles County (\$3,860), the San Francisco Bay Area (\$4,463), and the Sacramento Area (\$3,626). In general, teachers in regions with high salaries tended to receive smaller district contributions for nonsalary benefits. This variation seems to be driven more by the lower costs of a given benefit in urban areas than by differences in the types of benefits offered.

Table 5.10 examines the types of nonsalary benefits and their costs according to district size. In general, large districts faced lower benefit

Table 5.9
Comparisons of Benefits Offered, by Region

Region	Total Cost, \$	Average District Contri- bution, \$	Total Districts	% of Districts Offering Benefit				
				Health	Dental	Vision	Life	Other
Northern California	5,869	5,236	149	100.0	96.0	89.9	44.3	12.1
Sacramento Area	4,359	3,626	51	100.0	98.0	86.3	39.2	21.6
San Francisco Bay Area	4,891	4,463	137	99.3	97.8	69.3	40.1	29.2
North Central Valley	5,099	4,850	79	100.0	97.5	94.9	24.1	13.9
South Central Valley	5,730	5,577	130	98.5	67.7	67.7	47.7	26.9
Central Coast	6,133	5,649	29	100.0	100.0	89.7	34.5	17.2
South Coast	5,195	5,024	49	100.0	98.0	89.8	42.9	30.6
Los Angeles County	4,040	3,860	75	100.0	97.3	90.7	69.3	26.7
Orange County	5,347	4,986	24	100.0	87.5	83.3	87.5	20.8
San Bernardino/ Riverside	4,838	4,566	53	100.0	98.1	81.1	71.7	15.1
San Diego/Imperial	4,254	4,192	53	100.0	94.3	83.0	83.0	37.7

Table 5.10
Comparisons of Benefits Offered, by District Size

District Size	Total Cost, \$	Average District		% of Districts Offering Benefit				
		Contri- bution, \$	Total Districts	Health	Dental	Vision	Life	Other
Small, rural	5,223	4,851	118	100.0	93.2	85.6	44.1	20.3
Other small	5,274	4,996	238	99.2	87.0	78.6	35.3	20.6
ADA 1,500–4,999	5,242	4,768	216	99.5	93.1	82.4	46.3	20.4
ADA 5,000–9,999	4,931	4,475	125	100.0	94.4	84.8	59.2	21.6
ADA 10,000–19,999	5,187	4,993	80	100.0	97.5	83.8	68.8	31.3
ADA 20,000–44,999	4,668	4,369	41	100.0	97.6	82.9	78.0	36.6
ADA 45,000 +	3,961	3,872	11	100.0	100.0	72.7	100.0	36.4

costs than smaller districts. These differences may reflect the big districts' larger pool of insured workers and the lower fixed costs of administering their plans. In two cases, district costs increased with district size; however, these increases may be due to increases in the number of benefits offered.

Table 5.11 presents information on average total compensation for our three representative teacher levels.⁷ Compared to salaries, compensation (salary, benefits, and retirement contributions) varied less across regions, but the patterns were very similar. Districts in Southern California and the Bay Area offered the highest levels of total compensation, Northern California offered relatively low levels of compensation, and the Sacramento Area offered the lowest average level of total compensation.

Conclusion

Along with teacher education and experience, regional differences and district size generate disparities in California teacher salaries. In general, Southern California school districts pay more than those in other

⁷Total compensation includes district salary by education and experience level, average district contribution for nonsalary benefits, and 12 percent of salary for other district contributions to retirement and workers' compensation funds. For more information on these costs, see Chapter 6.

Table 5.11
Average Total Teacher Compensation, by Education and Experience
(in dollars)

Region	Bachelor's Degree, 0–2 Years	Bachelor's Degree + 45 Units, 6–10 Years	Bachelor's Degree + 90 Units or More, 20 + Years
Northern California	35,853	46,382	60,755
Sacramento Area	35,319	46,221	63,374
San Francisco Bay Area	37,902	49,905	66,536
North Central Valley	37,998	48,769	63,762
South Central Valley	38,403	49,848	63,954
Central Coast	36,087	48,863	65,549
South Coast	38,315	51,689	67,653
Los Angeles County	38,458	52,719	68,281
Orange County	38,757	54,291	71,271
San Bernardino/Riverside	38,783	52,945	69,707
San Diego/Imperial	36,447	49,837	67,257

areas, and larger districts pay more than very small ones. Because large districts also employ higher percentages of new teachers, their relatively high salaries may reflect the need to attract more teachers.

Under the current finance system, the state allocates funds to districts on a per pupil basis. Although it considers district size and type in its general allocation formula, it does not consider regional cost differences, including those that affect teacher salaries. As a result, districts with relatively high salaries face a series of difficult tradeoffs. Many districts can hire more teachers or more experienced teachers, but they cannot do both. Other states (including Texas, Colorado, Florida, Ohio, and Wyoming) have adjusted their school finance system to account for differences in educational costs, including those related to teacher salaries. A very recent study produced at the University of Texas examines cost adjustments currently in place in Texas and how they might be updated (Charles A. Dana Center, 2000). That study presents three cost models, all of which recognize regional differences associated with teacher recruitment. These cost differences and others will be considered in the next chapter.

Appendix

The California Department of Education form J-90, “Selected Certificated Salaries and Related Statistics,” asks for salary information both by years of experience and by educational attainment. Each district is allowed to define its categories for educational attainment. On average, school districts used four to six categories, but some listed 12 or more. For each educational attainment level, districts could list two more pieces of information to specify which teachers would receive each salary level. These secondary headings often included information about additional degrees; for instance, in one district a teacher with a master’s degree and 15 additional units might receive the same salary as a teacher with a bachelor’s degree and 60 additional units.

We collapsed the various categories used by 839 districts into six groupings. We attempted to use cut-offs that reflected the most popular categories: that is, the ones used by the greatest number of districts as well as those used by the largest districts. A spreadsheet listing each original column heading, the number of districts using each heading, the number of teachers per level, and the average salary is available from the authors upon request.

The data for salary by experience level was more uniform. The J-90 form provides space for information for up to 20 “steps” or individual years of experience. Many districts did not provide salary information for each step, or listed repeating salary levels, presumably because salaries did not increase with each additional year of experience. We attempted to set our experience categories so that teachers within each group received similar annual salaries, and any jumps in salary were reflected in a category change. For instance, many districts list the same salary level for teachers with one or two years experience, but list salary increases for those with three years experience. We therefore grouped teachers with one to two years experience into one category, and placed those with three years experience into the next category.

As noted above, districts did not always list information for each of our final education/experience categories. This frequently occurred when districts had no teachers in those categories or when a district’s salaries did not increase with a move across two of our defined categories. In

such cases, we assumed that the teacher would receive the salary of the next lowest grouping. For example, if teachers with six to ten years of experience and 45 units beyond a bachelor's degree were paid \$39,000, but we did not know how much teachers with the same education and 11 years experience would be paid, we assigned these teachers a salary of \$39,000. This process allowed us to fill in data for those districts that used fewer than six education levels or did not provide information for all experience levels. Table 5.12 lists average salaries across districts when we did not fill in such empty cells, listing salaries both unweighted and weighted by the number of teachers per education/experience category. Table 5.12 also lists the number of districts with information on teacher salaries per education/experience cell.

Table 5.12
Teacher Salaries, by Education and Experience

Years of Experience	Bachelor's Degree	Bachelor's Degree + 30		Bachelor's Degree + 45		Bachelor's Degree + 60		Bachelor's Degree + 75		Bachelor's Degree + 90		
		No.	Units									
0-2	28,610	647	29,537	822	30,794	822	31,869	822	32,591	822	33,129	822
	28,610	647	29,589	757	30,925	764	31,975	637	33,258	415	34,747	248
3-5	30,771	649	32,261	827	33,846	827	35,170	827	36,045	827	36,668	827
	30,928	618	32,355	760	33,968	787	35,174	689	36,536	453	38,375	264
6-10	34,384	650	36,966	828	38,972	828	40,482	828	41,447	828	42,197	828
	35,243	561	37,213	748	39,152	791	40,434	701	41,789	478	44,298	278
11-19	35,876	652	39,944	828	43,529	828	46,253	828	47,793	828	48,845	828
	39,960	247	42,377	486	44,629	683	46,539	678	48,181	482	51,348	284
20 or more	36,414	653	40,729	829	44,688	829	48,183	829	50,500	829	51,783	829
	42,101	135	45,957	200	49,251	286	51,228	356	52,511	327	55,866	211

Table 5.13
Definitions of Regions, by County

Region	Counties Included	No. of Districts	ADA
Northern California	Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Nevada, Plumas, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yuba	149	169,696
Sacramento Area	El Dorado, Placer, Sacramento, Yolo	51	300,609
San Francisco Bay Area	Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma	137	845,160
North Central Valley	Alpine, Amador, Calaveras, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tuolumne	79	252,608
South Central Valley	Fresno, Inyo, Kern, Kings, Tulare	130	399,066
Central Coast	Monterey, San Benito, Santa Cruz	29	100,244
South Coast	San Luis Obispo, Santa Barbara, Ventura	49	220,193
Los Angeles County	Los Angeles	75	1,500,645
Orange County	Orange	24	400,489
San Bernardino/ Riverside	San Bernardino, Riverside	53	616,756
San Diego/Imperial	San Diego, Imperial	53	475,408

6. Toward Cost and Quality Models for California's Public Schools

by Jon Sonstelie

Summary

This essay introduces two basic conceptual tools that the state legislature could use to determine the state's education budget. The first tool is a cost model, which lists the resources employed by a representative school, the unit cost of these resources, and thus the total cost for that school. By specifying, quantifying, and pricing these inputs, the cost model can help policymakers translate general policy goals into adequate facilities and programs.

This cost model can be applied in various ways, four of which are considered in this essay. Two applications involve teacher salaries, which are by far the largest school budget item. The first application examines the effect of regional differences in teacher salaries on school costs. The model indicates that costs per pupil range from \$4,616 per year in the Sacramento area to \$4,920 in Orange County. This significant difference may understate the salary necessary to attract equivalent teachers across regions.

The second application examines the effect of teacher experience and education on total school costs. Because teachers' salaries are linked to experience and education, they are key factors in school cost differences. Districts with the most experienced and most educated teachers pay about 8 percent more in total costs than districts with the least experienced and least educated teachers. Again, this figure does not represent the extra cost of recruiting a more experienced or more educated teaching staff.

The cost model can also be used to estimate the cost of reducing California's class sizes. Reducing the pupil-teacher ratio by 10 percent, for example, would add three teachers and three classrooms to a representative elementary school. This expansion, in turn, would increase current costs by 5 percent and capital costs by about 8 percent.

The fourth application concerns the additional cost of educating economically disadvantaged students. The empirical evidence indicates that these students are far more likely than other children to need extra resources to achieve minimum outcomes. For illustrative purposes, the report considers the cost of implementing Success For All (SFA), a reputable nationwide reading program, at a representative elementary school. Using SFA benchmarks, the model estimates an additional cost of \$420,000 per year, or about \$700 per pupil.

The second conceptual tool introduced in this essay is a quality model, which sets forth the best bundle of resources for a school given its unit costs and its total budget. Perhaps the best example of this tool is Oregon's Quality Education Model, which was completed by the state's legislative council in 1999. The council specified the resources for prototypical elementary, middle, and high schools and declared that Oregon schools with these resources could attain the state's academic standards. Oregon's Quality Education Model promises to provide the state's legislature a yardstick against which it can measure the adequacy of its education budget.

For purposes of illustration, the essay calculates the extra cost of implementing Oregon's quality model at a typical California elementary school. That cost is about \$1,200 per pupil, or the amount by which current per pupil spending in California fell below spending in states such as Maryland, Michigan, Massachusetts, and Pennsylvania in 1996–1997.

The final section of the essay describes two steps that California could take toward developing cost and quality models. The first step is to develop better cost information through case studies of individual schools. The second step is to initiate a pilot quality model. For that purpose, a group of principals would be asked to describe how they would allocate a hypothetical school's budget. Each would be presented with a variety of budget scenarios—\$4,000 per student, \$5,000 per

student, and so on. Their responses would be aggregated to yield a pilot model, giving the state the opportunity to assess the feasibility of constructing a quality model on a larger scale.

Introduction

When it comes to the state's education budget, the state legislature faces a formidable task. Each year it allocates more than \$30 billion to California public schools, money that then flows through various channels, ultimately reaching destinations as diverse as the 50-student Klamath River Elementary in Siskiyou County and the 1,500-student 49th Street Elementary in South Central Los Angeles. Although the channels may be murky in stretches, the flow from Sacramento is vital to the intellectual growth of children in Siskiyou County, South Central Los Angeles, and everywhere else in the state.

The complexity of this system makes budget decisions difficult. This essay introduces two tools that would assist the legislature in making those decisions and in articulating clear goals for school finance. The first is a cost model, which is a spreadsheet listing quantities of various resources employed at a school, costs per unit of these resources, and thus the total cost of the school as a function of its resources and unit costs. The advantage of such a model is that it places all resources on the table at once so that lower class sizes can be weighed against more computers, more counselors against better libraries, and so on. To illustrate the benefits of this approach, the first section of this essay outlines a cost model for a representative California elementary school using 1997–1998 data.

The second section of the essay demonstrates some uses of a cost model. One such use is to estimate the cost of policies that change school resources. As a simple example, the model is used to estimate the cost of lowering the average pupil-teacher ratio in California by 10 percent. Another use of the model is to estimate cost differences across school districts. As Chapter 5 shows, teachers' salaries vary across regions of the state, and these variations affect school costs. They also raise the question of whether state aid should be allocated to offset these cost differences. To indicate the magnitude of these differences, the model estimates what a school with a given bundle of resources would cost in

different regions of the state. As these and other examples illustrate, a cost model is a flexible tool that can be applied to many policy questions.

The second tool that would assist the legislature is a quality model. A quality model sets forth the best allocation of resources for a given total budget. For example, if an elementary school of 500 students had a budget of \$5,000 per student, how many teachers should it hire, how many aides, how many secretaries, and so on? What is the best school that could be assembled for a cost of \$5,000 per student? What is the best school for \$6,000? A cost model is an important part of a quality model because it indicates whether a school can afford any bundle of resources, given its budget. A quality model goes one step further by asking which of the many affordable bundles is best for the school.

Because we have an imperfect understanding of the relationship between school resources and student outcomes, and because we judge schools along many different dimensions, there is no universal answer to the question of how best to allocate a school's budget. As Oregon has demonstrated, however, it is possible for knowledgeable people to reach a reasonable consensus on that answer. Once that consensus is reached, the legislature has an important reference point in deciding on the state's education budget. It also has a clearer idea about how school revenue is likely to be spent and how the state might balance the costs and benefits of this spending. The third section of this essay illustrates the usefulness of a quality model by comparing the resources in Oregon's Quality Education Model with the resources of California schools in 1997–1998.

We do not yet have enough information about certain costs to develop reliable models, and the ones presented here are best regarded as outlines of what cost and quality models should include and how they could be used. This reservation notwithstanding, these outlines clearly demonstrate the utility of such models. In particular, California would do well to follow Oregon's lead by developing its own quality model. The concluding section describes initial steps that California could take toward that goal.

A Cost Model for California Public Schools

Building a cost model is a two-step process. The first step is to define the appropriate resource categories and units of measurement. For

example, one resource category is classroom teachers, and the measure for that category is FTEs. The second step is to calculate a unit cost for each resource category. In the case of classroom teachers, the unit cost is the average salary of a teacher plus the cost to the district of the teacher's health, retirement, and other benefits. The following section uses 1997–1998 data to outline a cost model for a representative California elementary school.

Resource Categories and Unit Costs

Most of a school's budget is allocated to the salary and benefits of its employees. California school districts report detailed data on personnel employed in each school. The data on certified personnel come from the Professional Assignment Information Form of the California Basic Education Data System (CBEDS), and the data on classified personnel comes from the School Information Form of CBEDS. I aggregated the personnel categories from these data sources into seven resource categories for the cost model. The first is teachers engaged in the school's general education program. This category includes general classroom teachers as well as music and art teachers. The second category is teachers engaged in a school's special education program, including teachers in full-day classes for special education students, and specialists, such as speech therapists. The third category is paraprofessionals, who are mainly instructional aides in both general and special education programs. The fourth category is clerical support, which consists primarily of clerical workers in the main school office. The fifth category, instructional support, includes specialists who supervise instruction and develop curriculum. It also includes librarians and media technicians. The sixth category is pupil support, including school nurses, guidance counselors, and psychologists. The last category is school leadership, which includes the principal and vice principals. Resources in each of these seven categories are measured by FTE.

In Chapter 5, Rueben and Herr provide the data necessary to estimate the unit cost for teachers in 1997–1998. Their report gives the average salary schedule for teachers in California in that year as well as the average distribution of teachers across the education-experience categories of that schedule. Combining the two yields an average salary

for the state, which was \$43,085. The report also estimates the average cost of various insurance benefits to be \$4,455 per teacher. District-level accounting data indicate that other benefits to teachers, such as retirement contributions and workers' compensation, averaged 12.19 percent of salary. Using these benefit assumptions, the unit cost of a teacher in 1997–1998 was \$52,792. This estimate does not reflect significant increases in teachers' salaries over the last two years. The appendix to this essay describes unit cost calculations for other personnel categories.

Schools also use a number of other important resources such as books, utilities, and janitorial services. In a number of these areas, we have data on expenditures at the district level but few measures of resources or unit costs at the school level. As a consequence, I employed a provisional approach. Using California Department of Education data from “The Average Costs of a California School, 1997–98” (hereafter called Average Cost), I classified expenditures into five categories, calculated per pupil expenditures in these categories, and then used this calculation as a measure of unit cost and students as a measure of quantity.¹ For example, Average Cost assumes a school with 700 students and reports a cost of \$383,000 for building operations and maintenance, which is a per pupil cost of \$547. The cost model therefore assumes a unit cost of \$547 for building operations and maintenance, which is then multiplied by the number of students to yield the total cost of the resource category. Through these resource and cost assumptions, district-level expenditures are essentially prorated to schools in proportion to enrollment.

I have used this provisional approach for five resource categories.² The categories follow those in Average Cost, except that I have excluded the cost of food service in school cafeterias, the cost of county oversight, and the cost of the California Department of Education. The first category is pay for substitute teachers and teachers employed in extracurricular activities, such as coaching. The second category, supplies

¹Krop, Carroll, and Anderson (1999) also break educational spending into categories.

²I am indebted to Maria Fong for details about Average Cost.

and expenses, includes the cost of books, paper, and pencils, as well as projectors, laboratory equipment, and computers. Also included in this category are office equipment, supplies, and various contracted educational services. The third category, operations and maintenance, includes salaries and benefits for custodians, the cost of utilities, and various supplies necessary to maintain the school building. The fourth category, student transportation, includes the salaries and benefits of bus drivers and mechanics and the fuel and other expenses necessary to transport students to and from school. Finally, district administration includes the salary and benefits of the district superintendent and central administration staff and the cost of central office equipment and supplies.

A school's resources also include its building and site. Using data on school construction projects from July 1996 to July 2000, I estimated the cost of a new elementary school, breaking total cost into two components. The first is the cost of acquiring the site and constructing the core facilities, which are administrative office space, a library, a kitchen or cafeteria, and a multi-purpose room. This cost does not vary with the number of classrooms in the building. The second component is a cost per classroom.

These costs are one-time capital outlays and thus not directly comparable to the current costs in the model, which are expressed in annual terms. To compare capital and current costs, I express capital costs in annual terms, which is the annual interest payment on a long-term loan large enough to finance a one-time cost. The result is an annualized fixed cost of \$150,913 for the site and core facilities and an annual variable cost of \$13,247 per classroom. The appendix to this essay describes these calculations in detail.

Benchmarking the Model

Cost models are frequently used to estimate the cost of changing school resources from the status quo. Because there are more than 4,000 elementary schools in California, each with its own allocation of resources, describing the status quo can be difficult. I simplify matters by focusing on a representative elementary school. Most elementary schools

are either K–5 (2,221 schools in 1997–1998) or K–6 (1,966 schools in 1997–1998). The average enrollment among those schools is 634 students. The representative elementary school is therefore assumed to be kindergarten to grade 5 with an enrollment of 634 students. The personnel employed in this school are averages for California K–5 and K–6 schools in 1997–1998. These averages are constructed using data from the Professional Assignment Information Form and the School Information Form of CBEDS.

Table 6.1 pulls together resource measures and unit costs to form a cost model. The rows of the table correspond to the resource categories. For each category, the second column gives the quantity of the resource, the third column gives the unit cost, and the fourth column gives the total cost of the resource category, which is the product of the second and third columns. For each school, costs are separated into current costs, such as teacher pay and benefits, and capital costs, which are the annualized costs of the school site and building. The fifth column expresses the total cost of each current resource as a percentage of total current cost and the total cost of each capital resource as a percentage of total capital cost.

Current costs amount to \$4,881 per student. About half of those costs are the salaries and benefits of general and special education teachers. Annual capital costs amount to \$844 per student, 70 percent of which is for classrooms.

The school portrayed in Table 6.1 reflects average conditions, and individual school costs may differ substantially from these averages. For example, school districts in rural areas face different conditions and are likely to have different costs.

Four Applications

To demonstrate the utility of the cost model, I apply it to four policy questions. Because of the provisional nature of the model, these applications should be regarded as illustrations rather than definitive results.

Table 6.1
Costs of the Representative California Elementary School, 1997–1998,
Grades K–5: 634 Students

	Unit of Measure	Units	Cost per Unit, \$	Resource Cost, \$	% of Total
Current costs					
General education teachers	FTE	27.33	52,792	1,442,805	46.6
Special education teachers	FTE	1.13	52,792	59,655	1.9
Paraprofessionals	FTE	6.81	25,694	174,976	5.7
Clerical support	FTE	2.38	45,338	107,904	3.5
Instructional support	FTE	0.65	64,091	41,659	1.3
Pupil support	FTE	0.18	66,250	11,925	0.4
School leadership	FTE	1.32	90,069	118,891	3.8
Substitute and extracurricular pay	Students	634	257	162,938	5.3
Supplies and other expenses	Students	634	526	333,303	10.8
Operations and maintenance	Students	634	547	346,889	11.2
Student transportation	Students	634	159	100,534	3.3
District administration	Students	634	304	192,917	6.2
Total current cost				3,094,397	100.0
Current cost per student				4,881	
Capital costs (annualized)					
Site and core facilities	Schools	1	150,913	150,913	28.2
Variable facilities	Classrooms	29	13,247	384,166	71.8
Total capital cost				535,079	100.0
Capital cost per student				844	

Regional Cost Differences

Because labor market conditions, amenities, and housing prices differ across regions of the state, teachers' salaries may also differ, implying regional differences in the cost of educating students. To explore the significance of these regional differences, I first calculated a unit cost of teachers for each region. Using data from Rueben and Herr (Chapter 5), I estimated an average salary schedule for each of 11 regions in the state and then used those schedules to determine an average salary for each region, assuming that each region had the same distribution of teacher education and experience as the state as a whole. Finally, I combined those average salaries with average benefit costs for each region to derive a

Table 6.2
Regional Differences in Current Cost per Pupil, 1997–1998,
Representative California Elementary School,
Grades K–5: 634 Students

Regions	Teachers' Salary and Benefits		Current Cost per Pupil	
	Average, \$	% of Los Angeles County	Average, \$	% of Los Angeles County
Northern California	48,724	91.5	4,698	95.9
Sacramento Area	48,568	91.2	4,691	95.7
San Francisco Bay Area	52,325	98.3	4,860	99.2
North Central Valley	51,261	96.3	4,812	98.2
South Central Valley	52,065	97.8	4,848	98.9
Central Coast	50,979	95.8	4,799	97.9
South Coast	53,574	100.7	4,916	100.3
Los Angeles County	53,227	100.0	4,900	100.0
Orange County	55,896	105.0	5,020	102.4
San Bernardino/Riverside	54,333	102.1	4,950	101.0
San Diego/Imperial	52,593	98.8	4,872	99.4

NOTE: See Table 5.13 for a list of counties within each region.

unit cost. These unit costs are presented in the first column of Table 6.2. The second column expresses those regional averages as percentages of the unit cost in Los Angeles County. Note that the difference between the lowest and highest regional average is nearly 14 percent.

To determine the effects of those differences on school costs, I calculated the current cost of the representative elementary school, using the unit costs for each region. The costs are displayed in the third column. The fourth column expresses those averages as percentages of the average for Los Angeles County.

Current cost per pupil varies considerably across regions. Orange County has the highest cost, about 2 percent above Los Angeles County. The Sacramento area has the lowest cost, which is about 4 percent below Los Angeles. The variance in cost per pupil is about half the variance in teacher salaries because teacher salaries are about half of current cost per pupil.

On the basis of these estimates, it is tempting to conclude that regional differences in costs are not significant. That conclusion is

premature for two reasons. First, other costs may also vary across regions in a manner similar to teacher salaries. Second, the average teacher salary in each region does not necessarily represent the salary necessary to attract equivalent teachers across regions. The salary in Orange County may be nearly 20 percent higher than in Northern California; but given differences in housing prices, that difference in salary may not be large enough to attract the same quality of teachers to schools in Orange County as are attracted to schools in Northern California. In fact, Rueben and Herr, in Chapter 5, show that the difference in teaching salaries between Orange County and Northern California is less than that among comparable workers in the private sector, indicating that the cost of teacher quality in Orange County is probably understated by the average wage of teachers.

The Cost of Teacher Experience and Education

Although regional variation in teacher salaries is significant, Rueben and Herr, in Chapter 5, show that variation in teacher education and experience may be a more important source of cost differences across schools. The difference in average teacher salary between Orange County and Northern California may be 20 percent, but the difference between the lowest and highest salary categories is 80 percent. A district that is growing rapidly will have many new, inexperienced teachers and thus lower costs than one that has little growth or turnover in its teaching staff.

To determine the potential importance of this factor, I calculated the average teacher salary for every district, assuming that each had the same salary schedule. Then, the only difference in average salary is due to the education and experience of the district's teachers. Of the 839 districts for which we have salary data from 1997–1998, 10 percent had an average salary below \$36,545, and 10 percent above \$43,857. The difference between these two limits is about 20 percent. Because teacher salaries and benefits are roughly 40 percent of total cost, this difference in salary implies about an 8 percent difference in total current cost.

These salary differences reflect differences in costs across districts resulting from differences in the compositions of their teaching staff. They do not represent the cost to any one district of recruiting a more

experienced or more educated staff. Recruiting such a staff would entail higher costs, even given the same salary schedule, but it may also require a higher salary schedule.

The Cost of Lowering California's Pupil-Teacher Ratio

Since the mid-1970s, California has fallen below other states in spending per pupil. Teacher salaries have not declined relative to other states, however, implying that the trend in spending per pupil has been translated directly into a relative increase in the pupil-teacher ratio in California. In 1996–1997, the ratio in California was more than 30 percent higher than that in the rest of the country.³

What would it cost California to reduce its pupil-teacher ratio by 10 percent? For the representative school, a lower pupil-teacher ratio implies more teachers and thus more classrooms. To reduce the pupil-teacher ratio by 10 percent, the school would have to add three teachers and three classrooms. Using the unit cost assumptions in Table 6.1, these additional resources would increase current costs by about 5 percent and capital costs by about 8 percent.

The Additional Cost of Educating Disadvantaged Students

Many studies have documented the positive correlation between socioeconomic status and student achievement. On average, the children of well educated and economically successful parents achieve more than their counterparts from less-advantaged families. Betts, Rueben and Danenberg (2000) confirm this relationship for California school children. Their report partitions schools into five groups according to the percentage of students in each school receiving free or reduced-price lunches. For elementary schools, the first group comprises schools in which at least 85 percent of students are receiving free or reduced-price lunches. In the fifth group, schools have less than 20 percent of students in that category. For schools in the first group, less than 25 percent of students score above national medians in math and reading tests. For schools in the fifth group, more than 70 percent score above the national median.

³For more information and analysis, see Sonstelie, Brunner, and Ardon (2000).

For the purposes of this essay, it is best to express these results somewhat differently. If we were to compare two schools with identical resources but students of different socioeconomic backgrounds, the school with less advantaged students, call it A, would have lower test scores, higher dropout rates, and generally lower student achievement than the other school, call it B. In concept, then, school A would need more resources to increase achievement to the level of school B. Those additional resources are the extra costs of educating disadvantaged students.

Although this definition may be clear in concept, it is notoriously difficult to implement in practice. The main difficulty is that we lack reliable estimates of the relationship between school inputs and student outcomes, estimates that could tell us what resources would be necessary to move achievement in school A to that of school B. In the absence of such estimates, how do we proceed? One approach is to look at the cost of programs specifically aimed at increasing achievement among disadvantaged students. One such program is Success For All (SFA), a reading program directed at disadvantaged students from kindergarten through grade 5. Based on research by Robert Slavin and Nancy Madden at Johns Hopkins University, the program began at a Baltimore elementary school in 1987 and has expanded rapidly since then. In 1999–2000, more than 1,500 schools in 48 states had adopted SFA. In California, 23 of the 51 elementary schools in the Comprehensive School Reform Demonstration Project have selected SFA as their reform model. In its review of school reform models, the American Institutes for Research found that SFA was the only elementary school reform program for which there was “strong” evidence of positive effects on student achievement.⁴

The core of the program is 90 uninterrupted minutes of reading instruction each day. Students are grouped across classes according to their reading level and evaluated every eight weeks. Students who fall behind are given intensive one-on-one tutoring by a reading specialist. A facilitator provides curriculum support to teachers, organizes and interprets the eight-week assessments, and regroups students according to

⁴Pogrow (2000) holds a contrary view.

their reading ability. The program also creates a Family Support Team to involve parents in the program, to monitor attendance, and to address the needs of students encountering difficulties outside of school that may be interfering with their education.

The primary cost of the program is the additional personnel it requires.⁵ The facilitator is an experienced teacher with expertise in reading. In terms of the cost model in Table 6.1, the facilitator is one instructional support FTE at the unit cost of \$64,091. The reading tutors are teachers. At any one time, about 30 percent of first-graders, about 20 percent of second-graders, and about 10 percent of third-graders need tutoring. For the representative school of 634 students, about 65 students would need one-on-one tutoring at any one time, a need that would require five teachers. At the unit cost of \$52,792 per teacher, tutoring would cost \$263,960. The Family Support Team would consist of two half-time paraprofessionals and one full-time coordinator. One paraprofessional would act as an attendance clerk, calling parents when students were tardy. A second paraprofessional would act as a parent liaison, visiting parents in their homes to involve them in the school's program. The coordinator would supervise these activities and focus on problem cases where extensive intervention may be required. In certain cases, this could mean calling on social service agencies in the community to assist children experiencing difficult situations outside the school. The attendance clerk and the parent liaison are both half-time paraprofessionals, with a unit cost of \$25,694. The coordinator is a pupil support FTE with a unit cost of \$66,250. The sum of these costs is \$419,995, for a per pupil cost of approximately \$700 per pupil. The Success For All program also involves ongoing costs for training and materials, which amount to about \$25,000 per year.

Under the New American Schools initiative, Success For All has been expanded to encompass math, science, and other subjects under the rubric Roots and Wings. Other programs also address the concerns of struggling schools, and Odden (2000) has distilled many of the common elements of these programs. I have focused on Success For All not to suggest that it is the only worthwhile approach, but rather to illustrate

⁵I am indebted to Adam Berman for details about Success For All.

how a specific program might be used to approximate the cost of educating disadvantaged students. According to the SFA benchmark, the cost of educating disadvantaged students is roughly 15 percent higher than that of other students. Other programs would surely result in other estimates.

From Cost Models to Quality Models

In addition to providing a common framework for addressing policy questions, a cost model provides the cornerstone for a quality model, which sets forth the best allocation of resources for any given budget. Maine, Oregon, and Wyoming have recently developed their own quality models. In this section, I focus on Oregon's model as an example of a general approach that California might employ and adapt to its unique circumstances.

Oregon's Quality Education Model

Oregon's history of school finance has much in common with California's. In 1990, Oregonians passed Measure 5, which, like California's Proposition 13, limited the property tax rate. As a result, the state now provides 70 percent of the funding for most school districts. In 1991, the Oregon legislature also equalized spending per pupil across the state's school districts, much as the California legislature equalized school spending following *Serrano v. Priest* and Proposition 13.

With its important new role in school finance, the legislature appointed a legislative council to develop the Oregon Quality Education Model. As described in the council's report, its goal was to "determine the components of a complete, quality education designed to meet Oregon's high academic standards," and to "develop a model to determine the costs of those components." In the council's words, the key question was "What is a quality education and what does it cost?" The council consisted of 22 members, including five legislators, four superintendents or principals, and five business people. It was appointed in 1997 and issued its report in 1999.

The council carefully considered Oregon's educational standards and how to achieve them. In the end, it addressed its key question through three prototype schools: an elementary school, a middle school, and a

high school. It described those three schools in great detail: enrollments, student characteristics, teacher experience, hours of homework per week, students per computer, attendance rates, dropout rates, and the number of serious discipline problems each year. It then listed the resources to be employed in each school.

The resource list is a spreadsheet as laid out in Table 6.1. It is much more detailed than that spreadsheet, however. For example, the elementary prototype specifies separate elements for computer hardware, computer software, texts, and other classroom materials.

Oregon's Model at California Costs

Although they are neighbors, Oregon and California are decidedly different in many respects. For purposes of illustration, however, it may be useful to ask how Oregon's quality model would translate into California terms. In particular, how much would the Oregon prototype elementary cost if it were implemented in California?

Because the Oregon prototype is so detailed, its costs can be collapsed into the more aggregate categories of the California representative school. The prototype has a smaller enrollment than the California school, however, making direct comparisons difficult. Enrollment is 340 students for Oregon's prototypical elementary school versus 634 for its California counterpart. To compare resources across the two sizes, I scaled up the Oregon prototypes to the same size as the California school. For each resource category, I calculated either FTE or expenditure per student for the Oregon prototype and then multiplied these ratios by enrollment in the California school to yield a California-sized school with Oregon-type resources.

Table 6.3 compares this scaled-up Oregon prototype with the representative California school. For personnel categories, the second and third columns list the FTE in the two schools. As an example, for general education teachers, the Oregon prototype has 39.16 FTE as opposed to 27.33 FTE for the California school, a difference of 11.83 FTE. The fifth column lists the unit cost of teachers in California, and the sixth is the product of the FTE difference and this unit cost. Thus, at California unit costs, the additional expense of hiring 11.83 more

Table 6.3
Current Costs of Oregon Prototype vs. California Elementary School,
1997–1998, Grades K–5: 634 Students

	Unit of Measure	Units		Cost per Unit, \$		Difference in Cost, \$
		Oregon	California	Oregon	California	
General education teachers	FTE	39.16	27.33	—	52,792	624,520
Special education teachers	FTE	2.80	1.13	—	52,792	88,163
Paraprofessionals	FTE	9.32	6.81	—	25,694	64,492
Clerical support	FTE	1.86	2.38	—	45,338	–23,576
Instructional support	FTE	0.93	0.65	—	64,091	17,945
Pupil support	FTE	0.00	0.18	—	66,250	–11,925
School leadership	FTE	1.86	1.32	—	90,069	48,637
Substitute and extracurricular pay ^a	Students	634	634	—	257	—
Supplies and other expenses	Students	634	634	666	526	88,760
Operations and maintenance	Students	634	634	350	547	–124,898
Student transportation	Students	634	634	241	159	51,988
District administration	Students	634	634	208	304	–60,864
Total difference in current cost						763,251
Difference per pupil						1,204

^aThe Oregon prototype does not include substitute pay.

general education teachers is \$624,467. This is the cost at California prices of achieving the Oregon standard in this resource category.

The calculations are different for the resource categories based on prorated expenditures. For those five categories, the fourth and fifth columns list expenditures per student for the Oregon prototype and the representative California school. For example, in the last row, district administration, cost per student in the Oregon prototype is \$208, compared to \$304 for the California school. That is, the Oregon prototype allocates \$96 per student less for district administration than the California school. Multiplied by 634 students, this difference

becomes \$60,864, the amount in the sixth column. That is, the Oregon prototype allocates about \$60,000 less for district administration than was spent in 1997–1998 by the typical California school.

For the prorated costs, there are differences in individual categories but little difference overall. The Oregon prototype allocates \$140 more per student for supplies and \$82 more per student for transportation. On the other hand, the California school spent \$197 more per student for maintenance and \$96 more per student for district administration. The fifth category, substitute and extracurricular pay, is not comparable between the two schools because the Oregon prototype does not include that expense. As a consequence, Table 6.3 does not include a cost difference for that category.

The sum of these cost differences equals about \$1,200 per pupil, or the amount by which current per pupil spending in California in 1996–1997 fell below spending in states such as Maryland, Michigan, Massachusetts, and Pennsylvania (NCES, 2000). This gap is much smaller than that between California and such states as Connecticut, New Jersey, and New York.

Reflections on Oregon's Model

Oregon's Quality Education Model is a considerable achievement. In actuality, it is more than a quality model, which sets forth the best bundle of resources for any given total budget. Oregon took the additional step of determining the optimal budget for its schools.

To take this step, Oregon's legislative council had to weigh the benefits of school spending against the cost to taxpayers, a judgment that is more appropriate for the legislature. The Oregon legislature sought to avoid this issue through its definition of the council's mission. It instructed the council to identify the elements of a school adequate to meet the state's education standards and then to determine the cost of those elements. As Heather Rose pointed out in Chapter 3, this approach poses a major difficulty. Without a better understanding of the link between school resources and student outcomes, it is difficult to know with any precision what resources are adequate to achieve any particular outcome. To pretend otherwise may be promising too much and thus undermining the model's ultimate credibility.

Given this state of affairs, it may be best to stop with a quality model. A quality model gives the legislature a menu of options. It tells the legislature what resources schools are likely to choose with any given budget. The menu can be supplemented with expert judgment on the likelihood of students achieving state standards with any given budget. If supplied with these options and this expert judgment, the legislature could make a more informed decision about the education budget.

First Steps for California

The cost and quality models outlined in this essay have a number of advantages. A cost model provides a common framework for analyzing a variety of school finance policies. It puts all school resources on the table at once, clarifying how policies aimed at one particular set of resources may also affect the need for other resources. It also lays the cornerstone for a quality model, which can give the legislature a clearer idea of how school funds are likely to be spent. This increased clarity can help the legislature as it weighs the benefit of increased school spending against its cost.

There are two immediate steps California might take toward developing cost and quality models. The first is to improve information about school costs. California has solid CBEDS data about personnel employed at the school level. It also has good information about teachers' salaries and benefits. However, it needs better information about the salaries and benefits of other personnel and about the five categories in Table 6.1 for which district-level expenditures were prorated to the school level. The most efficient way to collect this information is through case studies of a number of schools.

With this information in hand, California could take the second step of constructing a pilot quality model. This pilot project would involve a small number of principals brought together for a short period of time. The group would review California's goals for its schools and discuss how school resources should be used to address those goals. At the end of this discussion, each group member would be asked to specify how he or she would allocate resources to achieve those goals. The members would be presented with a number of scenarios, describing the school, its enrollment, the unit costs of its resources, and its total budget. They

would then be asked to list the units of each resource they would employ, given the total budget and unit costs. Each scenario would involve a different total budget, revealing how principals would prefer to spend additional funds. The responses from different group members would then be averaged to yield a pilot model, giving the state the opportunity to assess the feasibility of constructing a quality model on a larger scale.

Appendix: Definitions of Personnel Categories

Paraprofessionals. From The California Department of Education, “The Average Costs of a California School, 1997–98” (Average Cost), the average California school hired 7.2 aides at an expense of \$185,000. The cost per FTE is \$25,694. This cost includes salary and benefits.

Clerical Support. Average Cost aggregates the costs of clerical support together with the cost of principals in the category school leadership. According to Maria Fong of the California Department of Education, \$101,000 of these costs is for the salary of 2.8 clerical workers, yielding an annual salary of \$36,071 per FTE. Assuming the same benefits structure as that for teachers, total benefits would be \$9,267, for a total cost of \$45,338.

Instructional Support. From Average Cost, the average California school spent \$141,000 for the salary and benefits of 2.2 instructional support FTE. The cost per FTE is \$64,091.

Pupil Support. From Average Cost, the average California school spent \$106,000 on salaries and benefits of 1.6 pupil support FTE. The cost per FTE is \$66,250.

School Leadership. Districts report principals’ salaries on their School Accountability Report Cards, the results of which are summarized in California Department of Education *Fact Book 2000: Handbook of Educational Information*. For unified school districts with more than 20,000 students, the average salary of principals was \$75,942 in 1997–1998. Using the same benefit structure as for teachers, the total cost of a principal would be \$90,069.

School Facilities. The State Allocation Board in the California Department of General Services provided data on over 300 projects funded between July 1996 and July 2000. From these projects, I selected a subset that involved the construction of a new elementary school. Each

project in the subset had a complete array of core facilities: administrative office space, a library, a kitchen or cafeteria, and a multi-purpose room or gym. Using regression analysis, I then determined how the construction costs of the projects varied with the number of classrooms and used this analysis to allocate total cost to either core facilities or to variable facilities. The result is an estimated cost for core facilities of \$1,020,051 and a cost per classroom of \$252,326. The sites for these elementary schools averaged 10 acres, and the site cost averaged \$185,448 per acre. Adding average site cost to the construction cost of core facilities, the fixed cost per school is \$2,874,531, and the variable cost is \$252,326 per classroom. To express these capital costs in annual terms, I used the average interest rate for state and local bonds during 1997–1998, which was 5.25 percent. Thus, the annualized fixed cost of an elementary school is \$150,913 (5.25 percent x \$2,874,531), and the annualized variable cost is \$13,247 per classroom (5.25 percent x \$252,326).

7. Local Revenue Options for K–12 Education

by Susanna Loeb

Summary

In 33 out of 50 states, the property tax generates at least 95 percent of local tax revenues for schools. Even so, the property tax has many alternatives. Local sales and income taxes, user fees, and a host of other taxes provide additional funds to school districts in many states, and their experiences shed light on potential sources of local funding for California schools. This essay describes these alternatives, how they are structured and administered, and how they might be used in California.

The Local Income Tax

Four states—Iowa, Kentucky, Ohio, and Pennsylvania—currently allow school districts to levy a local income tax for school funding. A surcharge on the state income tax is relatively easy to administer and can be progressive. One drawback is that income tax proceeds are less stable than property tax revenues. State governments can shift revenues across school districts to avoid shortfalls, but some of these governments also depend on income tax revenues and are therefore vulnerable to the same fluctuations. California’s experience in the 1990s provides an example of this problem.

The Local Sales Tax

Local sales tax revenues are also used for schools in a number of states. However, only Louisiana and, to a limited extent, Georgia permit independent school districts to levy a sales tax. The local sales tax contributes most of the locally raised revenue in Louisiana; in Tennessee, it provides 28 percent of that revenue, almost as much as the property

tax. Sales taxes are easy to collect, and some voters seem to prefer them to other kinds of taxes. However, revenues from the sales tax are even less stable than those from the income tax. The sales tax tends to be regressive as well, although that regressivity can be mitigated by exempting food and drugs from the sales tax or by levying it only on luxury goods. Another problem with the sales tax is that it may affect consumer or retailer behavior. If two neighboring jurisdictions have different sales tax rates, for example, residents of both districts may choose to shop in the district with the lower rate. Retail businesses will then have incentives to locate in that district, even if all other aspects of the two jurisdictions are similar. A similar rate across local jurisdictions, as in Tennessee, alleviates but does not eliminate this problem, as consumers can make purchases online or in nearby states.

User Fees and Other Taxes

Many school districts collect user fees, of which food service and student activity fees are the most prevalent. Because public education benefits the community at large, however, user fees are not an ideal means for fully funding schools. At the same time, the nation's school districts may be able to collect more user fees than they currently do. One study maintains that up to 13 percent of all public school expenditures could be funded through user fees for meals, transportation, child care, extracurricular activities and clubs, driver education, adult education, and access to various capital goods. In 1984, the California courts ruled that schools may not charge user fees for activities that are closely linked to classes. For example, schools cannot charge a student to participate in a dramatic production that is associated with a drama course. Other user fees are unlikely to provide substantial supplementary revenues for California schools.

California allows school districts to levy a parcel tax, but only 48 out of 987 districts have chosen to do so. Parcel tax revenue contributes less than 0.2 percent of school revenue in the state.

The Options for California

Local revenue options could benefit many districts by addressing local needs and preferences and by linking finance and governance in

those communities. To implement many of these options in California, however, local jurisdictions would need additional taxing authority. In 1996, the California Constitution Revision Commission recommended two ways for localities to raise additional school revenues: a local property tax, which would require two-thirds voter approval, and a county sales tax of up to 0.5 percent, which would require a simple majority.

By law, district revenue disparities created by local revenue options may not reflect differences in district wealth. However, California may be able to balance district flexibility and equity by capping revenue supplementation and guaranteeing an effective tax base for these additional dollars. The ultimate effects of school finance reform in California will depend on the details of the specific measures: which taxes are authorized, how the revenues are equalized across districts, and what limits are placed on local supplementation.

Introduction

As in many states, the property tax in California is the major source of local tax revenue for schools. In 1978, however, the state's voters approved Proposition 13, which put a 1 percent ceiling on the property tax rate, limited the assessed value of property, and forbade state and local governments from imposing "special taxes" without a two-thirds local vote.¹ In approving that initiative, voters began a process that effectively shifted control over the property tax (and school revenues) from the local to the state level. Today, California's 987 local school districts have limited options for supplementing school revenues. Their primary options are the parcel tax and voluntary contributions, neither of which generates substantial funds for schools.²

There are reasons to favor state control of school finance decisions. Districts differ greatly in the costs of educating children and in their ability to fund schools. Low-income and low-wealth communities have fewer resources to draw on, and communities with expensive property,

¹See Sonstelie, Brunner, and Ardon (2000) for a recent history of California school finance reform.

²Parcel taxes assess each property owner the same amount regardless of the property's value.

alternative opportunities for teachers, high crime rates, and high poverty rates need to spend more than other communities to achieve the same quality of education. States can equalize funding across districts in ways that locally funded systems cannot.

Local flexibility in school finance also has its benefits. Residents of one district may put a relatively high value on public education, whereas others may prefer to spend more on parks, community centers, or private consumption. Residents of both kinds of districts are better off with local flexibility than with a fixed level of school spending. Moreover, school districts may have short-term situations that require extra funds, such as a high concentration of students with special needs. These districts would also benefit from local flexibility. Finally, local taxation creates a link between finance and governance that may increase accountability and facilitate community involvement in schools.

There are two potential problems with authorizing local revenue options for schools. First, they could erode support for state funding in high-wealth districts and thereby undermine state equalization goals. A cap on district supplementation would alleviate this problem.³ A related concern is that local supplementation efforts would reflect differences in district wealth rather than differences in preferences or needs; if so, these efforts would contravene the equity requirements established in California by *Serrano v. Priest*. The state could address this concern by guaranteeing an effective tax base for supplementary revenue. With these restrictions, local revenue options may benefit California's school finance system.

The experiences of other states can shed light on California's local revenue options and their prospects. This essay describes these options, which vary widely. It begins with a general overview of local funding and then examines local income and sales taxes, user fees, and other taxes. It draws information from a variety of sources, including academic papers, books, and compilations from The Nelson A. Rockefeller Institute of Government, the National Institute of Education Statistics, and the Advisory Commission on Intergovernmental Relations. It also

³See Loeb (forthcoming) for a more detailed discussion of capped supplementation.

relies on state web pages and conversations with officials in state departments of education.

Overview

School finance is largely a state and local responsibility.⁴ In 1997, state governments provided an average of \$3,210 per pupil, whereas local sources provided \$3,037 per pupil. About 86 percent of this local revenue came from taxes, of which almost 90 percent was raised through the property tax. In at least five states (Arizona, Connecticut, Delaware, New Hampshire, and Wisconsin), property taxes were the sole source of local district tax revenues.⁵ As Table 7.1 shows, only nine states received less than 85 percent of local tax revenues from sources other than the property tax. These states were Alabama (58 percent), Alaska (none), Kentucky (75 percent), Louisiana (40.5 percent), Maryland (52 percent), Nevada (43 percent), Pennsylvania (78 percent), Tennessee (54 percent) and Virginia (none). Only eight other states received less than 95 percent of local tax revenues from the property tax.

Not all school districts have taxing authority. Independent districts raise their own tax revenues, whereas dependent districts rely on county or city governments to generate school revenue. Table 7.1 divides tax revenues into those that are raised by the school district and those that are raised by other local jurisdictions and then used for schools. In Arizona, school districts levy all school taxes, and local governments in Connecticut levy all local taxes. In a number of states, such as New York, local funds for schools come from school districts as well as other local jurisdictions. Although California districts can levy parcel taxes, the state controls most operating expenditures through the allocation of property tax and other revenues.

⁴1997 National Public Education Financial Survey.

⁵American Education Finance Association and Center for the Study of the States (1995) reports that Arkansas, Idaho, Illinois, Michigan, Mississippi, New Jersey, Texas, Vermont, and Washington obtained 100 percent of local tax revenues from the property tax and Kansas and Massachusetts obtained slightly less than 100 percent from the property tax. These states derive almost all local tax revenues from the property tax. Hawaii has a single statewide school district.

Table 7.1
Taxes from National Public Education Financial Survey

State	% of Tax from Property Tax	% of Tax Raised by Independent School Districts	State	% of Tax from Property Tax	% of Tax Raised by Independent School Districts
Alaska	0.0	0.0	Nebraska	98.6	100.0
Virginia	0.0	0.0	Mississippi	98.9	99.4
Louisiana	40.5	100.0	California	99.0	100.0
Nevada	42.7	100.0	North Dakota	99.1	99.8
Maryland	52.0	0.0	Michigan	99.2	100.0
Tennessee	53.9	0.0	Idaho	99.4	100.0
Alabama	57.7	0.0	Vermont	99.6	100.0
Kentucky	74.9	99.0	Oklahoma	99.6	99.6
Pennsylvania	78.3	100.0	Oregon	99.6	99.7
Missouri	85.7	100.0	West Virginia	99.7	99.7
Indiana	88.1	100.0	Washington	99.8	98.8
South Carolina	88.5	64.8	New Jersey	100.0	100.0
Utah	88.9	100.0	Arizona	100.0	100.0
Colorado	89.5	100.0	Connecticut	100.0	0.0
Montana	89.7	100.0	Delaware	100.0	100.0
Illinois	94.0	94.0	Florida	100.0	100.0
North Carolina	94.5	0.0	Hawaii	100.0	0.0
South Dakota	96.0	96.0	Kansas	100.0	100.0
Arkansas	96.3	100.0	Maine	100.0	100.0
Iowa	97.3	100.0	Massachusetts	100.0	0.0
Georgia	97.8	97.9	Minnesota	100.0	100.0
Ohio	97.8	100.0	New Hampshire	100.0	80.1
Wyoming	97.9	100.0	New Mexico	100.0	100.0
New York	98.5	68.7	Rhode Island	100.0	0.0
Texas	98.5	99.9	Wisconsin	100.0	99.4

States with Local Income Taxes

Many states allow local jurisdictions to levy local income taxes. These states are listed in Table 7.5 at the end of this essay. However, only four—Iowa, Kentucky, Ohio, and Pennsylvania—currently allow school districts to levy a local income tax. School districts in Maryland draw a substantial share of local revenues from income taxes at the

county and (in the case of Baltimore) city level.⁶ The details of these taxes are presented below.⁷

Iowa

The property tax is Iowa's primary source of local revenue for school districts. In 1993–1994, a uniform levy of \$0.54 per \$100 of assessed valuation was required of all districts. The amount raised from the uniform levy is subtracted from the state-supported foundation level. Districts then use additional property tax revenue to supplement this state foundation level up to the “district cost per pupil,” which is determined by historical per pupil spending in the district plus a per pupil growth amount.

A district may increase its spending authority by up to 10 percent of its regular program guaranteed budget. In 1993–1994, 203 out of 397 districts used this optional funding. Districts participate in the program through either a board action or referendum. The board may approve the implementation without voter approval for up to five years. Revenues for this second tier of funding come from increased property taxes or from a local income tax. In 1993–1994, school districts raised \$979 million through the property tax, \$17 million through the income tax, and \$32 million through nontax revenue sources.

The local income tax is a surtax on the state income tax and thus applies to all personal income.⁸ Surtaxes may be used with other sources for funding five areas:

- Instructional support programs,
- Physical plant and equipment levies,

⁶In Indiana, a county-adjusted gross income tax or a county option income tax is available to replace property tax receipts or reimburse for receipts lost as a result of homestead exemptions to the property tax. Neither provides significant additional money to schools.

⁷Unless otherwise noted, information on state finance systems comes from the American Education Finance Association and Center for the Study of the States (1995).

⁸A surtax on the state income tax is computed as a percentage of an individual's state tax liability.

- Asbestos removal,
- Educational improvement levy, and
- Enrichment levies.

In the first four areas, the local board determines the mix of income surtaxes and property taxes. The total income surtax rate for all levies cannot exceed 20 percent.⁹ Income surtaxes are collected by the Iowa Department of Revenue and Finance and are held in a special account.

Kentucky

Kentucky's finance system derives from the Kentucky Education Reform Act of 1990. Each district is required to contribute a minimum local tax effort based on assessed property valuation in the district (\$0.30 for every \$100 of assessed property valuation). This is an equivalent tax rate, and school districts can raise the required revenue through any combination of the property tax (real estate and tangible), motor vehicle tax, occupational tax, utility tax, and the excise tax on individual income. There is a two-tiered supplementation system above this base. First, districts are allowed to generate additional revenue up to 15 percent of the adjusted base guarantee. This tax is levied by the local school board, is not subject to a recall by voters, and is equalized in those school districts with per pupil property assessments of less than 150 percent of the statewide average. School districts may choose to generate the entire 15 percent or any portion thereof. As of 1993–1994, all but one of the state's 176 school districts participated. School districts can generate additional revenues up to 30 percent of the adjusted base plus the tier 1 funds. These funds are not equalized by the state and are subject to recall by the voters.

Two of Kentucky's local taxes are income-based. The occupational license tax applies to the salaries or wages of those who work in the county and on the net profits of all businesses, professions, or occupations in the county. Exemptions are provided for public service

⁹The enrichment levy has been sunset, and only three districts were using the levy as of 1993–1994. The income surtax rate for the enrichment levy was determined in relation to the taxable valuation of the district. The proportionate mix was a property tax of \$0.27 per \$1,000 taxable valuation for each 5 percent of income surtax.

companies that pay an ad valorem tax, insurance companies, banks, trust companies, savings and loan associations, and income received by members of the Kentucky National Guard for training. The occupational tax rate cannot exceed 0.5 percent and must be a single uniform rate. Any county with 300,000 or more residents can levy a rate up to 0.75 percent. Only eight out of the 176 school districts levy an occupational tax (six at 0.5 percent and two at 0.75 percent). Although it has been available since 1966, no district chose this tax before 1994.¹⁰

The second type of local income tax in Kentucky is the excise tax on residents. As in Iowa, school districts in Kentucky may levy this tax up to 20 percent of state income tax liability. Districts may hire someone to collect the excise tax or can request that the Revenue Cabinet act as a tax collector. If the Revenue Cabinet is requested to be the tax collector, the school district must reimburse the cabinet for the actual cost of collection. No school district in Kentucky has ever levied an excise tax.

Ohio

Ohio has 611 school districts that are essentially fiscally independent, although county budget commissions review proposed school district budgets, establish estimated revenues and expenditures, and set property tax millage. The state mandates the equivalent of a 20-mill property tax levy, which, as in Kentucky, can be raised either through property or income taxes. In 1993–1994, property taxes generated \$4.57 billion, income taxes generated \$75 million, and local nontax sources generated almost \$1.56 billion.

In 1981, the Ohio General Assembly granted school districts the authority to levy an income tax. Certain provisions of the law were repealed in 1983 to prevent additional districts from exercising that authority; however, districts that enacted the tax before August 3, 1983, could continue to levy it. Before the repeal went into effect, voters had approved the tax in six school districts. In 1986, one of these districts chose to remove the tax because of concern from business and municipal governments. Businesses argued that withholding the school district

¹⁰This information is drawn from the Kentucky Department of Education web page and discussions with department employees.

income tax was burdensome because it required keeping track of the school district in which each employee resided. From the municipality's standpoint, the tax competed with its major funding source.¹¹

Although businesses and municipalities did not like the school district income tax, farmers liked it because they often bear a large share of the property tax burden in rural districts. Also, income taxes (unlike property taxes) fall with farm profits. In 1989, the legislature reauthorized the use of the local income tax for school districts, and as of December 1999, 123 school districts had levied it. Rates range from 0.5 to 2 percent, with most being at or below 1 percent. The levies occur primarily in districts in the west-central part of the state, a pattern that reinforces the notion that farming communities prefer the income tax.

The school district income tax in Ohio, unlike that levied by municipalities, is levied on residents only. The tax is based on adjusted gross income as reported for state income tax purposes, less a \$650 personal exemption. It is collected in the same way as the state income tax: through employer withholding, individual quarterly estimated payments, and annual returns. The state retains 1.5 percent of collections to cover administrative expenses.

Pennsylvania

Revenues from local sources provided 57 percent of the funding for Pennsylvania's public schools in the 1997–1998 fiscal year. The real estate tax (including the public utility realty tax) was the primary local source of funding for public schools, with almost \$6 billion collected in that year. This amount represented 80 percent of the total local taxes collected and 43 percent of the total general fund revenue.

The Local Tax Enabling Act of 1965, known as Act 511, allowed public school districts (except those in Pittsburgh and Philadelphia) to levy certain local taxes.¹² Currently, only one district does not levy any

¹¹For details, see www.state.oh.us/tax/stats/SDITQA.PDF.

¹²The Philadelphia City School District levies similar taxes as a result of Public Law 45 of 1932, known as the Sterling Act, and Pittsburgh School District has had similar special taxing power since 1947. Special taxes for Philadelphia and Pittsburgh accounted for 2.4 percent of local tax revenues, and Act 511 taxes accounted for 12 percent of tax revenues in 1997–1998.

of these. Act 511 taxes include an earned income tax, a per capita tax, a real estate transfer tax, an occupation tax, an amusement tax, business privilege flat and millage taxes, mechanical devices flat and percentage taxes, mercantile taxes, and other flat rate and proportional taxes. The earned income tax raised \$574 million in 1997–1998, accounting for 63.5 percent of Act 511 taxes. This percentage has remained fairly constant for at least a decade.

Pennsylvania has 501 school districts, of which 451 chose to levy an earned income tax in 1993–1994. This tax is levied on the wages, salaries, commissions, net profits, or other compensation of persons subject to the jurisdiction of the taxing body. The tax is limited to 1 percent. Where both school district and municipality levy the tax, the 1 percent limit must be shared 50-50 unless otherwise agreed to by the taxing bodies. There is no limit on the earned income tax rate for the Philadelphia School District. The limit for the Pittsburgh School District is 2 percent. The Pennsylvania Department of Community Affairs prepares a “Register of Earned Income Taxes” that lists the school districts and municipalities levying the tax, the stated rate for the tax, taxes levied by coterminous jurisdictions, the effective tax rate, and the name and address of the tax officer responsible for collecting the earned income tax. Employers within the taxing jurisdiction are required to register with that officer. They must also deduct the earned income tax from their employees whenever an ordinance or resolution of a taxing jurisdiction is listed in the register.

Maryland

Maryland’s 24 school districts are fiscally dependent. Twenty-three are dependent on county governments, and Baltimore’s school district is fiscally dependent on its city government. Counties need not designate whether local income tax revenues are used for school or other purposes. Statewide, schools receive slightly less than 50 percent of all local appropriations, with most counties using more than 40 percent of local funds for schools. Baltimore schools received less than 25 percent of locally raised revenues in 1993–1994.

Local tax revenues for schools come primarily from property and income taxes. The local income tax is a surtax on the state income tax

first permitted in 1958. In 1993–1994, property taxes contributed 47 percent of locally raised revenues; the income tax, 26 percent; other taxes, 10 percent; and service charges, 17 percent. Jurisdictions can levy an income tax surtax of 20 to 60 percent on the amount of the Maryland state income tax liability. The money is collected by the state on the state income tax returns. In 1993–1994, four counties levied the maximum of 60 percent, one levied 55 percent, and one levied 30 percent. The remaining counties chose a rate of 50 percent.

Table 7.2 summarizes the use of the local income tax to fund public schools in other states.

Table 7.2
Summary of Local Income Taxes

State	Level	% of Revenues (approx.)	Additional Comments
Iowa	District	<1	Surtax on state income tax
Kentucky	District	<1	Surtax and occupational license tax
Maryland	County or city	17.8	Surtax. Cannot distinguish school district revenues from general local revenues
Ohio	District	<1	Surtax on state income tax
Pennsylvania	District	4	Earned income tax on individuals who work in the district

The Local Income Tax Considered

The local income tax is not widely used to fund schools in the United States. Even in the five states that use this tax, the property tax is the primary source of locally raised revenues. In 1993–1994, Ohio raised \$75 million and Iowa raised \$17 million through local income taxes; in both cases, this revenue represented less than 1 percent of total school revenues. In 1997–1998, the local earned income tax in Pennsylvania raised \$574 million, or approximately 4 percent of general fund revenues. Maryland counties and cities raise more than 17 percent of local revenues with the income tax. (Maryland does not distinguish school revenue from other local revenues.)

In Iowa, Ohio, and Maryland, the tax is a surcharge on state income tax. The taxes therefore cover all income, not just earned income. In contrast, the occupation license tax in Kentucky and the income tax in Pennsylvania are levied only on wages and salaries. Surcharge taxes are likely to be more progressive than earnings taxes for two reasons. First, they are based on state income tax schedules that are usually graduated. Second, higher-income taxpayers on average have a greater proportion of unearned income, which is not taxed under the Pennsylvania tax or the Kentucky occupation license tax.

Local income taxes are levied on different tax bases. Surcharge taxes apply to residents, whereas earned income taxes apply to businesses and workers in the district. These taxes also differ in their means of collection. Income taxes are difficult to collect because of evasion and the sheer number of taxpayers (Monk and Brent, 1997). However, the administrative cost is minimized if local income tax collection can “piggyback” on state tax collection. This piggybacking is easier with income surtaxes than with earned income taxes, which require compliance from local employers.

Because the revenue stream from the income tax rises and falls with the business cycle, it is not as stable a source of revenue as the property tax. This instability is a drawback for schools. State governments can provide insurance against this fluctuation to the extent that they can shift revenues across districts to avoid shortfalls. However, many state governments also depend on income tax revenues and are therefore vulnerable to economic downturns as well. California’s experience in the 1990s provides an example of this. At the same time, the revenue stream from the income tax may be more stable than that from sales taxes, especially those that exempt staples such as food.

Finally, it is worth noting public opinion of the local income tax. In Ohio, farmers favor the income tax. The lack of income taxes in Kentucky, even though school districts are authorized to use them, suggests that they may not be as popular as the property tax in many districts. At the state level, too, there is evidence that voters prefer the sales tax to the income tax. For example, Michigan voters approved Proposal A in 1994, thereby increasing the sales tax instead of the income tax for school funding.

A Local Income Tax in California

A local income tax could take a variety of forms in California. Kirst (1994), for example, proposed an optional local surcharge on state income taxes. This surcharge would be equalized so that the same tax effort would raise the same supplemental funds per pupil in each district. The proposal would require support from a majority of school district voters.

In the aftermath of Proposition 13, only a constitutional amendment can allow local districts to levy property taxes that would exceed the limit of 1 percent. However, a local income or sales tax requires no such constitutional change. Because California already has a state income tax, a local surcharge would be relatively easy to administer. State equalization of local revenue-raising capacity would enhance equity. A potential disadvantage of such an equalization program is that the state would need to predict and supply the funds needed for this equalization.

Local Sales Taxes

More than 30 states allow local jurisdictions to levy local sales taxes. (The states are listed in Table 7.6 at the end of this essay.) In a number of these states, including Alabama, Alaska, Nevada, New York, North Carolina, Tennessee, and Virginia, local sales tax revenues are used for schools.¹³ In Tennessee, this tax raises almost 15 percent of local revenues. However, independent school districts have this taxing authority only in Louisiana and, to a limited extent, Georgia. The tax structures in each of these states are summarized below.

Louisiana

Louisiana has 64 parish school systems and two city school systems (Monroe and Bogalusa). All are independent and have the authority to tax and incur debt. School boards are constitutionally given the

¹³In Florida, the 67 fiscally independent school districts levy only property taxes. However, a few school districts also receive local county sales tax revenue, which accounts for a very small proportion of locally raised revenues. In Montana, schools obtain revenue from a local sales tax on public power districts.

authority to levy a 5-mill tax, except for Orleans, which is given a 13-mill authority. This tax does not require a vote of local taxpayers.

Any school district authorized by a majority of voters can levy a proportional property tax for a specific purpose. The legislature has set a maximum millage of 70 mills, not applying to millages for debt service. All residential property is assessed at 10 percent of fair market value. For the 1998–1999 year, the constitutional millage ranged from 2.91 to 6.44, except for Caddo at 9.41 and Orleans at 27.65. The equivalent millage ranged from zero to 56.73 mills. In total, ad valorem nondebt taxes raised almost \$478 million and ad valorem debt taxes raised almost \$141 million (Louisiana Department of Education, 2000).

Louisiana alone uses the sales tax as its primary source of local tax revenue. The state sales tax rate is 4 percent, and other jurisdictions add their sales and use taxes to this figure. These other sales taxes are administered and collected locally and separately from the taxes collected by the department of revenue. All local government entities have a combined limit of 3 percent local sales tax unless the legislature approves an exemption. Sixty-five of the 66 school districts levy a local sales tax. In 1998–1999, 31 of the 66 school districts imposed a 2 percent sales tax, 12 imposed a 1.5 percent tax, 13 imposed a 1 percent tax and only two imposed the maximum of 3 percent. The average sales tax was 1.71 percent, yielding a total of \$913 million in revenue.

Georgia

Georgia has 159 fiscally independent county districts and 21 fiscally dependent city districts. Districts are required to generate revenues equivalent to a 5-mill property tax on assessed property equalized at 40 percent of true market value. Although this revenue need not be raised through the property tax, the vast majority of local revenue is derived from that source. Each district levies more than the required 5 mills and raises more revenues than is required by the state.

Before 1997, the property tax was also the primary source of local revenue available to renovate, modify, and construct educational facilities. Local boards of education could either use maintenance and operation tax revenues to fund capital improvements or, with voter approval, issue general obligation bonds to be repaid from property tax

revenues. In 1996, voters approved a constitutional amendment to allow school boards to call for a referendum on a local option sales tax of 1 percent on all purchases, to be administered at the county level. The revenues are limited to five years and can be used for specific capital improvements, to retire bond debt for previous capital projects, or to issue new bonds for specific capital projects. As of March 1999, 125 counties had sales tax votes, with 20 of the 21 independent city school systems included in those votes. The referenda failed in only 12 counties. Of these, six had second sales tax votes and five of those were successful.

Alabama

Because Alabama's 127 local education agencies have no taxing authority, they are dependent on cities and counties for local revenue. The state funding formula requires the equivalent of 10 mills raised locally. The ad valorem property tax traditionally has provided the most local funds, about \$293 million in fiscal year 1993–1994. The sales tax was second with \$181 million. In this same year, city and county commission appropriations accounted for \$39 million, alcohol and tobacco taxes for \$14 million, other sources for \$99 million, and payments on behalf of local schools, \$35 million.

The state sales and use tax rates are 1.5 percent for manufacturing machinery and farm machinery, 2 percent for automotive vehicles, 3 percent for food and food products sold through vending machines, and 4 percent for all other tangible personal property. The general local sales tax rate ranges up to 4 percent. Some local lodging taxes reach 8 percent. Certain organizations and drugs as well as food stamp purchases are exempt from the sales tax. The state administers approximately 300 local sales and use taxes, but some additional local sales and use taxes are administered locally.

Nevada

Nevada has 17 fiscally independent schools districts that are coterminous with its counties. In 1979, the legislature approved a property tax relief package that reduced the total levy for school districts from \$1.50 (\$0.70 mandatory and \$0.80 optional) to \$0.50 per \$100 of

assessed valuation. Two years later, the legislature increased the local school support tax from 1 percent to 1.5 percent of taxable sales. To make up for the revenue shortfall caused by lower-than-predicted sales tax revenues, the 1983 legislature increased the mandatory property tax rate to \$0.75 per \$100 of assessed valuation. In 1991, the legislature raised the mandatory local school support tax from 1.5 percent to 2.25 percent. Thus, the 2.25 percent sales tax and the \$0.75 property tax are mandatory local taxes. Districts can raise additional revenue by levying an optional \$0.50 per \$100 assessed value tax on real property, a motor vehicle privilege tax, or both. Nevada school districts cannot use the sales tax to raise additional funds.

New York

New York has almost 700 school districts. Except for those in the state's five largest cities, all are fiscally independent. The property tax accounts for 98.5 percent of local school tax revenues. The state's sales tax laws reserve 4 percent for the state and permit counties to levy an additional 3 percent (or, by specific authorization in about 20 counties, 4 percent). Some areas collect an additional 0.25 percent for dedicated purposes. Although eight counties allocate local sales tax revenues to school districts, these allocations account for a minor portion of district revenues.

North Carolina

North Carolina has 117 school districts, one per county plus 17 city districts. Of these, 115 are dependent. Two city districts may levy a local property tax without approval from the county or city government. The primary source of local revenue is the property tax, whose rates vary substantially across localities. The average tax rate in 1998–1999 was 71.1 cents per \$100 of assessed value in rural areas and \$1.17 per \$100 assessed value in other areas.

Currently, all counties may levy a sales and use tax of up to 2 percent on food purchased for home consumption (which is exempt from the state sales tax) and on transactions subject to the state's general rate of 4 percent. Most services are exempt, but the sales tax is added to the rental of hotel and motel rooms, dry cleaning and laundry services, and

telecommunications services. The state administers the sales tax and distributes its proceeds to the counties.

Local sales tax revenues can be used for school or other expenditures. All counties now levy the maximum 2 percent rate. Mecklenburg County levies an additional sales and use tax of 0.5 percent specifically for public transportation. In 1998–1999, local governments raised \$46 million for capital expenditures and \$5 million for current expenditures with the sales tax and an additional \$8 million for capital expenditures with restricted sales taxes. Compared to the property tax, however, this contribution is small. Local property tax revenues from the county contributed \$1.3 billion toward current expenditures and \$146 million toward capital expenditures.

Tennessee

Tennessee has 139 fiscally dependent school districts. Statewide in 1993–1994, \$515 million (28 percent) of local revenue for education came from local option sales taxes and \$647 (36.5 percent) came from property taxes. The maximum local option sales tax rate is 2.75 percent, which is added to the state rate of 6 percent. At least half of this additional revenue must go to education. Revenue collected at the county level for educational purposes must be distributed on the basis of weighted full-time equivalent average daily attendance to each school district within the county. City and special school districts may elect to raise taxes in their districts without sharing the proceeds with other districts in the county.

Table 7.3 summarizes the use of the sales tax to fund public schools in other states.

The Local Sales Taxes Considered

Like the local income tax, local sales taxes can provide substantial funds to schools. In Louisiana, they contribute most of the locally raised revenue, and in Tennessee, they provide 28 percent of it, almost as much as the property tax. In addition, sales tax revenues are not difficult to collect (Rosen, 1999), especially when they piggyback on a state sales tax. However, when considering the use of a local sales tax, three questions are paramount. First, who bears the burden of the tax? Second, how

Table 7.3
Summary of Local Sales Taxes

State	Level	% of Revenues (approx.)	Additional comments
Alabama	County and city	6.9	
Alaska	General municipal entity	4	
Georgia	County	<1	
Louisiana	District	18.9	Districts are coterminous with counties
Nevada	District/counties	<1	Tax is mandatory, districts have no discretion
New York	County	<1	Only 8 counties distribute a portion of sales tax revenues to schools
North Carolina	County	7.3	Cannot distinguish school district revenues from general local revenues
Tennessee	County	14.6	
Virginia	County	3	Cannot distinguish school district revenues from general local revenues

does the tax affect consumer behavior? And third, how stable is the revenue stream?

General sales taxes can be regressive; compared to their high-income counterparts, low-income taxpayers often pay a higher proportion of their income in sales tax. This is because wealthier taxpayers save a greater proportion of their incomes and spend proportionately more on housing, on services, and in other areas not covered by the sales tax (Monk, 1995). However, many states mitigate the regressive nature of the sales tax by exempting food and drugs.¹⁴ Sales taxes on luxury goods can be quite progressive.

Most taxes distort consumer or taxpayer behavior to some extent. In the case of the local sales tax, this distortion may be significant. If two neighboring jurisdictions have different sales tax rates, residents of both districts may choose to shop in the district with the lower rate. Retail

¹⁴Of the 45 states with retail sales taxes, 28 exempt groceries and ten exempt prescription drugs (Bruce, 1998).

businesses will then have incentives to locate in the low-tax district, even if all other aspects of the two jurisdictions are similar. Evidence of this type of sorting is clear across states with differing tax rates. Residents of the New York City area shop in New Jersey. Those living near the border of Tennessee shop in neighboring states with a lower sales tax rate. Large differences in sales tax rate across local jurisdictions are likely to have a similar and perhaps more pronounced effect. A similar rate across local jurisdictions, as in Tennessee, alleviates this problem.

Finally, sales tax revenues are sensitive to economic fluctuations and are therefore more difficult to predict than property tax revenues. In East Baton Rouge Parish, for example, sales tax collections fell by a third in 2000 after several years of 6 to 7 percent increases. Even if sales tax collections gained 1 percent a year, the school system would be \$6 million short of projections at the end of the fifth year. As noted above, in Nevada revenue shortfalls from the sales tax resulted in increases in local property taxes in the early 1980s.

Another source of instability is the increasing use of the Internet for shopping. According to the Department of Commerce, the nation lost an estimated \$742 million in sales tax revenue in 1998 as a result of Internet sales.¹⁵

A Local Sales Tax in California

In 1996, the California Constitution Revision Commission recommended two ways for localities to raise additional school revenues: a local property tax, which would require two-thirds voter approval, and a county sales tax of up to 0.5 percent, which would require a simple majority. The commission did not recommend a district-level sales tax. With 987 school districts in California, such a local sales tax would be impractical. Differing tax rates within such small areas would be confusing and might lead to substantial market distortions. A county-level sales tax is more practical but does not create as direct a link between finance and governance as a more localized school tax. In addition, there is generally a tradeoff between equity and stability with a

¹⁵See Newman (1995) for discussion.

sales tax. Exemptions for food and drugs make the sales tax more progressive but less stable.

Other Local Taxes and User Fees

Other Taxes

A multitude of additional local taxes provides revenues to school districts. These include parcel taxes, utility gross receipt license taxes, severance taxes, death and gift taxes, amusement taxes, business privilege taxes, mechanical device taxes, and mercantile taxes. Of these, California's school districts may levy only the parcel tax (see Chapter 9). In 1998–1999, 48 of California's 987 districts levied a parcel tax, yielding less than 10 percent of school revenues in those districts and 0.2 percent of all school revenue in the state.

User Fees and Other Nontax Revenue

Most locally raised revenues come from taxes, although the reliance on user or service fees and other nontax revenues has increased over time. In 1950, 11.4 percent of the revenue of all local jurisdictions came from nontax sources. By 1990, this proportion had climbed to approximately 23 percent. School districts are less dependent on user fees than other local jurisdictions. In 1991–1992, school districts collected through fees only approximately 4 percent, or \$5.8 billion, of the \$137 billion collected locally (Wassmer and Fisher, forthcoming).

Using 1997 National Public Education Financial Survey data, Figure 7.1 illustrates the relative proportion of nontax revenue streams from tuition, transportation fees, earnings on investments, food service fees, student activity fees, textbook revenues, and summer school fees. Food service fees (37.6 percent), student activity fees (19.8 percent), and earnings on investments (36.4 percent) are the largest contributors. Table 7.4 reports these proportions by state. The percentage of locally raised school revenues coming from nontax sources ranges from 2.6 percent in Maine to 34.7 percent in Alabama (excluding Hawaii at 99.23 percent). North Carolina obtains more than 10 percent of locally raised revenues from food service fees; Oklahoma receives more than 11 percent

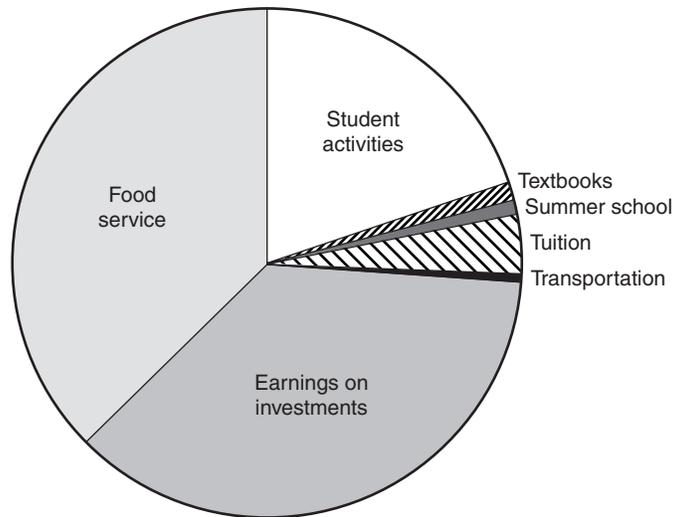


Figure 7.1—Local Nontax Revenues

from student activity fees; and New Mexico receives more than 11 percent from earnings on investments.

Four states (Illinois, Indiana, Iowa, and Kansas) raise substantially more than other states through textbook revenues. North Carolina receives no revenue from student activities, but 17 other states obtain more than \$100 per pupil. In some cases, nontax revenues are relatively substantial supplements to other revenue streams. Nebraska collects over \$200 per student in student activity fees, and Indiana collects \$150 per student in lunch service fees and \$52 per student in textbook charges. Earnings on investments provided \$223 per pupil in Illinois and \$186 per pupil in Nevada.

In 1989–1990, only half of the variation in fee uses could be attributed to differences across states; the other half was due to differences among districts in the same state. In Michigan, for example, the percentage of own-source funding from fees averaged 3.3 percent but ranged from zero to 19.3 percent across districts (Wassmer and Fisher, forthcoming).

Table 7.4
Local Revenue per Pupil from Various Sources, Selected States, 1997

State	Taxes	Tuition	Transportation Fees	Earnings on Investments	Food Service	Student Activities	Textbook Revenues	Summer Schools	Other Revenues
Arizona	1893.48	0.56	0.06	83.43	87.88	38.70	0.00	0.15	198.71
California	1573.34	0.00	1.29	104.94	64.80	0.00	0.00	0.00	186.64
Florida	2267.90	0.30	0.78	111.15	96.72	138.23	0.60	0.00	92.02
Illinois	3935.11	5.80	3.88	223.24	89.14	22.13	26.75	9.24	131.92
Michigan	1745.30	23.78	2.10	165.63	98.08	32.30	0.00	3.63	144.37
New Jersey	5475.83	28.84	0.58	72.72	144.40	39.60	0.77	0.40	59.56
New York	4736.72	8.84	0.00	85.66	74.43	2.60	0.06	1.24	206.93
North Carolina	1187.60	2.36	0.00	22.50	149.38	0.00	0.00	2.27	112.04
Ohio	3130.92	25.09	2.10	107.12	130.27	102.08	7.60	7.27	108.29
Oregon	2002.11	3.81	0.25	159.45	87.01	149.64	0.17	0.88	165.52
Pennsylvania	4027.12	15.82	0.14	117.85	127.63	3.48	0.00	1.75	124.77
Texas	2616.37	14.68	0.00	138.99	102.63	30.23	0.00	0.00	111.47
Washington	1423.76	27.17	2.49	104.10	80.83	91.72	5.53	2.81	105.89

SOURCE: National Public Education Financial Survey Data.

User Fees Considered

Insofar as public education benefits the public at large as well as individual students, user fees are not an adequate means for fully funding schools. At the same time, school districts may be able to collect more user fees than they currently do. Wassmer and Fisher (forthcoming) argue that up to 13 percent of all public school expenditures could be funded through user fees for meals, transportation, child care, extracurricular activities and clubs, drivers education, adult education, and access to various capital goods.

User Fees in California

Although California's school districts may lease or sell property and receive voluntary contributions, user fees were ruled unconstitutional in *Hartzell v. Connell* in 1984. Specifically, the ruling does not permit user fees that are closely linked to classes. For example, schools cannot charge a student to participate in a dramatic production that is associated with a drama course.¹⁶ Other user fees may be constitutional, but these nontax sources are unlikely to provide substantial supplementary revenues for California schools.

Conclusion

Although the state government in California plays an important role in equalizing resources across districts, local revenue options could benefit many districts by addressing local needs and preferences. By capping this sort of revenue supplementation and guaranteeing an effective tax base for these additional dollars, California may be able to strike a balance between state and local control over revenue decisions.

The property tax is the primary source of local revenues for public schools in the United States. However, California's local jurisdictions do not have the constitutional authority to levy property taxes to supplement school revenues. Are there alternatives? Clearly there are. Many school districts in Ohio and Maryland rely heavily on the income tax. Districts in Louisiana and Tennessee rely heavily on the sales tax.

¹⁶See Henke (1986) for more details.

Finally, many states use other taxes and user fees to supplement school revenues.

When assessing local revenue options, several factors must be considered, including constitutionality, ease of collection and administration, equity, stability, public opinion, and the extent to which they cause behavioral changes. Income taxes, sales taxes, and user fees all have advantages and disadvantages. The sales tax can provide substantial revenue, and it tends to be more popular with voters than either the income tax or the property tax. However, it has other disadvantages. First, it is likely to cause unwanted consumer responses; for example, residents of high-tax districts are likely to shop in other districts or on the Internet, and retail businesses may move to low-tax areas. These responses are particularly problematic with a district-level sales tax. A county-level sales tax may mitigate this difficulty, but it often breaks the link between school finance and governance. Second, sales tax revenues are not as stable as income or property tax revenues. Finally, the sales tax is usually regressive, although exemptions for food and certain drugs reduce the regressivity of this tax. These exemptions also reduce the stability of its revenue stream, however, as purchases of nonexempt goods tend to fluctuate with the economy more than purchases of exempt goods. A sales tax that includes services would also be less regressive.

The income tax is a feasible alternative to the property tax. A surcharge on the state income tax is relatively easy to administer and can incorporate graduated state tax rates. It is also more stable than the sales tax and less likely to distort behavior. However, the income tax is not necessarily preferable to the property tax, which is even less vulnerable to economic downturns. The property tax is especially appealing in urban areas insofar as it permits cities with rich commercial and industrial tax bases but low-income residents to fund local schools. Although limitations on the property tax in many states seem to signal its relative unpopularity, they also may reflect feelings of powerlessness regarding the other taxes (Rosen, 1999). The reliance on the property tax in Kentucky, where districts have the authority to levy income taxes, is consistent with this hypothesis.

Local revenue options may benefit California's schools by linking governance to finance and allowing districts to meet local needs and

preferences. At the same time, such local control is likely to affect equity. This effect may be beneficial. High-cost districts may increase their revenues more than low-cost districts, creating a more equitable distribution of resources across districts. However, the alternative is possible as well. Revenue increases may simply reflect the ability of residents to pay for schooling, thereby increasing the current disparities in school resources across districts. If so, the school finance system is unlikely to comply with the *Serrano* requirements. The ultimate effect of school finance reform in California will depend on the details of the reforms themselves: which taxes are authorized, how the revenues are equalized across districts, and what caps are placed on local supplementation.

Table 7.5
Local Income Taxes: Number and Type of Jurisdiction, Selected Years, 1976–1994

State	Jurisdiction	1976	1979	1981	1984	1985	1986	1987	1988	1989	1990	1991	1992	1994
Alabama	Cities	6	5	5	8	10	10	10	10	11	11	11	11	18
Arkansas	No cities chose to levy income taxes													
Delaware—														
Wilmington	Cities	1	1	1	1	1	1	1	1	1	1	1	1	1
Georgia	No cities chose to levy income taxes													
Counties		38	37	38	43	44	45	51	68	79	79	76	80	80
School districts		3	21	26	57	57	61	57	60	52	59	144	179	379
Iowa	Cities	59	59	59	61	67	78	85	81	84	83	87	86	94
Kentucky	Counties	n/a	8	8	9	11	14	25	27	26	27	27	29	39
	School districts													7
Maryland	Counties	24	24	24	24	24	24	24	24	24	24	24	24	24
Michigan	Cities	16	16	16	16	16	17	17	18	19	19	20	20	20
Missouri—Kansas														
City and St. Louis	Cities	2	2	2	2	2	2	2	2	2	2	2	2	2
New York—New														
York City and														
Yonkers	Cities	1	1	1	2	2	2	2	2	2	2	2	2	2
Ohio	Cities	385	417	n.a.	460	467	480	482	481	492	506	512	512	523
	School districts	0	0	n.a.	6	6	6	6	5	5	22	52	76	92
Pennsylvania	Cities, boroughs	2,553	2,585	n.a.	2,644	2,758	2,777	2,782	2,788	2,795	2,809	2,824	2,830	2,830
	Towns, townships, school districts ^a													
Virginia	No cities or counties chose to levy income taxes													

SOURCE: Advisory Commission on Intergovernmental Relations staff compilations, Table 20.

NOTES: Employer payroll taxes are levied in California, New Jersey, and Oregon. n/a, not authorized; n.a., not available.

^aEstimates.

Table 7.6
Local Sales Taxes: Number and Type of Jurisdiction, Selected Years, 1976–1994

State	1979	1981	1984	1986	1987	1988	1989	1990	1991	1993	1994
Alabama	270	281	310	323	326	334	343	344	345	355	359
Municipalities											
Counties	31	40	43	51	56	55	55	59	60	60	62
Alaska	86	85	92	91	87	95	95	95	95	95	93
Boroughs	7	7	7	6	6	6	6	6	6	6	5
Municipalities	39	59	70	74	75	79	81	82	81	83	86
Counties	n/a	n/a	n/a	1	2	2	2	3	11	12	14
Arkansas	1	2	44	59	76	100	120	131	136	181	192
Municipalities											
Counties	n/a	n/a	16	19	35	42	55	54	56	63	69
California	380	380	380	380	380	380	380	380	380	380	380
Municipalities	58	58	58	58	58	58	58	58	58	58	58
Special districts	3	3	5	6	7	8	12	22	22	23	27
Municipalities	144	159	175	191	193	200	200	198	198	200	201
Counties	20	23	39	30	31	34	34	37	39	41	42
Transit districts	1	1	1	1	1	1	1	1	1	1	1
Special districts	n/a	n/a	n/a	n/a	6						
Counties	n/a	n/a	n/a	0	0	10	10	21	25	38	44
Transit districts											
Florida	3	0	0	0	0	0	0	0	0	0	0
Municipalities	80	103	132	142	143	154	153	164	157	159	159
Counties											
Transit districts	1	1	1	1	1	1	1	1	1	1	1
Illinois	1,256	1,256	1,249	1,272	1,271	1,279	1,278	31	42	70	70
Municipalities	102	102	102	102	102	102	68	0	8	1	8
Counties	1	1	2	2	2	2	2	2	2	2	2
Transit districts	n/a	1	1	1	1						
Water district											
Counties						5	9	12	15	19	27

Table 7.6 (continued)

State	1979	1981	1984	1986	1987	1988	1989	1990	1991	1993	1994
Kansas	15	35	87	108	108	112	116	119	124	135	142
	Municipalities										
	Counties	5	52	60	60	62	62	61	61	63	69
Louisiana	136	152	158	177	192	193	189	193	195	203	203
	Municipalities										
	parishes	21	30	30	63	63	64	63	63	63	63
	school districts	60	66	65	47	46	47	48	48	48	50
	Special districts	7	12	18	23	23	25	21	21	25	24
Minnesota	1	1	2	1	3	3	3	3	3	5	5
	Municipalities										
Missouri	214	662	406	458	474	479	490	508	563	573	580
	Municipalities										
	Counties	1	81	98	98	120	126	126	126	109	107
Nebraska	1	1	2	1	3	3	3	3	3	5	5
	Municipalities										
Nevada	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Municipalities										
	Counties	12	1	5	7	7	7	7	7	17	9
New Mexico	93	76	98	101	100	101	101	102	101	103	106
	Municipalities										
	Counties	6	8	22	33	31	33	33	33	33	33
New York	25	29	29	27	26	28	30	25	27	27	22
	Municipalities										
	Counties	45	45	57	53	54	54	61	61	56	56
	Transit district	n/a	n/a	1	1	1	1	1	1	1	1
North Carolina	99	99	100	100	100	100	100	100	100	100	100
	Counties										
North Dakota	n/a	n/a	n/a	3	3	4	5	5	10	24	35
	Municipalities										
Ohio	50	52	62	74	79	83	85	83	86	86	88
	Counties										
	Transit districts	1	3	3	2	2	3	4	7	9	4
Oklahoma	398	398	441	452	457	458	468	470	470	476	481
	Municipalities										
	Counties	n/a	n/a	6	14	21	24	24	25	45	49
South Carolina	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6	15
	Counties										
South Dakota	46	61	82	107	111	117	132	136	141	158	166
	Municipalities										
	Indian reserves	n/a	n/a	n/a	n/a	3	3	3	3	3	3

Table 7.6 (continued)

State	1979	1981	1984	1986	1987	1988	1989	1990	1991	1993	1994
Tennessee											
Municipalities	12	11	8	10	10	11	11	9	8	8	9
Counties	92	94	94	95	95	95	95	95	95	95	95
Texas											
Municipalities	921	921	1117	1026	1023	1023	2521	1164	1176	1157	1193
Counties	n/a	n/a	n/a	n/a	n/a	78	82	105	105	105	110
Transit districts	25	28	3	6	6	6	7	7	7	7	8
Special districts											
Utah											
Municipalities	201	n.a.	219	219	219	222	225	222	226	228	227
Counties	29	29	29	29	29	29	29	29	29	29	29
Transit districts						7	6	n.a.	n.a.	3	3
Virginia											
Municipalities	41	41	41	41	41	41	41	41	41	41	41
Counties	95	95	95	95	95	95	95	95	95	95	95
Washington											
Municipalities	264	264	267	266	268	267	266	268	268	268	269
Counties	38	38	39	39	39	40	39	39	39	39	39
Wisconsin											
Counties	n/a	n/a	n/a	2	12	18	24	28	40	45	47
Wyoming											
Counties	13	15	15	14	15	16	19	19	23	20	23

SOURCE: Advisory Commission on Intergovernmental Relations staff compilations, Table 27.

NOTES: California: Los Angeles and San Francisco impose a special gross receipts tax. Florida: Counties may impose a tourist development or effect tax on rentals or leases of living quarters for a term of six months or less. Georgia: Local school tax—specified counties are authorized to impose a local sales and use tax for education. n/a, not authorized; n.a., not available.

8. Is There a Better Response to *Serrano*?

by Jon Sonstelie

Summary

Over the last 30 years, California has transformed its system of school finance. In 1970, the state provided foundation aid to school districts, which set their own property tax rates. Now the state determines the amount of revenue each district receives, and districts have little fiscal authority or revenue flexibility.

This transformation was initiated by two events: the 1971 decision of the California Supreme Court in *Serrano v. Priest* and the 1978 passage of Proposition 13. The state legislature's response to those events shaped California's current school finance system. In the immediate aftermath of the *Serrano* decision, the legislature focused on equalizing revenue across school districts. In retrospect, revenue equalization was a more radical reform than equalizing tax bases across districts, which was also an option. Following the passage of Proposition 13, the legislature focused on allocating property tax revenue among local jurisdictions, including school districts. This response eventually deprived these jurisdictions of their taxing authority. Another option would have been to allow jurisdictions to set their own tax rates subject to state-designated limits.

This essay describes these key events, the legislature's responses to them, and the resulting transformation of California's system. It then evaluates the current finance system against general standards of equity, flexibility, and adequacy. Over the last generation, California has achieved considerable revenue equality across districts. Measured in those terms, California has moved from one of the least equal states to one of the most equal states. However, the system has not performed

well in other important areas. In focusing on revenue equalization, for example, the legislature appeared to ignore taxpayer equity. As a result, taxpayers pay very different tax rates for their schools, yet those schools receive essentially the same revenue per pupil. The current system also gives school districts little flexibility to respond to the special needs of their constituents. School districts may levy a parcel tax, but this option is not viable in many areas. Last, the current system may not provide adequate resources for California school districts. In 1999, for example, the pupil-teacher ratio was 34 percent higher in California than in the rest of the country.

The essay concludes by proposing an alternative finance system for California schools. That system begins with a base revenue per pupil for each school district. The base is funded by state funds and a primary property tax rate, which is the same for all districts. To supplement their revenue, districts may levy a secondary property tax rate up to a specified limit. Funds from this secondary rate would be equalized across the state so that districts levying the same rate would have the same revenue per pupil.

The proposed system satisfies *Serrano* because school districts with the same property tax rate have the same revenue per pupil. It is also consistent with Proposition 13 because it caps the property tax rate for schools below 1 percent. In addition to satisfying these two constraints on school finance in California, the proposed system has at least four virtues. First, it is more equitable to taxpayers because it equalizes tax rates across school districts. Second, it allows districts some revenue flexibility. Third, it provides feedback to the legislature because voters can indicate their willingness to pay for more public education. If most school districts set their secondary tax rate at the cap, voters will have signaled their willingness to spend more public funds on their schools. If most school districts choose not to levy a secondary tax, legislators can be reasonably sure that voters prefer lower property taxes to more school funding. Finally, the proposed model is compatible with a recent proposal by the Legislative Analyst to reform the financing of other local governments.

Introduction

In many respects, California's system of school finance resembles those of other states. School districts receive substantial property tax revenue, and the state government supplements this revenue through various aid programs. However, California's system is different in one important respect. Only in California does the state government determine how much property tax revenue each district may receive.

At one time, California's school districts had the authority to set their own property tax rates. They lost that authority as a consequence of two events: the 1971 ruling of the California Supreme Court in *Serrano v. Priest* and the 1978 passage of Proposition 13. In *Serrano*, the court found the existing system of school finance unconstitutional because taxable property varied widely across school districts. By passing Proposition 13, the voters of California limited the property tax rate and the growth in assessed values. In tandem, the two events forced the state legislature to design a new role for the property tax and a new system for financing schools.

This essay describes these events, the legislature's responses to them, and the resulting transformation of California's system. It then evaluates the current finance system against general standards of equity, flexibility, and adequacy. Is it equitable for school districts and for taxpayers? Do school districts have sufficient revenue flexibility to respond to the demands of their constituents? Does the current system provide adequate revenues for California schools? In each of these areas, the essay identifies significant concerns.

The essay concludes by proposing a new finance system that would address those concerns. The new system would satisfy the *Serrano* requirements, but it would also strike a balance between revenue equity and revenue flexibility at the district level. To comply with Proposition 13, it would maintain strict limits on property tax rates, but it would also be fairer to taxpayers than the current system. Finally, the system would have an automatic mechanism to signal whether public schools were adequately funded.

The Transformation of Taxing Authority

Some observers portray California's current school finance system as the inevitable consequence of historical events outside the legislature's control. In fact, the legislature had many options, some of which are still viable. Perhaps the best way to demonstrate this point is to compare these options to the legislature's actual decisions.

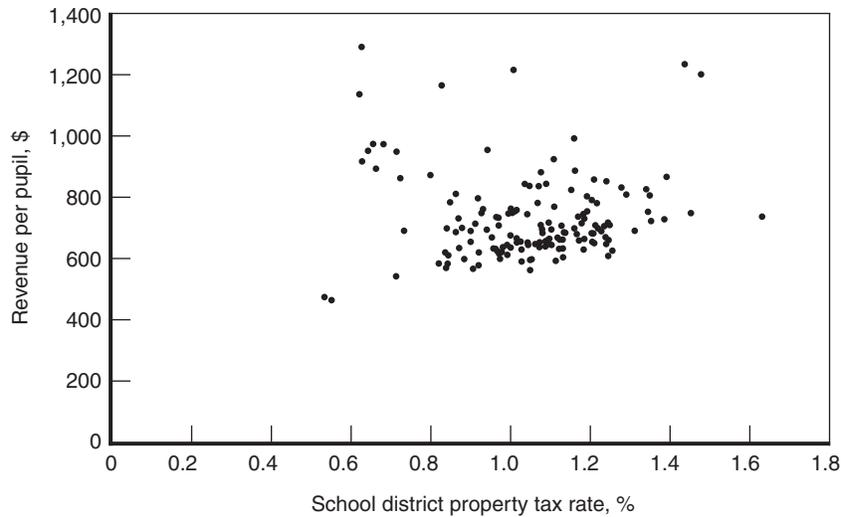
The Finance System Before Serrano

In 1970, each school district set its own general-purpose property tax rate. The state limited that rate, but each district could override its limit by a majority vote of its citizens. Almost all districts exceeded their limits, implying that property tax rates were essentially determined by local referendum. School districts could also levy special-purpose tax rates without a referendum.

At the same time, the state government provided aid to school districts through its foundation program. Foundation aid was a block grant per pupil that varied inversely with a district's assessed value per pupil; that is, districts with relatively low assessed value per pupil received relatively high foundation aid. The state government also provided revenue to schools through categorical programs, although these programs were small by today's standards.

Tax rates differed widely across school districts. Districts with high property tax rates tended to have high total revenue per pupil. Figure 8.1 illustrates this relationship for unified districts with more than 2,500 students. The horizontal axis measures a district's total tax rate, and the vertical axis measures the sum of its property tax revenue and foundation aid per pupil. The positive relationship between tax rates and total revenue also held for smaller unified districts and for elementary and high school districts.

As the figure also illustrates, this relationship was far from perfect. Districts levying the same tax rate could have very different revenue per pupil. For example, San Francisco Unified and Los Angeles Unified levied the same property tax rate, but revenue per pupil in San Francisco was 60 percent higher than in Los Angeles. This difference resulted from San Francisco's higher assessed value per pupil. Los Angeles received



SOURCE: California State Controller.

NOTE: Unified districts with more than 2,500 students. The tax rate is the sum of the general-purpose and special-purpose property tax rates. Revenue is property tax revenue plus state foundation aid.

Figure 8.1—Tax Rates and Revenue in 1970

more foundation aid per pupil than San Francisco, but this additional aid was not enough to offset the difference in assessed value.

Serrano v. Priest

These differences in assessed value were the primary focus of *Serrano v. Priest*. The plaintiffs in *Serrano* maintained that California’s school finance system violated the equal protection clause of the Fourteenth Amendment, which prohibits state laws that discriminate among individuals. The court relies on two criteria in such cases. First, the state law must affect the exercise of a fundamental interest. For example, Virginia’s poll tax was found unconstitutional because the tax made it less likely that low-income citizens would exercise their fundamental interest to vote. Second, the discrimination among individuals must involve a suspect classification, such as race or income. If both criteria are met, the court applies the standard of strict scrutiny, which requires

that the state show a compelling interest justifying the law in question and that the law is necessary to accomplish that interest.

The *Serrano* plaintiffs argued that California's school finance system violated several principles of equal protection. One of these principles, now known as fiscal neutrality, was first articulated by Coons, Clune, and Sugarman (1970). It holds that "The quality of public education may not be a function of wealth other than the wealth of the state as a whole." Coons and his colleagues defined the quality of public education simply: "Quality is the sum of district expenditures per pupil; quality is money." Fiscal neutrality does not mean that all districts must have the same expenditures per pupil; districts can have different expenditures if they have different tax rates. Rather, it means that districts with the same tax rate should have the same revenue per pupil.

Although Coons and his colleagues maintained that many different finance systems would satisfy their principle, they also advanced a reform that would establish equity with little change in the finance or governance of schools. Under that reform, called district power equalization, state aid to a district would equal the difference between the district's property tax revenue and what that revenue would be if the district's tax rate were applied to a standardized level of assessed value per pupil. Because the standardized level would be the same for all districts, districts with the same property tax rate would have the same revenue per pupil.

When the *Serrano* suit reached the California Supreme Court in 1971, the plaintiffs emphasized the fiscal neutrality argument. They argued that education is a fundamental interest, that a school district's assessed value affects the exercise of that interest, and that classification on the basis of assessed value is suspect. The defendants countered that California's system of school finance was necessary to accomplish a compelling state interest, which was "to strengthen and encourage local responsibility for control of public education," a phrase from the Education Code. The court accepted the plaintiffs' argument that education is a fundamental interest and that assessed value is a suspect

classification. It also rejected the defendants' claim that the state's finance system was necessary to accomplish a compelling interest.¹

The court also broke the question of local control into two parts: decisions about how a district's revenue should be spent and decisions about how much revenue a district should have. Regarding the first part, the court noted that the state's system was not necessary to accomplish the interest of local control. As for the second part, it concluded that under California's system, "fiscal freewill is a cruel illusion for the poor school districts," and that "The poor district cannot freely choose to tax itself into an excellence which its tax rolls cannot provide." It then sent the case back to Superior Court to determine its facts, which essentially meant determining whether differences across school districts in assessed valuation per pupil led to differences in revenue per pupil.

The state legislature reacted immediately to the *Serrano* ruling, but it chose not to follow the path laid out by Coons and his colleagues. Instead of implementing district power equalization, it set the state on a path toward the more radical reform of revenue equalization. In SB 90, enacted in 1972, the legislature established revenue limits for school districts. A district's revenue limit was a limit on the sum of its property tax revenue and noncategorical state aid. School districts were assigned different growth rates in their revenue limits, depending on their revenue per pupil. High-revenue districts had low growth rates, and low-revenue districts had high rates. Over time, these different growth rates would cause revenue per pupil to converge across districts. However, the law allowed districts to override their limits by majority vote of their citizens. Because almost all districts had already approved their existing tax rates by referendum, the override provision vitiated the convergence process.

By the time the *Serrano* case reached Superior Court for trial, SB 90 had been enacted. Thus, it was California's system as amended by SB 90 that was judged against the standards prescribed by the state Supreme Court. In his ruling, Judge Bernard Jefferson took the state one more step down the revenue equalization path. He appeared to endorse the concept of revenue equalization by finding fault only with the speed and

¹*Serrano v. Priest*, 5 Cal. 3d 584; 487 P.2d 1241; 96 Cal. Rptr. 601.

certainty with which revenue would be equalized. In expressing his discontent, he implicitly set a standard that is perhaps the most lasting legacy of the *Serrano* suit. Judge Jefferson found the existing system deficient because it permitted

wealth-related disparities between school districts in per-pupil expenditures, apart from the categorical special needs programs, that are not designed to, and will not reduce to insignificant differences, which mean amounts considerably less than \$100.00 per pupil, within a maximum of six years from the date of entry of this Judgment.²

Thus were born the *Serrano* revenue bands, which dominate school finance discussions in California to this day.

Before reaching this conclusion, Judge Jefferson had to contend with the ruling of the U.S. Supreme Court in *San Antonio Independent School System v. Rodriguez*.³ *Rodriguez* was a Texas case brought in federal court and modeled on the plaintiffs' argument in *Serrano*. The U.S. Supreme Court rejected the argument, in part because it ruled that education is not a fundamental interest protected by the U.S. Constitution. That decision was a problem for the *Serrano* plaintiffs and the California Supreme Court, which had relied almost exclusively on the U.S. Constitution in reaching its decision. The *Serrano* plaintiffs subsequently argued that the California Constitution made education a state responsibility and thus it was a fundamental interest in California. They also argued that California's Constitution had equal protection language similar to the U.S. Constitution, a point noted by the court in its original decision. Judge Jefferson, and later the California Supreme Court, endorsed this argument.

Although the California courts brushed off the *Rodriguez* ruling, it had a profound effect in other states. In light of *Rodriguez*, plaintiffs in other states focused on state courts and education clauses in state constitutions rather than the equal protection clause of the U. S. Constitution. As a result, other states have been more concerned with

²*Serrano v. Priest*, 18 Cal. 3d 728; 557 P. 2d 929; 135 Cal. Rptr. 345.

³See Elmore and McLaughlin (1982) for a description of this case.

school finance adequacy rather than equity. For these states, California-style reform was the path not taken.⁴

Proposition 13

The Jefferson ruling was appealed to the California Supreme Court, which supported it in a 1976 ruling. The legislature responded by enacting a new state aid program that incorporated elements of district power equalization. However, this new program was never implemented because of the passage of Proposition 13, which limited the total property tax rate to 1 percent, less than half the average property tax rate at the time.

The legislature was then left with the task of determining how this overall property tax limit would apply to local jurisdictions. One possibility was to assign tax rate limits to each. Instead, the legislature focused on the allocation of property tax revenue. Under the terms of AB 8, property tax revenue was allocated to local jurisdictions in proportion to their property tax receipts before Proposition 13. AB 8 also increased state aid to these local jurisdictions. In the case of school districts, noncategorical state aid became the difference between a district's revenue limit and its property tax revenue under the state allocation formula.⁵

Proposition 13 and AB 8 closed the override loophole in the legislature's revenue equalization scheme and effectively deprived school districts of their power to set their own tax rates. A district could reduce its property tax revenue, but state noncategorical aid would not offset that reduction.⁶ Significantly, no district has exercised this option.

When combined with a roughly 50 percent reduction in local property tax revenues at the state level, the loss of the override option converted a district's revenue limit into a hard and relatively low ceiling.

⁴See Minorini and Sugarman (1999a) for a description of school finance reform in other states.

⁵The exception is the small number of basic aid districts whose property tax revenues exceed their revenue limits. They receive the state's basic aid of \$120 per pupil.

⁶California Revenue and Taxation Code, Section 98.6.

The state continued to equalize revenue limits and thus to equalize revenue per pupil across California's school districts. In 1983, the *Serrano* plaintiffs brought the state back to court to test whether the state was in compliance with the original ruling. The plaintiffs argued for a literal interpretation of Judge Jefferson's \$100 revenue band. The defendants argued that the band was only one way to measure equality and that it should be adjusted for inflation if used at all. In his ruling, Judge Olson sided with the defendants. He concluded that "insignificant differences" was the main principle and that "the Legislature has done all that is reasonably feasible to reduce disparities in per pupil expenditures to insignificant differences."⁷

This brief account of the transformation of California's school finance system is interpretative, not comprehensive. It has omitted many important details—such as basic aid districts, the parcel tax, voluntary contributions, and categorical aid—to focus on the central issue, the transformation in the authority over school district revenue. In 1970, the state government allocated aid to school districts according to a simple formula, and school districts supplemented this revenue by levying their own property taxes. In this sense, revenue authority rested with the school districts. Since 1978, property tax rates have been limited, and the state has determined how those revenues (along with state aid) are distributed. Thus, revenue authority now rests with the state.

Superficially, this transformation in authority was due to Proposition 13. More fundamentally, it was necessitated by revenue equalization. Once the state chose revenue equalization as its response to the *Serrano* decision, it had to assume control of school revenue. It could not maintain a system of local revenue authority and ensure revenue equalization at the same time. Even if Proposition 13 had not passed, the legislature would have found it necessary to enact a similar measure for school districts.

Revenue equalization is sometimes incorrectly seen as a dictate of the courts. However, the plaintiffs in the *Serrano* suit sought fiscal

⁷*Serrano v. Priest*, 200 Cal. App. 3d 897; 1986 Cal. App. LEXIS 1586; 226 Cal. Rptr. 584.

neutrality, not revenue equalization. In its 1971 ruling, the California Supreme Court focused on differences in revenue resulting from differences in taxable wealth. That ruling does not require that the revenue be equal; it requires only that differences in taxable wealth be neutralized. The legislature, not the courts, introduced revenue limits and started California down the path of revenue equalization. Although Judge Jefferson led the state further down this path by articulating the concept of revenue bands, a careful reading of his decision suggests another interpretation. “Wealth-related disparities” in revenue are the focus of his attention. If two districts had the same assessed value per pupil but one chose a higher tax rate, the resulting revenue disparities would not be wealth-related, and fiscal neutrality would not be violated.

This is not to suggest that revenue equalization was the wrong choice. The point is simply that it *was* a choice, not a dictate, and one that the legislature is free to reconsider. The most obvious alternative to revenue equalization is district power equalization, which is based on the underlying concept of equality of opportunity. In contrast, revenue equalization is based on the concept of equality of outcome, of ensuring that every game is competitive. Although equality of outcome is generally considered the stronger concept of equity, it undermines local incentives insofar as it transfers discretion, power, and authority from school districts to the state. This transfer may make districts less flexible in responding to the needs of their constituents, less accountable to their local taxpayers, and less efficient and effective in delivering their services. The next section considers these issues in detail.

Assessing the Current System

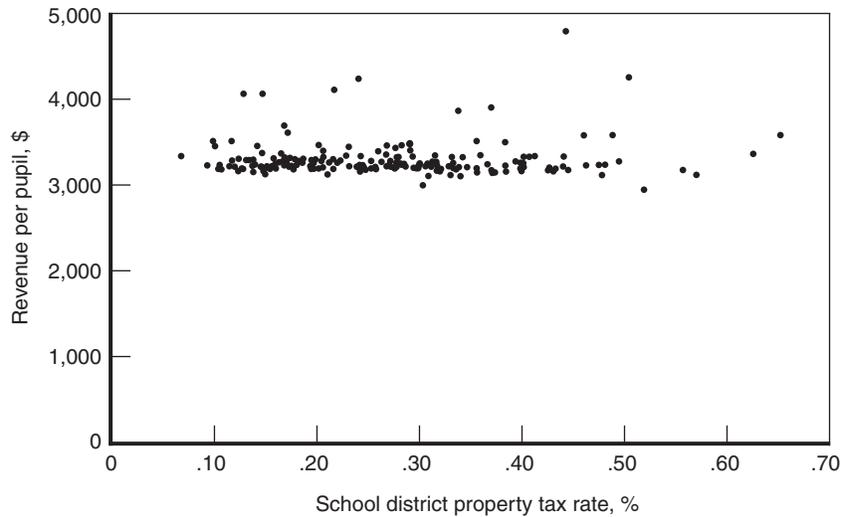
Although California’s school finance system could be evaluated against many criteria, three are particularly relevant. The first is equity, the driving force in the transformation of the system. The second is local revenue flexibility, the major concern of the state in defending itself against the *Serrano* plaintiffs. The third is revenue adequacy, the key concept in school finance reforms of other states.

Equity

After Judge Olson's 1983 decision, the state legislature no longer sought the convergence of district revenue limits. Indeed, it occasionally widened revenue limits as it introduced new programs. For example, SB 813, enacted in 1983, increased the revenue limits of districts that lengthened their school years or raised the minimum salary for teachers. Yet the legislature also has taken steps to narrow the remaining difference in revenue limits. Periodically, it has allocated large amounts of revenue in equalization aid, which increases the revenue limits of districts that are below the average limit.

Sonstelie, Brunner, and Ardon (2000) capture the net effect of these changes with a percentile band for revenue limits. For unified districts, the 90 percent band is a range of revenue limits that includes 90 percent of all students in those districts. The band is constructed so that 5 percent of students are in district with limits above the band and 5 percent are in districts with limits below the band. The width of this band has shrunk dramatically since 1974–1975. By 1994–1995, the bottom of this band was 99 percent of the median revenue limit. The top of the band was only 7 percent above this median. The bands for elementary and high school districts are also quite narrow. The same study computes 90 percent bands for all revenue, including local, state noncategorical, state categorical, and federal funds. These bands are considerably wider than those for revenue limits, but they also have converged since the early 1970s. Regardless of how it is measured, revenue is quite equally distributed across school districts in California, particularly compared to other states. Evans, Murray, and Schwab (1997) found that in 1972, California ranked 45th among states in equality of spending per pupil across districts. By 1987, it ranked fifth. This is a remarkable achievement for a large state with almost 1,000 school districts.

These gains in revenue equity, however, have come at the expense of fiscal neutrality, which holds that districts with the same tax rate should receive the same revenue. Although California school districts no longer have an explicit property tax rate, they do have an effective property tax rate, which is the property tax revenue received by the school district divided by the assessed value of property in the district. Figure 8.2



SOURCES: School-district revenue data are from the J201 data files of the California State Department of Education. Assessed values are from data compiled by the Coalition for Adequate School Housing.

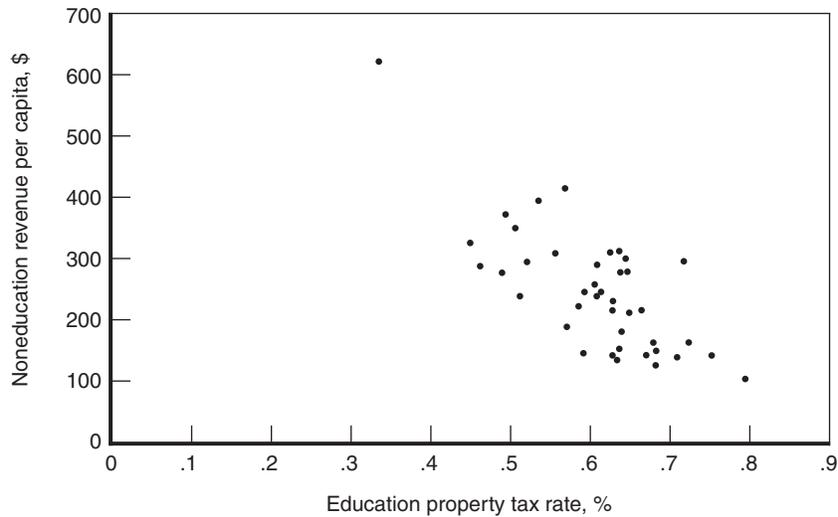
NOTE: Unified districts with more than 2,500 students. The tax rate is a district's property tax revenue divided by the assessed value of property in the district. Revenue is property tax revenue plus state noncategorical aid.

Figure 8.2—Tax Rates and Revenue in 1995

displays the relationship between this effective property tax rate and revenue per pupil. As the figure indicates, these tax rates range from 0.1 percent to 0.6 percent, yet districts receive essentially the same revenue per pupil.

These inequities cannot be observed in school budgets or on property tax bills. Instead, they show up in the property tax allocations to other local jurisdictions. Figure 8.3 shows the relationship between the average education property tax rate in a county and the property tax revenue per capita allocated for government services other than education. As the figure shows, if school districts in a particular county have higher property tax rates on average, other local jurisdictions have less property tax revenue at their disposal.

These inequities are a natural consequence of the state's focus on revenue equalization. In essence, the state has offset revenue differences



SOURCE: County revenue and assessed values are from the State Board of Equalization.

NOTE: Counties with more than 50,000 residents. The education tax rate is the property tax revenue in a county allocated to school districts, county offices of education, and community colleges divided by the assessed value of property in the county. Noneducation revenue is property tax revenue allocated to all other jurisdictions.

Figure 8.3—Education Tax Rates and Noneducation Revenue in 1995

without addressing the underlying fiscal inequities that led to them. As noted by the Legislative Analyst’s Office (1996), property tax revenues in California today are still allocated according to property tax rates in the early 1970s. Taxpayers are generally unaware of these inequities because the current system obscures the link between the tax a property owner pays and the government services it finances. Property tax bills do not specify how a taxpayer’s payment is allocated among city, county, special district, and school district, making it difficult for taxpayers in different jurisdictions to compare these allocations and to understand the inequities.

In short, California’s transformation in school finance has led to a much more equitable distribution of revenue across school districts, but it has not led to a similar improvement in taxpayer equity. School

districts receive very similar revenue per pupil but have very different effective tax rates.

Flexibility

To achieve revenue equity across school districts, California has also sacrificed local revenue flexibility. California school districts have few options for supplementing the revenue they receive from the state. The main option is the parcel tax, which is not viable for many districts and has been used sparingly (Chapter 9). Another option is voluntary contributions, but this funding source is also quite limited (Sonstelie, Brunner, and Ardon, 2000).

This lack of local revenue flexibility contrasts sharply with the privileged status of local control in the laws governing California schools. The section of the California Education Code dealing with school finance begins with the declaration that “The system of public school support should be designed to strengthen and encourage local responsibility for control of public education.” This contrast raises two related questions. Given the realities of modern public education, is the principle of local fiscal control anything more than a cherished platitude? If not, have we lost anything valuable along with that principle?

To address these questions, consider a hypothetical situation in which all California school districts have exactly the same revenue per pupil. What are the arguments for allowing school districts the flexibility to supplement state funds and thus to deviate from revenue equality? One reason to relax the standard of revenue equality is that different school districts have different needs because of their unique circumstances. This is not necessarily an argument for local revenue flexibility, however, as the state government could also provide for those differing needs by adjusting its revenue formula appropriately or by creating supplemental categorical aid programs. The argument for local revenue flexibility should be based on legitimate needs of local school districts that deviate from the average needs of school districts and that either cannot or should not be addressed by adjustments to the state aid program or by state categorical programs.

This standard requires some distinction between what is a legitimate state interest and what is purely a local interest. Which special needs should be met by funds raised from taxpayers throughout the state, and which needs should be met by local tax revenue? Because the California Constitution provides no direct guidance on this question, this essay proceeds with the working assumption that the state's interest is to ensure that every child has access to reasonable educational opportunities, that there is consensus on what constitutes such opportunities, and that the state should provide revenue to each district sufficient to provide those opportunities under average conditions. It then considers four hypothetical examples in which conditions are not average.

First, consider regional differences in teacher salaries. As Rueben and Herr show in Chapter 5, salaries differ significantly across regions in California. In Orange County, the salary for an experienced teacher can be more than 20 percent higher than the salary of an equivalent teacher in Northern California. Furthermore, these salary differences reflect conditions external to the district, such as the cost of living and salaries in alternative occupations. Under the working assumption that state revenue is adequate to provide reasonable opportunities under average conditions, salary differences imply that revenue would be inadequate for high-salary regions. Districts in those areas have a legitimate need for additional revenue to maintain the state's interest in ensuring reasonable opportunities. Furthermore, the state could easily adjust its revenue formula to account for those needs. As a consequence, regional differences in teachers' salaries do not constitute a good reason for local revenue flexibility.

As a second case, consider extracurricular activities such as varsity athletics, debate teams, and dramatic productions. Suppose the parents in a particular district put unusually high value on these activities. Most would agree that extracurricular activities have a legitimate place in public schools, but few would maintain that these activities are vital to providing reasonable educational opportunities or that the state has a responsibility to ensure that these activities are widely available and well funded. Extracurricular activities are a local interest, not a state interest. Accordingly, these activities should be financed by local funds. Given the 1984 ruling of the California Supreme Court in *Hartzell v. Connell*,

the local funds must be taxes, not user fees. Extracurricular activities are therefore one justification for local revenue flexibility.

The third case is campus security. A safe and secure campus is essential to providing reasonable educational opportunities and is thus a legitimate state interest. Moreover, security needs surely differ across campuses of the state. It is less clear that the state could design an effective aid program for addressing these differing needs. The crime rate in a school's neighborhood may be one relatively objective measure of need, but such a measure is cold comfort for parents in crime-free neighborhoods who may nonetheless fear for the safety of their children in school. Even if those fears are unreasonable by objective standards, should we deny the legitimacy of parental concerns? Here the question is whether the value of an additional campus security person exceeds the cost of that person. Parents may well be in the best position to make that judgment, particularly when it comes to the safety of their own children. If campus security were left to local districts, and if those districts had a flexible revenue option, parents would essentially be in that position. They would gauge the value of additional security against the costs they would incur from providing that security. In this case, local revenue flexibility may be a good way to resolve a difficult value judgment. This hypothetical example shows that some state interests are perhaps best financed with local taxes. These cases are another justification for local flexibility.

The final example concerns academic enrichment. Consider a community of well-educated parents with bright and academically motivated children. Graduates of the community's high school proceed to good universities and to successful careers after college. However, with a little more money, the school could expand its offerings and challenge its students even more. The students would then go on to even better universities and prosper even more after college. Suppose also that the extra investment would pass even the most conservative cost-benefit test. The increase in the material well being of the school's graduates would more than make up for the additional investment in the school. That condition notwithstanding, the enrichment of the school's academic program is not a state interest and should not be funded by taxpayers in other districts. The primary beneficiaries of the investment

are the graduates of the school and their families. As a consequence, they should fund the investment from their own taxes. Furthermore, by making academic enrichment a local interest, parents are obligated to make the appropriate cost-benefit comparison—a process that promotes efficient use of public funds and tempers unwarranted requests for such funds. Thus, this example is another justification for local revenue flexibility and also demonstrates the inevitable tension between local flexibility and statewide equity.

These examples also suggest a pragmatic reason for a viable local revenue option in California's system of school finance. Every district has its own special needs. If all funds are controlled by the state, districts must look to the state to meet these needs. This puts the legislature in the difficult position of receiving district pleas for special treatment, of deciding which needs are most legitimate, and of designing state programs that target only those needs. Many decry the rapid growth in categorical programs, but that growth is a natural part of a system entirely funded by the state.

In her 1999 report on a K–12 Master Plan, the Legislative Analyst argued that a viable local revenue option would reduce the pressure on the legislature and give districts other ways to address their special needs. Also, in many cases, local taxpayers have more knowledge about their districts' needs than does the legislature. As a consequence, they and their local representatives may be better than the state legislature at making cost-benefit decisions on special requests. These local taxpayers and representatives may also be better at holding school districts accountable for the efficient use of funds granted in response to those requests.

Many claim that a viable local revenue option is important for another reason. In the words of the California Constitutional Revision Commission (1996, p. 49), the lack of such an option has “fostered a disconnect between citizens and their local education system.” Again, this disjunction is in many ways a predictable consequence of a state finance system.

In summary, there are valid arguments for a viable local revenue option for schools. Some educational needs are local interests and should be funded by local taxes. Others are more closely related to state interests

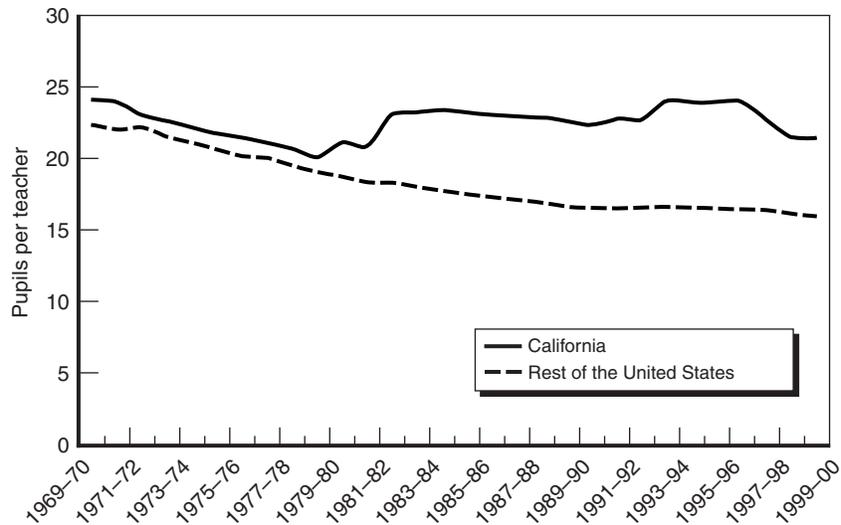
but might be best addressed through local funding. A local revenue option would also foster a better connection between public schools and the communities they serve and reduce the pressure on the legislature to respond to the special needs of school districts. On the other hand, a local revenue option inevitably raises equity concerns.

Adequacy

School finance reform in California has focused largely on equity, but reforms in other states have been more concerned with adequacy (see Chapter 3). In general, revenue is adequate if schools have sufficient resources to educate students to state standards. California is implementing an accountability system that may ultimately reveal whether students are meeting those standards. Until that system is fully implemented and systematically geared to state standards, it seems best to rely on nationwide tests in which California students can be compared to those in other states. California students do not fare well in those comparisons. Sonstelie, Brunner, and Ardon (2000) examine a number of such tests, including the National Assessment of Education Progress, the National Education Longitudinal Study, and the SAT. For tests administered during the 1990s, they find that California students do not perform as well as students in other states, even after the scores are adjusted for the socioeconomic status of the test-takers.

Although the link between school resources and academic achievement is a controversial one, most would agree that California's schools lack the same level of resources as schools in other states. Much attention has been focused on the difference in spending per pupil between California and other states. However, because costs differ across states, spending per pupil is not a good measure of resource differences. A better measure is the pupil-teacher ratio, which provides a direct measure of the most important resource in education.

Figure 8.4 shows the pupil-teacher ratio in California and in all other states from 1969–1970 through 1998–1999. In 1998–1999, the pupil-teacher ratio in California was 21.5 as opposed to 16.1 in all other states, a difference of 34 percent. This difference exists despite the Class Size Reduction Act, which was first implemented in the 1996-97 academic year. Although this act caused a noticeable decline in California's pupil-



SOURCES: Counts of pupils and teachers are from NCES (August 1992) and Digest of Education Statistics (March 2000).

Figure 8.4—Pupils per Teacher in California and the Rest of the United States

teacher ratio, the gap between California and other states is still quite large. Furthermore, the figure shows that the divergence between California’s ratio and that of other states coincides with California’s transformation in school finance in the late 1970s.

This figure also illustrates another important point. If other states are an appropriate reference for the adequacy of California’s school resources, the standard of adequacy has changed dramatically over the last 30 years. California’s current pupil-teacher ratio is woefully inadequate by today’s standard yet is more than adequate by the standard of 1970. In 1969–1970, the pupil-teacher ratio in other states was 22.4, which is higher than California’s current ratio of 21.5.

Proponents of the adequacy principle sometimes portray it as an absolute standard. The state sets standards for its schools, experts determine the resources necessary to achieve those standards, and the state guarantees that schools have the funds to secure those resources. As Rose notes in Chapter 3, however, this portrayal has two problems. First, we set standards in any arena with an eye toward the costs of

achieving them. When costs change, standards change. Second, in the area of education, we do not see a clear and widely accepted link between resources and outcomes. For both of these reasons, what we judge to be adequate resources for our schools is likely to depend on a number of factors, including costs, values, and individual conceptions about what constitutes a good education.

Some of these factors help explain the fall in the pupil-teacher ratio across the country over the last 30 years. As Sonstelie, Brunner, and Ardon (2000) show, one factor was the fall in the ratio of school children to taxpayers—a decline that reduced the cost to taxpayers of lowering the pupil-teacher ratio. Another factor was the growth in real income, which increased the value taxpayers placed on education. The standard for the pupil-teacher ratio is now lower than it was because the cost of reducing that ratio has declined and because taxpayers are richer and therefore expect more from their schools.

How then do we explain California's apparent choice of a higher pupil-teacher ratio? That choice cannot be explained by differences between California and other states in either real income per capita or the number of school children per capita. Both ratios have followed a similar path in California as in the rest of the nation. What is clearly different between California and other states is how education is financed. In California, the parcel tax is the most prevalent local revenue option; in most other states, additional school funds can be financed through a property tax. As Brunner shows in Chapter 9, the cost to local homeowners of additional school spending financed by the parcel tax is considerably higher than spending financed by a property tax. The reason for this difference is straightforward. Compared to the parcel tax, the property tax collects more revenue from commercial and industrial property. This additional revenue subsidizes homeowners in that school district and lowers the price to them of increased school spending.

This observation leads to a central conclusion concerning the adequacy of school resources in California. Judged by the most important resource for schools—the number of teachers—California schools do not measure up to the standards of other states. However, those resources may well be adequate in light of the higher price to California taxpayers of public school spending. Californians may have a

less demanding standard for school resources because the price of increasing those resources is relatively high.

Reforming the System

There are two basic approaches to reforming our current school finance system. One is to focus on modifying that system. The other is to articulate a vision of a better system and then to develop pathways from the current system to this model system. This essay takes the second approach, making sure to accommodate *Serrano v. Priest* and Proposition 13.

A Model System

The system has two levels of revenue: primary and secondary. Primary revenue is determined by a base level of funding per pupil sufficient to provide adequate resources to schools under average conditions.⁸ This base revenue per pupil is a parameter established by the legislature.

Districts receive their base revenue from a countywide primary fund, which has two sources of revenue. The first source is a primary tax rate levied on all properties in the county. This primary rate is the same for all counties. The second source is state primary aid, which is the difference between the base revenue for all districts in the county and the property tax revenue raised from the county's primary tax rate.

In addition to its primary tax rate, each district may levy a secondary tax rate to supplement its primary revenue. The secondary tax rate is subject to a tax rate limit. Districts may choose any secondary rate between zero and the secondary tax rate limit. The state could require districts to obtain voter approval for these secondary rates through periodic tax rate referenda.

Property tax revenue from this secondary tax rate is subject to district power equalization. This equalization is accomplished through a secondary state aid program. The state establishes a standardized assessed

⁸Although the following model ignores elementary districts, high school districts, and districts that are smaller than the most efficient size, it can be easily adapted to incorporate those districts.

value per pupil, and secondary aid is the difference between the revenue the district would receive if its secondary tax rate were applied to the standardized tax base and the revenue it actually receives from its secondary tax rate. For districts with assessed value per pupil greater than the standardized value, secondary aid is negative and reduces the district's base revenue.

The finance system is best captured by three equations. First, some definitions:

- BR is a district's base revenue per pupil established by the state.
- PT is the primary property tax rate established by the state.
- DAVP is a district's assessed value per pupil.
- SAVP is the standardized assessed value per pupil established by the state.
- ST is the secondary property tax rate chosen by the district.
- L is the limit on the secondary tax rate established by the state.

Using these definitions, we have the following formulas for sources of district revenue:

$$\text{Primary aid} = \text{BR}$$

$$\text{Secondary aid} = \text{ST} * (\text{SAVP} - \text{DAVP})$$

$$\text{Secondary property tax revenue} = \text{ST} * \text{DAVP}$$

Adding these three sources, total district revenue per pupil is given by the following formula:

$$\text{Total district revenue} = \text{BR} + \text{ST} * \text{SAVP}$$

This total revenue formula captures the essence of the model system. First, the system is fiscally neutral. Districts choosing the same tax rate have the same revenue per pupil. That revenue is the base revenue, which is the same for all districts, plus the secondary revenue, which is the district's secondary tax rate multiplied by the standardized assessed value per pupil established by the state. The secondary aid formula neutralizes differences in assessed value per pupil across districts.

Because districts can choose different secondary rates, revenue per pupil may differ across districts. However, those differences are

constrained by the limit on the secondary tax rate. The choice of that limit strikes a balance between the competing goals of revenue equity and local revenue flexibility. If the limit is low, revenue per pupil will be quite equal across districts, but they will have little revenue flexibility. If it is high, they will have flexibility, but the revenue may be quite unequal across districts.

The state could also adjust base revenue to account for cost differences across districts. One obvious adjustment is for differences in resource costs, particularly salaries. Another obvious adjustment is for differences in the socioeconomic status of students in a district. These differences could also be addressed through categorical programs.

The model system provides the state with valuable feedback on whether local taxpayers find the base funding for their schools to be adequate. If most districts increase their secondary rate to the limit, base funding is probably inadequate. Local taxpayers have signaled their willingness to spend more on their schools. On the other hand, if most districts choose not to levy a secondary rate, the legislature should consider a decrease in base funding. In that case, local taxpayers are signaling that they prefer property tax relief to more school spending. Through these signals, the model system tends to move school spending decisions back toward local taxpayers—a system that has proven to be quite reliable in other states.

Finally, the model system is consistent with both *Serrano* and Proposition 13. Because the state aid formula neutralizes differences in property values across districts, the system does not permit wealth-related differences in revenue across districts, as required by the *Serrano* ruling. Furthermore, because the system limits the property tax rate for schools to the sum of the primary rate and the secondary rate limit, it can be made consistent with Proposition 13. Consistency requires that sum to be less than the Proposition 13 limit of 1 percent. The sum must also leave room below the 1 percent limit for property tax revenue to other local governments.

An Example of the System

To demonstrate how this system would work in practice, it is applied to the six school districts in Los Angeles County listed in Table 8.1.⁹ The table illustrates the factors that affect assessed value per pupil in a district. One factor is the average assessed value of residential units. In Inglewood, residential units have an average assessed value of about \$75,000. In Beverly Hills, the average is nearly \$400,000.

A second factor is the number of school children. The second column lists students per housing unit. Although residential units have a higher assessed value in Baldwin Park than in Inglewood, Baldwin Park also has more school children per unit. As a consequence, residential assessed value per student is lower in Baldwin Park than in Inglewood.

The fourth column illustrates another important factor in determining assessed value per pupil: commercial and industrial property. Residential value per pupil is about the same in Palos Verdes Peninsula and Beverly Hills, but the latter has more commercial property and therefore a greater assessed value per pupil.

Table 8.1
Assessed Values of Selected Los Angeles County School Districts, 2000

	Residential Value per Housing Unit, \$	Students per Housing Unit	Residential Value per Student, \$	Residential Value as a % of Total Value	Total Value Per Student
Inglewood	75,601	0.42	181,468	0.72	250,321
Baldwin Park	80,885	0.94	86,104	0.65	132,145
Culver City	107,696	0.33	331,159	0.55	597,090
South Pasadena	136,885	0.35	388,962	0.88	441,524
Palos Verdes Peninsula	383,084	0.40	963,920	0.94	1,026,387
Beverly Hills	397,619	0.32	1,255,639	0.68	1,834,586

SOURCE: Assessed values are from the Dataquick Property Data CD-ROM for Los Angeles County.

⁹The example results from the excellent research of Lynn Scholl of PPIC.

To see how the model system would work when applied to these six districts, let us assume the following parameters:

- BR (base revenue per pupil) = \$5,000.
- PT (primary property tax rate) = 0.2 percent.
- SAVP (standardized assessed value per pupil) = \$500,000.
- L (limit on the secondary tax rate) = 0.2 percent.

Table 8.2 lists the resulting values for primary and secondary aid, and property tax revenue. Property tax revenue is the sum of the revenue from the primary and secondary tax rates.

The table gives revenue values for two different scenarios. In the first, none of the districts levies a secondary tax. In the second, all districts levy the maximum rate of 0.2 percent. In Inglewood, Baldwin Park, and South Pasadena, aid in the second scenario is higher than in the first because assessed value per pupil in these districts is lower than

Table 8.2
Revenue in an Example of the Model System
(in dollars)

	Property Tax	Revenue per Pupil	
		Primary and Secondary Aid	Total
Secondary tax rate = 0.0%			
Inglewood	501	4,499	5,000
Baldwin Park	264	4,736	5,000
Culver City	1,194	3,806	5,000
South Pasadena	883	4,117	5,000
Palos Verdes Peninsula	2,053	2,947	5,000
Beverly Hills	3,669	1,331	5,000
Secondary tax rate = 0.2%			
Inglewood	1,001	4,999	6,000
Baldwin Park	529	5,471	6,000
Culver City	2,388	3,612	6,000
South Pasadena	1,766	4,234	6,000
Palos Verdes Peninsula	4,106	1,894	6,000
Beverly Hills	7,338	-1,338	6,000

SOURCE: Assessed values are from the Dataquick Property Data CD-ROM for Los Angeles County.

NOTE: Values are for the year 2000.

the standardized value. In Culver City, Palos Verdes Peninsula, and Beverly Hills, the opposite occurs. Aid decreases when these districts increase their secondary tax rate because their assessed values exceed the standardized value. The most extreme case is Beverly Hills, which actually has a negative value for aid when it levies the maximum tax rate. In this case, some of the secondary property tax revenue raised by Beverly Hills would go to the countywide primary fund, offsetting state payments to that fund. Although some property tax revenue leaves Beverly Hills when the district increases its secondary rate, the total revenue of the district increases when its property tax rate increases. Like every other district, it has a mechanism to meet special needs.

Figure 8.5 illustrates the relationship between district property tax rates and revenue under the model system. Districts have some local revenue flexibility, but the system is also fiscally neutral. Like the 1970 system portrayed in Figure 8.1, districts with higher property tax rates have more revenue per pupil. However, differences in assessed value per pupil do not lead to differences in revenue per pupil. Like the current system portrayed in Figure 8.2, differences in revenue per pupil are

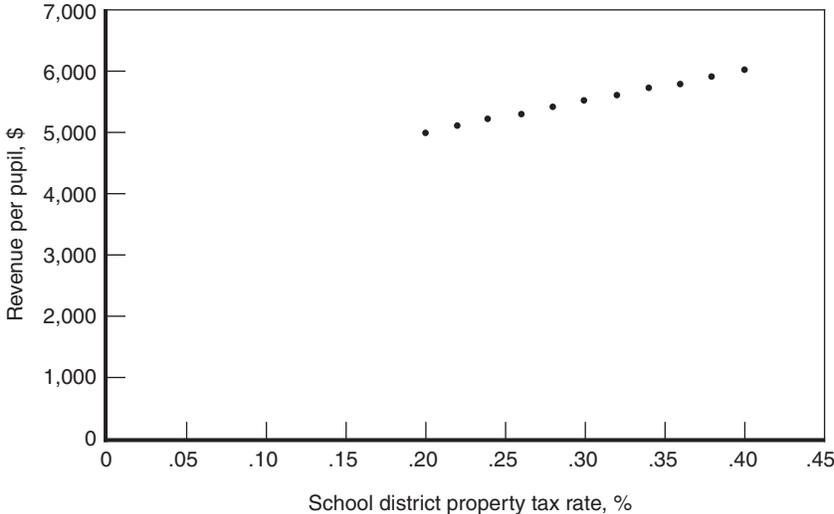


Figure 8.5—Tax Rates and Revenue in the Model System

relatively small. In the model system, however, districts with the same revenue per pupil have the same property tax rate.

Fiscal neutrality is an instance of horizontal equity, the similar treatment of similar individuals. Another concept of equity is vertical equity, which compares the treatment of dissimilar individuals. The model system involves an important element of vertical equity. Wealthier households pay higher prices for increasing the revenue per pupil in their schools. Table 8.3 illustrates this feature of the model system. The first column gives the increase in the property tax payments for an average housing unit in each district when the secondary tax rate is increased from 0 percent to 0.2 percent. When combined with state aid, that increase in taxes yields a \$1,000 increase in revenue per pupil, the second column. The increase in property taxes divided by the increase in revenue per pupil is listed in the third column. The ratio is the increase in taxes for the average residential unit resulting from a \$1 increase in revenue per pupil. It is the tax price of revenue per pupil. The tax price is much lower in Inglewood and Baldwin Park than in Palos Verdes Peninsula and Beverly Hills. In that sense, the model system involves a strong element of vertical equity.

Table 8.3
Tax Prices Under the Model System
(in dollars)

	Property Tax Payment per Housing Unit	Revenue per Pupil	Tax Price
Inglewood	151	1,000	0.15
Baldwin Park	162	1,000	0.16
Culver City	215	1,000	0.22
South Pasadena	274	1,000	0.27
Palos Verdes Peninsula	766	1,000	0.77
Beverly Hills	795	1,000	0.80

Pathways from the Current System to the Model System

The model system improves the current system in several ways. It is fairer to taxpayers, it provides some local revenue flexibility, and it provides the state feedback on whether local taxpayers find base funding

for schools to be adequate. How we could move to this model system is another question.

The most obvious obstacle is the current system for financing other local governments. We cannot reform the financing of public schools without also reforming the financing of other local government services. The two are linked because the two share a common source of tax revenue—the property tax. This common link also implies that the case for reforming the financing of other local governments is similar to the case for reforming school finance. In fact, many of the reform options are compatible. The best discussion of reform options for other local governments is provided by the Legislative Analyst’s Office (2000). The LAO provides five reform options, two of which dovetail with the model system.

In Alternative I, the LAO proposes to establish uniform tax shares for all local governments. It would base those shares on studies of the typical costs of various municipal services. In an example, the LAO report gives K–14 schools 50 percent of property tax revenue, countywide services 25 percent of the share, fire and police services 10 percent, and parks, recreation, and other services 5 percent. The total tax share a local jurisdiction receives would depend upon the services it provides.

In Alternative III, the LAO offers a similar plan. Half of the tax revenue from a property would go to K–14 education and half would go to the city in which the property is located. The city would then be responsible for all municipal services, either by providing the services itself or by contracting with a special district. For unincorporated areas, the county would receive half of the property tax revenue and would be responsible for municipal services.

Under either plan, school districts could be assigned a constant share of the property tax revenue raised within their boundaries. This share would establish the uniform property tax rate required by the model system of school finance. The LAO report also discusses the process of moving from the current property tax allocations to these new allocations. In school districts with a higher property tax rate than the target rate, the school district tax rate would be reduced and the revenue shortfall made up by increasing noncategorical state aid. In districts with

tax rates below the target rate, the district tax rate would be increased and the tax shares of other local jurisdictions would be decreased. In these cases, the state would reduce its noncategorical aid to the districts to offset the increase in property tax revenue.

Readjusting property tax burdens in this manner would help some local jurisdictions and harm others. It would not affect school districts themselves because state aid would be adjusted to offset adjustments in property tax revenue. At the same time that uniform property tax rates were established, the state could adjust state noncategorical aid to give every district the same revenue per pupil. Because of past revenue equalization efforts, California's school districts are already close to this position.

Once base revenue and tax rates were equalized, the state could create local revenue flexibility by offering districts a choice between more revenue or property tax relief. As a specific illustration, suppose that all districts had base funding of \$5,000 per pupil and a tax rate of 0.4 percent. From that point, the state could offer districts the choice of increasing revenue per pupil to \$6,000, decreasing the tax rate to 0.2 percent, or other combinations of a revenue increase and tax rate decrease. The feasible combinations would be determined by the secondary aid formula. For example, using the formula of the previous section, a district could choose a tax rate of 0.1 percent and district revenue of \$5,500 per pupil. This system could be established by a series of smaller revenue and tax rate changes over the period of several years.

There are many other factors to consider in implementing the model system. One is the treatment of secondary revenue under the government spending limits enacted in Proposition 4 of 1979, known as the Gann limits. Another is how that revenue would be accounted for under Proposition 98. The most important issue, perhaps, is the cost of the model system to the state government and other local jurisdictions. These costs depend on the parameters of the model system: base revenue per pupil, the primary property tax rate, the secondary tax rate limit, and the standardized assessed value per pupil. The clearest example is base revenue. California schools enroll about 6 million students, so an increase in base revenue of \$100 per pupil would increase the cost of the model system by \$600 million. The cost of different primary tax rates is

a more complicated matter. If the primary tax rate were equal to the average of current school district tax rates, the state would provide more aid to some districts and less to others, but the net cost to the state would be unaffected. From this reference point, the state could then create space for a secondary tax through a process of reducing the primary rate and replacing the lost property tax revenue with state aid. At current levels of assessed valuation, a statewide decrease in the property tax rate of 0.1 percentage points (from, say, 0.4 to 0.3 percent) would decrease property tax revenue by about \$2 billion. In budget terms, this decrease would be a cost to the state, but not a cost to the state's taxpayers because it would provide property tax relief.

The choice of primary and secondary tax rate limits also affects the property tax revenue of other local governments. High primary and secondary rates imply low costs for the state government but substantial costs for other local jurisdictions. In that case, the state government may be forced to offset costs to local jurisdictions through additional state aid to them. It could also create more room for local jurisdictions under the 1 percent limit by removing community colleges from the property tax rolls. Currently, community colleges receive about \$1.5 billion annually in property tax revenue—an amount equivalent to 0.075 percentage points in the property tax rate.

If the model system has conceptual appeal, its fiscal effects could be simulated under a number of different model parameters. The simulations would examine costs to the state, fiscal effects on other local jurisdictions, and tax relief for property owners. The scenarios could involve different base revenue and tax rate parameters for schools and also different property tax allocations for other jurisdictions, including community colleges.

Conclusion

Serrano and Proposition 13 limited, but did not eliminate, the capacity of California school districts to raise their own revenue. As this essay has demonstrated, it is still possible to design a system in which school districts have some control over their own property tax rates and revenue. Furthermore, this system is superior in a number of ways to our current system. It is fairer to taxpayers, provides more revenue flexibility

to schools, and gives the state legislature a clear signal about the willingness of taxpayers to support their schools.

Although this model system is built around the property tax, its basic principles could also be applied to other local revenue sources, such as the parcel tax and the local income tax. The key is to design a state aid program that neutralizes differences in tax bases across districts. For equity reasons, it may also be desirable to limit supplemental local revenue.

Of the three local revenue options discussed in this series of essays—the property tax, the parcel tax, and the income tax—which one is the best? Traditionally, the property tax has been the staple of local governments, and for good reason. As countless studies have shown, the benefits of local public services, such as education, are capitalized into property values. All other factors being equal, homes are more valuable in communities with good schools, low crime, and excellent public facilities. Because property owners benefit from these amenities, it is appropriate that they pay for them.

The parcel tax shares many of the positive aspects of the property tax. If it is a tax on the square footage, it resembles a tax on land value, which is superior in many respects to a tax on the value of land and improvements. In fact, its major liability stems from the fact that it is not actually a tax on value. A tax on square footage is inequitable for large parcels of land with little value.

With its graduated rates, the income tax has important elements of vertical equity. However, as a local tax, it suffers from a major flaw. Local funds raised from the income tax primarily benefit property owners in a community. To the extent that these funds enhance the quality of a community's public schools, they increase the value of residential property in the community. This effect does not raise concerns in the case of homeowners, because they are local residents and would pay local income taxes. The primary concern is with the owners of rental property.

This brief account illustrates only some of the issues that should be considered in designing a local revenue option for California schools. A fuller account would take us far beyond the scope of this essay, which has a more limited objective: to outline a response to *Serrano* and Proposition 13 that improves on our current system of school finance.

9. The Parcel Tax

by Eric J. Brunner

Summary

In the aftermath of school finance reform in California, the parcel tax emerged as the only source of discretionary tax revenue available to school districts. This essay attempts to answer four key questions related to its use. First, where did the parcel tax come from? Second, how widespread is its use? Third, how do the characteristics of districts that have levied a parcel tax differ from those that have not? Fourth and perhaps most important, is the parcel tax a viable source of discretionary school funding for California's school districts?

The first section of the essay examines the origins of the parcel tax, which can be traced to Proposition 13. The main purpose of Proposition 13 was to limit the tax on property values. The parcel tax, however, is a tax on real estate parcels, not on the value of those parcels. Before the passage of Proposition 13, the California State Constitution prohibited the use of parcel taxes by local governments. However, parcel taxes became legal under an interpretation of Section 4 of Proposition 13, which allowed local governments to levy "special taxes" subject to the approval of two-thirds of the electorate. The first parcel tax was passed by a school district in 1983. Between 1983 and 1999, 249 parcel tax elections were held in 130 school districts. Of these, 122 elections were successful, and 53 districts passed at least one parcel tax measure.

The second and third sections of the essay examine the use of the parcel tax by California school districts. In 1998–1999, school districts raised over \$56 million in supplemental school funding through the parcel tax. Although a substantial sum, it nevertheless constituted less than 0.2 percent of total school funding that year. If that revenue had been distributed equally across all school districts, each pupil would have received less than \$11. Of course, parcel tax revenue is not equally

distributed across all school districts. In the 48 school districts that levied a parcel tax in 1998–1999, parcel tax revenue per pupil averaged over \$500 per pupil. How do the characteristics of these 48 districts differ from others? In general, the parcel tax is levied in districts with high-income families and parents with high levels of educational attainment. In the 37 elementary school districts that levied a parcel tax between 1983 and 1999, family income in 1990 averaged \$88,335. In contrast, family income in school districts that did not levy a parcel tax averaged \$45,660.

Although some school districts have raised substantial supplemental funding through the parcel tax, its use has been quite limited. Among California's 987 school districts in 1998–1999, only 48 levied a parcel tax. Moreover, these 48 districts served less than 2 percent of the students attending public schools statewide. Why isn't use of the parcel tax more widespread? The fourth section of the essay provides one answer to that question—an answer related to the transformation of California's system of public school finance. School finance reform and Proposition 13 changed the source of discretionary school revenue from the local property tax to the parcel tax. Estimates based on a sample of Los Angeles school districts indicate that this change increased the marginal cost of school spending to homeowners, in some cases up to 47 percent. Such a substantial increase may have made the parcel tax unattractive to all but the wealthiest districts.

The final section of the essay discusses the long-term viability of the parcel tax as a source of discretionary district revenue in California. In its current form, the parcel tax has several drawbacks. First, the marginal cost of school spending under the parcel tax is high compared to the corresponding cost under the property tax. Although that problem could be solved through a matching state aid program, there is a second and more fundamental problem: The parcel tax is highly regressive. Because most parcel taxes are levied per parcel, low-income homeowners bear a disproportionate share of the tax burden. Finally, several districts have levied parcel taxes that depend on the square footage of a parcel. Although this type of parcel tax does not suffer from either of the problems discussed above, it has one major drawback. A tax on the square footage of a parcel is very similar to a property tax. As a result, its

widespread use would probably raise equity issues reminiscent of *Serrano v. Priest* and put California's system of public school finance back on trial.

The essay concludes by proposing a model school finance system that is based on a square footage parcel tax and is consistent with the *Serrano* requirements. It has at least two attractive features. First, it would be relatively easy to implement: It requires few adjustments to the current system other than the establishment of a district power equalization program. Second, it would provide school districts with a more attractive source of discretionary revenue than is available to them now.

Introduction

California has transferred the responsibility of financing its public schools from local school districts to the state. The transfer began in 1971, when the California Supreme Court ruled in *Serrano v. Priest* that inequities in the distribution of educational resources resulting from differences in property wealth violated the equal protection clause of the State Constitution. The transfer was completed in 1978, when California voters passed Proposition 13. By restricting property tax rates to 1 percent of assessed valuation and fixing the distribution of property tax revenues among local governments, Proposition 13 essentially turned the property tax into a state tax. As a consequence, school districts lost control over their largest source of discretionary revenue. Although this transformation has certainly led to a more equal distribution of school funding, it has undermined the ability of school districts to respond to local demand for public school spending. Before *Serrano* and Proposition 13, school districts chose their own level of spending and financed that spending through the local property tax. Now the state controls 90 percent of school district revenue and school districts themselves have few options for raising their own revenue.

Although *Serrano* and Proposition 13 severely restricted the ability of school districts to respond to local demand, they did not eliminate it. Even as Proposition 13 eliminated the property tax as a source of discretionary revenue, it gave birth to a new source—the parcel tax. The main purpose of Proposition 13 was to limit the tax on the value of

property. The parcel tax, however, is a tax on real estate parcels, not on the value of those parcels. Section 4 of Proposition 13 gave local governments the authority to levy parcel taxes subject to the approval of two-thirds of the voters. The first parcel tax for a school was enacted in 1983. Since that time, the parcel tax has become the largest source of discretionary tax revenue available to school districts.

Even so, the use of the parcel tax has been quite limited. Of the 987 school districts operating in California in 1998–1999, only 48 levied a parcel tax. Furthermore, if the \$56 million raised by the parcel tax that year were distributed equally across all districts, each pupil would receive less than \$11. Of course, parcel tax revenue is not equally distributed across school districts. In the 48 school districts that levied a parcel tax in 1998–1999, parcel tax revenue averaged over \$500 per pupil. How do the characteristics of these districts differ from others, and why isn't the use of the parcel tax more widespread? This essay attempts to answer those questions.

The Origins of the Parcel Tax

The origins of the parcel tax can be traced to Proposition 13. Although the primary purpose of the initiative was to limit taxes on the value of property, it also sought to limit the ability of local governments to enact new non-ad valorem taxes by requiring that “special taxes” be approved by two-thirds of the electorate. Specifically, Section 4 of the proposition states that “Cities, counties and special districts, by a two-thirds vote of the qualified electors of such district, may impose special taxes on such district, except ad valorem taxes on real property or a transaction tax or sales tax on the sale of real property within such city, county or special district.”

Although the provision would seem to limit the ability of local governments to make up lost property tax revenue with new taxes, the initiative did not define “special taxes.” The interpretation of this term was important for two reasons. First, under state law, cities and counties could enact general taxes with a simple majority vote of the electorate. Thus, the distinction between a general tax and a “special tax” determined whether a new tax required a simple majority or a two-thirds majority for approval. Second, before Proposition 13, special districts

had virtually no discretionary taxing authority other than the local property tax.¹ Section 4 of Proposition 13, however, gave special districts the authority to enact “special taxes” subject to the approval of two-thirds of the electorate.

One possible definition of a special tax is one that is levied on a specific product or class of taxpayers. According to this definition, the distinction between a general and a special tax is the incidence of the tax. A tax with a wide incidence, such as a sales tax, is a general tax and does not require a two-thirds majority. San Francisco appealed to this definition when it raised payroll taxes in 1980 to pay for improvements at a municipally owned hospital. Because the tax had a wide incidence, the City and County of San Francisco deemed it to be a general tax. As such, it required the approval of only a simple majority of the electorate.

A second possible definition of a special tax is one that is earmarked for a particular purpose. The state legislature appealed to this definition in 1979 when it granted local governments the authority to levy parcel taxes for police and fire protection subject to the approval of two-thirds of the electorate. Until the passage of Proposition 13, parcel taxes were illegal, as the State Constitution explicitly required that property be taxed in proportion to its full value. However, the legislative counsel argued that parcel taxes were special taxes as long as they were earmarked for a particular purpose. As such, they became legal under Section 4 of Proposition 13 (Doerr, 1997).

In 1982, the question of what constituted a special tax reached the California Supreme Court in the case of the *City and County of San Francisco v. Farrell*. In its decision, the court ruled that the difference between a general tax and a special tax depends on the purpose to which the revenue is put. If the revenue is allocated for a special purpose, it is a special tax. Using that definition, the court invalidated the payroll tax increase enacted by San Francisco because it was earmarked for a particular purpose and thus required a two-thirds majority.

As noted by Sonstelie, Brunner, and Ardon (2000), the court’s ruling had serious implications for school districts. Under the court’s

¹Doerr (1997, 1999) provides a detailed description of the taxing authority of local governments before the passage of Proposition 13.

definition, taxes for school districts were special taxes because they were earmarked for schools. Thus, Section 4 of Proposition 13 gave school districts the authority to levy parcel taxes subject to the approval of two-thirds of the electorate.²

Between 1983 and 1999, 249 parcel tax elections were held in 130 school districts. In each election, the district proposed a tax rate and a period of time for which the tax would apply. Although the time period could be unlimited, the vast majority of districts have proposed parcel taxes with durations of four to ten years.³ Of the 249 elections held, 122 (49 percent) received the necessary two-thirds vote for passage. Furthermore, of the 127 elections that failed, 76 percent received enough support to have passed under a simple majority vote. Figure 9.1 illustrates the number of successful and unsuccessful elections by year. Since 1993, there has been a marked increase in the number and percentage of successful parcel tax elections. Between 1983 and 1992, only 53 of the 147 parcel tax elections held by school districts were successful. In contrast, 69 of the 104 elections held between 1993 and 1999 were successful.

School districts have imposed parcel taxes primarily on a per parcel basis. The lowest tax rate, levied by West Sonoma County High School District in 1998, was \$12.08 per parcel. The highest rate, levied by Ross Elementary School District in 1999, was \$495 per parcel. Two districts, Albany Unified School District and Berkeley Unified School District, levied parcel taxes that depended on square footage and whether the parcel was used for commercial or residential purposes. In 1984,

²The definition of a special tax was further clarified in 1996 with the passage of Proposition 218. That proposition defines a special tax as any tax imposed for a specific purpose and requires that any special tax be approved by two-thirds of the electorate. The proposition also defines school districts as special districts, which can levy only special taxes.

³In practice, the limited duration of parcel tax measures is due to the requirement that a district must enact an override of its Gann limit to spend parcel tax revenue. Overrides of the Gann limit are limited to no more than four years, although they can be renewed indefinitely. It is interesting to note that it takes only a simple majority vote to enact a Gann limit override. Thus, a school district could enact a permanent parcel tax and then renew the tax ever four years thereafter with a simple majority vote. I am indebted to Raymond Reinhard for pointing this out.

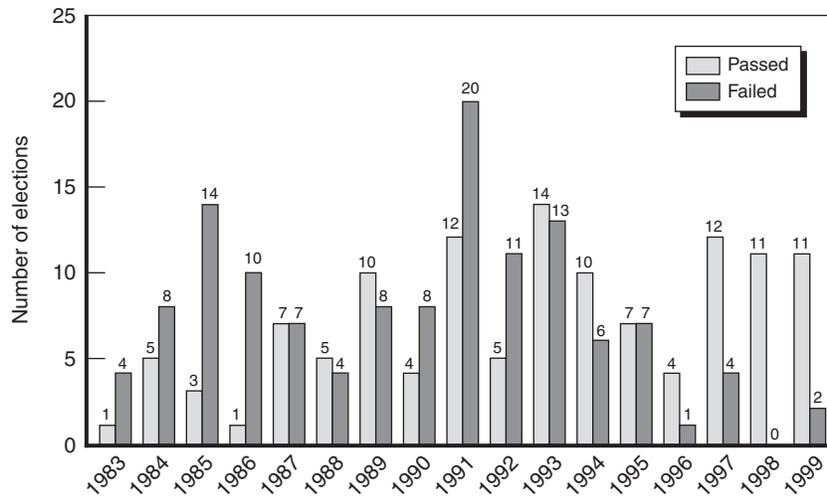


Figure 9.1—School District Parcel Tax Elections, 1983 Through 1999

Shoreline Unified School District imposed a parcel tax of \$300 per parcel on new development and \$50 per parcel on existing development. Legislation passed in 1987 subsequently banned school districts from imposing different tax rates on existing and new development. The legislation, however, allowed school districts to provide an exemption for taxpayers aged 65 or older. Since that time, 12 school districts have imposed parcel taxes that exempt seniors from the tax.⁴

In most cases, school districts have used parcel taxes to supplement general-purpose revenues. In particular, parcel taxes have been used primarily to hire additional teachers; to support libraries, music, and arts programs; and to maintain and enhance instructional programs. However, seven school districts have used parcel taxes to fund capital improvements. For example, in 1989, Mojave Unified School District imposed a parcel tax of \$56.27 per parcel for two years to fund the construction of a new middle school. Similarly, in 1991 Oak Grove Elementary School District imposed a parcel tax of \$68 per parcel for three years to fund facility modernization, and Knightsen Elementary

⁴Details of the 1987 legislation are contained in Section 50079 of the Government Code.

School District imposed a parcel tax of \$40 per parcel for five years to purchase new school buses.

School Districts and Parcel Taxes

Although 122 successful parcel tax elections were held between 1983 and 1999, many of them occurred in the same districts. For example, there have been five successful parcel tax elections in Davis Joint Unified School District. The first election, held in 1984, authorized a levy of \$45 per parcel for four years. Voters subsequently approved new levies of \$91 per parcel for four years in 1987, \$104 per parcel for four years in 1991, \$120 per parcel for four years in 1995, and \$114.36 per parcel for four years in 1999. Overall, 130 school districts held parcel tax elections during this time, and 53 were successful in passing at least one parcel tax measure. (A complete listing of all school districts that have levied a parcel tax is provided in Table 9.4 at the end of this essay.)

Figure 9.2 shows the number of districts with a parcel tax (in parentheses) and the total parcel tax revenue raised by those districts by year. Revenue figures are expressed in millions of constant 1999 dollars.⁵ As the figure indicates, there has been a steady increase in the number of districts with a parcel tax. In 1987–1988, only eight school districts had a parcel tax. By 1992–1993, 38 school districts had a parcel tax, and that number rose to 48 by 1998–1999. Figure 9.2 also illustrates that, with the exception of 1994–1995, there has been a steady increase in the total amount of parcel tax revenue raised by school districts. In 1987–1988, total parcel tax revenue amounted to only \$5.49 million. In 1993–1994, that figure had grown to \$50.74 million. After a slight fall in 1994–1995, parcel tax revenue resumed its ascent and reached a high of \$56.57 million in 1998–1999.

Table 9.1 documents the amount of parcel tax revenue raised by school districts in 1998–1999 in more detail. Column 2 lists the total

⁵Revenue figures were adjusted for inflation using the consumer price index. Data on parcel tax revenue was obtained from school district accounting records provided by the California Department of Education. Before 1987, the school district accounting records lumped parcel tax revenue in with all other local revenues. As a consequence, Figure 9.2 illustrates the amount of parcel tax revenue raised by school districts beginning in 1987–1988, the first year parcel tax revenue was reported separately.

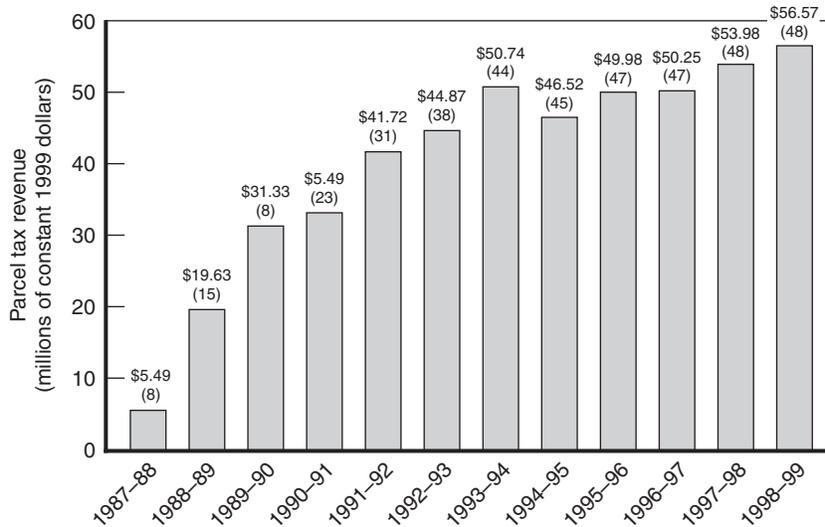


Figure 9.2—Parcel Tax Revenue, 1987–1988 to 1998–1999

Table 9.1

Parcel Tax Revenue by School District Type, 1998–1999

School District Type	No. of School Districts	No. of School Districts with a Parcel Tax	Average Parcel Tax Revenue per Pupil, \$
Elementary	572	33	508
High School	93	4	768
Unified	323	11	398

number of school districts in operation in 1998–1999 by school district type. Column 3 lists the number of school districts that levied a parcel tax, and column 4 gives the average parcel tax revenue per pupil raised by those districts. For example, of the 572 elementary school districts, 33 levied a parcel tax in 1998–1999. In those 33 districts, parcel tax revenue per pupil averaged \$508. Similarly, of the 93 high school districts, four levied a parcel tax in 1998–1999. In those districts, parcel tax revenue per pupil averaged \$768.

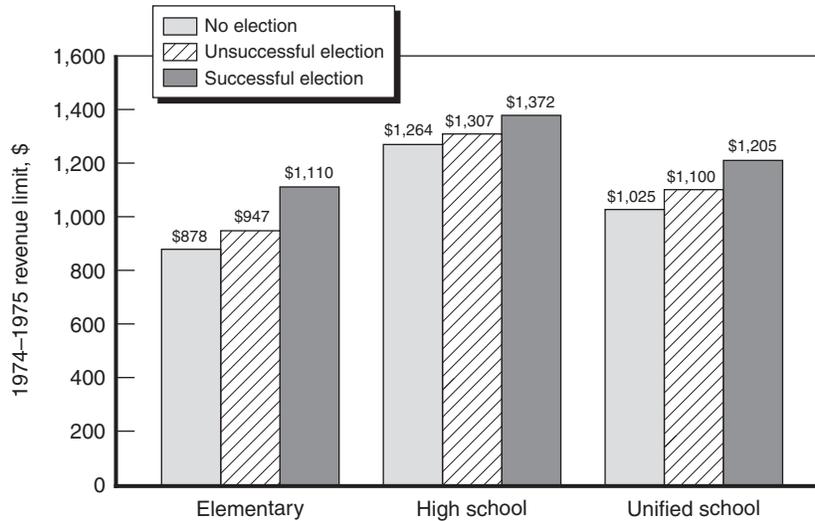
The Characteristics of Districts with Parcel Taxes

On average, the parcel tax generated more than \$500 per pupil in the 48 school districts that levied it in 1998–1999. In eight of those districts, parcel tax revenue per pupil exceeded \$900. This fact raises the question: Which districts have been most successful in using the parcel tax? One interesting characteristic of these districts is their geographic location. More than four out of five are located in the San Francisco Bay Area,⁶ and nearly 25 percent are in Marin County. Why have Bay Area districts been so successful in passing parcel taxes whereas most other districts in the state have not? Among the many plausible explanations, one in particular stands out: Bay Area school districts, especially those in Marin County, have a high concentration of high-wealth and high-income families that found their demand for public school spending severely constrained by school finance reform. The introduction of the parcel tax in 1983 allowed school districts to supplement their revenues and thus respond to this local demand for school spending. According to this explanation, the parcel tax should be most prevalent among those school districts most constrained by school finance reform.

One measure of these constraints is revenue limits, which the legislature introduced in the early 1970s to equalize general-purpose revenue per pupil across districts. Each district's revenue limit was based on the sum of its property tax revenue plus noncategorical state aid in 1972–1973. The annual growth rate of a district's revenue limit was determined by its current limit. Districts with lower revenue limits were permitted higher growth rates, and districts with higher revenue limits had lower growth rates. Over time, revenue limits caused a convergence in spending per pupil. If parcel taxes have been used to offset the equalizing effects of school finance reform, they should be most prevalent in districts that initially had the highest revenue limits.

Figure 9.3 provides evidence consistent with that hypothesis. For each type of school district, the figure gives the average revenue limit in 1974–1975 for districts that:

⁶The San Francisco Bay Area is defined to include Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, and Sonoma Counties.



SOURCE: California Department of Education (1976).

Figure 9.3—Parcel Taxes and 1974–1975 Revenue Limits

- Never held a parcel tax election,
- Held an election but never passed a parcel tax, and
- Passed a parcel tax.⁷

As the figure illustrates, school districts that were most constrained by reform were more likely to use the parcel tax. In particular, both the probability of holding a parcel tax election and the probability of passing a parcel tax are positively related to 1974–1975 revenue limits. For example, elementary school districts that never held a parcel tax election had an average revenue limit of \$878. In contrast, elementary school districts that held an election but never passed a parcel tax had an average revenue limit of \$947, and districts that passed a parcel tax had an average revenue limit of \$1,110. A similar relationship between 1974–

⁷Data on 1974–1975 school district revenue limits are from the California Department of Education (1974). Because of the formation of new school districts or the consolidation of existing districts, 1974–1975 revenue limits were unavailable for nine elementary school districts, eight high school districts, and 59 unified districts. Only one of those districts—West Sonoma Union High School District—has levied a parcel tax.

1975 revenue limits and use of the parcel tax holds for high school and unified school districts. For example, in unified school districts that never held a parcel tax election, the average revenue limit in 1974–1975 was \$1,025. In contrast, in unified school districts that passed a parcel tax, the average revenue limit was \$1,205.

Although this evidence is compelling, it should be interpreted with caution. In particular, measuring how constrained school districts are today by looking at their 1974–1975 revenue limits is problematic for several reasons. First, as noted by Sonstelie, Brunner, and Ardon (2000), the spending levels that existed in the 1970s reflected the choices districts made when spending was financed through the property tax. Districts with a high percentage of commercial and industrial property faced lower marginal prices of school spending and therefore chose relatively high levels of spending per pupil. Proposition 13 eliminated the property tax as a source of discretionary revenue and thus eliminated this subsidy. As a consequence, 1974–1975 revenue limits may not accurately reflect the demand for school spending under state finance. Second, the demographics of districts have changed over the past 25 years. For example, many of the wealthy Bay Area communities that exist today were largely undeveloped in the 1970s. Numerous studies have shown that the demand for school spending is positively related to both income and the education levels of parents (Bergstrom and Goodman, 1973; Bergstrom, Rubinfeld, and Shapiro, 1982; Jones, 1996; Poterba, 1997). Thus, changes in family income and the educational attainment of parents over the past 25 years may have changed the demand for school spending. These facts suggest that family income and parental education may be better measures of the demand for school spending under state finance.

Figure 9.4 illustrates the relationship between family income and use of the parcel tax. Like the previous figure, it considers districts that never held a parcel tax election, districts that held an election but never passed a parcel tax, and districts that passed a parcel tax.⁸ Use of the parcel tax

⁸Data on average family income are from the School District Data Book, a special tabulation of the 1990 census produced by the National Center for Educational Statistics. The Data Book excluded districts in 12 of California's 58 counties. As a result, district-level family income data are unavailable for 231 of the 987 districts in the sample. None

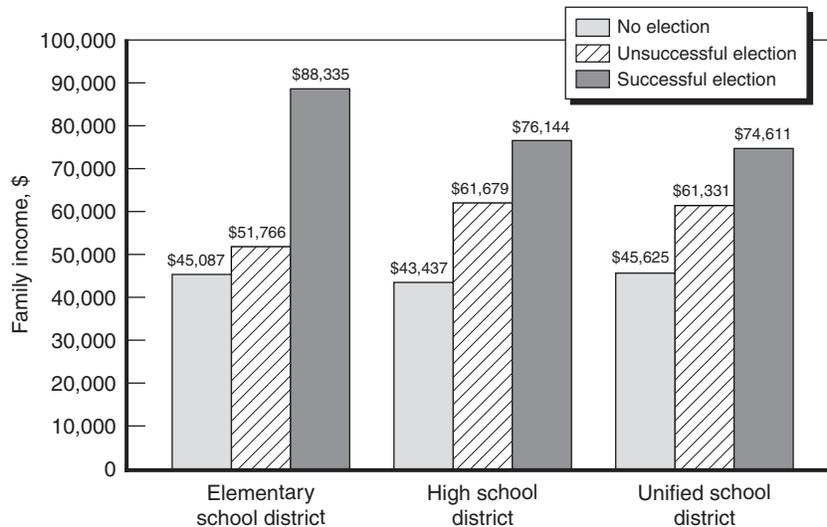


Figure 9.4—Parcel Taxes and Family Income

appears to be positively related to family income. In elementary school districts that never held a parcel tax election, family income averaged \$45,087. Family income in elementary school districts that held an election but never passed a parcel tax averaged \$51,766, and the corresponding figure for elementary school districts that passed a parcel tax was \$88,335. A similar relationship between family income and parcel tax use holds for high school and unified school districts. In unified school districts that never held a parcel tax election, family income averaged \$45,625; in those that passed a parcel tax, that figure was \$74,611.

Use of the parcel tax and parental education in 1990 also display a strong positive relationship. In elementary school districts that never held a parcel tax election, 17 percent of parents had a college education compared to 49 percent of parents in districts that passed a parcel tax. Similarly, in high school districts that held a parcel tax election, 16 percent of parents had a college education. For high school districts that

of the districts missing from the Data Book levied a parcel tax. Excluded are Butte, El Dorado, Humbolt, Kings, Madera, Monterey, Napa, San Benito, Santa Barbara, Siskiyou, Tehama, and Trinity Counties.

held an election but never passed a parcel tax, that figure was 28 percent; in high school districts that passed a parcel tax, 50 percent of parents had a college education. A similar relationship holds for unified school districts.

Table 9.2 shows how 1974–1975 revenue limits, family income, and the percentage of parents with a college education vary across the 33 elementary school districts that levied a parcel tax in 1998–1999. The first column gives four ranges of parcel tax revenue per pupil, and the second column shows the number of elementary school districts with parcel tax revenue per pupil within each range. For example, eight elementary school districts had parcel tax revenue per pupil of \$199 or less. Similarly, eight elementary school districts had parcel tax revenue per pupil of \$800 or more. The third column shows the average 1974–1975 revenue limit among school districts within each range of revenue limit funding per pupil. As the third column illustrates, parcel tax revenue per pupil appears to be positively related to 1974–1975 revenue limits. Revenue limits are lowest among districts that raised the least parcel tax revenue, and they increase steadily with the amount of revenue raised. This pattern is consistent with the hypothesis that parcel tax revenue has been used to offset the equalizing effects of revenue limits.

The fourth column illustrates the relationship between family income and parcel tax revenue per pupil, and the fifth column illustrates the relationship between the percentage of parents with a college education and parcel tax revenue per pupil. As those columns illustrate,

Table 9.2
Characteristics of Districts with Parcel Taxes, by Ranges of Parcel Tax Revenue per Pupil in 1998–1999

Parcel Tax Revenue per Pupil, \$	No. of School Districts	1974-75 Revenue Limit, \$	Average Family Income, \$	% of Parents with a College Education
1–199	8	820	52,515	28.2
200–349	8	1,192	95,102	54.8
350–799	9	1,200	110,002	60.8
800 and above	8	1,311	114,400	64.8

parcel tax revenue per pupil appears to be positively related to both family income and the percentage of parents with a college education. For example, family income averaged \$52,515 among school districts with parcel tax revenue per pupil of \$199 or less. In contrast, family income averaged \$114,400 among school districts with parcel tax revenue per pupil of \$800 or more. Similarly, the percentage of parents with a college education averaged 28 percent among school districts with parcel tax revenue per pupil of \$199 or less. In contrast, the percentage of parents with a college education averaged 65 percent among school districts with parcel tax revenue per pupil of \$800 or more.

Parcel Taxes and the Marginal Price of School Spending

As we have seen, some school districts have been quite successful in raising supplemental funding through the parcel tax, particularly those most constrained by school finance reform. However, the question still remains: Why isn't the parcel tax used more widely? The limited use of the parcel tax is particularly perplexing given the relative decline in school spending that occurred in California in the aftermath of school finance reform. Before *Serrano* and Proposition 13, spending per pupil was about 10 percent higher in California than in the rest of the country. Over the next two decades, however, spending per pupil in California fell about 15 percent relative to the national average. In 1997–1998, spending per pupil was about 6 percent lower in California than in the rest of the country, even though the median household income in California was about 9 percent higher than in the rest of the country. California is a relatively wealthy state, and one would therefore expect higher, not lower, levels of spending per pupil.

California's relative decline in spending per pupil is illustrated in Figure 9.5. That figure gives 1972 and 1992 average spending per pupil in California and the rest of the country for all students attending unified school districts and for students attending a high-income unified school

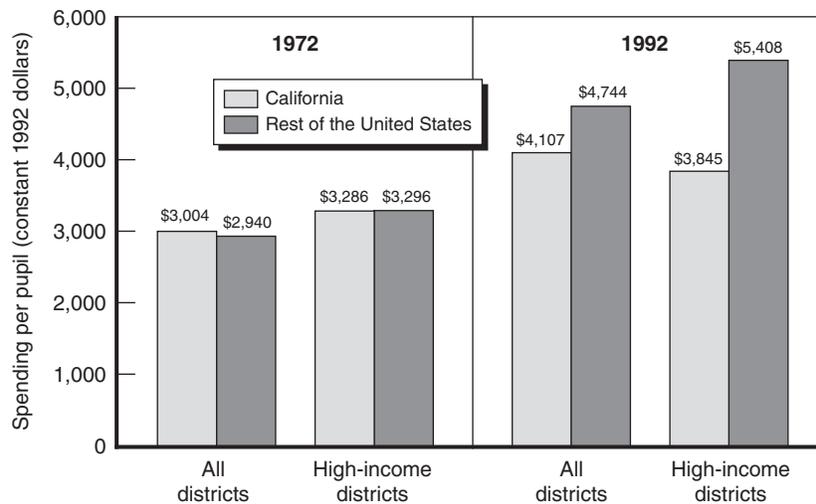


Figure 9.5—Spending per Pupil in California Relative to the Rest of the United States

district.⁹ In 1972, high-income districts correspond to districts with a median household income of \$10,965 or more in 1970. Of all the students in a unified school district in the United States in 1972, 25 percent attended in one of these high-income districts. Similarly, in 1992, high-income districts correspond to districts with median household income of \$41,420 or more in 1990. Of all the students in a unified school district in the United States in 1992, 25 percent attended in one of these high-income districts. To account for differences in district size, 1972 and 1992 spending per pupil is weighted by district enrollment.¹⁰ In addition, for comparison purposes, 1972 spending per pupil is expressed in constant 1992 dollars.

⁹I wish to thank Sheila Murray for providing the data on household income and spending per pupil used to construct Figure 9.5. A detailed description of the data can be found in Murray, Evans, and Schwab (1998).

¹⁰Weighting by district enrollment changes the unit of observation from the district to the student. Thus, weighting by district enrollment allows one to make comparisons of the number of *students* living in high-income districts rather than comparisons simply of the number of districts that are high-income.

As Figure 9.5 illustrates, in 1972 spending per pupil in California roughly equaled the level in other states. In 1992, however, spending per pupil in California was about 13 percent lower than in the rest of the country (\$4,107 compared to \$4,744). Furthermore, relative to high-income districts in other states, California's high-income districts suffered a particularly sharp decline in spending per pupil. Specifically, in 1972, high-income districts in California spent about the same amount as high-income districts in other states. By 1992, however, that situation had changed dramatically. The average spending per pupil in California's high-income districts was \$3,845, whereas the corresponding figure for high-income districts in other states was \$5,408. Thus, by 1992, high-income districts in California were spending approximately 29 percent less than high-income district in other states.

Why haven't California's school districts used the parcel tax to close that difference? One answer is directly related to California's transformation in school finance.¹¹ In other states, the source of discretionary school revenue is still the local property tax. In California, however, school finance reform and Proposition 13 changed the source of discretionary revenue from the local property tax to the parcel tax. That change altered the marginal price of school spending, which may have decreased the demand for public school spending.

The marginal price of school spending may be defined as the additional tax burden a homeowner faces when spending per pupil is increased by \$1. When school spending is financed through the property tax, that additional tax burden manifests itself in higher property tax payments. For example consider a district with S students. To increase spending per pupil by \$1, the district needs to raise S dollars. Now consider a homeowner who lives in a home with an assessed value of V dollars. If the total assessed value of all property in the district is T dollars, the homeowner's share of total district taxes is V/T . Thus,

¹¹Poterba (1997) and Schrag (1998) offer another explanation—the growing reluctance of white voters to fund public schools that were becoming increasingly nonwhite.

the cost to the homeowner of increasing spending per pupil by \$1 is $(V/T) * S$.¹²

To illustrate that point, consider a school district with 100 students and 100 owner-occupied homes, each with an assessed value of \$100,000. In that case, the marginal price of school spending is $100,000/100,000 * 100$, or exactly \$1. Now suppose that in addition to the 100 owner-occupied homes, the district also contains 20 nonresidential parcels that have a total assessed value of \$10 million. In that case, the marginal price of school spending is $100,000/20,000,000 * 100$ or only \$0.50. Although this example is simplistic, it illustrates an important point. The marginal price of school spending depends on the share of property that is nonresidential. That is, homeowners in districts with high concentrations of nonresidential property face a relatively low marginal price of school spending because part of the additional tax burden is shifted to the nonresidential property owners. In that sense, nonresidential property taxes subsidize homeowners by reducing their marginal price of public school spending.

School finance reform and Proposition 13 changed the marginal price of that spending. Almost all parcel taxes are a fixed dollar tax per parcel of land. As a result, the marginal price of school spending with the parcel tax depends on the number of students per parcel. Specifically, the marginal price of school spending is $1/N * S$ where S is the number of students within the district and N is the number of parcels within the district. Consider once again a school district with 100 students and 100 owner-occupied homes. The cost facing homeowners of increasing spending per pupil by \$1 is exactly \$1. Now suppose that in addition to the 100 owner-occupied homes, the district also contains 20 nonresidential parcels. In that case, the cost facing homeowners of increasing spending per pupil by one dollar is $1/120 * 100$ or approximately \$0.83. With the parcel tax, nonresidential property still acts as a subsidy to homeowners, because the owners of commercial and industrial parcels still pay for part of the increase in

¹²Note that the marginal price of school spending is inversely related to the amount of assessed value per pupil (T/S)—an aspect of the property tax that was ultimately deemed unconstitutional in the *Serrano* decision.

spending per pupil. However, the nature of the subsidy has changed. With the property tax the value of the subsidy depends on the *value* of nonresidential parcels as a percentage of total assessed value. With the parcel tax, the value of the subsidy depends on the *number* of nonresidential parcels as a percentage of the total number of parcels.

How does the subsidy from nonresidential property under the property tax compare to that under the parcel tax? Figure 9.6 provides a partial answer to that question. For the fiscal year ending June 2000, the figure gives the percentage of assessed value that was nonresidential and the percentage of parcels that was nonresidential in four representative counties: Los Angeles, San Diego, Marin, and San Mateo.¹³ In all four counties, the average subsidy from nonresidential property under the property tax is larger than the average subsidy under the parcel tax. In Los Angeles County, for example, nonresidential property accounted for 34 percent of assessed value. In contrast, nonresidential parcels accounted for only 11 percent of the total number of parcels. Thus, on

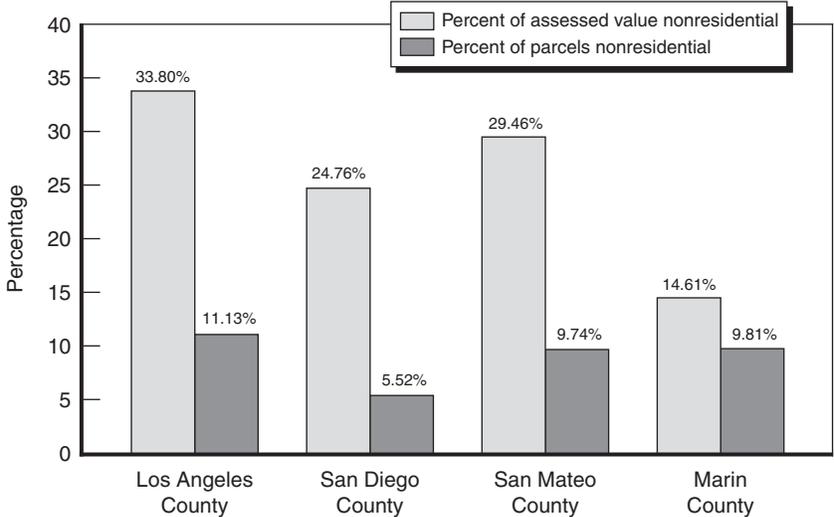


Figure 9.6—Subsidy from Nonresidential Property Under Property Tax and Parcel Tax

¹³The percentages illustrated in Figure 9.6 were constructed using data from annual assessment roll reports produced by each county's Office of the Assessor.

average, changing the source of discretionary school funding from the property tax to the parcel tax reduced the subsidy from nonresidential property by 23 percent in Los Angeles County.

If this change in the source of discretionary school spending reduces the subsidy from nonresidential property, it should also increase the marginal price of school spending. That point is illustrated in Table 9.3. The table shows how the marginal price of school spending under the property tax compares with the marginal price under the parcel tax for school districts in Los Angeles County. The data used to construct the marginal price figures come from the Dataquick Property Data CD-ROM for Los Angeles County. The Dataquick database includes information on the assessed value and use (residential, commercial, industrial, etc.) of every property in Los Angeles County as of August 2000. To construct estimates of the marginal price of school spending, the data were first aggregated to the school district level, yielding estimates of the total number of parcels within each school district and the total assessed value of property within each school district. The marginal price of school spending under the property tax was then constructed by first dividing the average assessed value of a single-family home within a district by the total assessed value of all property within a district. This provided an estimate of the average single-family homeowner's share of total district taxes (V/T). That share was then multiplied by school district enrollment in 1999–2000 to obtain an estimate of the marginal price of school spending under the property tax ($(V/T) * S$). Similarly, the marginal price of school spending under the

Table 9.3
The Marginal Price of School Spending, Los Angeles County
School Districts

School District Type	Marginal Price with Property Tax	Marginal Price with Parcel Tax	% Change in Marginal Price
Elementary	0.44	0.58	31.8
High School	0.19	0.28	47.4
Unified	0.55	0.74	34.5

parcel tax $((1/N) * S)$ was constructed by dividing district enrollment in 1999–2000 by the total number of parcels within a district.

The second column of Table 9.3 gives the marginal price of school spending under the property tax for each type of school district, and the third column gives the same price under the parcel tax.¹⁴ The fourth column gives the percentage increase in price that occurs when the source of discretionary revenue is changed from the property tax to the parcel tax. For each type of school district, the marginal price of school spending under the parcel tax is substantially higher than the corresponding price under the property tax. For example, consider the cost facing the average single-family homeowner in an elementary school district of increasing spending per pupil by \$1. If the increase in spending per pupil were financed through the property tax, the cost to the homeowner would be \$0.44. In contrast, if the increase in spending per pupil were financed through the parcel tax, the cost to the homeowner would be \$0.58, or almost 32 percent more. A similar pattern holds for high school and unified school districts, where the increases are 47 percent and 34.5 percent, respectively.

This increase in the marginal price of school spending to homeowners may explain why only a small proportion of California's school districts have chosen to impose parcel taxes. The demand for public school spending depends on more than just income and preferences; it also depends on the marginal price of that spending. Most other states still use the property tax as the primary source of discretionary school revenue. As a result, homeowners in those states face lower marginal prices for school spending. These lower marginal prices, in turn, increase the demand for public school spending.

The Future of the Parcel Tax

If the parcel tax made additional school spending unappealing to only all but the wealthiest districts, that problem could be solved through

¹⁴Los Angeles County contains 29 elementary school districts, six high school districts, and 46 unified school districts. Eleven of those districts were dropped from the sample because of data limitations. As a result, the final sample consists of 25 elementary districts, five high school districts, and 40 unified school districts. A detailed description of the data restrictions is available from the author upon request.

a matching state aid program. For example, suppose that for every dollar a district raised through the parcel tax, the state were to contribute \$0.50. In that case, the marginal price of school spending would fall by 33 percent, making the marginal price of school spending under the parcel tax roughly comparable to the marginal price under the property tax. Unfortunately, the parcel tax suffers from a second, more fundamental, problem. In terms of its economic incidence, the parcel tax is regressive. Because almost all parcel taxes are levied as a fixed dollar tax per parcel of land, the burden of the tax is proportionately larger for low-income homeowners than it is for high-income homeowners.¹⁵

Both these drawbacks are directly related to the way most parcel taxes are levied: namely, as a fixed dollar tax per parcel of land. However, two school districts, Albany Unified and Berkeley Unified, have levied a parcel tax that avoids both drawbacks. That version is a parcel tax that depends on the square footage of a parcel. Because commercial and industrial parcels tend to be larger than residential parcels, the owners of commercial and industrial parcels pay a larger share of any increase in spending per pupil. In that sense, a tax on the square footage of parcels restores the subsidy from nonresidential property that existed under the property tax. Furthermore, because parcel size tends to increase with homeowner income, a tax on the square footage of parcels is less regressive than a fixed dollar tax per parcel of land.

Should the state promote broader use of this sort of parcel tax? To answer that question, one must travel full circle to *Serrano vs. Priest*, the event that began the transformation of the school finance system. Under the guidelines set forth by the California Supreme Court ruling in that case, difference across districts in spending per pupil could not be systematically related to property wealth. In essence, the *Serrano* decision mandated a system of fiscal neutrality—identical property tax rates should produce identical revenue per pupil, regardless of a district's property wealth. Would a tax based on the square footage of parcels

¹⁵The parcel tax may not be as regressive in districts that contain a large proportion of renters, who tend to have lower incomes than homeowners and do not pay the parcel tax. Nevertheless, if landlords can pass the tax along by increasing rents, it seems likely that renters would end up paying at least some portion of the tax.

satisfy the court's interpretation of fiscal neutrality? It seems unlikely. Imagine two school districts with the same number of students and the same number of parcels. The only difference between the two districts is the size of the parcels that make up the districts. Whereas the first district is made up entirely of 1,000-square-foot parcels, the second district is made up entirely of 2,000-square-foot parcels. If both districts levy the same tax rate, the first district would raise only half as much revenue as the second district. Although artificial, this example drives home an important point: The broader use of parcel taxes that depend on the square footage of parcels would most likely put California's system of public school finance back on trial.

What do these problems imply for the future of the parcel tax? Is there a way to transform the parcel tax into a viable source of discretionary school funding for California's school districts? In the last section of this essay, I present a model school finance system, based on a square footage parcel tax, that provides school districts with a flexible source of discretionary school revenue yet satisfies *Serrano*. In many respects the model mirrors the model school finance system developed by Sonstelie in Chapter 8. However, there is one major difference between the two models. In Sonstelie's model, the source of discretionary school revenue is the property tax, whereas in this model, the source of discretionary school revenue is the parcel tax.

As in Sonstelie's property tax model, this one has two levels of revenue: primary and secondary. Primary funding is determined by a base level of funding per pupil sufficient to provide adequate resources to schools under average conditions. In terms of the current system, base revenue per pupil is a district's revenue limit funding. The base level of funding could be further adjusted to accommodate differences in district need, as is done under the current system with categorical state aid. In that case, a district's primary aid would be the sum of its revenue limit funding per pupil plus categorical state aid per pupil.

Districts may supplement this base revenue with secondary revenue raised through a square footage parcel tax. Districts could set their own parcel tax rates, and the proceeds would be subject to district power equalization. This equalization is accomplished through a secondary state aid program. The state establishes a standardized total square

footage per pupil, and secondary aid is the difference between the revenue a district would receive if its parcel tax rate were applied to the standardized tax base and the revenue it actually receives from its parcel tax rate. For districts with total square footage per pupil greater than the standardized value, secondary state aid would be negative and thus would reduce the district's primary aid.

The system can be described in more detail using the following definitions:

- BR is a district's base revenue per pupil established by the state.
- DTP is the total square footage of all parcels within a district divided by the number of pupils. That is, $DTP = T/S$, where T is the total square footage of all parcels in the district and S is the number of students in the district.
- STP is the standardized total square footage per pupil established by the state.
- t is the parcel tax rate chosen by the district.

Using these definitions, total district revenue per pupil would be the sum of the following sources of district revenue:

- Primary state aid = BR
- Secondary state aid = $t * (STP - DTP)$
- District parcel tax revenue per pupil = $t * DTP$

Adding these three sources of revenue together yields:

- Total district revenue per pupil = $BR + t * STP$

Note that the system is fiscally neutral, as districts leveling the same tax rate have the same revenue per pupil. Thus, the system satisfies the *Serrano* requirements. Furthermore, the system provides districts with a flexible source of discretionary tax revenue, as they may increase their revenue by choosing a higher tax rate. Of course, the model outlined above raises at least two important questions. First, would a tax based on the square footage of parcels be appealing to district residents? Specifically, how does the marginal price of school spending under a square footage parcel tax compare to the marginal price of school

spending under a property tax? If the marginal price of school spending under a square footage parcel tax was relatively high, the system outlined above could easily be modified to include a matching state aid program. Such a program would reduce the marginal price of school spending, making the parcel tax more attractive to district residents. Second, what is the economic incidence of a tax based on the square footage of parcels? Is it a fair tax? One concern with such a tax is its effect on owners of large parcels with low market value. Because the tax is based on the square footage of a parcel and not the parcel's value, these owners would pay a disproportionate share of the tax. Once again, the system described above could be modified to address this issue, perhaps by allowing districts to apply different tax rates to different types of parcels (for example, residential parcels and nonresidential parcels).

In conclusion, the system outlined above has several attractive features. First, it would be relatively simple to implement, as it requires few adjustments to the current system other than the establishment of a district power equalization program. Second, compared to the parcel tax as it now stands, this model would provide districts with a more attractive source of discretionary school revenue.¹⁶ Before the legislature considers implementing such a system, however, several questions would need to be addressed. First, how high is the marginal price of school funding under a square footage parcel tax? Second, what is the economic incidence of a square footage parcel tax? It would be a relatively simple task to answer those questions in subsequent research.

¹⁶In principle, a system similar to the one described above could be developed for the most popular type of parcel taxes: namely, parcel taxes levied as a fixed dollar tax per parcel of land. In that case, the state would need to establish a standardized total number of parcels per pupil. Secondary aid would then be the difference between the revenue a district would receive if its parcel tax rate were applied to the standardized base and the revenue it actually receives from its parcel tax rate. The state would also need to address two fundamental problems associated with such a tax. First, to make such a tax more appealing, a matching state aid program similar to the one described above would need to be established. Second, to deal with the regressive nature of the tax, a lower tax rate or a complete exemption from the tax could be established for low-income households. In fact, several districts that currently levy a parcel tax already provide an exemption for low-income taxpayers and those aged 65 and older.

Table 9.4
Districts with a Parcel Tax, 1983–1999

County	District	County	District
Alameda	Albany City Unified	Placer	Tahoe Truckee Joint Unified
Alameda	Berkeley Unified	San Mateo	Brisbane Elementary
Alameda	Oakland Unified	San Mateo	Burlingame Elementary
Alameda	Piedmont City Unified	San Mateo	Hillsborough City Elementary
Contra Costa	Acalanes Union High	San Mateo	Las Lomas Elementary
Contra Costa	Knightsen Elementary	San Mateo	Menlo Park City Elementary
Contra Costa	Lafayette Elementary	San Mateo	Portola Valley Elementary
Contra Costa	Moraga Elementary	San Mateo	San Mateo Foster City Elementary
Contra Costa	Orinda Union Elementary	San Mateo	Woodside Elementary
Kern	Buena Vista Elementary	Santa Clara	Loma Prieta Joint Union Elementary
Kern	Mojave Unified	Santa Clara	Los Altos Elementary
Los Angeles	San Marino Unified	Santa Clara	Los Gatos Union Elementary
Los Angeles	Santa Monica Malibu Unified	Santa Clara	Oak Grove Elementary
Marin	Bolinas Stinson Union Elementary	Solano	Dixon Unified
Marin	Dixie Elementary	Sonoma	Forestville Union Elementary
Marin	Kentfield Elementary	Sonoma	Fort Ross Elementary
Marin	Lagunitas Elementary	Sonoma	Harmony Union Elementary
Marin	Larkspur Elementary	Sonoma	Kenwood Elementary
Marin	Mill Valley Elementary	Sonoma	Liberty Elementary
Marin	Novato Unified	Sonoma	Rincon Valley Union Elementary
Marin	Reed Union Elementary	Sonoma	Sebastopol Union Elementary
Marin	Ross Elementary	Sonoma	Twin Hills Union Elementary
Marin	Ross Valley Elementary	Sonoma	West Sonoma County Union High
Marin	San Rafael City Elementary	Tulare	Three Rivers Union Elementary
Marin	San Rafael City High	Tulare	Tulare City Elementary
Marin	Shoreline Unified	Yolo	Davis Joint Unified
Marin	Tamalpais Union High		

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