Faculty Research Fellows Program

October 2007

School Funding Formulas: What Works and What Doesn't? Lessons for California

Jennifer Imazeki

SACRAMENTO STATE
Center for California Studies

SCHOOL FUNDING FORMULAS: WHAT WORKS AND WHAT DOESN'T? LESSONS FOR CALIFORNIA

Jennifer Imazeki
San Diego State University
5500 Campanile Drive
San Diego, CA 92182-4485
Office: 322 Nasatir Hall
Phone: 619-594-5012
Fax: 619-594-5062
Email: jimazeki@mail.sdsu.edu

October 31, 2007

* This report was produced with the help of a 2006-2007 contract from the California State University Faculty Research Fellows Program, California Senate Office of Research. The opinions expressed in this report do not necessarily reflect the opinion of the Senate Office of Research. The Coordinator of the Faculty Research Fellows Program is Miguel Ceja, Center for California Studies, California State University, Sacramento. For information on the Faculty Research Fellows Program and a list of all previous reports, visit www.csus.edu/calst/Government_Affairs/faculty_fellows_program.html

California State University, Sacramento
Center for California Studies
6000 J Street • Tahoe Hall 3046 • Sacramento, CA 95819-6081
T (916) 278-6906 • F (916) 278-5199 • www.csus.edu/calst

Dear Friend:

The Faculty Research Fellows Program was created in 1994 to give California's policy makers greater access to the applied research resources of the California State University. Since then, the Program has distributed more than $700, 000 to over 71 CSU faculty and staff from 13 different CSU campuses who have completed more than 60 research projects.

Administered by the Center for California Studies of California State University, Sacramento, the Faculty Research Fellows Program is driven by the research needs of policy makers in the executive and legislative branches. Requests for data, research, conference support and other activities are submitted to the Center by the Assembly, Senate and Governor's office. The Center then utilizes a system-wide computer network to notify CSU faculty and staff of these requests and disseminate request for proposals. The Center evaluates the responses and awards the research funding.

The Center for California Studies is a public policy, public service, and curricular support unit of California State University, Sacramento. The Center's capital location and ability to draw on the resources of the entire State University system provide it a unique capacity for making contributions to the development of public policies and the public life of the State. Center programs cover four broad areas: administration of the nationally known Assembly, Senate and Executive Fellowship Programs; university-state government liaison and applied public-affairs research, including the Faculty Research Fellows Program; civic education and community service through forums and conferences; and curricular support in the interdisciplinary field of California Studies.

Please note that the views and opinions expressed in this report are those of the author(s) and do not necessarily represent the Center for California Studies, California State University, Sacramento, or the California State University.

If you have questions about this report, the Faculty Research Fellows Program or the Center for California Studies, please feel free to contact us.

Sincerely,

Timothy A. Hodson
Executive Director
Center for California Studies

Miguel Ceja
Coordinator
Faculty Research Fellows Program

TABLE OF CONTENTS

EXECUTIVE SUMMARY

California's current system of school finance is the result of three decades of court-mandated and voter-influenced reforms. It is highly state-centralized and extremely complex. And as pointed out by Loeb, Bryk and Hanushek (2007), the system is also broken and in need of fundamental reform. All of the studies that were part of the recent *Getting Down to Facts* project were consistent in their conclusions that if California is to make any significant progress in improving its K-12 public schools, the entire system of school finance and governance needs to be overhauled. However, while those reports provided an exhaustive look inside the current flawed system, they purposely provided few concrete policy recommendations. This report seeks to fill at least part of that gap by reviewing school funding systems in other states and identifying aspects of those systems that could be adopted to improve school finance in California.

The report gives a brief overview of California's current school finance system, with a particular focus on the constitutional and legislative mandates that must be considered carefully in designing any new reforms; specifically, the constraints imposed by *Serrano v. Priest*, Proposition 13 and Proposition 98. The second half of that section examines how California compares to other states along a number of dimensions of school finance. Section III discusses the key policy decisions that must be made in designing a new funding system. These include:

- What form should the base formula take?
- Should the state mandate a minimum level of funding in each district? If so, how is the minimum level to be determined?
- Should the state impose a limit on the maximum amount of revenue or spending in each district? If so, what form should the limit take and how is the level to be determined?
- What differential cost adjustments should be included in the system?
- How should differential costs be incorporated into the formula?
- How large should the adjustments for differential costs be?

The answers to these questions can be guided, to a certain extent by the research on school finance and student outcomes. That research suggests that if California wants to design a system that is consistent with higher student performance, that system should have the following characteristics:

- increased local control over both the level and allocation of resources;
- a coherent rationale for the base level of funding to each district;
- appropriate adjustments for legitimate differences in the costs of educating students in various districts;

In addition, these must be balanced with the need for equity as required by Serrano, as well as maintaining Prop 13 limits on property taxation and the funding guarantee of Prop 98 (unless those Propositions were to be overturned or substantially amended, which seems highly unlikely). Policymakers need to understand that Proposition 13, in particular, creates

constraints that legislators in other states do not face and thus, other states have a wider range of tools available to them in designing and reforming their school finance systems. In addition, it is important that policymakers take a cohesive approach to reform and consider how the finance, governance and accountability systems all interact. Realistic policy proposals must consider the need for reform across the educational system.

POLICY RECOMMENDATIONS

Convert the revenue limit system to a traditional foundation formula with an adequate foundation amount: District revenue limits would be replaced with a base foundation level that is equal across all districts. The foundation level should be based on estimates from costing out studies of the amount required for a basic district (i.e., one with low levels of student need, etc.) to achieve the standards required by the state accountability system.

Adjust foundation level for differential district costs: Appropriate adjustments would include additional funding for K-3 students and secondary grade levels, comparable wage teacher costs (applied to a percentage of the foundation amount), very small districts and sparsely populated districts.

Adjust ADA counts for differential student needs: As with the base foundation amount, rational determination of the magnitude of the weights would require that they be connected to the actual costs of achieving the performance targets set by the state. Appropriate weights for poverty would range from 0.3 to 0.6; 0.2 to 0.3 for English Learners. Funding for high-cost disabilities would also be allocated through pupil weights. Funding for lower-cost disabilities (such as learning disabilities) would continue to be funded through a census-based categorical program.

Hold harmless policies: Given that revenues are not allocated rationally in the current system, moving to a more rational system would likely suggest relative losses for low-cost districts and gains for high-cost districts. To be politically palatable, such a transition would need to be phased in over several years. During the transition, districts would receive the revenue indicated by the new formula, or their spending in the year prior to the reform, whichever is greater.

Evaluate specific interventions currently funded through categorical programs for effectiveness: Ideally, the revenues from an adjusted foundation amount and weighted pupil counts would replace most categorical aid. However, California currently has a number of aid programs that do not fall into any of the categories that might be covered by pupil weights or adjustments to the foundation level, but that policymakers might still believe are legitimate uses of funds, such as programs for professional development or the arts. Some of these could be folded into the base revenue. Others should be retained as categoricals but only if they are proven to be an effective use of targeted, restricted dollars. For example, the state has multiple before- and after-school programs, or staff and administrator development programs. But policymakers have no idea whether these programs are achieving their intended objectives.

Prioritize the development of a longitudinal student and teacher data system: Evaluation of specific interventions, let alone true accountability, is impossible without good data. If policymakers want to ensure that reforms, whatever they might be, are appropriate and effective, they need better data. As just one example, the determination of the

appropriate weights for different student needs requires good data that allows analysts to follow individual student performance over time.

INTRODUCTION

California's current system of school finance is the result of three decades of court-mandated and voter-influenced reforms. It is highly state-centralized and extremely complex. And as pointed out by Loeb, Bryk and Hanushek (2007), the system is also broken and in need of fundamental reform. All of the studies that were part of the recent *Getting Down to Facts* project[1] were consistent in their conclusions that if California is to make any significant progress in improving its K-12 public schools, the entire system of school finance and governance needs to be overhauled. However, while those reports provided an exhaustive look inside the current flawed system, they purposely provided few concrete policy recommendations. This report seeks to fill at least part of that gap by reviewing school funding systems in other states and identifying aspects of those systems that could be adopted to improve school finance in California.

The Florida Office of Program Policy Analysis and Government Accountability provides the following definition of 'school finance system':

> "A state's school finance system is a series of procedures, formulas, and mechanisms designed to allocate state support to the school districts, reimburse school districts for particular expenditures they incur, control the spending levels and tax rates of school districts, regulate how districts spend

[1] *Getting Down to Facts* is a research project of more than 20 studies requested by the Governor's Committee on Education Excellence, former Secretary of Education Alan Bersin, the President pre Tem of the California Senate, the Speaker of the California Assembly, and the Superintendent of Public Instruction. The studies are intended to provide information on the current state of California's school finance and governance systems and, as a group, address the three questions: What do California school finance and governance systems look like today? How can we use the resources that we have more effectively to improve student outcomes? And to what extent are additional resources needed so that California's students can meet the goals that we have for them? However, an important aspect of the project is that it was specifically *not* designed to recommend specific policies.

> revenues, and provide incentives for school districts. Each system is unique due to the number and type of components included and the countless possibilities for combining them, the different characteristics of the states, and the historical development of the systems.
>
> "The overall goal of many state education finance systems is to change the spending patterns across districts to promote equalization of education funding and spending" (Florida, 1996, page 3).

The focus on equalization through state school finance, in California and across the country, began in 1971 with *Serrano v. Priest*, in which the courts required that California find a way to break the link between local property values and local school spending. The subsequent reforms in California, and in other states, focused primarily on equalizing school spending per pupil across districts, with much success. Looking at all states, Murray, Evans and Schwab (1998) found that court-ordered reforms typically increased equity of per-pupil dollars across districts within states that adopted reforms. A more recent study also found that such reforms primarily increased spending among low-income districts and reduced performance gaps (Card and Payne, 2002).

While *Serrano* was the catalyst for equalization reforms in California and elsewhere, it was Proposition 13 that really brought about this state's transformation to a state-centralized system of education finance. Passed by the voters in 1978, Prop 13 imposed the most stringent property tax restrictions in the country at that time, and led to a substantial

drop in local revenues. The state stepped in to compensate districts for lost local revenue and although this was intended to be a temporary fix, it became the basis for the system still in place today. The state's responsibility for funding schools was further solidified with Proposition 98, which created a constitutional guarantee that K-12 public schools and community colleges receive a certain share of the state budget.

During the 1980's and 1990's, a growing awareness that equal per-pupil dollars do not lead to equal outcomes led to new court challenges in several states, based on adequacy grounds; that is, plaintiffs maintained states were required to ensure students had equal access to an "adequate" education. In particular, these cases focused on the differential costs of education for schools serving different student populations, highlighting the fact that some schools require more resources than others to meet the same performance standard. This led to additional reforms in many states, with changes in both the amount of state aid provided to districts and the way in which such aid was targeted. The majority of states now have adjustments in their funding formulas that target additional resources to districts with greater proportions of high-need students (i.e., low-income, Limited English Proficient, special education, etc.), although there is a great deal of variance in how well those adjustments correspond to the true costs associated with those populations (Baker, 2001).

Unlike many other states, California has yet to address adequacy in a cohesive fashion. Although *Eliezer Williams, et al., vs. State of California, et al.* could technically be considered an adequacy-based lawsuit,[2] that case did not result in any fundamental change to the school finance *system*. Instead, the state simply allocated additional funds to low-performing schools. This is consistent with other attempts at school finance 'reform' in

[2] On its website, the California Department of Education states, "The basis of the lawsuit was that the agencies failed to provide public school students with equal access to instructional materials, safe and decent school facilities, and qualified teachers."

California over the last three decades: rather than make rational and cohesive changes to the system, California legislators have simply added onto the system in a piecemeal fashion. This has resulted in a system that is "highly prescriptive", "complex and irrational", and that "thwarts incentives for higher achievement" and "limits districts' and schools' ability to respond to the accountability system and to student needs." (Loeb et al, 2007)

Equalization versus Local Control

The preceding quotes from Loeb, et al, are indicative of one of the chief criticisms of California's funding system: the lack of flexibility and local district control over both the level and allocation of resources. It is important for policymakers to understand that decisions about the structure of the state school finance system are also decisions about governance. This is because the finance system influences the answers to two key governance questions: Who determines the level of resources in each district and who determines how those resources are allocated?

The research on school finance and student outcomes consistently finds that students fare worse in more centralized systems (see Brunner and Sonstelie, 2007, for a review of this literature). Given that California has one of the most centralized school finance systems in the country, any reforms intended to improve student performance should include consideration of ways to increase local control. The conundrum for policymakers lies in the fact that more local control generally means less equalization. Indeed, one reason that California's current system is so centralized is that it was designed to meet the equity requirements of Serrano v. Priest. We will see that decisions about local control permeate

almost every aspect of school finance design. There are certainly ways that local control can be increased while maintaining a constitutionally equitable system but this balance between equalization and local control is one of the central tensions in school finance, not only for California but for all states, and is a recurring theme throughout the following discussion.[3]

School Finance Formulas Do Not Exist in Isolation

Since the early 1970's, virtually every state in the union has experienced some level of school finance reform, and many states have seen multiple waves of reform. In general, these reforms have followed the same loose pattern over time, moving from a focus on equity and equalization of per-pupil dollars across districts, to a focus on adequacy and connecting dollars to the costs of achieving performance outcomes. In the last decade, changes in school finance policies have also coincided with the adoption of stronger accountability systems, reinforcing the goal of adequacy and improved student performance.

It is important to note that the research on school finance and *student outcomes* is relatively sparse. Although this report will present what evidence there is about the impact of school funding formulas on student success, the primary function of school finance formulas has not generally been the improvement of student performance directly but rather, the equalization of dollars or tax effort. The research reflects this focus, with much more attention paid to the distribution of resources than to how students fare under different policy

[3] Throughout this report, references to 'local control' refer to the ability of school districts to decide their own level of spending and how to allocate dollars for different purposes within the district. Although there is a growing interest in school-based financing (i.e., the state allocating money directly to schools or mandating that individual schools receive a certain amount of the district budget), no state has yet adopted this type of system. Thus, this report focuses solely on state-to-district financing and 'local' decisions will always refer to those made at the district level.

configurations. Furthermore, in many states where there have been noticeable improvements in student performance, school finance reforms were accompanied by changes in accountability and governance as well. Thus, policymakers should not think that adopting this or that school funding formula will be sufficient to improve student outcomes across the board. Instead, it is more appropriate to think about whether the funding formula is compatible with the rest of the system (i.e., governance, accountability) and whether the finance system provides the right incentives to support student learning. In a similar vein, Loeb, et al (2007) point out that it is not just California's school finance system that needs reform; policymakers must re-think the entire system.

The rest of this report is outlined as follows. In the next section, I give a brief overview of California's current school finance system, with a particular focus on the constitutional and legislative mandates that must be considered carefully in designing any new reforms. The second half of that section examines how California compares to other states along a number of dimensions of school finance. Section III discusses the key policy decisions that must be made in designing a new funding system. I give numerous examples of how other states have dealt with these decisions[4] and to the extent possible, discuss the research evidence on those aspects that appear to best support student success. In Section IV, this information is synthesized into specific recommendations for policy changes in California.

[4] Throughout the report, most information on specific state policies comes from two primary sources: the publication *Public School Finance Programs of the United States and Canada: 1998-99*, available from the National Center for Education Statistics (http://www.nces.ed.gov/edfin/state_finance/stateFinancing.asp), and descriptions of state litigation and cost studies compiled by the National Access Network (http://www.schoolfunding.info/).

BACKGROUND ON SCHOOL FINANCE IN CALIFORNIA AND OTHER STATES

California School Finance

California's current system of school finance is exceedingly complex and a full discussion is beyond the scope of this report.[5] In this section, I summarize the main aspects of the current system and highlight the three main legal and legislative considerations that must be considered in any reform proposal: the equity requirements of Serrano v. Priest, the property tax limitations of Proposition 13, and the state funding requirements of Proposition 98.

The Basics

The basic formula at the heart of California's system is actually fairly simple; the complexity arises from the interaction of different associated formulas and the myriad restrictions on the use of funds. In the base formula, each district is assigned a revenue limit per pupil, a number that is based on historical spending levels (with adjustments for inflation and equalization). The revenue limit amount is funded by a combination of local property tax revenue and state aid. Local property revenue is determined by formulas adopted in the wake of Proposition 13. If local property tax revenue exceeds the revenue limit amount, the district does not receive any state aid but keeps all of their property tax revenue (these are called basic aid districts and there are roughly 60 in the state). Revenue limit revenue is general-purpose funding and can be allocated as the district wishes. All other funding is distributed to districts through myriad categorical programs (from 70 to over 100 programs, depending on how they are identified), targeting special programs and student needs such as

[5] See Timar (2007), Kirst, Odden and Goertz (2007) or Sontelie, Brunner and Ardon (2000) for a detailed explanation of California's system.

class-size reduction, special education, etc. Categorical monies must be used for the specific purposes designated by the program. Districts can raise additional local funds by voting for parcel taxes (i.e., taxes on parcels of property, rather than on the value); however, relatively few districts have chosen to do so.

Serrano v. Priest

In 1971, the California Supreme Court ruled that California's school funding system, which relied primarily on local property taxes, violated the equal protection clause of the state constitution.[6] The legislature responded by adopting limits on the amount of revenue each district could raise. The idea was that limits in low-spending districts would be allowed to grow at faster rates than high-spending districts, leading to a convergence over time. This system of revenue limits is still at the heart of the state's formula today.

In subsequent rulings, the court clarified the original *Serrano* arguments. For policymakers today, there are two aspects of these rulings that require particular attention. First, the previous system was found unconstitutional because it permitted "wealth-related disparities between school districts in per-pupil expenditures…"[7] The argument went on to suggest that differences of less than $100 per-pupil would be acceptable. Although this $100 band has often been taken as a court requirement, Sonstelie (2001) points out that the court's real focus was on differences in revenue that were due to differences in wealth; the $100 band is an example of a situation that would satisfy the court but presumably, other options would be acceptable as well, as long as revenue differences are not driven by wealth differences.

[6] See Sonstelie, Brunner and Ardon, 2000, for a fuller history of the Serrano cases and resulting legislative reforms.
[7] *Serrano v. Priest*, 18 Cal. 3d 728; 557 P. 2d 929; 135 Cal Rptr. 345.

Second, the focus of *Serrano*, and almost all other equity court cases, was general, unrestricted revenue and expenditures. That is, targeted revenue for specific student needs and special programs were not included in the equalization discussions. The court recognized that districts vary in the needs of their students, and variations in revenue to address these differing needs were not subject to the same equity requirements. This may be one reason why so much funding in California has been allocated through categorical programs. However, in California's current system, funding from many categorical programs bears little connection to district needs (Timar, 2004; Loeb, Grissom and Strunk, 2007). In fact, the relationship between categorical funding and district need is so weak that Timar (2004) suggests that it may violate the mandate of *Serrano*, at least in spirit. Thus, although the primary constraint imposed by the *Serrano* decision is that differences across districts in base revenue per pupil cannot be tied to property wealth, and funding for special needs is not generally included to this equity requirement, policymakers need to consider whether the system of categorical programs is rational enough to pass constitutional muster.

Proposition 13

Although California's transition to a state-centralized school finance system began with *Serrano*, it was Proposition 13, passed by the voters in 1978, that solidified the state system. The two key sections affecting school finance reform today are those that cap all property taxes at one percent, and that require a two-thirds vote for any other local taxes:

> Section 1(a): The maximum amount of any ad valorem tax on real property shall not exceed One percent (1%) of the full cash value of such property. The one percent

(1%) tax to be collected by the counties and apportioned according to law to the districts within the counties.

Section 4: 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.

Prop 13 effectively turned the property tax into a state tax; although local governments receive the revenue from local taxes, it is the state that determines how much each local government receives. In the wake of Prop 13, the legislature decided that the way to apportion property tax revenue within counties was by a formula largely based on how these revenues were distributed prior to Prop 13. Although there have been some minor changes to this system, it is still the case today that the revenue apportioned to any individual local government is the result of a state-determined formula driven largely by historical allocations.

The legislature also solidified the revenue limit system. After Prop 13, a school district's property tax revenue was determined by the aforementioned state formula. State aid was then set as the difference between each district's local revenue and its revenue limit. Revenue limits thus became both a ceiling and a floor on general non-categorical funding for most districts.

Section 4 of Prop 13, which allows 'special taxes' provides one of the only options for schools to raise additional local revenues. In 1982, the courts declared that parcel taxes for school districts were legitimate 'special taxes'. Although they still required a two-thirds majority, this paved the way for several districts to propose parcel taxes. As discussed in

Brunner (2001), the parcel tax is a highly regressive tax and relatively few districts have passed one. However, those that have managed to pass one tend to be in high-income communities that are likely to desire school spending well beyond their state-imposed revenue limits.

For policymakers, the key constraint imposed by Proposition 13 is that the maximum tax rate on any property cannot exceed one percent of the assessed value. Since virtually all property is currently taxed at the maximum rate, any changes to the way that property tax revenue is allocated to school districts would require also considering how property tax revenue is allocated to other local jurisdictions. At the same time, Prop 13 does not rule out the option of other, non-property taxes, such as a local income or sales tax. If the revenue from these taxes were designated specifically for schools, they would presumably be 'special taxes' and subject to the two-thirds vote requirement, but not prohibited.

Proposition 98

In 1987, voters passed Proposition 98, the primary objective of which was stable funding for public schools and community colleges. Prop 98 was amended with Proposition 111 in 1990. Together, these laws determine a minimum amount that must be appropriated to K-14 education each year. Specifically, Prop 98 funds are determined by the larger of two amounts:

Test 1: 39 percent of the state's general fund revenue; or

Test 2: the prior year's revenues from state aid and property taxes, with adjustments for ADA growth and the growth rate of per capita personal income.

In times of particularly slow growth, when growth in general fund revenue per capita lags behind growth in per capita personal income by more than 0.5 percent, then Test 2 is replaced with

Test 3:

> Test 3: the prior year's revenues from state aid and property taxes, with adjustments for ADA growth and the growth in the state's general fund revenue per capita plus 0.5 percent.

There are also fairly complex rules about what is and isn't included in the funds that are used as the base for growth from one year to the next.[8] In general, Test 3 determines Prop 98 funds in times of low revenue and slow general fund growth, Test 1 is binding in times of high revenue and rapid general fund growth, while Test 2 is the constraint the rest of the time. Test 1 has not been binding since the first year the law was in effect; however, over the next several years, as K-12 enrollments decline, Test 1 is expected to play a larger role.

Although Prop 98 was intended to provide stability for K-12 funding, the funding guarantee has often interacted with the uncertainty of annual state budgets to produce late-year and last-minute policy changes. When there is an unexpected windfall in general fund revenues, policymakers have tended to allocate it to categorical funds, which are easier to adjust in future years, rather than increasing revenue limits, since such increases become permanent. This adds to the complexity of the system and does little to help the stability of funding for any given district. Also, because Prop 98 sets a minimum for state appropriations to K-14 education, it may be tempting for policymakers simply to allocate that minimum without asking whether that level of spending is sufficient for districts to meet all the goals the state has set for them.

[8] See Rose, Sonstelie, Reinhard and Heng (2003) for a thorough discussion of Prop 98.

In reforming the school finance system, policymakers should consider whether both these issues could be avoided.

How Does California's System Compare to Other States?

California's system of school finance is unique in several ways. The path taken after Serrano and Prop 13 has led California to having one of the most equal distributions of per-pupil spending in the country (EdWeek, 2006). However, on average, per-pupil spending in California is significantly lower than in other states. California is also one of the most restrictive states in terms of how much control local districts have over the level of their funding. And because California has a high proportion of funding allocated through categorical aid, California districts also have relatively little control over the allocation of their resources within the district.

Equalization and Spending

The primary goal of most state finance systems is to promote equalization, particularly in states where locally-financed school systems have faced court challenges. Murray, Evans and Schwab (1998) and Card and Payne (2002) find that since 1971, states with court-ordered school finance reforms have significantly reduced within-state inequalities in spending. California has been particularly successful at reducing within-state disparities, now ranked as the 10th most equitable state (EdWeek, 2006).[9]

In most states, equalization has been accomplished by spending more in the poorest school districts, i.e., 'leveling up', and thereby increasing total spending on education. In this

[9] Based on the coefficient of variation.

regard, it seems that California is an exception: although per-pupil spending was substantially equalized, Silva and Sonstelie (1995) show that average spending in California actually fell after Serrano. In 2006, California ranked 43rd in per-pupil spending and only six percent of California students are in districts with per-pupil spending at or above the national average (EdWeek, 2006).

It should be noted that although equalization is often measured by whether districts have equal levels of per-pupil spending, many court cases (including *Serrano*) were actually focused on taxpayer equity or *wealth* equalization; that is, the state is not necessarily required to equalize dollars but only to ensure that revenues are not tied to local property wealth. In this, California has been quite successful. Using a standard measure of the relationship between spending and property wealth, California ranks among the most wealth-neutral states (i.e., there is no significant relationship between spending and property wealth) (EdWeek, 2006).

Local Fiscal Discretion

The trade-off for state finance systems that yield more equal distributions of per-pupil spending is that they tend to be more centralized and give local districts less control over their level of funding. This is a concern because the research is fairly consistent that, all else equal, students perform better in *less* centralized systems (e.g., Loeb and Strunk, 2007; Downes and Figlio, 1999; Figlio, 1997). Given that the Senate request for this report specifically asks for evidence on funding formulas in other states that have improved student success, it is worth noting that the research on school finance centralization is really the only such evidence. Although there is a vast literature on the relationship between student

performance and the level of per-pupil spending (see Hanushek, 1986), most of the research on the *structure* of school finance (that is, formulas or systems) has focused on equalization rather than student outcomes (i.e., have reforms led to a more equal distribution of spending).

The degree of local discretion, and equalization, is largely determined by the base state aid allocation formula. *Foundation* formulas ensure that each district can receive some minimum foundation amount of per-pupil revenue; states vary in whether there is also a cap on the maximum amount that districts can raise locally. *Guaranteed Tax Base* (GTB) formulas guarantee that each district is able to raise a certain amount of revenue at a particular tax rate; that is, low-wealth districts are given proportionately more state aid so that any two districts that levy the same property tax rate are guaranteed the same revenue, regardless of their actual tax base.[10] As with foundation formulas, states vary in whether there is a cap on the total amount that districts can raise. These formulas are discussed in greater detail in the next section.

GTB formulas typically give local districts more discretion over their funding levels but are less equalizing, while foundation formulas are more restrictive but more equalizing. In a GTB system, a district's base level of funding is determined by each local district, through their selection of a tax rate, and the state may or may not set limits on the maximum amount each district can raise. Pennsylvania, Rhode Island and Wisconsin are the only states that exclusively use a GTB formula. All other states use a foundation formula or a combination foundation-GTB system. In these systems, a district's base level of funding is set by the state and the state may or may not set limits on the maximum amount. The most centralized system would be a foundation formula in which a district's base level of funding

[10] Guaranteed tax base programs might also be called power-equalizing, wealth-equalizing, percentage-equalizing or guaranteed yield formulas. Although there may be slight differences in the way the formula is calculated, these are algebraically the same.

is determined by the foundation and districts have very limited ability to raise funds above that amount (i.e., the foundation amount is both a ceiling and a floor). California is one of the few states to have such a system, along with Nevada, Michigan and Oregon.

Local Control of Allocation of Funds

Another aspect of local fiscal control pertains to how funds are allocated within districts (as opposed to the total amount of money available). A large factor in this is how much state revenue is distributed through categorical programs. Categorical revenue typically requires that districts use the funds for particular purposes, such as tutoring programs for at-risk students or professional development for teachers. These restrictions typically leave superintendents and principals with less flexibility in how funds are allocated and can create a large regulatory burden for district offices that must file reports with the state to verify funds were spent as intended.

Although the majority of states have at least a few categorical programs, no state has a greater *number* programs than California, and only eight states (plus the District of Columbia), have a greater *proportion* of funding allocated through categorical programs. In addition, surveys of principals asking how much control they feel they have over school management issues reveal that California principals feel they have less control than principals in all but a handful of other states (Loeb and Strunk, 2007). As with reduced local control over the *level* of resources, reduced local discretion over the *allocation* of resources has negative consequences for student performance. Loeb and Strunk (2007) find that although having a strong accountability system is positively correlated with student

performance on the National Assessment of Education Progress, this effect is far smaller in states with large proportions of categorical aid or where principals report having less control.

One reason that California districts and schools feel so constrained is that, in addition to having more individual categorical programs than any other state, many categorical programs in California bear little connection to specific costs or factors that affect student performance. That is, although some programs are at least nominally connected to student needs like special education or poverty, there are many that are simply the result of historical or political processes. In an examination of funding policies for at-risk, limited-English-proficient, and gifted students, Baker (2001) suggests that one standard for evaluating these policies is whether aid per pupil is well-correlated with the measure of expected student need (e.g., do districts with more high-risk students also receive more aid). By this measure, California's current system of categorical funding is not particularly rational; for example, as shown in Imazeki (2007), per-pupil spending is slightly higher in California districts with higher proportions of students in poverty, English Learners or special education but the differences are small and the relationships are not linear (i.e., the lowest-spending districts are not the lowest-need districts nor are the highest-spending districts the highest-need districts).

DESIGNING A SCHOOL FINANCE SYSTEM

The discussion in the preceding sections underscores the unique challenges facing California policymakers interested in reforming the school finance system. This section outlines some of the key policy decisions that must be made in designing a new funding

system for California, keeping these challenges in mind. Throughout this discussion, I will highlight what, if anything, the research has to say on the effectiveness of different options for improving student performance. In Section IV, I will synthesize this information into specific recommendations for reforms in California.

Base Formula

The most fundamental question revolves around what form the basic aid formula should take; that is, should aid be distributed according to a foundation formula, a guaranteed tax base formula, or some combination of the two? The state must also determine whether to set a minimum and/or maximum level of per-pupil spending. How these questions are answered will depend critically on how much local control policymakers believe school districts should have over their level of funding. Finally, if the state does set a minimum and/or maximum level of spending, decisions must be made about what those levels should be.

Basic Formula

As described above, the two primary options for allocating basic state aid are foundation formulas that guarantee that each district receives some minimum foundation amount of per-pupil revenue, or Guaranteed Tax Base (GTB) formulas that guarantee that each district is able to raise a certain amount of revenue at a particular tax rate.

Foundation formula: To be a bit more specific, in a foundation system, the state assumes (or requires) that each district levies a minimum tax rate. If local revenue raised at

that rate is less than the foundation amount, then state aid makes up the difference. Thus, state aid is defined as:

State aid per pupil = Foundation amount per pupil – (required tax rate*assessed property wealth per pupil)

California's current system is essentially a foundation system in which a district's revenue limit acts as the foundation amount and the 'required tax rate' is determined by the state formulas for allocation of property tax revenue. Note that although the *total* tax rate on property across California is one percent, the *effective* rate for school districts is less than that because revenue is shared with other local governments. Due to the complexities of the property tax revenue allocation formula, the effective tax rates for districts range from 0.1 to 0.6 (Sonstelie, 2001).

One of the main advantages of a foundation system is that it sets a minimum floor for district spending; as long as districts levy at least the required tax rate, they will always have at least the foundation amount.[11] It is thus more consistent with an adequacy approach to school finance, which is one reason so many states have adopted this type of formula. The foundation amount also may represent a ceiling, but it does not have to. There are two ways that districts may raise more revenue than the foundation amount. One is if property values are high enough that local revenue exceeds the foundation amount when the required tax rate is levied. In California, if a district's local property tax revenue exceeds the revenue limit, they are allowed to keep the excess; thus, in these districts, general spending is higher than the foundation amount. In some states, districts can keep local revenues that exceed the

[11] In some states, the required tax rate is not mandated but state aid is still allocated as if each district levies the required rate. Thus, districts may actually raise less than the expected local revenue but that is purely by the choice of the local district.

foundation but only up to a certain limit (i.e., there is a cap on total spending); see below for further discussion of this issue.

The other way that districts could raise revenue above the foundation amount is by levying a tax rate higher than the minimum required rate. In California, districts cannot choose a higher tax rate; thus, for all but the highest property wealth districts, the revenue limit is a revenue ceiling.[12] In several states, districts may elect to levy a tax rate greater than the rate required in the formula but there may be caps on how high the levy can be.

Guaranteed Tax Base formula: In a GTB system, the district chooses its own tax rate and the state guarantees that each district receives the revenue it would raise if it had the guaranteed tax base. If the actual tax base is below the guarantee, state aid makes up the difference. Thus, state aid is defined as:

State aid per pupil = Tax rate*(guaranteed wealth per pupil- actual property wealth per pupil)

By allowing districts to set their own tax rates, with no minimum requirement, a GTB system gives districts more control over their level of funding. This flexibility can result in larger disparities in per-pupil spending across districts, if districts choose to tax themselves at very different rates. However, these disparities would be due to differences in demand for education spending and not differences in property wealth. The state can also ensure a minimum level of funding by setting a high GTB.

Combination foundation-GTB: A third option is a combination system in which a GTB is layered on top of a foundation. A good example of such a system can be found in Texas, which has a multi-tiered system. In that formula, the first tier is a foundation, and

[12] Currently, all property in California is taxed at the maximum set by Proposition 13, i.e., one percent. Thus, individual districts cannot choose to increase their property tax rates, although technically, they could choose to levy a *lower* tax rate.

thus sets a minimum floor for spending. The second tier is a GTB for districts with property wealth less than a set amount. That is, if districts choose to levy tax rates higher than the rate required for the foundation part of the formula, the additional revenue is equalized with a GTB formula. There is a maximum tax rate districts are allowed to levy, and districts with property wealth above a state-set cutoff are subject to 'recapture', meaning any revenue above the limit must be shared with other districts. Thus, the Texas system sets both a floor (through the foundation) and a ceiling (through the tax rate cap) on general revenues but districts do have some discretion to choose their funding level in between.

Research and recommendations: Research provides relatively little guidance about which type of formula is best for student outcomes. That is, there is no research that says, "this type of formula is better than that formula for improving student outcomes". This is because the function of these formulas has not generally been to directly improve student performance but to improve equity. Thus, almost all of the research related to funding formulas has focused on how they affect the distribution of per-pupil spending. However, a related literature has explored the impact of local control on student outcomes, and consistently finds that students perform better when districts have more local discretion (e.g., Loeb and Strunk, 2007; Downes and Figlio, 1999). This suggests that a GTB or combination formula would be preferable to a pure foundation formula alone.

Setting a Minimum Level of Spending or Revenue

The choice of a foundation or GTB formula depends in part on whether the state wants to ensure some minimum level of spending in each district. Given the shift toward educational adequacy in recent court cases, it is unlikely that any reforms to California's

school finance system would not retain the current system's minimum guarantee. This suggests that a foundation formula, or combination foundation with GTB, is the best option. Indeed, all but four states currently use a foundation formula or combination foundation with GTB. The most recent convert is New York; prior to the Campaign for Fiscal Equity court case, New York had a GTB system but the legislature recently adopted a cost-adjusted foundation formula.

A more complicated question is what that minimum level should be. Currently, the base level of revenue in California districts is determined almost entirely by revenue limits. As discussed in Section II, these revenue limits can be traced back to the reforms adopted after *Serrano* and Proposition 13, and are generally based on expenditure levels in the 1970's, with adjustments for inflation and equalization. Thus, the amount allocated to a district under the revenue limit system need not bear any connection to the amount actually required for schools to meet the performance goals set out in the state's accountability system. Indeed, in California, student needs explain almost none of the differences across districts in unrestricted revenue per pupil (Loeb, Grissom and Strunk, 2007). The ad hoc nature of California's revenue limits is reinforced by Proposition 98. Because Prop 98 sets a minimum amount that must be budgeted for public schools, there is a tendency for the legislature to focus on making sure there is enough money allocated to satisfy Prop 98, rather than asking what schools actually *need*.

Costing Out: An alternative to the current system is to set the foundation amount according to some conceptual model of the educational needs that schools face. That is, rather than the base revenue per pupil in each district being determined by some historical or ad hoc decision, the foundation spending per pupil could be derived from the actual cost for a

district to achieve the performance outcomes the state has established. For example, in 2002, Maryland adopted significant school finance reforms that relied heavily on a 'costing-out' study completed by an independent consulting firm and commissioned by a bi-partisan Commission. Wyoming, Arkansas, and New York have also set the foundation amounts in their formulas based on cost studies performed by independent consultants, while Oregon, Washington and Maine have all developed cost models internally (i.e., by state commissions rather than external researchers). In most cases, these models are 're-calibrated' periodically to ensure that they continue to reflect state standards, goals and cost variations. In addition, a large number of states have commissioned cost studies, or cost studies have been completed as part of adequacy litigation, even if the findings have not yet been directly incorporated into funding levels.

Research and recommendations: There can be little doubt that if one is concerned about maximizing student outcomes (or avoiding an adequacy lawsuit), it is preferable to set the minimum foundation level based on the actual costs of educating students. What is less straightforward is how to determine what those costs are. There is a growing literature on estimating the costs of education; a full discussion is beyond the scope of this report but most studies involve one of four methodological approaches: professional judgment, evidence based, successful schools, or the cost function (or "econometric") approach. See Duncombe, Lukemeyer and Yinger (2004) and Baker, Taylor and Vedlitz (2004) for a full discussion of the advantages and disadvantages of each of these methods. The *Getting Down to Facts* project included three 'costing-out' studies for California: Chambers, et al (2007), used a traditional Professional Judgment approach in which two panels of educators were convened and asked to construct a prototypical school that would meet state standards; Sonstelie (2007)

used a modified Professional Judgment approach in which 567 teachers and principals were surveyed about their optimal configuration of resources; and Imazeki (2007) estimated an econometric cost function which uses data from all districts in the state to identify relationships between district characteristics, spending and outcomes. Imazeki also included a summary of cost studies in other states. The three GDTF cost studies produced varying estimates of the minimum cost for a basic district (i.e., with low levels of student needs) to meet the state standard of an Academic Performance Index of 800; the estimates ranged from just under $7000 to around $8400 per pupil (using data from 2004-05).[13] Regardless of the specific numbers, the studies were all in agreement that California's current system does a poor job of matching funding to actual district costs. Thus, any reform that moves the system toward a more coherent and rational approach to determining funding levels would be an improvement.

Setting a Maximum Level of Spending or Revenue

In addition to setting a minimum level of revenue for each district, policymakers may also want to set a *maximum* limit on how much a given district can raise and/or spend. The primary advantage to such a cap is that it can help to maintain equity; that is, to prevent the gaps between high- and low-spending districts from becoming too large. The primary disadvantage to such a cap is that it reduces the ability of districts to respond to local demand for higher education spending. For states that have them, these limits take a few different forms: a cap on the tax rate that a district can levy, a dollar limit on spending per pupil, or a cap on growth in tax rates or spending from one year to the next. In California, Prop 13

[13] Imazeki (2007) also summarizes base costs in a number of costing out studies done in other states. Although it is difficult to compare these estimates across studies, due to differences in methodologies, state standards and populations, those estimates average between $6210 and $7890.

restricts the tax rate on property values but there is no specific limit on the dollar amount a district can raise so in property-wealthy districts (where property tax revenue exceeds the revenue limit) the districts are allowed to keep the excess. Prop 98 guarantees that the growth rate of spending per pupil will never be negative (i.e., spending can't go down) but says nothing that would limit increases in spending. However, spending increases are built into the Prop 98 base for the following year.

In many states, limits on tax rates and revenues or expenditures have been determined directly by voters; for example, Oregon voters passed Measure 5 in 1990 and Measure 50 in 1997 which capped property tax rates, and moved Oregon to a primarily state-funded system. In one of the country's more radical reforms, Michigan voters elected in 1994 to eliminate the property tax as a source of local school finance, replacing it with revenue from sales and other state taxes. It is also important to note that in many states that have state-imposed tax limits, local voters have an option to over-ride the limit. For example, Measure 2 ½ in Massachusetts set a limit on the growth rate of district revenue but local over-rides are permitted by referendum.

A good example of a state that imposes a dollar limit on revenues is Kentucky. Kentucky was subject to one of the earliest comprehensive adequacy lawsuits, *Rose v. Council for Better Education,* and in the last several years has overhauled its school finance and accountability systems. They now have a three-tier formula in which the first tier is a foundation, the second tier is a GTB where the guaranteed wealth is 150 percent of the statewide average, and the third tier is not equalized. However, districts are limited to raising third-tier funds that are no more than 30% of the base foundation amount. The dollar value

may vary from year to year but in any given year, sets an absolute ceiling for revenue in each district.

In most states that set maximums, districts that are in danger of exceeding the caps must reduce their tax rates (so 'excess' revenue is returned to the taxpayers). In a handful of states, revenue that exceeds the caps is 'recaptured'; that is, it is collected by the state in some way and often re-distributed to other districts. It was mentioned earlier that in Texas, the finance system includes such a recapture provision. In that state, districts with very high property wealth must share their wealth with other districts. Specifically, districts must choose one of five options for reducing their property tax revenue and most districts choose to purchase 'attendance credits' from the state or to pay for the cost of educating students in other districts (Imazeki and Reschovsky, 2004). Although a few other states also technically recapture local revenue that exceeds the formula allowance[14], the Texas recapture provision is unusual in that recapture is so explicit and districts must choose a specific method of recapture. It should be noted that the recapture aspect of Texas' system has been highly controversial; it is often referred to as the 'Robin Hood' provision and is extremely unpopular in the high-wealth districts that it most affects. On the other hand, it prevents the disparities in spending between low- and high-wealth districts from becoming too wide.

Research and recommendations: Although the literature on student outcomes and tax or revenue limits is sparse, the few studies that do exist all find that this relationship is negative (see Downes and Figlio, 1999, for a summary). This suggests that California should look for ways to give districts additional flexibility in setting their spending levels. Although

[14] For example, in Kansas, counties collect property tax revenues and allocate them to local school districts. State aid, if any, makes up the difference between those revenues and required spending. However, any balance in district budgets at the end of the fiscal year is returned to the state (Duncombe and Johnston, 2004). Thus, excess revenues are 'recaptured' because they go to the state but the manner in which the transaction happens is less transparent and more politically palatable than in Texas.

there is a trade-off in terms of equity, California is so far to the equalization side of the spectrum that there seems to be little danger that relaxing local constraints somewhat would create equity problems. However, because the primary tax restriction imposed on districts is the Prop 13 cap, legislators may have limited ability to relax that particular constraint.

Cost Adjustments

Up to this point, the focus has been largely on how states determine and allocate general school aid. In addition to this base revenue per pupil, which is typically equal or very similar across districts, the majority of states distribute additional funding to compensate for differences in the *cost* of education in different districts. The *cost* of education can be defined as the minimum amount of money that a school district must spend in order to achieve a given educational outcome, such as reading at a grade-appropriate level. Costs generally differ across school districts for reasons that are outside the control of local school boards or state governments[15], such as the number of children with "special needs". For example, students with physical disabilities may need special equipment or specially-trained teachers; it may also cost more to educate students in certain locations, such as urban districts where the cost of living is relatively high, or when the district faces certain demographic characteristics, such as sparsely populated districts with high per-pupil transportation costs. All else equal, districts with higher costs will need to spend more than districts with lower costs in order to achieve any given outcome.

[15] The distinction between what is and is not within the control of school officials is an important one. If the state ties additional funding to student characteristics that the district can control, there will be an incentive for the district to identify students so as to maximize their funding.

In most states with foundation formulas, the base foundation amount per pupil is the same for all districts and then adjustments are made for specific district characteristics that affect costs. In contrast, California's base foundation amount (i.e., the revenue limit) varies across districts; however, the differences are largely due to the way revenue limits were set back in the 1970's (i.e., reflecting historical expenditure patterns) and equalization since then. There are a small number of purposeful adjustments made to the revenue limit amounts; these are for very small schools, for costs related to the teacher pension system (PERS) and unemployment insurance, and to help districts raise beginning teacher salaries to a state minimum. On average, these adjustments make up only five percent of districts' general purpose funding (Timar, 2007) and differences in revenue limits per pupil do not otherwise reflect any real differences across districts in the costs of educating students.

To the extent that California does attempt to compensate districts for variation in the cost of providing similar levels of educational quality, this is addressed through categorical programs. As discussed in Section II, many of these programs bear little connection to specific costs; rather, they are the result of historical or political processes. There is also a great deal of redundancy, with numerous programs targeting the same issue (Timar, 2004). It is worth noting that recent efforts to reform California's system of categorical aid have largely consisted of consolidating redundant programs into larger block grants. Although this gives districts somewhat more flexibility, Timar (2004) points out that the system is still highly irrational because the consolidation does nothing to change which districts are eligible for funds so these revenues are still not well-correlated with districts needs. There are also a large number of continuing programs that were not consolidated.

In reforming California's system for addressing differential district needs, the key issues for policymakers are which cost factors to include, how to incorporate these factors into the formula, and how large the adjustments should be.

What Factors Warrant Additional Funding?

Almost all states provide additional, differential funding for at least a few programs beyond the base formula. However, there is a great deal of variation in what other factors are included. In general, the options can be categorized into three groups: student needs, demographics and resource costs.

Student needs: The most common categories of student need that states include in their school funding formulas are special education[16], at-risk students (generally meaning low-income but may also mean any needing remedial education), English learners, gifted and talented education, and vocational education. A smaller number of states also include additional funding for pre-school or early childhood, pregnant or parenting students and technology education.

Demographics: Many states set different foundation levels for districts serving different grade levels (elementary, middle or high school) or for different grade spans (elementary, high school or unified). [17] Although secondary students have traditionally been considered more costly than elementary students, more states in recent years have also given additional weight to the earliest grades (i.e., kindergarten through third grade).[18] Some states also include adjustments for school size, district size, or both; most commonly seen is

[16] Several states, including Alaska, Illinois, Maine, Massachusetts and Minnesota, distinguish between high-cost disabilities and other disabilities.
[17] For example, Alaska, Arizona, Massachusetts, Minnesota, New Jersey, and Oregon.
[18] For example, New Mexico gives K-3 students higher weights than students in grades 4-6; Washington, which allocates resources based on student-teacher ratios, assumes smaller ratios for K-3.

additional funding for very small districts, though the definition of 'small' varies across states. For example, Oregon gives supplemental funding to districts with fewer than 8500 weighted students and high schools with less than 350 students (for four grades) or 267 students (for three grades), while Texas adjusts for any district with less than 1600 in average daily attendance.[19] Many states also have mechanisms built into the state formula to deal with districts that are experiencing declining enrollment.

Resource costs: A number of states account for differences across districts in the cost of attracting and retaining teachers. These teacher cost adjustments take one of three forms: cost of living adjustments (Colorado, Nevada, Ohio), 'comparable wage cost' adjustments (Florida, Texas), or adjustments for teacher characteristics (Arizona, Oregon, Utah, New Mexico). Cost of living adjustments are often based on housing costs, though they may also be calculated using a larger basket of goods. 'Comparable wage' adjustments account for variation in both cost of living and area amenities; they are calculated by measuring the variation in non-teacher wages across localities. For example, if non-teacher workers in San Diego are paid, on average, 10% more than non-teacher workers in Bakersfield, then the comparable wage index would suggest San Diego Unified receive 10% more revenue for teacher salaries.[20] Adjustments for teacher characteristics try to compensate districts that have more experienced or educated teachers, as this leads to higher-than-average salary costs. For example, New Mexico computes a 'training and experience index' that is based on five

[19] Texas also has an adjustment for mid-sized districts which are those with ADA between 1600 and 5000.
[20] Note that the cost of living in San Diego may be, say, 15 percent higher than in Bakersfield but San Diego has offsetting amenities so the wage differential required to attract and retain workers are not as large as the cost of living differential. In general, comparable wage indices will exhibit less variance than cost of living indices, as high cost of living areas often have amenities that offset those high costs while low cost of living areas often lack amenities, requiring higher wages to attract and retain workers.

experience categories and five education categories. Districts with more teachers in higher categories have higher index values and receive more revenue per pupil.

Virtually every state provides funding for district transportation; in many states, this is calculated on a reimbursement basis or a formula based on estimated miles. In some states, separate funding is also allotted for population sparsity. For example, Nebraska groups districts into very sparse, sparse and standard categories based on the number of students per square mile in the county where the high school is located, students per square mile in the high school system, and distance between high school attendance centers. The foundation amount is adjusted for each category, in addition to a separately-calculated transportation allowance.

Research and recommendations: It is fairly well established that additional resources are needed to compensate for certain student characteristics, particularly disabilities, poverty and limited English skills (Odden and Picus, 2004). It is also generally accepted that high school is more expensive than elementary school. And there is a growing research base supporting the idea that it is worthwhile to invest more in the early grades; this early investment may reduce the need for compensatory services later (Odden and Picus, 2004).

The research on school size is more mixed; Andrews, Duncombe and Yinger (2002) synthesize much of this research and conclude that the optimal size for elementary schools is 300-500 students; 600-900 students for high schools. They also conclude that costs are higher in very small districts (fewer than 500 students). However, the diseconomies of scale for very large schools and districts are more difficult to identify.

The case for teacher cost adjustments comes from a large literature on teacher mobility and attrition. When salaries are not high enough to compensate for high costs of

living or lack of area amenities, teacher turnover is higher and recruitment is more difficult (see Imazeki, 2007b, for a summary of this literature). Although there is no existing research that directly examines whether states with adjustments for geographic variation in teacher costs have fewer problems with teacher attrition than states that do not have these adjustments, most costing out studies acknowledge these different salary needs in determining adequate levels of funding for different districts. Also, economic theory favors the use of a comparable wage index, rather than a cost of living index. Because workers value certain amenities, and seek to avoid 'disamenities', cost of living measures will tend to overestimate the wage differential needed to actually attract and retain teachers in high-cost of living locations and underestimate it in low-cost of living locations (Taylor and Fowler, 2006). It should also be noted that research has found very little connection between teacher education or experience (beyond the first few years) and student outcomes (Hanushek, 1986). Thus, policies that compensate districts for having more experienced or educated teachers may create perverse incentives, for example, encouraging districts to hire teachers with Master's degrees but who are not necessarily contributing to higher student performance.

How to Incorporate Costs into the Formula?

California currently distributes all cost-related funding through categorical programs. This has several advantages. First, from the state's perspective, many programs funded through categorical monies are not required to be fully funded since districts can elect not to take the funding (i.e., they are considered incentive programs, not state mandates). Second, since categorical funds must be used for specific purposes, they are not included in the general fund out of which teachers' salaries are negotiated. For some districts, this is

considered an advantage as it keeps money off the bargaining table. Third, state policymakers can be sure exactly how categorical funds are being spent. For legislators who believe that school districts do not use their general funds as effectively as possible, this may be considered a plus. Finally, from a purely political standpoint, categorical programs give legislators something specific for which they can claim credit. It is generally more appealing to tell constituents that one has ensured funding for a beloved program than, for example, that the weight for ELs was increased from 10% to 15%.

Each of these advantages has a downside as well. Although categorical funding gets around the requirement that the state must fully fund all mandates to lower levels of government, the fact that many programs are less than fully funded means that districts must make up the difference from their general fund, or else forego the program and the associated subsidy altogether. Also, although some districts prefer to have these monies remain off the bargaining table, there are other districts that would like to be able to use at least some of those funds for higher overall salaries that will allow them to attract and retain better teachers. And this points to one of the biggest complaints that school administrators have about categorical programs: local officials generally feel that they know better than Sacramento what the most effective use of dollars might be in a given district, particularly since each district's needs are different. There is also almost no evaluation of programs so programs (and funding) continue even when a program has shown no impact on student outcomes. In addition to these disadvantages, school officials also complain about the regulatory burden of the paperwork associated with verifying each dollar is spent as the program rules stipulate (Loeb, Bryk and Hanushek, 2007).

Block grants: What distinguishes California's system of categorical funding from other states is not that we have categorical programs; many states provide funding through similar programs. The difference lies in the number of different programs and their lack of coherence or rationality. Although there has been some movement toward consolidation of programs, that has affected a fairly small share of the programs and new programs crop up every year. One alternative is to distribute funds to regular districts in a system more like that used for California's charter schools. Charters typically receive a set amount per pupil as 'general' revenue, and a block grant that covers most of the categorical programs that regular districts are eligible for but without the same restrictions. These block grants are based on the charter school's ADA, not the students, and thus may be as poorly-correlated with need as separate categoricals; the advantage comes from the increased flexibility. In other states where block grants are used, they are generally tied more specifically to student or school characteristics.

Pupil weights[21]*:* An alternative to categoricals that is used in numerous states is to include weighted pupils in the base formula. Pupil weights reflect the idea that certain students are relatively more costly to educate than others; for example, a special education student may require twice as many resources as a regular student and so would be weighted accordingly in the formula. If the foundation amount is, say, $8000 per pupil, then districts would receive $16,000 for each special education student.[22] Similarly, if the weight for English Learner students is 0.5 then districts would receive $12,000 (=8000 x 1.5) for each

[21] The terms 'pupil weights' or 'weighted student formula' are sometimes used to refer to school-based allocation formulas (i.e., the weights are used to allocate funds directly to schools within districts). Although pupil weights can be used in this way, and some individual districts may use weights to allocate money to schools within the district, the terms are also used more broadly than that; indeed, many states have pupil weights in their state formula but no state allocates money directly to non-charter schools, bypassing districts.

[22] Pupil weights can be calculated based on actual enrollments or average daily attendance. It is more complicated to apply pupil weights to census-based counts, such as California currently uses for special education.

EL student.[23] If a student falls into multiple need categories, the weights are added together; for example, if a student is both low-income (with a weight of, say, 0.8) and an English Learner (with a weight of 0.5), then that student's total add-on weight is 1.3. Some states (e.g., Oregon, Florida) cap the total weight that can be assigned to an individual student. See Duncombe and Yinger (2005) for a fuller discussion of pupil weights.

Direct adjustments to the foundation amount: Geographic factors, such as sparsity or varying teacher costs, can be incorporated into the school finance formula by adjusting the foundation amount directly. A good example is Florida, which uses a District Cost Differential in which each district is assigned an index value signifying the relative cost of hiring and retaining teachers. Districts with teacher costs higher than the state average have index values greater than 1; districts with teacher costs lower than the state average have index values less than 1. This index is multiplied by the foundation amount to generate a teacher cost-adjusted foundation level for each district. For example, if the base foundation amount is $8000 and a district in a high cost-of-living area has a District Cost Differential value of 1.2, then the foundation amount in that district becomes $9600 (=8000 x 1.2). Note that since teacher salaries comprise the majority, but not the entirety, of a district's budget, this sort of wage adjustment may be applied to only part of the foundation amount. For example, Colorado applies a cost of living index to only 80-90% of the foundation amount (the actual percentage depends on district enrollment).

Direct adjustments to the foundation amount can also be used to account for student need factors. For example, Indiana calculates a 'Complexity Index' that is a weighted

[23] Weights used in this report are add-on weights so that the weighted student is counted as 1 plus the weight. In some contexts, weights are reported as the total count (i.e., one might see the weight for ELs reported as 1.5, rather than 0.5, but both indicate an EL is 50% more expensive than a regular student). Particularly when trying to make comparisons across states or studies, readers should take care to note which definition is in use.

average of five measures of socioeconomic status.[24] Districts with lower socioeconomic populations have a higher index value and this is multiplied by the foundation amount in the same way that a teacher cost index would be.

An excellent example of how a number of various cost factors might be incorporated into a combination foundation-GTB formula can be found in Texas. In the first tier of the Texas formula, the foundation amount is called the 'basic allotment.' This per-pupil amount is adjusted upward with set dollar amounts for very small districts (less than 1600 in average daily attendance) and mid-sized districts (between 1600 and 5000 ADA), and a Cost of Education index (CEI) is applied to 71% of the basic allotment. The CEI is based on a regression analysis of variables outside district control that affect payroll costs, including district size, the proportion of low-income students, being located in a rural county, and the salaries of teachers in neighboring districts. Once the adjusted allotment has been calculated, it is multiplied by weighted ADA. Regular students have a weight of 1.0 and additional weights are assigned for students who are in special education, low-income, bilingual, gifted and talented, or in vocational education. The weighted ADA is also used in determining aid for districts that choose to levy tax rates higher than the minimum required rate under the foundation tier. Revenue raised with the additional levy is equalized with a GTB formula, so all districts with property wealth below the guaranteed tax base are able to raise equal revenue per weighted ADA at equal tax rates.

Research and recommendations: Using weighted pupils in the base formula, or directly adjusting the foundation amount, allocates additional funding to districts with higher costs, but does so without the strings generally associated with categorical aid. The only

[24] Percent families with a single parent, percent population over age 25 with less than a 12th grade education, percent families below poverty level with dependent children under age 18, percent students eligible for free school lunches, and percent students with limited English proficiency.

research that addresses whether student outcomes are affected by the *way* in which special needs are addressed in a school finance formula is Loeb and Strunk (2007). They find that increases in the share of spending coming from categorical aid are associated with lower student performance. In addition, the positive effects of stronger accountability policies are reduced in states with higher shares of categorical aid. This suggests that for California, replacing categorical aid with pupil weights or adjusted foundation levels would be beneficial.

At the same time, it is worth considering the experience of Arkansas, a state that used an external costing out study to determine the foundation level for each district, including adjustments for student needs (essentially block grants). Although the amount allocated to each district was derived from a fairly specific model of educational services, a model based on research on effective educational practices, there were few restrictions on how districts spent the money. That is, districts were not required to spend the money in the way the model suggested they should; districts were, however, expected to improve student outcomes as the model suggested they should be able to do with the additional funding. It is perhaps unsurprising that when Picus and Associates, the consulting firm that did the original costing out study, did a follow-up study, they found that the majority of schools were not allocating resources as the model suggested (Picus and Mangan, 2007). Although student performance did improve slightly after the reforms, the improvements were not particularly dramatic or consistent. This underscores the difficult balance that policymakers must strike between giving districts the flexibility that they need to best serve their students, while ensuring that districts are also using resources in the most effective ways possible. However, many experts would argue that rather than impose restrictions on how districts must use their funding, the

state's role should be to set strong standards and monitor effectiveness through the accountability system (Odden and Picus, 2004).

In operation, pupil weights are most straightforward when the additional costs are associated with specific students (e.g., special education, ELs, etc.). Adjusting the foundation level directly is most appropriate when the additional costs are associated with specific district characteristics (e.g., geographic teacher costs, demographics, etc.). And categorical programs are best suited for situations where funds need to be distributed along some other dimension, such as providing a certain amount per teacher (say, for professional development), rather than per student, or for specific programs outside the base curriculum, such as literacy or adult education.

What Are the Appropriate Adjustments?

Whether distributed through categoricals or pupil weights, policymakers must decide *how much* additional funding will be allocated for differential costs. Currently, the amount allocated in California's categorical programs is largely ad hoc. For example, when the class-size reduction program was passed in 1996, the amount allocated per K-3 student in a small classroom ($650 in 1996-97, up to about $1000 in 2006-07) was based almost entirely on the amount of money that was available, rather than any connection to the actual costs of implementing the policy. However, California is not alone in this. Baker (2001) reviews state aid allocations for low-income, limited-English-proficient, and gifted students and determines that the majority fall short of the true costs associated with these student needs. This is not surprising as many states set their weights in ad hoc manner, such as to fit the allocated budget or based on historical expenditures.

As with determination of an appropriate foundation amount, the best alternative to the ad hoc approach is to set cost adjustments based on a conceptual model that estimates the actual differential cost associated with specific cost factors. States that have used costing out studies to determine their foundation levels (e.g., Maryland, Wyoming, etc.) have generally also used these studies at least to guide the adjustments for cost factors.

Research and recommendations: Imazeki (2007) synthesizes the estimates of marginal cost for poverty and English learners from 16 costing out studies. In pupil weight terms, the estimates for poverty range from 0.30 to 1.22 (i.e., each student in poverty requires the resources of 1.3 to 2.22 regular students). The estimates for English Learners range from 0.24 to 1.01. In addition, Odden and Picus (2004) summarize much of the research that has been in done in various states on the costs of services for English Learners; the majority find marginal costs in the range of 20 to 30 percent. Those authors also note that the instructional approach used is a large determinant of costs (e.g., separate ESL instruction versus immersion).

The cost studies done specifically for California (Chambers et al, Sonstelie, and Imazeki) all establish pupil weights for poverty of at least 30%. Imazeki also estimates a pupil weight of 0.24 for non-Spanish English Learners. These are on the low end of the range across cost studies in other states but if California were to adopt a foundation formula with a pupil weight for poverty of 30% and a weight for ELs of 24%, this would still represent a substantial increase in revenue for high-need districts (Imazeki, 2007).

There is a large literature on the costs of special education and in many states, the weights or reimbursement rates for special education are much better matched to costs than most other programs. In the largest and most comprehensive study of special education costs

to date, Chambers, Parrish and Harr (2002) find that, on average, special education students require 90% more resources than a regular student (i.e., an add-on weight of 0.9). However, that is the average for all disabilities. It is not uncommon for states to set different weights for students with different types of disabilities; it is certainly reasonable to assume that the costs for a student who is autistic or deaf and blind will be considerably higher than for a student who is learning disabled. Parrish, et al (2004) estimate that the costs for students with autism, visual impairment or traumatic brain injury range from two to six times the costs for students with a specific learning disability or speech/language impairment (or three to seven times the costs for students with no disabilities), depending on the method and data used for the calculation. Consistent with these estimates are the results from Imazeki (2007), who calculates a pupil weight estimate of 6.68 for high-cost disabilities[25] and 1.13 for other disabilities in California.

California does not currently adjust state aid for variation in teacher costs. Rose and Gupta (2007) estimate a Teacher Cost Index for California that suggests these costs range from 21% below the state average (in the region including Del Norte, Humboldt, Lake, and Mendocino Counties) to 22% above the state average (in Santa Clara county).

Alignment with Accountability

Although school finance is generally concerned with how the state distributes revenues to school districts, it is worth noting that in the last several years, many states have reformed both their school finance systems and their accountability systems at the same time

[25] These include autism, deaf, deaf-blind, orthopedic impairment, traumatic brain injury, visual impairment, or multiple disabilities.

and in concert. In this sense, California is somewhat unusual. Over the last decade, California developed rigorous content standards, implemented state tests that are aligned with those standards, and adopted an accountability system based around those standards, but is only now asking whether the school finance system is compatible with these changes. What is clear from the *Getting Down to Facts* studies is that it is not, for many of the reasons already discussed.

There are a number of ways that California's school finance system could be made more compatible with the accountability system. The most basic would be simply ensuring that districts have sufficient resources, and flexibility in the allocation of those resources, to achieve accountability targets. This is largely addressed through the base formula and accompanying cost adjustments. In addition, many states have policies built into their accountability systems that require additional funding, beyond the base formula. Although discussion of the design of a strong accountability system is beyond the scope of this report, some of the more effective options that have been adopted in other states include direct performance incentives, rigorous professional development, targeted assistance for low-performing schools, and resources for data development and management. See Goertz, Duffy and Le Floch (2001) for a review of accountability systems across all 50 states.

It is crucial that any move to a more flexible finance system be accompanied by reforms to other parts of the education system. Otherwise, the lesson from several states is that when given additional resources, most schools and districts will simply do more of the same; i.e., spend more but not spend differently (Picus and Mangan, 2007). Although many California administrators have expressed a desire for more flexibility to spend resources to best fit their students' needs, there are likely just as many administrators who do not have the

knowledge or training to use those additional resources effectively. Fortunately, there is a growing research base, and substantially more anecdotal evidence, on the types of educational practices that work; what many schools and districts need is access to that information. For example, Kentucky, which overhauled both its finance and accountability systems during the 1990's, increased spending and flexibility but also emphasized professional development in the early stages of those reforms; Kentucky's scores on national tests have also increased faster than many other states (Kirst, Odden and Goertz, 2007).

RECOMMENDATIONS FOR CALIFORNIA

To recap, the key policy questions that must be addressed in any reform of California's school finance system include:

- What form should the base formula take: foundation, GTB or some combination?
- Should the state mandate a minimum level of funding in each district? If so, how is the minimum level to be determined?
- Should the state impose a limit on the maximum amount of revenue or spending in each district? If so, what form should the limit take and how is the level to be determined?
- What differential cost adjustments should be included in the system?
- How should differential costs be incorporated factors into the formula?
- How large should the adjustments for differential costs be?

The answers to these questions can be guided, to a certain extent, by the research on school finance and student outcomes, and the experience in other states. The research suggests that if California wants to design a system that is consistent with higher student performance, that system should have the following characteristics:

- increased local control over both the level and allocation of resources;
- a coherent rationale for the base level of funding to each district;
- appropriate adjustments for legitimate differences in the costs of educating students in various districts;

In addition, these must be balanced with the need for equity as required by Serrano, as well as maintaining Prop 13 limits on property taxation and the funding guarantee of Prop 98 (unless those Propositions were to be overturned or substantially amended, which seems highly unlikely). It is imperative that California policymakers understand that Proposition 13, in particular, creates constraints that legislators in other states do not face and thus, other states have a wider range of tools available to them in designing and reforming their school finance systems.

As made clear by the studies in the *Getting Down to Facts* project, policymakers need to take a cohesive approach to reform and consider how the finance, governance and accountability systems all interact. For example, California's current collection of restrictive categorical programs may be an effective way to get schools to provide particular services but the burden of the accompanying paperwork and regulations certainly reduces the overall effectiveness of administrators in supporting student performance. Moving to a less restrictive system could give schools more flexibility but may also reduce oversight and change incentives in unintended ways, so these finance reforms may need to be accompanied by changes in the accountability system. Thus, realistic policy proposals must consider the need for reform across the educational system.

What follows are recommendations of specific changes that could be made to improve California's school finance system. These range from relatively minor changes to substantial (and likely politically improbable) reforms. The specifics of some of these reforms would require substantially more discussion; here, I simply present the basic possibilities for consideration. However, policymakers should understand that even if there is continuing debate about the specific numbers (for example, should the weight for poor

students be 0.3 or 0.5), it is safe to say that there is broad consensus in the research community for the general framework outlined here. We have seen in other states that successful school finance reform is an iterative process and California's public schools cannot afford to wait while legislators debate what the exact "right" numbers are. At the very least, if policymakers were to adopt even the most conservative values suggested by research for a base foundation amount and cost adjustments, it would be a substantial improvement over California's current system (see, for example, the comparisons in Imazeki, 2007).

Convert the revenue limit system to a traditional foundation formula with an adequate foundation amount: District revenue limits would be replaced with a base foundation level that is equal across all districts. The foundation level should be based on estimates from costing out studies of the amount required for a basic district (i.e., one with low levels of student need, etc.) to achieve the standards required by the state accountability system. The most conservative estimates from the *Getting Down to Facts* costs studies suggest that an adequate base foundation amount would be in the range of $6600 to $7400 per-pupil. Whatever the specific dollar number, a rational system will set the foundation level so that it is conceptually connected to the performance objectives that the state has articulated.

Adjust foundation level for differential district costs: The research is fairly conclusive that appropriate adjustments would include additional funding for K-3 students and secondary grade levels, comparable wage teacher costs (applied to a percentage of the foundation amount), very small districts and sparsely populated districts. Although the research is mixed on what the magnitude of an adjustment for K-3 students might be, a good

starting point might be current spending on the Class-Size Reduction program; that is, in 2006-07, CSR allocated close to $1000 per K-3 student in a small class. This same amount would be better spent if allocated to districts as part of their unrestricted funds. The adjustments for teacher wage costs should use a comparable wage index, such as that developed by Rose and Gupta (2007). This should be applied to 60-80% of the foundation amount.

Adjust ADA counts for differential student needs: The research is also conclusive that additional resources are needed for students in poverty, English Learners and special education. As with the base foundation amount, rational determination of the magnitude of the weights would require that they be connected to the actual costs of achieving the performance targets set by the state, as opposed to selecting the weights in an ad hoc manner (such as to fit the budget). The research suggests that appropriate weights for poverty would range from 0.3 to 0.6. Appropriate weights for English Learners would range from 0.2 to 0.3. Funding for high-cost disabilities could also be allocated through pupil weights, with the weight depending on the specific disability (for example, the very highest-cost disabilities may require a weight of up to 6.0 while other disabilities may require weights of 2.0 to 4.0). Funding for lower-cost and more discretionary disabilities (such as learning disabilities) would continue to be funded through a census-based categorical program.

Hold harmless policies: Given that revenues are not allocated rationally in the current system, moving to a more rational system would likely suggest relative losses for low-cost districts and gains for high-cost districts. To be politically palatable, such a transition clearly would need to be phased in over several years. During the transition, districts would receive

the revenue indicated by the new formula, or their spending in the year prior to the reform, whichever is greater.

It may be worth noting that Imazeki (2007) estimates revenues for each California district using a formula similar to that recommended here, with extremely conservative estimates for the foundation amount and weights. Specifically, those estimates assume a foundation amount of $5700; weights of 30% for poverty, 24% for ELs, 668% for high-cost disabilities, 113% for all other disabilities; adjustments for both very small and very large districts; and applies a comparable wage index for teachers to 30% of the base foundation amount. The total cost for all districts is roughly $13 billion more than current spending, but that allows for redistribution across districts (i.e., some districts gain and some lose) and a hold harmless provision would undoubtedly add substantially to that cost.

Evaluate specific interventions currently funded through categorical programs for effectiveness: Ideally, the revenues from an adjusted foundation amount and weighted pupil counts would replace most categorical aid. However, California currently has a number of aid programs that do not fall into any of the categories that might be covered by pupil weights or adjustments to the foundation level, but that policymakers might still believe are legitimate uses of funds, such as programs for professional development or the arts. Some of these could be folded into the base revenue. Others should be retained as categoricals but only if they are proven to be an effective use of targeted, restricted dollars. For example, the state has multiple before- and after-school programs, or staff and administrator development programs. But policymakers have no idea whether these programs are achieving their intended objectives.

Prioritize the development of a longitudinal student and teacher data system: Evaluation of specific interventions, let alone true accountability, is impossible without good data. If policymakers want to ensure that reforms, whatever they might be, are appropriate and effective, they need better data. As just one example, the determination of the appropriate weights for different student needs requires good data that allows analysts to follow individual student performance over time.

Allow districts some discretion over local tax revenue, equalized with a GTB formula: Sonstelie (2004) suggests a combination foundation-GTB formula that would allow districts some local discretion within the constraints of Prop 13. The biggest obstacle to such a system is that it would require a re-thinking of how local property tax revenue is allocated to all local jurisdictions; however, the Legislative Analyst's Office discusses several options that would be consistent with this system (LAO 2000).

Amend Proposition 13 to allow local over-rides of the one percent property tax cap: Although tampering with Prop 13 may be a political landmine, this report would be incomplete if the issue were not at least raised. Local over-rides, still requiring a two-thirds majority and applying only to school districts, would allow communities with high demand for education services to meet that demand. As with the previous suggestion, the state would have to consider how this would affect the allocation of property tax revenue among local jurisdictions.

REFERENCES

Andrews, M., Duncombe, W., Yinger, J. (2002). "Revisiting economies of size in American education: Are we any closer to consensus?" *Economics of Education Review* 21: 245 – 256.

Baker, B. (2001). "Living on the edges of state school-funding policies: The plight of at-risk, limited-English-proficient and gifted children," *Educational Policy* 15: 699-723.

Baker, B. D., Taylor, L., and Vedlitz, A. (2004). *Measuring educational adequacy in public schools* (Report prepared for the Texas Legislature Joint Committee on Public School Finance, The Texas School Finance Project). Retrieved August 17, 2006 from http://bush.tamu.edu/research/working_papers/ltaylor/measuring_edu_adequacy_in_public_schools.pdf

Brunner, E. J. (2001). "The parcel tax", in *School Finance and California's Master Plan for Education*, J. Sonstelie and P. Richardson (eds.), San Francisco, CA: Public Policy Institute of California.

Brunner, E. J., and Sonstelie, J. (2007). "California's school finance reform: An experiment in fiscal federalism", in W. Fischel (ed.), *The Tiebout Model at Fifty: Essays in Public Economics in Honor of Wallace Oates*. Cambridge, MA: Lincoln Institute of Land Policy.

Card, D., and Payne, A.A. (2002). "School finance reform, the distribution of school spending, and the distribution of student test scores," *Journal of Public Economics* 83: 49-82.

Chambers, J., Levin, J., and DeLancey, D. (2007). "Efficiency and adequacy in California school finance: A professional judgment approach," *Getting Down to Facts Project*. Stanford, CA: Stanford University.

Chambers, J., Parrish, T., and Harr, J. (2002). *What Are We Spending on Special Education Services in the United States, 1999-2000?* (Report 02-01) Palo Alto, CA: American Institutes for Research, Center for Special Education Finance.

Downes, T. A., and Figlio, D.N. (1997). *School finance reform, tax limits, and student performance: Do reforms level-up or dumb down?* Working paper. Department of Economics: Tufts University.

Downes, T.A. and Figlio, D.N. (1999). "Do tax and expenditure limits provide a free lunch? Evidence on the link between limits and public sector service quality," *National Tax Journal* 49: 113-128

Duncombe, W. and Johnston, J.M. (2004). "The impacts of school finance reform in Kansas: Equity is in the eye of the beholder," in J. Yinger (ed.) *Helping Children Left Behind: State Aid and the Pursuit of Educational Equity*. Cambridge, MA: The MIT Press.

Duncombe,W., Lukemeyer, A., and Yinger, J. (2004). *Education finance reform in New York: Calculating the cost of a "sound basic education"* in New York City (Policy Brief No. 28). New York: Syracuse University, Center for Policy Research, Maxwell School of Citizenship and Public Affairs.

Duncombe, W., and Yinger, J. (2005). "How much more does a disadvantaged student cost?" *Economics of Education Review* 24: 513-532.

Education Week (2006). Quality Counts at 10: A decade of standards-based education, 25(17).

Figlio, D. N. (1997). "Did the tax revolt reduce school performance?" *Journal of Public Economics* 65: 245-269.

Florida Office of Program Policy Analysis and Government Accountability. (1996). *Florida's Education Finance System Compared to Other States*, report 95-43.

Goertz, M.E., Duffy, M.C., and Le Floch, K.C. (2001). *Assessment and Accountability Systems in the 50 States: 1999-2000*, Consortium for Policy Research in Education, Research Report Series RR-046.

Hanushek, E.A. (1986). "Economics of schooling: Production and efficiency in the public schools," *Journal of Economic Literature* 24: 1141-77.

Imazeki, J. and Reschovsky, A. (2004). School finance reform in Texas: A never-ending story? in J. Yinger (ed.), *Helping Children Left Behind: State Aid and the Pursuit of Educational Equity*. Cambridge, MA: The MIT Press.

Imazeki, J. (2007). "Assessing the costs of K-12 education in California public schools," *Getting Down to Facts Project*. Stanford, CA: Stanford University.

Imazeki, J. (2007b). "The distribution of teacher quality across schools," paper prepared for the *Teacher Supply and Demand Symposium* for the National Center for Education Statistics.

Kirst, M., Goertz, M., and Odden, A. (2007). "Evolution of California state school finance with implications from other states," *Getting down to Facts Project*. Stanford, CA: Stanford University.

Legislative Analyst's Office (2000). *Reconsidering AB 8: Exploring Alternative Ways to Allocate Property Taxes*, Sacramento, CA.

Loeb, S., Bryk, A., and Hanushek, E. (2007). "Getting down to facts: School finance and governance in California," *Getting Down to Facts Project*. Stanford, CA: Stanford University.

Loeb, S., Grissom, J., and Strunk, K. (2007). "District dollars: Painting a picture of revenues and expenditures in California's school districts," *Getting Down to Facts Project*. Stanford, CA: Stanford University.

Loeb, S., and Strunk, K. (2007). "Accountability and local control: Response to incentives with and without authority over resource generation and allocation," *Education Finance and Policy* 2: 10-29.

Murray, S., Evans, W.N., and Schwab, R.M. (1998). "Education finance reform and the distribution of education resources," *The American Economic Review* 88: 789-812.

Odden, A.R. and Picus, L.O. (2004). *School Finance: A Policy Perspective*, 3rd ed., New York, NY: McGraw-Hill.

Parrish, T.B., Harr, J., Kidron, Y., Brock, L., Anand, P. (2004). *Study of the Incidence Adjustment in the Special Education Funding Model*, Palo Alto, CA: American Institutes for Research.

Picus, L.O. and Mangan, M.T. (2007). *Ensuring Better Use of School Finance Reform Dollars: Lessons from Kentucky, New Jersey, Texas and Arkansas*, presentation for Consortium for Policy Research in Education conference, New Approaches to School Finance, School Improvement and Teacher Compensation: The Results of Fifteen Years of Research and Policy Development, Chicago, IL.

Rose, H., and Sengupta, R. (2007). "Teacher compensation and local labor market conditions in California: implications for school funding," *Getting Down to Facts Project*. Stanford, CA: Stanford University.

Rose, H., Sonstelie, J., Reinhard, R., and Heng, S. (2003). *High expectations, modest means: The challenge facing California's public schools*, San Francisco, CA: Public Policy Institute of California.

Silva, F. and Sonstelie, J. (1995). "Did Serrano cause a decline in school spending?" *National Tax Journal* 48: 199-215.

Sonstelie, J. (2001). "Is there a better response to Serrano?" in J. Sonstelie, and P. Richardson (eds.), *School Finance and California's Master Plan for Education*, San Francisco, CA: Public Policy Institute of California.

Sonstelie, J. (2007). "Aligning school finance with academic standards: A weighted-student formula based on a survey of practitioners," *Getting Down to Facts Project*. Stanford, CA: Stanford University.

Sonstelie, J., Brunner, E. and Ardon, K. (2000). *For Better or For Worse? School Finance Reform in California,* San Francisco, CA: Public Policy Institute of California.

Taylor, L.L. and Fowler, W.J. (2006). *A Comparable Wage Approach to Geographic Cost Adjustment, National Center for Education Statistics*, May 2006, retrieved August 17, 2006 from http://nces.ed.gov/pubs2006/2006321.pdf.

Timar, T. (2004). *Categorical School Finance: Who Gains, Who Loses?* Policy Analysis for California Education, Working Paper 04-2.

Timar, T. (2007). "Financing K-12 education in California: A system overview," *Getting Down to Facts Project*. Stanford, CA: Stanford University.