

**Getting Down to Facts:
School Finance and Governance in California**

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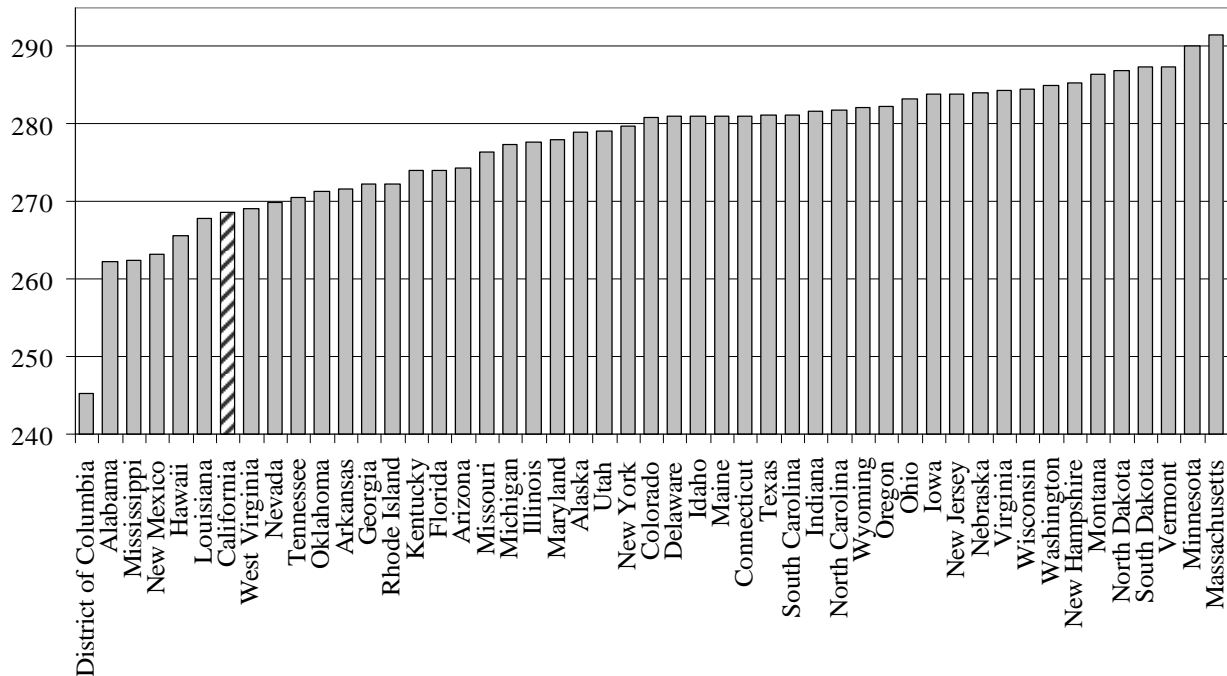
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I. Introduction

Despite the development of challenging education standards and sustained attention to school improvement over the past decade, California continues to lag behind other states in achievement scores. The problem is substantial. On many different measures of achievement, California's students fall far behind those in other states. As shown in Figure 1, on the 2005 National Assessment of Education Progress, California ranked 7th lowest in eighth grade math in comparison to the 49 other states and the District of Columbia. Perhaps more telling, the average California student is competitive with just the bottom quarter of students in Massachusetts. The story is at least as bad in other subjects. California performed 3rd lowest in reading, ahead of only Hawaii and the District of Columbia, and 2nd lowest in science, ahead of only Mississippi. Some suggest that California's position simply reflects the large minority populations in the state, but the facts on achievement belie this. California schools do not do well for any group – as an example, a chart similar to Figure 1 only for Hispanic students would place California fourth from the bottom. Significant progress will require fundamental and comprehensive change.

Figure 1
National Assessment of Education Progress 8th Grade Math Scores, 2005



The Getting Down to Facts Project: A push for such education reform will not be easy. Over the past three decades, state officials have launched many initiatives to improve the education system. Their efforts may have made some progress, but not nearly enough, in part because they have been implemented without a broader infrastructure and knowledge base to support and improve them.

The overall hypothesis underlying the *Getting Down to Facts Project* is that improvement of California’s school finance and governance structures could enable its’ schools to be more effective and reverse the harmful ramifications that will almost certainly result from continuing on the current path. Over the past 18 months, the *Getting Down to Facts Project* has brought together an extraordinary array of scholars from 32 institutions with diverse expertise and policy orientations across “both sides of

the aisle.” It represents an unprecedented attempt to synthesize *what we know* as a basis for convening the necessary public conversations on *what we should do*.

The project was not designed to recommend specific policies. Rather it aims to provide a common ground of understanding about the current state of California school finance and governance in order to facilitate the serious and substantive conversations necessary for meaningful reform to ensue. In this regard, the project addressed three broad questions.

1. What do California school finance and governance systems look like today?
2. How can we use the resources that we have more effectively to improve student outcomes?
3. To what extent are additional resources needed so that California’s students can meet the goals that we have for them?

The project was specifically requested by Governor Schwarzenegger’s Committee on Education Excellence, Senate Pro Tem Don Perata, Assembly Speaker Fabian Nunez, and Superintendent of Public Instruction Jack O’Connell.

Getting Down to Facts researchers took a two-pronged approach to uncovering the most valuable information for California policymakers. First, we looked broadly at California’s school finance and governance system in order to identify the most important factors that facilitate or hinder the effective use of education resources in California. Second, we targeted a number of crucial areas that *a priori* appeared particularly important to address in an in-depth exploration of school finance and governance. The researchers aimed to make the best possible use of existing research findings, identifying important holes in existing research and determining whether there were empirical studies that could be performed in the given timeframe to fill some of these holes. The new

empirical work embedded in the commissioned papers stems from this approach. Overall, this set of studies provides a strong review of the literature and offers some targeted new empirical additions. The individual reports are available at www.irepp.net.

Key Conclusions: Past experience and the research we review here indicate with some certainty what will *not* work if our goal is to make dramatic improvements in student learning. It is clear, for example, that solely directing more money into the current system will not dramatically improve student achievement and will meet neither expectations nor needs. What matters most are *the ways in which the available resources and any new resources are used*. The studies make clear that California's education system is not making the most efficient use of its current resources. Here are four significant examples, among many others.

- The highly prescriptive finance and governance systems thwart incentives for local schools and districts in their efforts to meet the needs of their students and promote higher achievement. Extensive restrictions on local resource allocation, for example, keep administrators from responding to accountability incentives. The restrictions also lead to sub-optimal allocation of resources, in that schools spend money as the regulations demand, not necessarily to meet the needs of their students. Compliance with regulations and associated paperwork also take time away from work with students. At the same time, constant policy changes hinder planning and frustrate school and district staff.
- Current teacher policies do not let state and local administrators make the best use of the pool of potential teachers nor adequately support current teachers. Teacher education and professional development requirements often are disconnected from the skills and knowledge needed in the classroom. While there is some evidence that high quality teacher education can improve teaching, policies that create incentives for teachers to obtain generic credits (such as required masters' degrees) are costly for teachers and districts and show little benefit for students. Moreover, a theme that emerges over and over again in the studies is the excessive difficulty in dismissing weak teachers. Although few administrators wish to dismiss large numbers of teachers, making it easier to dismiss the weakest teachers may well change the dynamics of local school reform.

- The current distribution of resources across schools and school districts is complex and irrational. Currently, districts that are similar in their costs and needs can receive substantially different resources due to spending differences dating back to the 1970s and to a multitude of categorical grants. To be sure, there are good reasons for districts to receive different funds when their needs and costs differ, or even when their interest in education differs. However, the current system does not treat these differences coherently.
- Policy makers, school and district administrators, and parents all lack the information they need to make informed decisions about education policies and practices: California lags far behind other states in collecting useful information on students' learning, their teachers, and the programs and resources that they experience. Moreover, reforms have not been designed in ways that allow California's citizens and policy makers to learn from experience about how to best design and implement policy. Basic data on such things as the learning patterns of students across grades and programs are currently absent.

To be clear, meaningful reform to meet student outcome goals may well require substantial new investments. In particular, so few of the schools serving a high proportion of students in poverty reach state goals that investment in these schools will likely be necessary. But financial investments will only significantly benefit students if they are accompanied by extensive and systemic reforms. Without accompanying policy reforms, the substantial gains in student outcomes that Californians need are unlikely to accrue.

To the point, there is no evidence to support the idea that simply introducing yet more new programs will produce the desired achievement gains. CA already has far over 100 well-intentioned categorical programs, and there is no reason to think that adding one or two more will make much difference, no matter how carefully targeted or lavishly funded. The marginal impact of any new program will be small. Quite simply, the finance and governance system is broken and requires fundamental reform not tinkering around the edges.

Moving forward: Although the evidence produced by the *Getting Down to Facts Project* does not identify *the* specific policies that would be most beneficial for California to implement, it does point to areas in which new policies, implemented purposefully to support evaluation, are likely to be particularly beneficial. Some policy areas are worth pursuing because the evidence suggests that changes in these areas could produce benefits for students. Among these areas are:

- simplification and relaxation of state regulations to allow greater local flexibility for local resource allocation;
- efforts to support the recruitment and development of effective teachers through new approaches to pre-service education, in-service professional development, due-process, evaluation, and compensation;
- experimentation with alternative ways to improve the training, induction, development, and evaluation of effective educational leaders; and
- more effective use of instructional time and possible expansion of that time especially in schools with high concentration of disadvantaged students.

Other policy areas are worth exploring because of their evident importance. This would include among others:

- enhanced curriculum and instruction for improving reading comprehension;
- improved instruction of English language learners; and
- effective approaches for helping continuously failing schools.

The evidence base about how best to act in these areas, however, is thin, and the issues are complicated, often requiring approaches that can continuously adapt to the needs of individual students. In this regard, it is important that whatever California does be undertaken in a way that we can rapidly and systematically learn from it. Too many times in the past, we have pursued initiatives that appeared promising only to be deeply disappointed by the ultimate results.

The extant research base to aid in designing optimal policies is shockingly weak. This is not surprising. It is true not only in California but everywhere. However, within California we have a worse situation than in many other states or nations. Our information systems are so inadequate, that even if we implemented reforms that were particularly effective, we might not realize it. Similarly, we cannot be confident that we can recognize and weed out programs that are ineffective at improving student achievement. To date, we have had very little data available on students, teachers, schools, and districts that link them together over time in ways that would allow us to assess the effects of policy interventions. In many states, good data are now becoming available. Plans to expand and improve California's data systems are underway but these need to be deepened and accelerated. When better data are combined with purposeful policy implementation so that the effects of policies can be carefully evaluated, our understanding of policy impacts can improve quickly.

Producing dramatic improvement in student learning will require the state to create the infrastructure needed to support an education system committed to continuous improvement. Such an infrastructure would include mechanisms for information collection, program and policy evaluation, and dissemination, relying on linked data for teachers, schools and districts. The state would also need to implement new policy initiatives in such a way that they could be evaluated. When all schools receive the same resources or begin the same program at the same time – as was the case, for example, with class-size reduction – it is virtually impossible to evaluate the impact of reform. There is no way to identify whether observed improvements (or reversals) were caused by the

specific reform or by other changes including other new or existing policies or economic fluctuations.

Learning which reforms make a difference requires that policy changes be implemented in a controlled fashion, so that their effects can be evaluated before they are introduced statewide. Learning when and where policies work is extraordinarily important, because it is unlikely that even the best programs are universally effective in a state as diverse as California. Creating an education system that rapidly and continuously learns will also require the state to build local capacity for knowledge generation and use, both through professional development and through the establishment of networks of schools or districts to allow for sharing of information.

In what follows we develop the above discussion in more detail. We begin by describing student performance in California relative to other states and discussing the importance of achievement and school quality for students as individuals as well as for communities and states. Sections III and IV address the effectiveness of resource use in California and the role of the school governance and finance systems in facilitating or hindering more effective use. Section V gives the cost results. The final section offers our conclusions and closing comments.

II. Why Improving the Productivity of California Schools Really Matters

Across measures of achievement, California's students lag behind those in most other states. On the 2005 National Assessment of Education Progress, almost 60 percent of students across the country outperformed the average California student in eighth grade math. In Massachusetts three quarters of students scored higher than the average

student in California. The results look only a little more positive when looking separately by student subgroups. In math California was 15th from the bottom for white students, 4th from the bottom for Hispanic students, and 11th from the bottom for black students. Seventy percent of Hispanic students in Texas score higher than the average Hispanic student in California. Even children of college graduates in California scored 15th from the bottom relative to their peers in other states (<http://nces.ed.gov/nationsreportcard/nde/statecomp/>).

The low achievement of California's students is not only likely to hurt their economic outcomes later in life but is likely to be detrimental for the state as a whole. There is mounting evidence that educational quality measured by test scores is directly related to individual earnings, worker productivity, and economic growth. In a global knowledge economy the economic growth of regions and nations is likely to be effected by the quality of its educational system and the learning outcomes of its students (Romer, 2007)

Benefits to Individuals: Three recent studies provide direct and quite consistent estimates of the impact of test performance on earnings. These studies conclude that a one standard deviation increase in mathematics performance at the end of high school translates into 12 percent higher annual earnings (Mulligan, 1999; Murnane, Willet, Duhaldeborde, and Tyler, 2000; Lazear, 2003). To illustrate, California median earnings in 2005 were about \$45,000 for men and \$37,000 for women, implying that a one standard deviation increase in math performance would boost these by \$5,500 and \$4,400, respectively, *for each year of work life*. If we accumulate these earnings gains over a lifetime and calculate the value at high school graduation, we find that a one half

standard deviation improvement adds an expected \$72,000 (women) to \$88,000 (men) in earnings for *each* student.¹ Plus, there are reasons to believe that these estimates provide a lower bound on the actual impact of higher achievement.² Higher individual incomes lead to more tax dollars available to enable federal, state, and local governments to pursue their societal goals.

These general findings raise a fundamental question: As the California economy grows, will positions in its innovative firms be filled by products of the California schools or will the people in these firms come from other states and other nations? Might firms relocate to more easily attract qualified staff?

Economic Growth: Compounding the benefits of high-quality education for individuals, a well educated society may lead to higher rates of invention; may make everybody more productive through the ability of firms to introduce new and better production methods; and may lead to more rapid introduction of new technologies. In this regard, the relationship between measured labor force quality and economic growth is perhaps even more important than the impact of human capital and school quality on individual productivity and incomes. These externalities provide extra reasons for being concerned about the quality of schooling. Hanushek and Kimko (2000), for example, find a remarkable impact of differences in school quality on economic growth across nations; a one standard deviation difference on test performance is related to a one percent difference in annual growth rates of gross domestic product (GDP) per capita. This quality effect, while possibly sounding small, is actually very large and significant. Because the added growth compounds, it leads to powerful effects on national income and on societal well-being.

To illustrate, consider a policy introduced in 2005 that leads to an improvement of scores of graduates of one half standard deviation by the end of a decade. Assuming that the European students did not improve, this would put U.S. student performance closer to that of students in a variety of better performing European countries, but they still would not be at the top of the world rankings. Such a path of improvement would not have an immediately discernible effect on the economy, because new graduates are always a small portion of the labor force, but the impact would mount over time. If past relationships between quality and growth hold, GDP in the United States would end up four percent higher by 2025 and ten percent higher by 2035. In addition, there are likely to be non-economic benefits to better schooling including lower crime and improved social organizations and public institutions.

Local Impacts: Gains in school quality could lead to improvements in the local and regional economy. Recent work on income and productivity differences across cities document that educated cities have grown more quickly than comparable cities for more than a century (Glaeser and Saiz, 2003). This analysis further suggests that the reason for greater growth is that cities with skilled labor forces become more productive work places. Among other benefits, local economies with more skilled workers can rapidly adjust to changing circumstances (see Welch, 1970; Schultz, 1975). These issues are most relevant to California, where innovation is key; and where our future technological innovations are heavily dependent upon a highly skilled workforce. While California may be able to rely on ambitious and talented individuals from outside the state or country, the children of California will not be able to compete and prosper without a better education system.

III. The Effectiveness of Resource Use - Governance

Any informed discussion of school finance requires an understanding of the governance system in which it operates and an assessment of the restrictions placed on reform by that system. As Brewer and Smith (2007/*GDTF*) demonstrate, there is no single flaw that can be easily modified to produce an effective governance system. Instead, they identify a number of important goals demanding our consideration: accountability; stability; innovation, flexibility, and responsiveness; transparency; and simplicity and efficiency. Our conclusions about the California system of governance stem from this framework. In particular, we find:

- Excessive regulation, especially for a system with strong standards and accountability: The California system places substantial restrictions on schools' and districts' use of resources, which impose meaningful compliance costs and make it difficult for local actors to respond to incentives embedded in the accountability system.
- Needless obstacles facing school administrators: School level administrators facilitate effective teaching; yet, in California the job of the principal is particularly difficult. A combination of substantial regulations, more students per administrator than in other states, and substantial barriers to dismissing weak teachers make the job especially challenging.
- Flawed policies to support teacher quality: Strong teachers are central to student learning; yet, current policies to select, develop, evaluate, and promote or dismiss teachers are not well designed and are counterproductive in many ways.
- Weak or non-existent systems for improving policy based on evidence from practice: The fundamental lack of capacity in California to track the operations and performance of its schools and districts makes it difficult for actors at all levels of the system to learn from the experiences of others and to evaluate and fine tune their reform efforts based on evidence. It is unlikely that California can achieve its educational goals without substantially expanding its capacity to learn from experience and continuously improve its policies.

In what follows we discuss each of these conclusions in turn.

Excessive regulation, especially for a system with strong standards and accountability: In a well designed system with strong accountability, all players understand their roles and have the resources, incentives and flexibility to accomplish their obligations. However, in California these resources and authority for action appears severely lacking (Brewer and Smith, 2007/GDTF). The current system of parallel public reporting on a school's performance under the federal No Child Left Behind Act (with its associated adequate yearly progress requirements) versus its performance under the state Public Schools Accountability Act (the state accountability system with goals under its academic performance index, or API) is confusing for parents and sends mixed signals to educators. Perhaps even more important than this lack of alignment, however, are the substantial constraints that district and school personnel face in trying to respond to these challenges.

While other states with strong accountability systems have reduced regulations to enable local improvement initiatives (see Florida or Connecticut, for examples), California has not. Instead of encouraging flexibility and innovation at the local level, many of California's state policies constrain local actors into implementing very similar policies regardless of what may be their most pressing local needs. Moreover, the constraints in California have only increased over time.

California's extensive system of categorical grants is especially troublesome in this regard. *Relative to other states, California has a particularly large share of funds that are program-specific and thus predetermine how the funds are spent.* This contrasts sharply with state systems that supply dollars based on additional costs or needs, and then allow districts to determine how to spend these funds while holding them accountable for

student results. In California's accountability system, schools and districts are held accountable for the learning of their students, but they are not given responsibility and authority over allocation of their resources to meet these demands. Thus, the locus of accountability and the responsibility are not well aligned.

The State Education Code, which combines voter-approved ballot propositions and state statutes, adds a further level of complexity that makes comprehending the system nearly impossible for policymakers and administrators, and even more so for the average public citizen. *California's Education Code consists of approximately 500 chapters and over 1250 separate articles, which themselves contain numerous sub-articles.* In comparison, Florida's state code consists of about 14 chapters, 60 articles, and related sub-articles; North Carolina's is split into five sections consisting of approximately 300 policies; Illinois' employs about 60 separate articles; and New York's includes approximately 115 articles. Only Texas' state code is more detailed with nearly 3600 separate articles.³

Principals in California clearly feel constrained by California's regulatory system. When asked about which changes would be most important to help them improve outcomes for students, *principals ranked less paperwork requirements and more flexibility in allocating resources as more important than most other factors including additional teachers (reduced class size), more flexibility to reward teachers, and greater hiring freedom* (Fuller, et al, 2007/GDTF). California principals also report that categorical funding rules are the biggest barrier to allocating resources for reforms such as extending the school day or increasing instructional time in reading. They ranked these

barriers as even more problematic than those associated with teachers' unions and contract rules. (Fuller, et al, 2007/GDTF).

Superintendents, too, feel the effects of California's heavy constraints. In a survey of California superintendents over 80 percent responded that more flexibility in allocating resources would be either "a great deal of help" or "essential" to improve outcomes for students. This was the third most important factor after greater freedom to dismiss ineffective teachers and more dollars in the budget overall. Similarly, in an open response question asking what the superintendent would change in resource allocation, *superintendents emphasized increasing the flexibility of spending over solely increased funding by a three to one margin* (Loeb, 2007/GDTF). Interviews with superintendents produced similar results. Administrators interviewed believe that complying with the state's regulations is burdensome and wasteful. They noted that state policies make it very difficult for them to do their jobs well; they feel that if they were given more control they could more effectively deliver educational services to students (Brewer and Smith, 2007/GDTF).

Such "regulationitis" can cause administrators and district staff to focus more on following the letter of the law rather than achieving district goals. In this context, accountability is viewed as "yet another set of regulations (Brewer and Smith, 2007/GDTF)." As an example, a survey of school business officers found a strong focus on compliance but little emphasis on district goals (Perry, et al, 2007/GDTF). Brewer and Smith's interviewees commented on how the system's responsiveness was adversely affected by the high degree of perceived bureaucratization, the "compliance" mentality

exhibited by the CDE, and the myriad demands of the legislature and the State Board of Education.

The evidence presented so far comes from responses of administrators at the school and district level. There is also some evidence that increasing local flexibility may directly benefit student learning, though the research in this area is sparse. We do know that states with local revenue raising, with a lower percent of revenues that are restricted, and in which principals express greater control over resources saw greater student gains in the National Assessment of Education Progress following implementation of an accountability system than did other states (Loeb and Strunk, 2007). We also know that California's system of regulation has not shown advantages in terms of results –offering little reason to believe that further regulation will improve things. As attested to by the administrators, the diverse demands across the approximately 1,000 districts and 10,000 schools in California imply that it is a nearly impossible task to craft an effective and responsive set of fully regulated educational programs

In short, current state regulation in California appears far too extensive. Although some continued state control over resource use may be warranted, our findings are at least suggestive that the relaxing of state regulations would be productive, particularly if designed in such a way that their effects could be rigorously tested. Certainly there is no need for a restrictive categorical program that does not have a track record of working. Moreover, regulations and categorical programs frequently have direct costs through reporting requirements related to compliance auditing. Reducing these administrative burdens alone is a benefit of increased local control.

Needless obstacles facing school administrators: Middle managers, generally principals, are perceived as playing a key role in the effective leadership of instructional improvement at the school-site level, though the empirical evidence on the importance of principals on student learning is not as well developed as it is for teachers. The regulatory environment discussed above imposes a heavy compliance burden on school administrators; and, not surprisingly, principals in California report that they spend substantially less time overseeing instruction at their school than do principals in other states. However, regulations are not the only difficulties principals confront. Their jobs are also made harder by the instability of the larger policy environment, by the lack of administrative capacity at each of the school, district, and state levels, and by the difficulties encountered in allocating teachers' time and attempting to remove ineffective teachers from the classroom. Finally, all of these challenges are aggravated by a human resource system weak at identifying, developing, and retaining the necessary administrative talent.

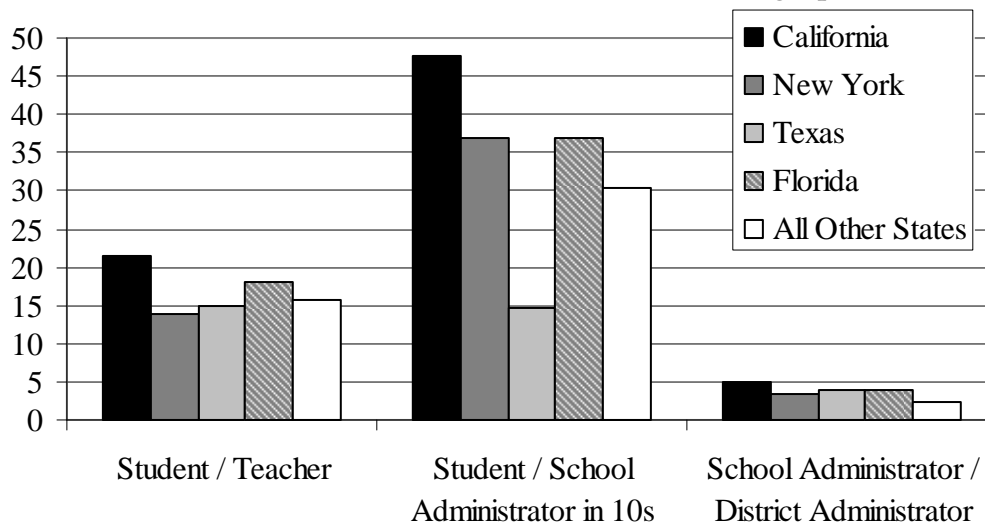
Instability: The instability of the policy environment is problematic for administrators. As Brewer and Smith (2007/*GDTF*) point out, sustained improvement efforts are more likely in a predictable policy environment that encourages rational decision making and long-term investments in capacity building. On this criterion, California does not rate highly. First, *revenue fluctuations are common*. Because a large fraction of total school spending derives from state revenues generated by progressive income and capital gains taxes, it is subject to cyclical economic trends (Kirst, 2007/*GDTF*). The uncertainty in revenues combines with the lateness of the state budgeting process. Over three quarters of Superintendents surveyed thought that

knowing the budget earlier in the year would be either a great deal of help or essential for them to improve outcomes for students (Loeb, 2007/*GDTF*).

Shifting priorities for categorical funding programs further exacerbate the problems of strategic planning at the local level. As Timar (2002) notes, “Significant amounts are expended for programs or projects that are not well conceived and not integrated into a long-term school plan.... [Local districts] do not know what form revenues will take.... It depends entirely on how ... the various political constellations are aligned in the education policy universe in Sacramento.” Among the most problematic and consequential policy shifts have been those focused on frequent changes in student assessment and curriculum policy (Brewer and Smith 2007/*GDTF*).

Low capacity: Loeb, Grissom, and Strunk (2007/*GDTF*) show that California districts have relatively more students per school administrator than the rest of the country and have relatively fewer district-level administrators for each school administrator. Not surprisingly, principals in California report being less engaged in evaluating and supporting teachers, in working with teachers to improve their practices, in helping to develop curriculum plans, in fostering professional development, and in using data to monitor and improve instruction than do principals in other states (Darling-Hammond and Orphanos, 2007/*GDTF*; Fuller, et al, 2007/*GDTF*). Figure 2 illustrates California’s staffing ratios relative to other states. Because student-teacher ratios are also higher, administrators cannot readily rely on teachers to take up the slack.

Figure 2
Staffing Ratios in California and Other States
 Common Core of Data 2003-04 school district demographic data



Principals in California are also less likely to have participated in an administrative internship, to have access to mentoring or coaching, to participate in a principals’ network while on the job, and to engage regularly with teachers in professional development (Darling-Hammond and Orphanos, 2007/*GDTF*). Darling-Hammond and Orphanos (2007/*GDTF*) show that some principal training programs produce principals that systematically feel better prepared to lead instructional improvement and more regularly engage in instructional leadership activities. However, no research has yet tied these specific initiatives to improvements in student learning.

Because of the sparse evidence in this domain and the potential importance of school-based leadership, this strikes us as an area ripe for innovation coupled with careful assessments of effects. Simply adding more school level administrators to build capacity to operate in the current system is unlikely be a productive policy direction. Two particular promising places to start may be in examining support networks for principals

and the development of career ladders for teachers that support them to become instructional leaders and, ultimately, principals.

Inability to dismiss teachers: *The one factor that emerged most consistently across studies as inhibiting local leadership was the difficulty of dismissing ineffective teachers.*

Both the principals and the superintendents surveyed ranked this factor as the most important change that could help them improve student outcomes (Fuller, et al 2007/GDTE; Loeb, 2007/GDTE). National survey data show that California principals perceive more difficulty dismissing teachers than principals in most other states. The case studies of charter schools (Perez, et al, 2007a/GDTE) and of schools with students performing far above expected levels on California standards tests (Perez et al, 2007b/GDTE) also found that administrators in those schools consistently point to their ability to dismiss teachers or counsel teachers out (possibly encouraging them to transfer to other schools) as central to achieving their goals.

Interestingly, though principals want the authority to dismiss teachers, they also indicate that they would only seek to remove a small number of teachers – two or less in most schools – if they had the actual authority to do so (Fuller et al, 2007/GDTE). This may reflect the power of a few ineffective teachers to disrupt a school. Alternatively, it may indicate that principals place a high priority on the incentive power that such authority would afford them as they seek to engage teachers around local improvement efforts. That is, they believe that teachers are more likely to engage actively in reform when principals have real authority to act, even if they rarely use it.

Flawed policies to support teacher quality: Teachers are central to improving student outcomes. Unfortunately, California’s multitude of teacher policies are not

currently coordinated and designed to optimize the teacher workforce. In particular, current policies determining entry into teaching, professional improvement, and retention are problematic. There are also significant problems with how teacher salary schedules are structured.

Weak information for gauging teacher effectiveness: Numerous studies document great variation across classrooms in how much students actually learn over the course of a year. Much of this variation is between classrooms within the same schools (Rivkin, Hanushek and Kain, 2005). These findings suggest that teacher quality matters a lot. However, it is far from clear how best to select, produce, or retain particularly good teachers.

Easily measured characteristics of teachers such as years of education or even their own test scores are poor measures of effectiveness. Students of first and second year teachers on average show less improvement in math and English language arts than students of more experienced teachers, but teachers with five years of experience are on average as effective as teachers with twice or three times as much experience. While teachers who score better on tests of verbal ability or general knowledge on average have students who gain more on tests of achievement during the school year, the impact of different teacher test performance appears small (see, for example, Harris and Sass, 2006). Many lower scoring teachers are much more effective than their higher scoring colleagues. Certification is similar. Two recent studies in North Carolina and New York find that students of certified teachers learn more on average than students of uncertified teachers; however, the relationship is weak here, too (Loeb and Miller, 2007/GDTF; Clotfelter, Ladd and Vigdor, 2006; Boyd, et al, 2006). Moreover, other recent studies have not

reported such an effect. For example, Jepsen and Rivkin (2002) found that in the aftermath of class-size reduction in California, there was no evidence that teacher certification status affected third-grade student outcomes; although, so much was happening in the teacher labor market and the policy environment, any effects would have been difficult to detect. *This lack of a strong relationship between easily measured characteristics of teachers and their effectiveness makes the selection of good teachers difficult prior to actual classroom teaching. It also highlights the importance of strengthening the effectiveness of personnel evaluation processes for the purpose of assignment, professional development, retention, and promotion decisions.*

The problems with current policies determining entry into teaching, professional improvement, and retention: Certification and licensure requirements keep some potential teachers from entering the classroom because they are unable to complete the requirements (e.g. pass required tests) and keep others from entering because the requirements are so costly (in time or money) as to discourage them from trying to teach. To the extent that this process weeds out more poor teachers than good ones, it can improve teaching. Completing the coursework and field work requirements of a certification program also may improve the capacity of an individual to teach, though these positive effects have yet to be documented. Moreover, viewing certification requirements in this light suggests a need to balance the potential benefits of requirements with the costs of discouraging entry by other potentially good teachers.

Recent research summarized in Loeb and Miller (2007/GDTF) document that certification requirements can have strong effects on who enters the classroom. Policies that reduce coursework requirements – such as intern programs in California – have

greatly increased the number of job applicants to school districts. Similarly, policies that require teachers to demonstrate subject matter knowledge have substantially improved the scholastic ability (as measured by test scores) of new teachers hired, especially in traditionally difficult-to-staff schools. In short, there is ample evidence that the nature of teacher preparation requirements affects the pool of teachers available. Whether or not this in turn affects the learning of students is less clear. We lack adequate measures of teacher effectiveness. And, as noted previously, teacher test scores are at best a weak indicator of teachers' actual effectiveness in improving the learning of students.

On balance, there is very little evidence, either positive or negative, about the effects that most aspects of certification, such as specific coursework or required field experiences, have on student outcomes. *Thus, given the clear effect of requirements on the pool of teachers, this is an area worthy of experimentation. As an example, a system that allowed multiple entry routes into teaching coupled with serious assessments of effectiveness and possibilities for contract redesign could lead to a stronger workforce.*

The story is similar with professional development. We know that generic requirements such as units of professional development credits or unspecific masters' degrees demonstrate no benefits for students. *There seems to be little reason to keep these requirements or to peg salary enhancements to them.* Rewards for these qualifications in salary schedules are simply wasted by all currently available evidence. In contrast, field-based experiments have demonstrated that targeted professional development, aligned to standards, and implemented well *can* affect improvements in teaching and learning (see Hill (2007) for a summary). Along these lines, recent policies in California have aimed to make professional development more relevant to the work of teaching. However, it is

difficult to tell whether these new policies, such as those supporting school-based coaches or mentors, are delivering the desired goods, especially since it is extremely difficult to legislate or regulate high quality implementation. This is another instance in which a promising initiative has been expanded very rapidly without concern for whether districts have the capacity to sustain such development with quality and with no plan to learn from the program so that the overall productivity of state policy might be enhanced.

As discussed above, because it is difficult to screen for effective teachers prior to actual on-the-job experience, the identification of effective teachers for the purposes of assignment, professional development, retention, and promotion become even more important. No place is this more significant than around the process of granting tenure. National survey data suggests that California principals are equally able to dismiss pre-tenure teachers as are principals in other states, but post-tenure it is a different story. Moreover, the timing of tenure decisions in California exacerbates this problem. California grants due-process rights to teachers after only two years of teaching, which is noticeably earlier than in most other states (Loeb and Miller, 2007/*GDTF*). *Two years simply is not enough time to develop a good evidence base on individual teacher productivity, and the processes used by districts for making critical decisions on teacher promotion are inadequate.* More time, better data, and stronger review processes may significantly improve the longer term productivity of schools in California

The problems with current salary schedules: Teacher salary scales do not support a highly effective teacher workforce. First, within most districts teachers with the same years of experience and education receive the same base pay. While this may appear to be good policy on the surface, in fact it has multiple drawbacks. All other things equal,

many teachers prefer schools with higher scoring and presumably easier to teach students. Thus schools with a high proportion of students in poverty are often left with less experienced teachers and teachers with weaker academic preparation (Lankford, Loeb and Wyckoff, 2002).

There is some evidence that in the largest districts this problem is further exacerbated by current contract provisions that give preference in transfers across schools to teachers with seniority. This makes it difficult to keep experienced teachers where we need them most (Levin, Mulhern and Schunck, 2005). Recent state reforms have sought to address this, and a new study (Koski and Horng, 2007/*GDTF*) that looks over a much broader range of California school districts does not find persuasive evidence that seniority preference rules themselves affect the distribution of teachers among schools in most districts. Many administrators, according to their investigation, have been able to negotiate discretionary language about transfer and assignment rules into their labor contracts, and thus the variation in practices may be more due to the interpretation and implementation of such rules than to the actual contract language. In these districts, district policies and teachers' choices, not contract rules, appear to drive personnel differences across schools. However, coupled with budget uncertainty that delays the hiring process for new teachers, the end result is a highly dysfunctional staffing system in our most needy schools that makes it difficult for schools to hire new teachers.

Salary schedules that pay teachers the same across fields also result in much greater difficulty staffing some jobs than others. In particular, there tend to be shortages in fields with greater outside occupational opportunities such as science, in fields that require greater training such as development of foreign Language skills, and in those that have

particularly difficult work requirements such as special education (<http://nces.ed.gov/ssbr/pages/field.asp>).

Finally, under the current salary schedules teachers have little monetary incentive to perform well, even if they are likely to have other, both internal and external, incentives including the praise and support of peers and administrators. Current salary schedules prescribe fixed salary increases due for experience and educational credits, but lack built-in increases for achieving given student outcomes. This system could lead to less effort or it could lead the profession to be less appealing to those who would be effective and would like to distinguish themselves. However, there is little evidence to either support or refute the merit of these arguments. *Effective evaluation for the purpose of pay differentials is not an easy endeavor.* Current achievement tests that are used as part of state assessment-based accountability systems are both too imprecise, don't actually apply to the many teachers, and are too easy to manipulate through practices such as teaching test-taking skills to be used as the *sole basis* for determining either salary or promotion (Koretz, 2002). A more complex evaluation system for pay differentials may be beneficial, but the potential benefits should be considered in light of the administrative requirements and possible unintended consequences – again, an obvious area for experimentation. Such experimentation is happening in Florida, Texas, and a variety of other states and could be productive in California as well.

Instructional time: Even the most effective teachers are limited in many schools by the numbers of hours they have to work with students. As Perez et al (2007b/GDTEF) note, the Center for Public Education synthesized relevant studies published within the last seven years on high-performing and high-poverty schools around the nation and

found increased instructional time to be one of the five practices that are consistently identified as characteristics of these schools.⁴

Many schools in California report having increased instructional time, especially in reading. For example, 80 percent of elementary principals and 71 percent of high school principals report having increased time spent on reading and language learning over the past two years. Over two-thirds of the principals have created or expanded after-school or Saturday programs. Moreover, those working in poor communities reported lengthening instructional time more often than principals working in non-poor communities (Fuller, et al, 2007/*GDTF*). Similarly, many charter schools are running longer instructional days, especially those that are focusing on high concentrations of disadvantaged students such KIPP academies.

Lengthened instructional time, however, is only likely to be effective if that time is a coherent part of the curriculum and instruction of the school. Simply spending more on increasing instructional time being carried out under the same processes by the same people working under the same conditions may not be a particularly efficient approach to improve student learning. Increased instructional time can benefit students, especially disadvantaged students, when the program is coherently developed and carried out by dedicated and highly effective staff. In contrast, more of “the same old stuff” is unlikely to be the cornerstone of a fundamental improvement plan.

Weak or non-existent systems for improving policy based on evidence from practice: The discussion so far points to the importance of information and the use of performance data as a key element of improvement in our schools. This is a particularly salient time for California to consider how it might strengthen its capacity to learn from

practice. First, California clearly lacks good information about the effects of policies and programs. Many of the disappointments with educational policy can be traced to the fact that school, district, and state decision maker never received accurate information on the outcomes of policies that they had previously put in place. Programs are continued or replaced on an entirely haphazard basis, not on the basis of clear evidence about impacts on student performance. Second, for the first time districts and schools are collecting data that if utilized effectively could vastly and relatively quickly improve the knowledge base. Should we take swift and definitive actions to synthesize these data into usable forms and combine this with increased local decision-making flexibility and capacity to utilize information, we could be able to make rapid gains in our understanding of beneficial and detrimental education policies.

In her paper, Hansen (2007/*GDTF*) makes a strong case for why California needs more and better information. Such information allows policymakers and the public to know what their schools are doing and whether their investments are advancing toward core goals. In the classroom, it also enables teachers to tailor their instruction to the specific needs of students, both by identifying those needs and by identifying potentially effective approaches for addressing those needs. Some information on students and program effects is specific to classrooms, schools or districts. This information can be collected and shared locally. However, much information can usefully inform policy across districts.

State government is clearly the logical entity to facilitate the collection and dissemination of this information. It would be a waste of resources for each district to have to assess the effect of a reform when the state could do so and then share the

information. State government also has a central role to play in strengthening evaluation and dissemination capacities; although, as other states have demonstrated, the state department itself may not be the place to conduct the evaluation work. These activities currently do not exist at sufficient scale in California, and the State has yet to demonstrate any strong commitment to them.

California is lagging: It is almost impossible to think of the system of progressive policy improvement in California without dramatic changes in the approaches to data development. With movement toward increased accountability, regular information on student outcomes is becoming available across the nation. States such as Florida serve as an example of unified data collection. However, California is lagging behind (Hansen, 2007/*GDTF*). For example, there are many unconnected data collections within the Department of Education as well as important data, particularly on teachers, that is collected by agencies other than the Department and are difficult if not impossible to link within the current system. Most importantly, California's current system does not follow students and teachers over time and does not link them together and to the programs and resources that they experience so that we can evaluate effectiveness.

The most advanced states currently have put together systems to record policies and performance of individual students from pre-K through college and even beyond into the labor force. From these systems, a school administrator can track how students are progressing, how different teachers and programs are affecting this performance, and the effectiveness of different uses of resources. The state departments, or researchers collaborating with them, can directly evaluate programs and policies the state government and individual districts have put into place. For example, with linked data on students

and teachers, other states' departments of education can assess the effects of programs for failing schools, but California's cannot. Parents in other states have accurate measures of how their school is doing relative to other schools serving a similar population; California parents do not. With more accurate information, parents in other states can make decisions about their children's schooling on a factual basis and participate productively in district governance; California parents cannot.

California currently lacks the capacity to take any of the steps highlighted. There are plans to develop parts of these systems; but, as Hansen reports, they are moving exceedingly slowly. The state has not always funded data initiatives and, in interviews, state officials expressed reservations about committing resources to expand the data system, in part because of the state constitutional ban on unfunded mandates (Hansen, 2007/*GDTF*). While the concern that state requirements would be considered mandates and must then be funded by the State is reasonable, the cost of this mandate would be very low relative to the potential benefits of the information and the resultant ability to improve the education system. Unfortunately, current plans are designed more to meet reporting requirements than to support local or state decision making. They are limited in the breadth and depth of analytical data that will be available in the foreseeable future. By compartmentalizing data and by ignoring obvious linkages, the data systems are likely to constrain future capacity. This is a mistake.

An effective data system would collect information not only on student performance and teachers but would also provide clarity on resource flows and financial matters. The state has seen a number of large districts enter into fiscal chaos, in substantial part because the existing data systems did not provide sufficient information

about the fiscal situation. It is natural to use fiscal information for programmatic decision making and for overall assessments of fiscal conditions. California's current Standardized Account Code Structure (SACS) data is a step forward in this area, providing detailed information on district expenditures; however, it could be improved by linking revenues to expenditures, and there is also some concern about the accuracy of reporting due to the complexity of the system (Loeb, Grissom and Strunk, 2007/*GDTF*). Of course, as Springboard Schools (2007/*GDTF*) points out, it is also necessary to have local personnel that can assess the importance of the data.

Hansen (2007/*GDTF*) concludes that while information about school level resources could add greatly to our understanding, the expense of collecting this information outweighs the benefits in some instances. While information on teachers and other staff as well as instructional programs or professional development is useful, detailed information on expenditures at schools may likely be less cost-effective (see Roza (2002) for an example of the difficulties of measuring detailed school-level expenditures).

An effective information system would not only collect useful data but disseminate timely information to parents and voters. For example, today some 3½ percent of students attend charter schools. These parents, making choices on their children's schooling, would be able to make better choices if they were able to compare directly the value-added to student achievement of the charter and the regular public school alternative and to see the resources that flow into each. Charter schools are just an explicit recognition that parents are actively engaged in the schooling of their children. But even without considering a charter alternative, better information would allow parents to understand what their school is doing and to participate in the educational

discussions of the school and district. Parents today do not receive transparent information about performance in a school or about programs and resources. The current accountability system has moved ahead dramatically from the days when no performance data were available, but it can also be improved dramatically. On the programmatic and resource side, virtually no usable data are currently available.

Finally, as Springboard Schools (2007/*GDTF*) describes, within schools decision making is hindered by lack of good information. They conclude that teachers and administrators would benefit from access to regular and frequent data about the performance of individual students throughout the school year. The state can provide considerable technical assistance in the development of systems to accommodate this.

Discussion: It seems clear to us that the massive improvements in student learning desired in California will entail a major, sustained commitment to improving governance. As noted above, the extraordinary amount of regulation in California combines with overworked school administrators, flawed teacher policies, and a lack of information, to hinder effective use of the available resources.

Improving student outcomes rests heavily on enhancing the quality of people involved in teaching in our schools, the conditions under which they work (incentives, resources, and constraints), and their capacity to work together. How best to accomplish enhancement in this domain, however, is less clear. While we have some research base along a number of dimensions (such as teacher quality, work conditions, leadership, and professional development) the evidence lacks depth and specificity as to exactly how to effect improvements. Even where we do have good small-scale experimental evidence

about program efficacy, we still know little about the issues involved in achieving this same level of effectiveness when implemented across a large number of schools.

In such a situation, legitimate disagreements surface as to the most productive course of action. While some will argue, for example, for the merits of enhancing pre-service programs and credentialing requirements, others see such policies as moving precisely in the wrong direction. This alternative view maintains that we need to remove the artificial barriers to entry into the teacher workforce with programs such as California Internship Teacher Preparation Programs, which enhance the “on-the-job” support that such novice teachers receive, develop valid performance assessment systems, and promote and reward those who succeed.

Similarly, there are good arguments for expanding the preparation programs for new school principals, while another perspective maintains that it is not the formal preparation of principals but the way in which principals are recruited and developed that needs fixing. This latter view entails a stronger performance assessment system at every step along the way leading up to decisions to promote and retain someone as a principal.

All of these policy interventions are promising for improving opportunities for students. Yet for none of them do we have clear direction, and none of them alone is likely to elicit the full-scale improvement that is needed. Instead, comprehensive reform is needed so that the system can learn from its experiences and respond. The process is unlikely to be linear. Policies interact with each other; an intervention in one context will not have the same result as an intervention in another context. With evaluation and flexibility to respond, California will be better able to implement the systemic changes that are needed.

Currently, evaluation at all levels is missing. Experiences with programs implemented in one district could inform policy decisions in other districts, but this rarely happens. The professional management system for teachers and administrators overall is short on evaluation. Without this evaluation it is difficult to select appropriate professional development, to utilize teachers for their strengths, or to dismiss those who are continually ineffective.

Flexibility to respond is also missing. Currently superintendents and principals are constrained along multiple dimensions including prescriptive categorical programs, a convoluted education code, and difficulty dismissing ineffective teachers. The state Department of Education also has little capacity to support the work of districts and schools.

Useful governance reform would improve both evaluation and flexibility. California is only likely to be successful if it implements reforms with an eye towards learning from experience. This learning requires purposeful implementation so that policies can be effectively assessed, the collection of necessary data to study effects, and dissemination of information so that policy makers and practitioners can utilize the results of these experiences in their later decision making. There simply is no substitute for linking decisions to student outcomes and for acting on evidence generated about effectiveness.

IV. The Effectiveness of Resource Use - Finance

The Getting Down to Facts studies share a common conclusion that while some resources help student learning, some, either intentionally or unintentionally, do not.

How dollars translate to resources is fundamental to understanding the link between dollars and student outcomes. The school finance system determines the number of dollars that flow to districts, schools and classrooms and can be more or less effective at supporting the use of resources to enhance student outcomes. Here we look at school finance in California in this light.

As with governance, there is no consensus on the best way to fund a public school system. When assessing a state system of finance, it is worth considering a variety of dimensions including sufficiency of dollars, equity of dollars, clarity and simplicity, administrative requirements, the extent to which it facilitates or hinders the effective use of resources for meeting goals, stability of funding sources, and other attributes of funding sources. In this light, the studies in this project find:

- Spending below the national average even with substantial recent increases: The relatively lower spending is reflected mainly in low staff-to-student ratios including fewer teachers and administrators per pupil in California.
- Inequitable by any measure: Differences in spending across districts are substantial and not systematically tied to costs, needs, or demands.
- Complex and irrational: District spending levels are largely a historical artifact of spending in the 1970s combined with a confusing categorical program that does not appear to systematically address differences in needs across districts. The system is confusing and requires substantial and costly compliance work by school districts.
- Highly centralized: Restrictions on local revenue raising likely equalize spending across districts, particularly constraining high income districts, but may also reduce monitoring of schools by local residents.

Spending below the national average even with substantial recent increases: As Kirst (2007/GDTF) notes, legal challenges to the inequalities in the finance system in California came before the advent of the Standards Movement – with important consequences. California’s accommodation to the *Serrano v. Priest* court judgment was,

for example, settled in the 1970's – well before the movement for curriculum and performance standards had taken hold. *Serrano* and Proposition 98 have focused solely on per-pupil spending, without any effort to link the equalization of funding to goals or performance standards.

Using data for the 2004-05 academic year, the most recent data available, Loeb, Grissom and Strunk (2007/*GDTF*) find that California districts spend, on average, \$10,593 per average daily attendance (ADA) from all funds. When considering only “student spending,” which does not include capital, for example, districts spend \$8,074 per ADA on average from all funds. This is a substantial increase over spending five years earlier.

California generates approximately the same revenues per pupil as Texas and Florida, approximately \$5,500 less than New York, and approximately \$630 less than the average of the remaining states. However, California's costs are higher than in most places, due primarily to the higher cost of college-educated labor. Adjusting for salary differences across states reduces California's spending relative to other states. While it is difficult to make such adjustments with precision, the adjustments suggest that Texas spends 12 percent more than California; Florida, 18 percent; New York, 75 percent, and the rest of the country, 30 percent. It is possible that other government institutions or parents compensate for lower school spending in California by increasing their spending on students; however, Downes (2007/*GDTF*) finds no evidence of this.

California spends less on salaries per pupil than do other states.⁵ This is driven by higher student-to-adult ratios reflected in Figure 2 and *not* by differences in the salaries that individual teachers receive. Most importantly, the number of students per teacher is

higher in California, but additional differences are also found in the number of students per school administrators and the number of school administrators per district staff.

Inequitable by any measure: The concept of equity has multiple interpretations. Ultimately, we are most interested in the equity of results, that is, equity in terms of learning of students. As discussed elsewhere, the current system is far from assuring that resources are effectively translated into student outcomes. Nonetheless, as a beginning picture of the implications of the current finance system, we look across districts at resource differences, and we find some perhaps surprising results.

Despite a school finance equalization plan under which California has operated since *Serrano*, there is wide variation in spending across California school districts. Across all funds, the difference in total expenditures in a district at the 25th percentile of spending and a district at the 75th percentile of student-weighted spending is more than \$3,000 per student. Even limiting ourselves to a much more restrictive accounting that does not include capital spending, the difference between the 25th and 75th percentile of student-weighted spending is more than \$1,000 per student (Loeb, Grissom and Strunk, 2007/*GDTF*).

The system could still be considered equitable if it treated similar districts similarly or effectively accounted for needs differences by funding different districts differently. Reich (2007/*GDTF*) discusses these types of equity. However, California funding doesn't meet either of these criteria. Observable district demographic and organizational characteristics correlate with spending disparities across districts but are not large explanatory factors. Poverty level, racial and ethnic makeup, urban status, and district grade span explain only a small portion of the variation in spending. For example,

Imazeki (2007) finds that spending is slightly higher in districts with high proportions of students in poverty, English learners, or special education students; but in each case the 20% of districts with the highest proportions of those students do not have the highest average spending.

Voluntary contributions of money, and more importantly, time also add to variation in resources across districts. While monetary contributions to schools get substantial attention and are large in a small number of schools, on average they account for less than two percent of funds to schools for operating expenditures (Loeb, Grissom and Strunk, 2007/*GDTF*). Brunner and Imazeki (2004) find that monetary contributions averaged less than \$40 per pupil in 2001. On the other hand, voluntary contributions of time appear to be substantial. The principal survey discussed above shows that many schools rely on unpaid volunteers for a wide range of staffing responsibilities (Fuller, et al, 2007/*GDTF*). Elementary schools, for example, rely on volunteers to help staff classrooms: 55 percent said that they rely on volunteers “a great deal” to help staff classrooms while another 34 percent say they do so “sometimes.” They also draw on parents and other volunteers for tutoring (15 percent, a great deal; 34 percent, sometimes) and clerical assistance (17 percent, a great deal; 24 percent, sometimes). High schools rely on volunteers more heavily for organizing after-school and sports activities tutoring (35 percent, a great deal; 41 percent, sometimes).

Principals in higher income communities reported substantially more frequent use of volunteers to provide clerical work, adult supervision at morning arrival or playground duty, tutoring, and help running sports activities than did principals in poorer communities. For example, dividing elementary schools in half based on the percent of

students receiving subsidized lunch, 76 percent of principals in high income communities report substantial reliance on volunteers for classroom assistance, compared with 38 percent in lower-income schools; these numbers are 24 percent vs. seven percent for clerical assistance and 22 percent vs. five percent for tutoring. *Overall the difference in volunteer time between low-income and high-income schools appears to be a greater source of resource disparity than are contributed dollars.*

Of course, this is just the kind of policy dilemma that requires careful thought and evaluation. Quite obviously, California would not want to prohibit parents from actively contributing to the education of their own children and others. Neither can one effectively legislate that all parents must participate. Experimentation with alternative incentives and structures to encourage active parental involvement is clearly needed so that policies that involve the entire community in education can be developed.

Facilities funding also contributes to differences in spending across districts, but the variation in the spending is more tied to district needs and district demands (Brunner, 2007/*GDTF*). For example, in unified school districts the difference between the 75th and 25th percentiles of facility revenue per pupil (total revenue raised over the period 1998-2005 divided by student enrollment) is over \$10,000. Similar disparities in facility funding exist among elementary and high school districts. Wealthier districts, those with greater assessed property values per pupil, have higher school facility funding on average, reflecting differences in demand and their willingness to pay. These districts are able to raise substantially more revenue through local general obligation bond issues and consequently tend to have higher total revenue per pupil. Historically, districts with a large number of low-income and non-white students had substantially lower spending on

facilities, resulting in over-crowding. Recent policy changes have, however, begun to address these disparities. Districts that contain critically overcrowded schools currently have higher facility revenues per pupil.

Overall, California's school finance system fails to provide an equitable distribution of funds between districts and students. The simple inequity in resource allocation is further exacerbated by the availability and usage of volunteer time in wealthier districts. The implications of these discrepancies for student performance are less clear, however, given the inefficiencies of current resource usage.

Complex and irrational: The state's school finance system is extraordinarily complex and has no coherent conceptual basis (See Kirst (2007/GDTF) and Timar (2007/GDTF)). That is, it is not intentionally designed for meeting state education goals or meeting student needs. A number of states including Texas have implemented reforms in which the dollars going to districts are much more closely tied to needs, costs, and the preferences of district residents. California's incoherence is evident in the discussion above of similar districts receiving quite different funds. Spending formulas are complicated functions of spending in the 1970s that have been adjusted in various ways over time plus additional categorical grants which are not purposefully linked together to meet state education goals. Very few people in the state even understand how funding levels are determined.

The instability of revenue for schools combines with the complexity of the system to make it even more difficult for local administrators to plan effectively.⁶ Kirst (2007/GDTF) notes that stock price volatility and the state's relatively progressive personal income tax have created years of boom and bust for California schools.

California relies on both the income tax and the sales tax for schools. While the sales tax tends to be less volatile, it also puts a greater burden on lower-income households (Duncombe and Yinger, 2007/*GDTF*). The 2006 state education aid increase of 11 percent, for example, follows in the tradition of the 2000 tech boom, and the 1983 state tax bonanza. These past state spending upsurges decrease pressure for finance changes, even though they have typically followed several lean years of state spending (e.g., 2001-2004). The importance of stability is evidenced in the principal and superintendents surveys as well. For example, more than three-quarters of superintendents responded that knowing the budget earlier would be a great deal of help or essential to improving outcomes for students (Loeb, 2007/*GDTF*).

This system also has substantial administrative requirements that themselves place resource demands on schools and districts. The paperwork requirements discussed above are one example of this: when asked about which changes would be most important to help them improve outcomes for students, principals ranked less paperwork requirements as more important than most other factors including additional teachers (Fuller, et al, 2007/*GDTF*).

Highly centralized: In California, district spending levels are set, with only minor exception, at the state level, and a higher proportion of funds come from state revenues than in most other states. Proposition 13 limited property taxes, rolled back property assessments to their 1975-1976 levels, and restricted the growth in assessments to two percent annually (Timar, 2007/*GDTF*). State policy requires districts to tax themselves at the limit set by Proposition 13 and then the state adds on to these locally raised funds to bring district spending up to a State-determined revenue limit. Because of the limit on the

local property tax, districts have little ability to raise additional funds for school operations. As Kirst (2007/*GDTF*) points out, the result is more state control of all school policy, because state politicians believe that they need to regulate a system that is state financed – presumably to ensure good use of funds.

While 24 other states limit supplementation by school districts to some degree, most of these restrictions are less severe than those in California, which limits revenue beyond a district’s state-specified revenue limit to a parcel tax and a few other miscellaneous revenue sources. There is some, though limited, evidence that restrictions on local revenue raising reduces the incentive of taxpayers in a district to monitor schools (Duncombe and Yinger, 2007/*GDTF*).

In California, not only does the state determine revenue levels but it also prescribes more of what the dollars should be spent on than do other states. In practice, such state-determined resource allocation may or may not be in the best interest of students. For example, Brewer and Smith (2007/*GDTF*) point to the possibility that district choices are driven too much by concerns of teachers and not enough by student needs, though state decisions may have similar shortcomings as well. Duncombe and Yinger (2007/*GDTF*) find evidence that an increase in categorical aid as a share of state support lowers the efficiency with which a district generates student performance. These results suggest that on average California districts are allocating resources more effectively when given flexibility than when the allocation is determined by the state.

Discussion: California’s school finance arrangements reflect its governance system more generally. It constrains local actors in multiple ways. Restrictive categorical funding programs limit districts’ and schools’ ability to respond to the accountability

system and to student needs. They also present substantial paperwork requirements which, on top of low staff-to-student ratios, reduce the time available to focus on instruction and on students, more generally. Late budgets further constrain planning and make it difficult for administrators to allocate resources effectively. Constraints on local revenue generation also may reduce community monitoring of schools and certainly decreases the satisfaction of residents in high income and property wealth districts who would like to be able to raise more funds for their schools.

In addition, the school finance system does not treat districts equitably. District expenditure is determined almost exclusively at the state level. Yet, the dollars flowing to districts are not clearly linked to districts needs or district performance. As discussed much more fully below, we do not yet have a good way of determining the exact dollars a district would need to achieve a given outcome for its students. However, there is little argument for the state to give districts that are very similar very different levels of funding. California does just that, due to 30 years of sequential and often conflicting reforms resulting in current spending formulas. None of the differences create obvious incentives to improve student performance. Funding formulas also do not compensate districts for clearly different costs associated, for example, with the labor market for teachers in the region or with the students that they serve. *Clearly, fundamental changes are needed in the funding structure so as to more rationally address these similarities and differences.*

V. Resource Needs

In the era of standards setting and assessment-based accountability there is an interest in holding districts responsible for the outcomes of their students. This movement

is anchored in the notion that with clear standards and aligned incentives, schools will work towards meeting the goals set out for them. However *in order to reach the actual objectives set out, districts must have the resources as well as the desire to do so*. Court cases throughout the country have challenged, many successfully, the adequacy of resources available to districts for meeting state goals.

For a number of reasons, however, determining whether the dollars provided by the state are adequate is not an easy task. First, often the goals for students are substantially different than current student outcomes. In such a situation, there may be very little information available about how to improve schools to achieve such goals and thus the dollars needed for success. If we do not know how to achieve a given level of student performance, we cannot estimate the cost of such a goal.

A second difficulty in determining what funding is necessary to achieve a given outcome stems from substantial differences in needs across districts. These differences come from variation in the student population served as well as variation in local labor markets for teachers and administrators. Current capacity differences also affect resource usage and its effectiveness. Districts and schools differ in their capacities to transform resources into achievement, say, because of differing leadership skills or ability to use information effectively. We do not want a funding system that rewards poor performance, even as we recognize that poorly performing schools may need new resources to improve. Clearly, this raises significant complications for calculating resource needs.

A third factor confounding estimation of resource needs is that these estimates are fundamentally only applicable to a specified set of educational institutions. As discussed in detail above, the governance structure affects how dollars are translated into resources

for students. As such, the dollars necessary to reach a given outcome goal in one system can be quite different than those needed in another system. Providing alternative incentives to school personnel – as suggested throughout the discussion of governance and efficiency – could alter how resources are used and the resulting student outcomes.

Finally, *any estimate of resource needs is specific to the current knowledge or “technology” of schooling*. Innovations in curriculum or instruction, for example, may reduce the cost of achieving a given education goal and, in some cases, investments in research and development may be a better use of funds for improving outcomes than additional dollars for current instruction. The governance structure and the incentives it creates can also influence the development of technology, spurring new approaches to benefit students.

While the difficulties of estimating the resource needs associated with a given outcome goal for students are severe, it is nonetheless useful to consider the implications of different approaches that have investigated how increases in school resources might affect student outcomes. The approaches that have been applied to this issue have various strengths and weaknesses. In particular, with minor variations, the studies take as given the current structure and operations of California schools and try to investigate how simple changes in resource policy would affect outcomes. *This, as should be apparent from the prior discussion, is an overwhelmingly important qualification*. For example, we do not know what the results would be if we changed the governance structure for all schools to be similar to the current one for charter schools or if we changed resource allocation in high schools to increase the use of technology – no one has done these.

However, even with this caveat, when combined the studies provide a number of insights into resource needs.

- More money in the current system without significant reforms is unlikely to result in students meeting challenging state standards. As evidence, there currently is little relationship between the dollars spent by districts or schools and the outcomes of their students, even after adjusting for cost differences. This result does not imply that more dollars cannot substantially improve student outcomes, just that they do not currently with existing programs, regulations, and incentives.
- Schools with similar resources have very different student outcomes. Some schools appear simply to get higher student achievement from the available resources than do others. This finding holds after comparing districts that appear to serve similar student populations. There is a strong relationship between student outcomes and student background characteristics. Yet, among schools serving similar student groups some schools are far more successful than others at facilitating learning.
- Among schools that serve a high proportion of students in poverty, even the most successful rarely meet state achievement goals. As with schools serving more advantaged populations, schools serving largely economically disadvantaged students obtain very different results. Nonetheless, the challenges of educating these students are sufficient that current approaches very rarely bring average performance up to state goals.
- There is no one best practice for resource use though some commonalities emerge. Interviews with administrators at particularly successful schools suggest that high-quality teachers, implementation of a standards-based curriculum, and coherent instruction are central to success. When asked how they would allocate additional funds, California educators would put more resources into professional development for teachers and into extending instructional time than into reduced class size.
- There are substantial differences across schools and districts in educational needs, and the concomitant resource demands, that are driven largely by differences in poverty, special needs students, and the cost of teachers. Schools with a higher proportion of students in poverty require additional resources to compensate for the extra needs that these students typically bring to school. Schools in regions with higher labor costs may require additional dollars to reach the same outcomes as other schools. Special education students also require additional spending.
- The cost implications of multiple factors affecting schools are uncertain and difficult to estimate. For example, the research on English language learners

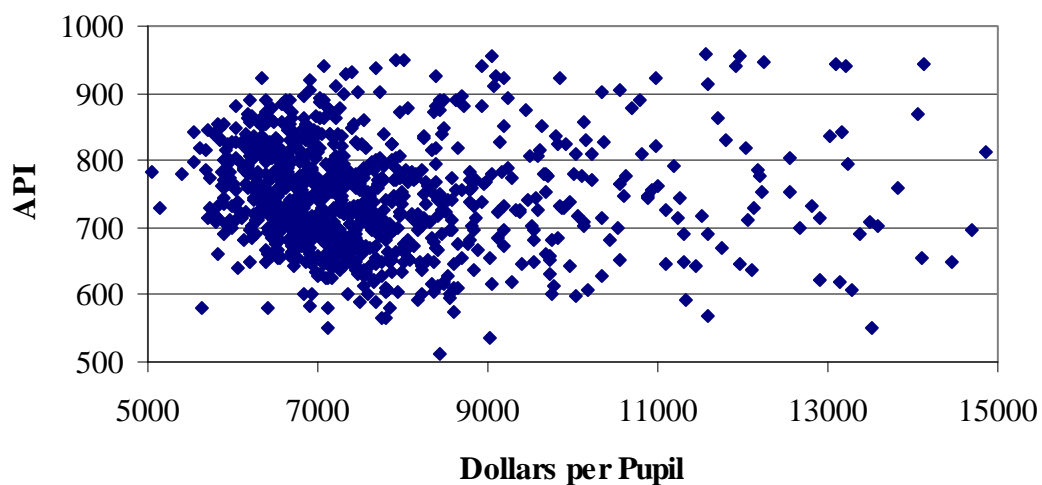
does not clearly identify additional spending needs in schools. Additional resources are needed to develop more effective materials and instructional practices for English learners, but evidence of additional needs beyond those associated with the economically disadvantaged status of most English learners is inconclusive at the classroom level.

The *Getting Down to Facts* projects included the perspectives of each of the commonly employed methods that have been developed to study school finances in other states.⁷ In one case, (Sonstelie 2007/*GDTF*), the general methodology used elsewhere was considerably expanded, but the other studies build directly upon the applications in prior work.

More money in the current system without significant reforms is unlikely to result in students meeting challenging state standards: As Imazeki (2007/*GDTF*) shows, the relationship between dollars and student achievement in California is so uncertain that it cannot be used to gauge the potential effect of resources on student outcomes. Specifically, there are different ways that historically have been used to approach assessing the effects of dollars on outcomes. The two most common approaches, cost functions and production functions, give vastly different answers.⁸ The tremendous difference between cost functions and production functions is seen clearly by looking at the spending implications of raising a single district from an API of 750 to 800. One approach estimates an additional need of \$181/pupil; the other, an additional need of \$11,600/pupil. Importantly, the higher number comes from the approach most accepted in the research literature, and its magnitude reflects the common finding elsewhere that spending variations are not strongly associated with student achievement. Thus, if dollars are spent in the same ways that they have been spent in the past, it takes large investments to make any progress at all on student outcomes.

Figure 3 illustrates this point. It uses data from Imazeki (2007/*GDTF*) and plots district API in 2004-2005 as a function of per pupil spending in 2004-2005. The figure shows essentially no relationship between spending and student outcomes. Other factors also obviously affect performance and spending – including the family backgrounds of students, the size of the district, and the cost of living in the specific part of the State – but allowing for these differences does not change the overall pattern. Spending differences are not clearly related to achievement patterns.

Figure 3
District API and Spending per Pupil 2004-2005
Data from Imazeki (2007/*GDTF*)



When asked how they would allocate resources to improve student achievement, superintendents, principals, and teachers are generally optimistic that additional dollars *can* improve student outcomes. But even these professionals note that the relationship is not strong. For example, educators surveyed as part of the *Getting Down to Facts* project predicted that an increase in an elementary school’s budget of \$1,000 per pupil would increase the school’s API score only by 13 points, on average, even if these professionals

were given the freedom to allocate these funds as they saw fit to improve student achievement (Sonstelie, 2007/*GDTF*).

The simple message of this work is that it is unlikely that simply providing funds to the current system – the system with the flaws previously discussed – will yield anything like the results desired and needed in California. But this overview masks important findings from the various studies of revenue needs, and it is important to extract the deeper messages embedded here.

Schools with similar resources have very different student outcomes: One important message that pervades all of the approaches is that some schools have managed to do much better than others. This comes through clearest in the investigation of “beating-the-odds” schools where the explicit focus was finding schools that seemed to be succeeding (Perez et al, 2007b/*GDTF*). Three primary conclusions come from this work. First, it is possible to find a collection of schools that indeed are unusually successful. Second, few of the unusually successful schools actually achieve the challenging state standards of an API score of 800 if they serve high concentrations of students in poverty. Third, looking at the characteristics of successful schools yield some suggestive insights into what may be important, but the important factors often are difficult and potentially expensive to replicate.

Perez et al (2007b/*GDTF*) defines successful schools as those that in four years perform at least 0.75 standard deviations higher in English Language Arts (ELA) and mathematics overall and for subgroups based on Free and Reduced Price Lunch participation, English learner status, Hispanic proportion, and African-American proportion. These criteria produce 61 elementary schools, seven middle schools, and 35

high schools in the state, excluding magnet schools and charter schools. Defining low performing schools as those that do worse than predicted in all years, Perez et al (2007b/GDTF) identifies 76 elementary schools, 32 middle schools and five high schools. The study finds consistently successful schools at all levels of student poverty.

However, consistently low performing schools almost exclusively serve high-poverty populations. No schools serving a low percentage of students in poverty are consistently low-performing relative to their peers, while a substantial number of high poverty schools are low-performing in all four years. California is not unique in this trend. Bryk (2007) finds a similar pattern in Chicago.

These results should be considered suggestive rather than definitive. Most importantly, it is not always easy to identify effective schools, and the evidence strongly indicates *it is a lot harder to change low performing schools into high performing schools*. For identifying effective schools, the analysis in California must rely just on the achievement levels of students and not how much they gain in the separate schools. This limitation is one result of the imperfect data systems currently available. As such, it is necessary to adjust statistically for student background factors and other things outside of the schools that might affect student performance. These adjustments are necessarily imprecise, relying on just the commonly available measures such as percent of students eligible for free and reduced price lunch. One school may look as though it is doing better than another school with the same student population as measured on such indicators but may, in fact, serve quite different populations.

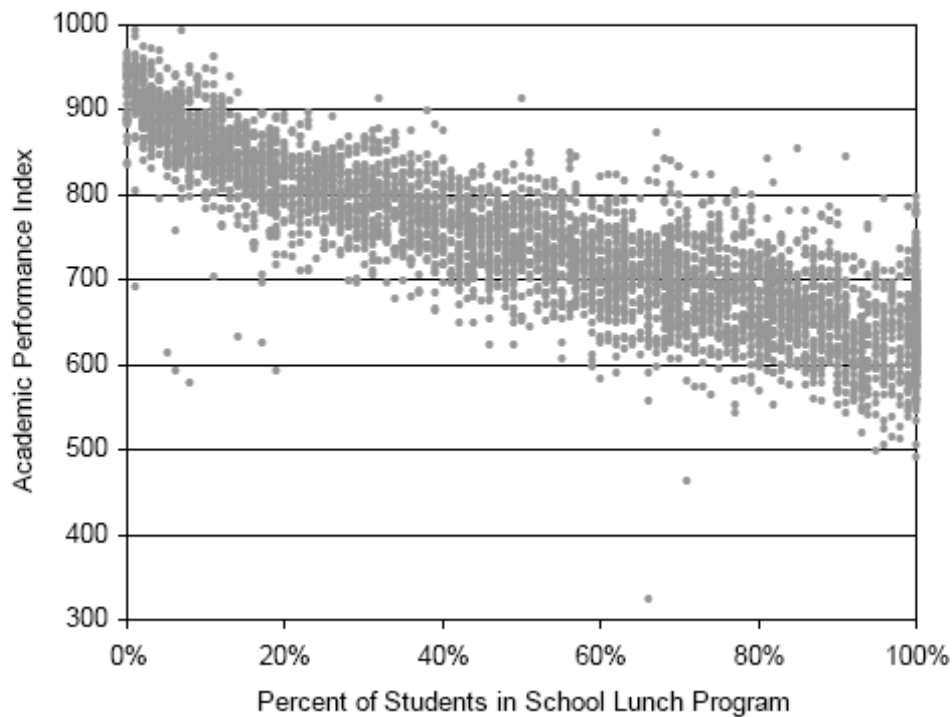
Community contexts as well as different mechanisms by which students select schools can lead to different outcomes in ways that are outside of the control of the

school. To illustrate, Bryk (2007) finds that in Chicago there is great variation in the backgrounds of students across schools with similar percents of students eligible for subsidized lunch. For the group of schools determined to be truly disadvantaged, the study finds that 47 percent did not improve and that only 16 percent improved substantially. For a second group of schools, with a similar subsidized lunch rate of 94 percent but with less poverty measured using other metrics such as male unemployment and average family income in the block area, they find that 15 percent did not improve and 36 percent made substantial improvements.

Among schools that serve a high proportion of students in poverty, even the most successful rarely meet state achievement goals: Most importantly for policy considerations, many schools categorized as successful will still not achieve state goals for students, when those goals are set high. Figure 4, taken from Sonstelie (2007/GDTF), plots the school Academic Performance Index (API) for all California K-5 and K-6 schools in 2004 by the percent of students in the school eligible for subsidized lunch. Clearly, on average, schools with a lower proportion of students in poverty perform better on standardized tests than schools with a higher proportion of poor students. Of the 491 schools with fewer than 10 percent of students eligible for subsidized lunch, only 11 have school APIs of less than 800; while of the 715 with at least 90 percent of students eligible, only one school has an API of at least 800. On average, a ten percent increase in the percentage of students eligible for the school lunch program is associated with a 23 point decrease in the API. While that one school performing above 800 shows that success in a high-poverty school is possible, the overall distribution suggests that current programs are far from being able to reproduce this outcome on a large scale. With the most recent

available data, a few more schools have passed the 800 threshold, but no non-charter high-poverty middle or high school has done so. Of the regular elementary schools achieving an 800 API, only three serve at least 100 students and have a substantial African American or Hispanic student population.⁹ Choice schools, while showing some hopeful results, need to be assessed separately because they combine different mechanism for the selection of students with potentially different resource utilization patterns.

Figure 4
Percent of Students Participating in Subsidized School Lunch Program and API, K-5 and K-6 Schools, 2004



There is no one best practice for resource use though some commonalities emerge: Perez et al (2007b/GDTF) shows little difference in spending across schools based on whether or not they qualify as beating-the-odds or low performing schools. Overall,

beating-the-odds schools spend \$222 *less* annually than low-performing schools. If, however, the sample is restricted to high-poverty schools, *beating-the-odds schools spend \$266 more per pupil, on average, than low-performing schools (\$369 more per pupil on personnel).*

The results of the beating-the-odds analysis are similar to the results of the cost-function analysis: in the current system, there is only a small relationship between spending and student outcomes. If additional dollars were inserted in the current system, there is no reason to expect substantial increases in student outcomes related to state goals.

That said, successful school analyses can be used to see whether there are some resource allocation or, more general, practices and collections of personnel that appear to support student outcomes. From interviews with staff at effective schools, Perez et al (2007b/GDTF) conclude that there is not a single key to academic success.¹⁰ Instead, it is how a complex system works together towards its goals. The combination of factors said to be major contributors to the success of the BTO schools seemed unique to each school. On the other hand, some factors were mentioned frequently enough to emerge as themes, including the existence of high-quality teachers and staff, implementation of a standards-based curriculum, and coherent instruction.

Another and quite different way to probe the resource needs of schools simply is to ask professional educators directly. Because they are in schools and understand school decision-making processes, they often have ideas about what factors most help or hinder the improvement of student achievement. There are different ways to elicit these assessments. The common past practice is to convene a panel of educators and ask them

to design an effective school program as did Chambers, Levin, and DeLancey (2007/GDTF). The *Getting Down to Facts* studies also included a novel approach that surveyed professionals and asked them to allocate a given budget across various school resources to maximize the achievement of their students (Sonstelie, 2007/GDTF).

In comparison to current allocations, the panels that were asked to create an effective school thought that added resources to reduce class sizes, to extend the instructional day and year for all students, to hire specialists to work with small groups of students, and to foster professional development opportunities for teachers would be effective (Chambers, Levin, and DeLancey, 2007/GDTF). The panels also added resources for early education and extended day and year programs specifically for schools with high proportions of students in poverty or with high numbers of English learners. The panels emphasized that student achievement wasn't as dependent on the number of personnel at the school level as on how their roles and time were allocated.

The California survey estimates derive from budget simulations conducted with 567 randomly selected public school teachers, principals, and superintendents. The survey instruments describe a hypothetical school—the characteristics of its students, the cost of its resources, and its total budget. Participants then select the quantities of each resource that would maximize the academic achievement of the school's students. Respondents were not given the option of raising or lowering the wages or benefit levels of personnel. On average, when budgets increased by 50 percent in elementary schools, respondents reduced class size by 15 percent and increased administrative staff by 27 percent. They made larger changes in support staff (increasing by 300 percent), instructional coaches (from 0.2 to 1.4 FTE), time teachers work together (increasing by 44 percent), and

instructional time (increased summer school participation, longer school days and longer school years). The patterns of resource allocation choices are similar in middle and high schools.

Respondents were then given different levels of resources and were asked to identify what outcomes they thought were possible with added resources. Using the respondents' estimates of student outcomes, Sonstelie (2007/*GDTF*) develops equations for predicting the relationship between resources at the school level and a school's student population and outcomes. These budget estimates exclude a wide variety of school district costs, such as district administration, transportation, maintenance and operations, and special education. In the report, the costs of these activities are added to the budget estimates, and this total is adjusted for regional differences in employee compensation to give estimates of total costs.

Respondents predicted the achievement that could be obtained with school level spending of between \$3,600 and \$7,600 for 2003/04. To obtain total student spending, one also must add approximately \$2500 of central district expenditures. According to their estimates, the average elementary school with 573 students and a budget of \$4,000 per student, about average for the state at that time, would be expected to achieve an API of 843 if none of its students were poor, well above the state's standard of 800. However, respondents predict that it would only achieve an API of 698 if all of the students were poor.

These achievement predictions are somewhat higher than schools' current outcomes, which is not surprising given that the approach assumes that the schools can allocate resources in the ways they judge most effective. In the current system, schools are

constrained in their use of dollars, for example by categorical grants and labor contracts; although their estimates of the impacts of these do not come from experience of operating without these constraints.

There is also considerable uncertainty in these predictions because the educators differ in their views of what can be expected with different budgets and with different student populations. For the average elementary school, the school in which 52 percent of students participate in the subsidized lunch program, the average estimated budget to achieve an API of 800 is \$7,430 per pupil at the school level, but the band around this necessary to include 90 percent of the respondents' estimates run from \$6,403 per pupil to \$8,368 per pupil.¹¹

Sonstelie (2007/*GDTF*) provides an illustrative estimate of the dollars needed for each school in the state to strive to achieve an 800 API, but this requires going considerably beyond both his simulation data and actual state results because currently virtually no high poverty schools produce API scores above 800. When he limits the school budgets to the range used in the simulations, his respondents suggest an estimated total state budget of \$60 billion (for the 950 districts with complete data); in contrast, the total expenditure of the same districts was \$43 billion in 2003-04. Importantly, because the budgets are limited on the high end, the estimates do not predict that all schools would achieve an 800 API. Instead, five percent of elementary schools would have predicted API scores of over 819, 50 percent of schools would have predicted scores of less than 796, and five percent of schools would have predicted scores of less than 736. Sonstelie (2007/*GDTF*) predicts similar outcomes for middle schools and high schools. In

total, the estimates from Chambers, Levin, and DeLancey (2007/*GDTF*) are similar to Sonstelie (2007/*GDTF*).

In other words, based on the responses of school personnel, a forty percent increase in spending would still leave over half of the California districts below the goal of an 800 on the API. Moreover, this estimate is based on the assumption that district personnel would be able to make some allocations not currently permitted by today's policies.

An important element of the various studies is the insight they provide on potential differences in resource needs. In particular, because some students come to school less prepared and some have needs that require extra school programs, some districts will require extra resources. Exactly how much is difficult to ascertain, but the studies provide some idea of the potential range.

There are substantial differences across schools and districts in educational needs, and the concomitant resource demands, that are driven largely by differences in poverty, special needs students, and the cost of teachers. Figure 4 above combined with the somewhat higher spending on average in districts with a higher proportion of students in poverty suggest that schools with a greater proportion of students in poverty require additional programs and supports to reach any given goals. The pattern is consistent with the view that these students come to schools with learning needs that demand additional school attention if these students are to be successful. The professional judgment survey analysis (Sonstelie, 2007/*GDTF*) estimates that for each additional one percent of students in poverty, elementary, middle, and high schools require \$111, \$91, and \$49 additional per pupil, respectively, to meet their outcome goal.

Special Education: Special education students clearly require additional resources to reach any given goal. Moreover, some students may not be able to meet challenging goals even with those resources. How to account for these differences depends on how the goals are defined. Harr et al (2007/*GDTF*) describes different methods for estimating these costs. One simple way is to use current spending on special education students. This method does not estimate the costs of actually achieving outcome goals, but it does give the resource implications of meeting current program requirements as specified by the Individuals with Disabilities Education Improvement Act. This approach, reflecting current approaches but not incorporating any information about achieving educational outcome goals for these students, gives an estimate of approximately \$11,600 per student, though it varies considerably with disability type.

Teachers: A special concern is that the price of highly educated people – such as teachers – may differ across the state. While the evidence is thin, these differences in labor markets within the state imply that some districts may need to offer different salary levels in order to obtain equally effective teachers. For example, schools in regions with high wages for college graduates in non-teaching occupations may have more difficulty attracting teachers at a given salary than do schools in regions with low wages for college graduates. Supporting this, Rose and Sengupta (2007/*GDTF*) find a strong relationship between teacher salaries and non-teacher salaries across California. In addition, schools may differ in their ability to attract teachers because of a lack of college graduates more generally in a given region. Again, these differences should be accounted for to the extent that they impact on the quality of teachers a school can attract at a given wage. Rose and Sengupta develop an index for equalizing the purchasing power of districts that could be

used to adjust for these differences, but further research is needed because salary differences have not yet been shown to strongly impact teacher effectiveness in the classroom.

An important note is that regional differences in teacher costs do not account for the substantial differences within districts of attracting teachers to specific schools due to variation in working conditions and job demands across schools within the same district. These too are cost differences. While they are not accounted for in a regional cost index, they are accounted for in adjustments made for schools' student composition, which appears to drive much of these cost differences (Hanushek, Kain and Rivkin, 2004; Boyd, Lankford, Loeb, and Wyckoff, 2005).

The cost implications of multiple factors affecting schools are uncertain and difficult to estimate. While it is clear that special programs and approaches are called for to educate different students, the exact costs of these programmatic differences are frequently difficult to ascertain.

English learners: English learners in California require different resources than other students, but once adjusting for poverty it is not clear whether those additional resources cost substantially more at the *school level*. The Sonstelie (2007) study finds some additional resource needs in high school but little in elementary or middle school. In Chambers, Levin, and DeLancey's (2007/*GDTF*) Professional Judgment Panel study one panel gave no additional adjustments while the other added substantially more instructional aides and support teachers.

Gandara and Rumberger (2007/*GDTF*) address the resource needs of English language learners specifically. They find that prior cost studies show little consensus.

There is a large range of findings with some showing no additional costs after including poverty adjustments while others find up to 159 percent additional dollars needed. The average is approximately 20 percent additional resources. School case studies provide some insight into possible resource needs. They show that many schools that are doing well overall are not doing well with English learners. There are indications that additional time is critical, as are computers, materials in multiple languages, attention to non-cognitive issues such as motivation, communication with parents, time for teacher collaboration, and the availability of bilingual personnel even when instruction is in English. Many of these factors are similar to those that emerge for students in poverty.

The story that emerges from the studies of English learners suggests that instructional innovations are important for English language learners. The development of alternative materials that allow students access to curriculum is one example. These would not necessarily cost the schools more but do require up-front resources for development. Similarly, teachers with skills to work with English learners may or may not cost schools more. Attracting such teachers through additional pay would cost more, though current salary structures make this difficult to implement. Effective pre-service education and professional development could help with this, but again innovation is needed. Overall, the results are inconclusive on cost differences. Incentives to improve the opportunities for English language learners may be equally important.

Similarly, with the education of economically disadvantaged students, the previous data show quite clearly that existing programs are not completely successful. By the variation in performance across schools, it appears that some strategies and some personnel are effective at helping disadvantaged students, and others are not. This fact

makes it difficult to estimate how much would be required from looking at existing spending patterns.

It also points to the prior findings. There is tremendous uncertainty about which programs and policies will be most effective given local demands and circumstances. Such a situation ideally calls for wider experimentation and evaluation of alternative approaches – something seldom contemplated. (Moreover, as noted frequently, the sorry state of data on student performance within the state makes it difficult to pursue such strategies today).

VI. Conclusions

There is no silver bullet to school finance and governance. This should not be surprising as silver bullets are indeed rare in education. Schooling involves complex interactions among many individuals. Students come to school with diverse and sometimes intensive needs. The requirements of students, the economy, and the society, more generally, continue to change. Yet, while there is no one right answer, there are clear directions for improvement.

If our study has one overarching conclusion, it is simply this – *California's school finance and governance systems are fundamentally flawed*. Consequently, California students perform far lower on tests of achievement than do comparable students in other states. Within the state, schools with high proportions of students in poverty consistently fail to meet standards the state sets out for them.

No one program or intervention will fix the system. California has tried over and over the approach of introducing separate programs and disjoint new policies. Instead,

California would benefit from a new approach that recognizes both the systemic nature of the problems we now confront and the limited state of our knowledge for crafting the specific “right solutions.” Even so, the basic outlines do seem clear. Such a system would improve the alignment between the accountability system and the decision-making responsibilities, increasing flexibility at the local level. It would improve information collection. Such data would follow students over time and link them with the resources they receive, allowing both the localities to learn from each other’s experiences and the state to develop more effective policies. It would refine policies to attract and retain high quality teachers and administrators, learning from the effects of the policies it implements. It would simplify its school finance formulas so that similar districts would be treated similarly and differences across districts would be rationally grounded. It would also target resources to improve the outcomes of students in poverty, most of whom are unable to reach state goals in the current system. And for all school districts, it would make the state budgeting process more predictable, removing the peaks and valleys in annual appropriations, and establish budget appropriations earlier in the spring so that schools and districts could be more strategic in determining how best to use their resources for the next academic year.

Finally, we cannot emphasize enough that asking the question, “how much money will it cost to achieve state goals for students?” is meaningless without also asking “how can we develop a system that makes better use of whatever resources are available?”

California is so far from achieving its outcome goals for students that marginal changes are unlikely to produce the desired outcomes. Instead such progress requires a new approach to reform, an approach that allows state, district, and school decision makers to

improve their practice and the opportunities available to California's students. The message of the entire collection of studies is that serious fundamental change will be needed if California is to provide a high quality school system. Some changes are easier than others. Some changes are more appealing than others in that they require less fundamental change. But picking a small subset and ignoring the others most likely will have few benefits.

References:

- Boyd, D., Lankford, H., Loeb, S., and Wyckoff, J. (2006). "The Narrowing Gap in New York City Teacher Qualifications and Its Implications for Student Achievement in High-Poverty Schools," Working Paper.
- Boyd, D., Lankford, H., Loeb, S., and Wyckoff, J. (2005). "Explaining the Short Careers of High-Achieving Teachers in Schools with Low-Performing Students," *American Economic Review* 95(2): 166-171.
- Brewer, D.J., and Smith, J. (2007). *Evaluating the "Crazy Quilt": Educational Governance in California*, Getting Down to Facts Project: Stanford University.
- Brunner, E. J. (2007). *Financing School Facilities in California*, Getting Down to Facts Project: Stanford University.
- Brunner, E., and Imazeki, J. (2004). *Fiscal Stress and Voluntary Contributions to Public Schools*, NCES: Developments in School Finance.
- Bryk, A. (2007). "The Influences of Community Context on School Improvement," Working paper.
- 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 University.
- Clotfelter, C.T., Ladd, H.F., and Vigdor, J.L. (2006). "How and Why Do Teacher Credentials Matter for Student Achievement," Paper Presented at the World Bank Conference on "The Contribution of Economics to the Challenges Faced by Education," Dijon, France, June 2006
- Darling-Hammond, L., and Orphanos, S. (2007). *Leadership Development in California*, Getting Down to Facts Project: Stanford University.
- Downes, T. (2007). *Do Non-School Resources Substitute for School Resources? A Review of the Evidence*, Getting Down to Facts Project: Stanford University.
- Duncombe, W., and Yinger, J. (2007). *Understanding the Incentives in California's Education Finance System*, Getting Down to Facts Project: Stanford University.
- Fuller, B., Loeb, S., Arshan, N., Chen, A., and Yi, S. (2007). *California Principals' Resources: Acquisition, Deployment, and Barriers*, Getting Down to Facts Project: Stanford University.
- Gándara, P., and Rumberger, R. W. (2007). *Resource Needs for California's English Learners*, Getting Down to Facts Project: Stanford University.

- Glaeser, E.L., and Saiz, A. (2003). "The Rise of the Skilled City," National Bureau of Economic Research, Working Paper 10191.
- Hansen, J. (2007). *Education Data in California: Availability and Transparency*, Getting Down to Facts Project: Stanford University.
- Hanushek, E A., and D. D. Kimko. (2000). "Schooling, Labor Force Quality, and the Growth of Nations," *American Economic Review* 90(5): 1184-1208.
- Hanushek, E.A., Kain, J.F., and Rivkin, S.G.(2004). "Why Public Schools Lose Teachers," *Journal of Human Resources* 9(2): 326–54.
- Harr, J., Parrish, T., Chambers, J., Levin, J., and Segarra, M. (2007). *Considering Special Education Adequacy in California*, Getting Down to Facts Project: Stanford University.
- Harris, D., and Sass, T. (2006). "Teacher Training and Teacher Productivity," Working Paper
- Hill, H. (2007). "Learning in the Teaching Workforce," *The Future of Children*. Princeton-Brookings.
- Imazeki, J. (2007). *Assessing the Costs of K-12 Education in California Public Schools*, Getting Down to Facts Project: Stanford University.
- Jepsen, C., and Rivkin, S. (2002). *Class Size Reduction, Teacher Quality, and Academic Achievement in California Public Elementary Schools*, San Francisco: Public Policy Institute of California.
- 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 University.
- Koretz, D. (2002). "Limitations in the Use of Achievement Tests as Measures of Educators' Productivity," *Journal of Human Resources* 38(4): 752-777.
- Koski, W., and Horng, E. (2007). *Curbing or Facilitating Inequality? Law, Collective Bargaining, and Teacher Assignment Among Schools in California*, Getting Down to Facts Project: Stanford University.
- Lankford, H., Loeb, S., and Wyckoff, J. (2002). "Teacher Sorting and the Plight of Urban Schools: A Descriptive Analysis," *Education Evaluation and Policy Analysis* 24(1): 37-62

- Lazear, E. P. (2003). "Teacher incentives." *Swedish Economic Policy Review* 10(3):179-214.
- Levin, J., Mulhern, J., and Schunck, J. (2005). *Unintended Consequences: The Case for Reforming the Staffing Rules in Urban Teachers Union Contracts*. New York, NY: The New Teacher Project: www.tntp.org.
- Loeb, S. (2007). *Survey of California Superintendents*, Getting Down to Facts Project: 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 University.
- Loeb, S., and Miller, L. (2007). *A Review of State Teacher Policies: What are they, What are their effects, and What are their Implications for School Finance?*, Getting Down to Facts Project: 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(1): 10-29.
- Mulligan, C.B. (1999). "Galton Versus the Human Capital Approach to Inheritance." *Journal of Political Economy* 107(6), pt 2: S184-S224.
- Murnane, R., Willett, J., Duhaldeborde, Y., and Tyler, J. (2000). "How Important Are the Cognitive Skills of Teenagers in Predicting Subsequent Earnings?" *Journal of Policy Analysis and Management* 19(4): 547-568.
- Perez, M., Anand, P., Speroni, C., Parrish, T., Esra, P., Socias, M., and Gubbins, P. (2007a). *Charter Schools in California: A Review of their Autonomy and Resources Allocation Practices*, Getting Down to Facts Project: Stanford University.
- Perez, M., Anand, P., Speroni, C., Parrish, T., Esra, P., Socias, M., and Gubbins, P. (2007b). *Successful California Schools in the Context of Educational Adequacy*, Getting Down to Facts Project: Stanford University.
- Perry, M., Oregon, I., Williams, T., Miyashiro, R., Kubinec, J., Groff, L., Wong, P., and Bennett, R. (2007). *School District Financial Management: Personnel Policies, and Practices*, Getting Down to Facts Project: Stanford University.
- Reich, R. (2007). *Equality and Adequacy in the State's Provision of Education: Mapping the Conceptual Landscape*, Getting Down to Facts Project: Stanford University.
- Rivkin, S.G., Hanushek, E.A., and Kain J.F. (2005). "Teachers, Schools, and Academic Achievement," *Econometrica* 73(2): 417-458.

- Romer, P. M. (2007). "Economic Growth," in D.R. Henderson, ed., *The Concise Encyclopedia of Economics*, Liberty Fund (Forthcoming).
- 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 University.
- Roza, M. (2002). "A New Look at Inequities in School Funding: A Presentation on the Resource Variations Within Districts," Center on Reinventing Public Education. http://www.crpe.org/pubs/pdf/report_schoolfundingweb.pdf
- Schultz, T. W. (1975). "The Value of the Ability to Deal with Disequilibria." *Journal of Economic Literature* 13: 827-846.
- 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 University.
- Springboard Schools (2007). *Bringing the State and Locals Together: Developing Effective Data Systems in California School Districts*, Getting Down to Facts Project: Stanford University.
- Timar, T. (2007). *Financing K-12 Education in California: A System Overview*, Getting Down to Facts Project: Stanford University.
- Welch, F. (1970). "Education in Production." *Journal of Political Economy* 78(1): 35-59.

End Notes

¹ These present value calculations assume that the future is discounted at a real five percent rate over a working career of 35 years.

² First, these estimates are obtained fairly early in the work career (mid20s to early 30s), and other analysis suggests that the impact of test performance becomes larger with experience. Second, the labor market experiences that are observed begin in the mid 1980s and extend into the mid 1990s, but other evidence suggests that the value of skills and of schooling has grown throughout and past that period. Third, future general improvements in productivity are likely to lead to larger returns to skill. Another part of the return to school quality comes through continuation in school. There is substantial U.S. evidence that students who do better in school, either through grades or scores on standardized achievement tests, tend to go farther in school. Murnane, Willett, Duhaldeborde, and Tyler (2000) separate the direct returns to measured skill from the indirect returns of more schooling and suggest that perhaps one-third to one-half of the full return to higher achievement comes from further schooling (over and above the earnings figures cited above).

³ Interestingly, charter schools in California serves as a counter example. As Kirst (2007/*GDTF*) discusses, charter schools in most state face fewer constraints over resource allocation than other public schools and districts. In California this difference is particularly pronounced. In addition, the funding formulas for charter schools are much simpler than that for other schools, likely driven by the importance of the history of spending in districts for their allocation in the current system. Because charter schools are relatively new, their funding is not a function of earlier spending.

⁴ Along with ongoing, diagnostic assessment, parents as partners in learning, professional development to improve student achievement, and collaboration among teachers and staff. See <http://www.centerforpubliceducation.org/site/c.kjJXJ5MPIwE/b.1460713/apps/s/content.asp?ct=2040777>

⁵ K-12 salaries constitute approximately half of all expenditures and 60 percent of student spending. K-12 teachers' salaries make up approximately two-thirds of total spending on salaries. On average districts spend \$3,112 per pupil on K-12 teacher salaries. Most districts spend approximately the same amount, with a difference between the 25th and 75th percentile of only \$357. On average California spends \$424 per student from all funds on K-12 administrator and supervisor salaries. With an average of \$1,409 per ADA from all funds, employee benefits cost districts almost 30% of the cost of K-12 salaries. Of this, on average \$637 go to the health and welfare benefits and \$416, to retirement benefits.

⁶ There are some benefits to California's reliance on sales and income taxes to fund the public school system. There are a number of other attributes of funding sources worth considering other than those discussed above, including the extent to which they distort taxpayers' true preferences in decisions as varied as where to live or how much to work, and the "fairness" of a given funding source (the extent to which it burdens low-income households relative to high-income households). In general, Duncombe and Yinger (2007/*GDTF*) find that the California system's mix of revenues, which focus on broad-based income and sales taxes, minimize the distortion that occurs from over-reliance on a single tax source. They conclude that relying on income and sales taxes tends to be fairer in the sense that lower income people pay less than do higher income individuals. Reliance on these types of taxes is also less expensive to administer than would be a dependence on taxes with narrow bases. While most of the funding for schools comes from highly progressive sources, the local parcel tax does not meet basic standards of "fairness," since

the owner of a mansion pays the same amount as the owner of a small house, and the owners of a huge factory pay the same amount as a mom-and-pop store. Beyond fairness, however, there are substantial concerns about the distortionary effects of high tax rates on incomes.

⁷ The common nomenclature for the approaches and their associated GDTF studies are: cost function (Imazeki 2007/GDTF); successful schools or beating the odds schools (Perez et al 2007b/GDTF); and professional judgment approach (Chambers, Levin, and DeLancey 2007/GDTF; Sonstelie 2007/GDTF).

⁸ The low estimate comes from estimating what has been called a “cost function” where spending is explained in a statistical model by achievement levels and characteristics of students in the schools. The high end comes from estimating what has been called a “production function” where achievement is explained by expenditure and characteristics of students.

⁹ Caldwell Elementary and Ralph Bunche Elementary in Compton School District and Commonwealth Avenue Elementary in Los Angeles Unified School Districts.

¹⁰ Perez et al (2007b/GDTF) finds some staffing differences between BTO schools and other schools but not huge differences. For example, successful schools had a higher proportion of staff in administrative positions, with 4.4 fewer teachers per administrator in elementary schools. Overall, they found that available measures of resources and student characteristics did not explain the unusually high academic performance of these schools.

¹¹ Note that the predicted budget estimates exceed the maximum budget in the simulation of the survey for this average school. At the lower end of disadvantaged populations, the predicted budgets fall short of the minimum budget that was simulated.