

Efficiency and Adequacy in California School Finance: A Professional Judgment Approach

By the American Institutes for Research (AIR)

Jay Chambers, Principal Investigator; Jesse Levin, Principal Research Analyst; and Danielle DeLancey, Project Manager



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Getting Down to Facts

A research project designed to provide California's policy-makers and other education stakeholders with comprehensive information about the state's school finance and governance systems, and lay the groundwork for a conversation about needed reforms. The project was made possible by grants from the Bill & Melinda Gates Foundation, the William and Flora Hewlett Foundation, the James Irvine Foundation, and the Stuart Foundation.

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For the full text of the author's research report and the other studies in this project, see: www.irepp.net

For background on California's school finance system, see: www.californiaschoolfinance.org

Institute for Research on Education Policy & Practice
520 Galvez Mall, CERAS Building
Rm #518
Stanford, CA 94305

650.736.1258
IREPP@suse.stanford.edu

This report presents the results of a “professional judgment” panel study focused on answering a central question: What is the cost of providing all California public school students with access to the California content standards and the opportunity to achieve proficiency levels established by the California State Board of Education? The study addresses several intermediate questions:

1. What types of programs and services do panels of education professionals believe are necessary for typical schools to meet state standards?
2. How would the same professionals adjust those programs, services, and resources for schools serving varying numbers of high-need students (i.e., students living in poverty, English learners, and students with disabilities)?
3. What are the total estimated per-pupil costs when district services are added? And how do those costs vary based on district location and size?
4. How does the estimated total cost of providing an adequate education in California compare to current expenditures?

This is one of three studies in the Getting Down to Facts project that estimate the costs for California school districts to meet the achievement goals set for them by the state.

Study Methods

This study uses a “professional judgment” approach. The research team selects highly qualified California educators for two professional judgment panels convened for three days of deliberation.¹ These panels are asked to design instructional programs for average elementary, middle, and high schools such that all students would have the full opportunity to meet outcomes set forth by the State Board of Education.

The first program-design task for the panels is that all students should have access to instructional programs and services consistent with the California content standards in English language arts, math, history/social science, science, visual and performance arts, English language development (where appropriate), and physical education. Additional school performance outcomes are stipulated based on the state's performance targets established for the 2011–12 school year and consistent with federal requirements under the No Child Left Behind Act

(NCLB). Specifically, these outcomes included:

- A 95% participation rate in state testing;
- English language arts proficiency rates of 78.4% for elementary and middle schools and 77.8% for high schools;
- Mathematics proficiency rates of 79.0% for elementary and middle schools and 77.4% for high schools;
- A California Academic Performance Index (API) score of 740 in every elementary, middle, and high school; and
- A high school graduation rate of 83.4%.

After designing instructional programs for California schools with “typical” student demographics, the panels are asked to modify these instructional programs for schools with varying levels of students living in poverty, English learners, and special education students. In addition, panelists are asked to make instructional modifications for “typical” schools of varying sizes.

Based on the panels' deliberations, researchers first develop school-level cost

Figure 1 • Suggested Breakdown of Expenditures for Elementary School Base Model Programs (a school of 516 students; 57% low income, 28% English learners, and 9.2% special education)

| Resources | Blue Panel | | Gold Panel | |
|---------------------------------|----------------|--------------------------|----------------|--------------------------|
| | Per-pupil Cost | Proportion of Total Cost | Per-pupil Cost | Proportion of Total Cost |
| Instructional Personnel | \$5,682 | 59% | \$5,768 | 78% |
| Instructional and Pupil Support | 1,667 | 17% | 280 | 4% |
| Administrative and Support | 693 | 7% | 559 | 8% |
| Maintenance and Operations | 85 | 1% | 212 | 3% |
| Nonpersonnel Expenditures | 733 | 8% | 482 | 7% |
| Extended Day Program | 290 | 3% | 91 | 1% |
| Extended Year Program | 465 | 5% | 0 | 0% |
| Total | \$9,615 | | \$7,392 | |

Note: The percentages do not always equal 100% due to rounding.

School-level Resource Definitions Used in this Study

- **Instructional personnel:** core classroom teachers, resource teachers, and instructional aides.
- **Instructional and pupil support:** guidance counselors, school psychologists, academic coaches, social workers, nurses, librarians, and technical consultants.
- **Administrative and support:** principal, vice principals and deans, other professional staff, clerical and office staff, and security personnel.
- **Maintenance and operations:** custodial, maintenance, and security personnel assigned exclusively to the school.
- **Nonpersonnel expenditures:** professional development time and fees, supplies and materials, specialized equipment and technology, and student activities.
- **Extended day program:** teachers and aides assigned to provide before- or after-school instructional programs and additional nonpersonnel expenditures specific to the program.
- **Extended year program:** teachers, aides, and school administrators used for summer school programs and additional nonpersonnel expenditures specific to the program.

estimates for delivering an adequate education, taking into account varying school levels, sizes, and demographic configurations. The costs of district-level functions—such as central administration, maintenance, and transportation—are then calculated in two ways: (1) based on actual 2004–05 expenditures (as

derived from the states’ Standardized Account Code Structure [SACS] fiscal data); and (2) as a proportion of the projected school-level costs. This second calculation assumes that spending on at least some district-level functions will change proportionally with changes in the school-level instructional program.

The researchers added the average from these two calculations to the school-level results to determine their final cost estimates.²

The authors use the resulting dollar amounts, adjusted for student-need characteristics and the scale of district operations—plus actual data for California schools—to estimate school-level, per-pupil costs to provide an adequate education for students at every school in the state. From this basis they derive an overall statewide average per-pupil expenditure required to implement the instructional programs recommended by the panels. They also produce average per-pupil expenditures broken out by four different district categories based on location, including urban, suburban, towns, and rural districts.³

Summary of Key Findings

Both panels of education professionals report that more resources are necessary for average schools to meet state standards

To meet the outcomes set by the State Board of Education, the panels design instructional programs that differ substantially from today’s typical California schools. The panels reduce class sizes, extend the instructional day and year for all students, and add specialists to work with small groups of students and to foster professional development opportunities for teachers. High-quality professional development is reported to be integral for improving student achievement and retaining quality teachers. The panels emphasize that student achievement is not necessarily dependent on the number of personnel at the school level but on how their roles and time are allocated.

Figures 1 through 3 on pages 2 and 3 reflect the panels’ specifications for “base model” instructional programs at the elementary, middle, and high school levels, detailing per-pupil expenditures and the proportion of resources allocated to various instructional components. The instructional designs vary by school level and the two panels (the “Gold” and “Blue” panels) have different program designs, which ultimately lead to a wide range of cost estimates. The authors stress that they do not recommend that the specific components of the models become mandates for local practice.

Both professional judgment panels keep small elementary class sizes, but they vary in expenditures for support personnel

For the elementary school programs, both panels extend the school day and year to allow more time for direct instruction. Both also specify schoolwide ratios of 20 students per teacher, with smaller kindergarten classes and slightly larger classes for grades 4 and 5. Both also specify the need for academic coaches or resource teachers to work with at-risk students and to coach other teachers.

The panels diverge with respect to the funds that they would allocate for support personnel and for nonpersonnel expenditures. The Blue Panel specifies a full-time social worker, school nurse, guidance counselor, and technical assistant; but the Gold Panel concludes that these jobs could be part-time positions or that other personnel could assume the responsibilities of those positions.

Both panels identify preschool and early childhood education programs as key resource needs. They say how many children would be served but were not asked to specify the cost of providing these programs. Instead,

Figure 2 • Suggested Breakdown of Expenditures for Middle School Base Model Programs (a school of 992 students; 51% low income, 17% English learners, and 9.8% special education)

| Resources | Blue Panel | | Gold Panel | |
|---------------------------------|----------------|--------------------------|----------------|--------------------------|
| | Per-pupil Cost | Proportion of Total Cost | Per-pupil Cost | Proportion of Total Cost |
| Instructional Personnel | \$6,175 | 69% | \$5,453 | 69% |
| Instructional and Pupil Support | 868 | 10% | 1,036 | 13% |
| Administrative and Support | 557 | 6% | 597 | 8% |
| Maintenance and Operations | 44 | 0% | 308 | 4% |
| Nonpersonnel Expenditures | 755 | 8% | 475 | 6% |
| Extended Day Program | 244 | 3% | 30 | 0% |
| Extended Year Program | 262 | 3% | 0 | 0% |
| Total | \$8,905 | | \$7,899 | |

Note: The percentages do not always equal 100% due to rounding.

Figure 3 • Suggested Breakdown of Expenditures for High School Base Model Programs (a school of 1,662 students; 33% low income, 12% English learners, and 9.2% special education)

| Resources | Blue Panel | | Gold Panel | |
|---------------------------------|----------------|--------------------------|----------------|--------------------------|
| | Per-pupil Cost | Proportion of Total Cost | Per-pupil Cost | Proportion of Total Cost |
| Instructional Personnel | \$6,103 | 66% | \$4,905 | 70% |
| Instructional and Pupil Support | 1,181 | 13% | 545 | 8% |
| Administrative and Support | 616 | 7% | 550 | 8% |
| Maintenance and Operations | 53 | 1% | 289 | 4% |
| Nonpersonnel Expenditures | 947 | 10% | 536 | 8% |
| Extended Day Program | 165 | 2% | 79 | 1% |
| Extended Year Program | 219 | 2% | 131 | 2% |
| Total | \$9,284 | | \$7,035 | |

Note: The percentages do not always equal 100% due to rounding.

the authors use independent research to determine the per-pupil cost of providing quality preschool and early childhood education programs based on the panels’ specifications, and they add those costs to their final estimates.

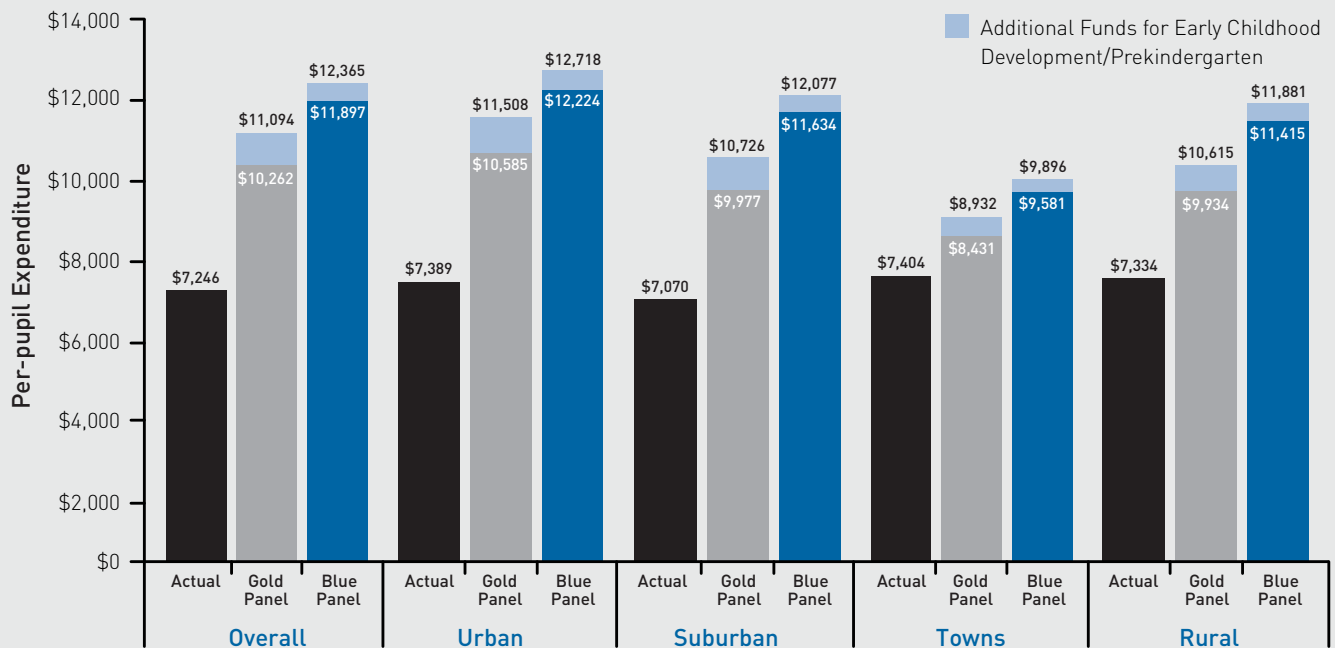
At the middle school level, the panels emphasize instructional personnel but vary in their staffing recommendations

For their middle school models, both panels allocate a similar proportion of expenditures to each

instructional component, assigning approximately 70% of expenditures to instructional personnel. However, the Gold Panel specifies the need for more resources overall, including additional instructional personnel and smaller class sizes.

Although the panels’ costs for instructional support personnel differ, they both specify approximately 20 full-time equivalent professional and administrative support staff at their base model school. Both panels also prescribe after-school programs—

Figure 4 • Comparison of Actual Versus Adequate Per-pupil Expenditures Based on Professional Judgment Panels: Overall and by District Locale



targeted for at-risk populations—for approximately 55% of the students.

For high schools, the panels emphasize extra time for at-risk students and additional support personnel

For high schools, the panels specify nearly identical proportions of per-pupil expenditures for each instructional component. To meet the stringent graduation requirements, both panels extend the school year and prescribe summer school for a high percentage of the student population, specifically targeting at-risk students. Academic coaches and resource teachers play a significant role in the high school instructional programs.

However, the Blue Panel specifies significantly higher levels of per-pupil resources in order to create smaller class sizes, offer more electives to keep students engaged, and facilitate

smaller learning communities. In addition, this panel allocates more academic coaches, technical consultants, and other support personnel to achieve the desired outcomes.

With additional special-needs students at a school, the panels add staff and specialized resources

After designing instructional programs and specifying resources for the base models, the panels were asked to adjust their program designs and resource allocations based on both lower and higher percentages of low-income students, English learners, and special education students. As a general rule, the panels do not make major modifications when these high-need populations are reduced. In part, they justify this by noting that the current average outcomes for the schools are still significantly lower than the target levels outlined in the goals

statement. Increases in the percentages of these students, however, has substantial impact on the panels’ projections for needed expenditures.

The panels specify smaller classes and more support staff to serve higher percentages of low-income students, plus specialized resources for English learners (ELs)

For school prototypes with higher levels of poverty than in the base models, both panels specify smaller class sizes and additional support personnel. They also increase the number of students targeted through after-school, preschool, and early childhood education programs. Anticipating more discipline issues and less experienced teachers, the panels also add more administrators, resource teachers, and academic coaches to provide extra teacher support.

For schools with higher levels of English learners, panelists make several modifications in addition to the adjustments for poverty. Both panels increase the number of bilingual and English language development teachers and aides, and they add funds for EL-specific curriculum, technology, software, and supplies. Additional monies are also designated for professional development.

The panels incorporate special education students into the regular program but add support systems

Regardless of school size, panelists in both groups designate one special day class with at least one full-time aide to meet the needs of special education students. In addition, special education instructional aides are assigned to assist full-time personnel, and school psychologists, social workers, nurses, and counselors are assigned at the school level.

In schools with increased percentages of special education students, the panels increase special day class teachers, aides, and on-site resource specialists. They also increase the number of support personnel, such as speech therapists, and allocate additional monies for specialized equipment and materials.

Total costs, adding district services and accounting for variations, are highest in urban districts

The authors assign costs to the Blue and Gold panels' program designs and then calculate total projected per-pupil expenditures by applying a district-level cost factor calculated from existing district expenditure data. Resource costs are also adjusted across districts to reflect geographic variations in the cost of recruiting and employing comparable teachers and other school

personnel in various regions of the state.⁴ The authors then compare the total projected expenditures from the school prototypes to the actual per-pupil expenditures reported in the CDE's 2004–05 SACS fiscal files.

In addition to the overall statewide average, the authors provide average per-pupil expenditures within different types of districts. The district categories include urban, suburban, towns, and rural districts. (See Figure 4 on page 4.) These figures are pupil-weighted so that they represent per-pupil expenditures for the district attended by the average student within each of the four district categories.

The statewide average "adequate" per-pupil expenditures for the 2004–05 school year range from \$11,094 (Gold Panel) to \$12,365 (Blue Panel), which represents a 53% to 71% increase over what was actually spent that year (\$7,246). However, the figures show large variation across the four district categories. The results suggest that students in urban districts require the highest per-pupil expenditures (from \$11,508 to \$12,718) to provide an adequate education, while necessary per-pupil expenditures are lowest (\$8,932 to \$9,896) for districts located in towns.

By design, differences in pupil need and the scale of district operations each account for some variation in the estimated cost of achieving adequacy. To this end, the authors use the adequacy-projected, per-pupil expenditures to create a single Need/Scale Index that can be used to identify the extent to which needs and scale influence the expenditure necessary to deliver an adequate education in each district. Urban districts tend to exhibit relatively higher

projected expenditures based on pupil needs and relatively lower projected expenditures associated with the scale of operations, all else being equal. Higher relative costs associated with more rural districts (and to a lesser extent small towns) are consistent with the higher costs—or diseconomies of scale—associated with smaller enrollment.

Authors' Conclusions

AIR estimates that the total cost for providing an adequate education in California is more than 50% above current expenditures

Excluding debt service, public schools in California spent about \$45.29 billion in 2004–05. The main results of this study suggest that an additional \$24.14 billion to \$32.01 billion would have been necessary in that same school year to ensure the opportunity for essentially all students to meet "academically rigorous content standards and performance standards in all major subject areas." These figures represent between 53% and 71% of projected increases in spending. Although these increases seem extraordinary, it is important to recognize that current levels of spending in California—when adjusted for differences in resource costs across the states—are among the lowest in the nation. Even with the increases implied by the results in this study, California would still fall far short of current spending levels in the highest-spending states.

Across this range of added expenditure, the authors find that about 941 of the state's 984 districts would require additional funds to support an adequate educational program for their K–12 students. When preschool is included, this figure rises to 969 districts.

The authors caution that the theoretical designs created by their professional judgment panels should not be taken as a recommendation for mandating local practice. Rather, the models represent a systematic process for estimating the costs of an adequate education across a wide range of circumstances.

Jay G. Chambers is a senior research fellow and a managing director in the Education and Human Development Program at the American Institutes for Research (AIR). He earned his Ph.D. in economics from

Stanford University, is a past president of the American Education Finance Association, and is a nationally recognized researcher in the economics of education and school finance.

Jesse D. Levin is a senior research scientist at AIR, where he has been involved in a number of studies addressing the costing-out of educational adequacy and the costs and effectiveness of educational practices and whole-school reforms. He received his Ph.D. in economics from the University of Amsterdam and the Tinbergen Institute, where his re-

search focused on labor economics and the economics of education.

Danielle DeLancey is a research associate in the Education and Human Development Program at AIR, where she is working on a number of education reform initiatives. She earned her M.Ed. in education policy from the Harvard Graduate School of Education and has past experience in classroom teaching, curriculum development, and delivering professional development.

This study was completed in December 2006.

Endnotes

1 Each of the two panels consisted of nine educators, including at least one superintendent each from an urban and rural area of the state; three principals with one from each grade level (i.e., elementary, middle school, high school), a special educator (e.g., a district director of special education), an English learner specialist, a school business official, and a classroom teacher. Within these constraints, every effort was made to select participants who represented the size and geographic diversity in California.

2 This method was used only to calculate central administration and maintenance and operation costs, not transportation costs. Transportation costs were entered at their actual 2004–05 levels in both overall district-level expenditure measures.

3 These were based on the locale codes used by the National Center for Education Statistics.

4 This was done using an index developed by Heather Rose in one of the other studies conducted for the *Getting Down to Facts* project.