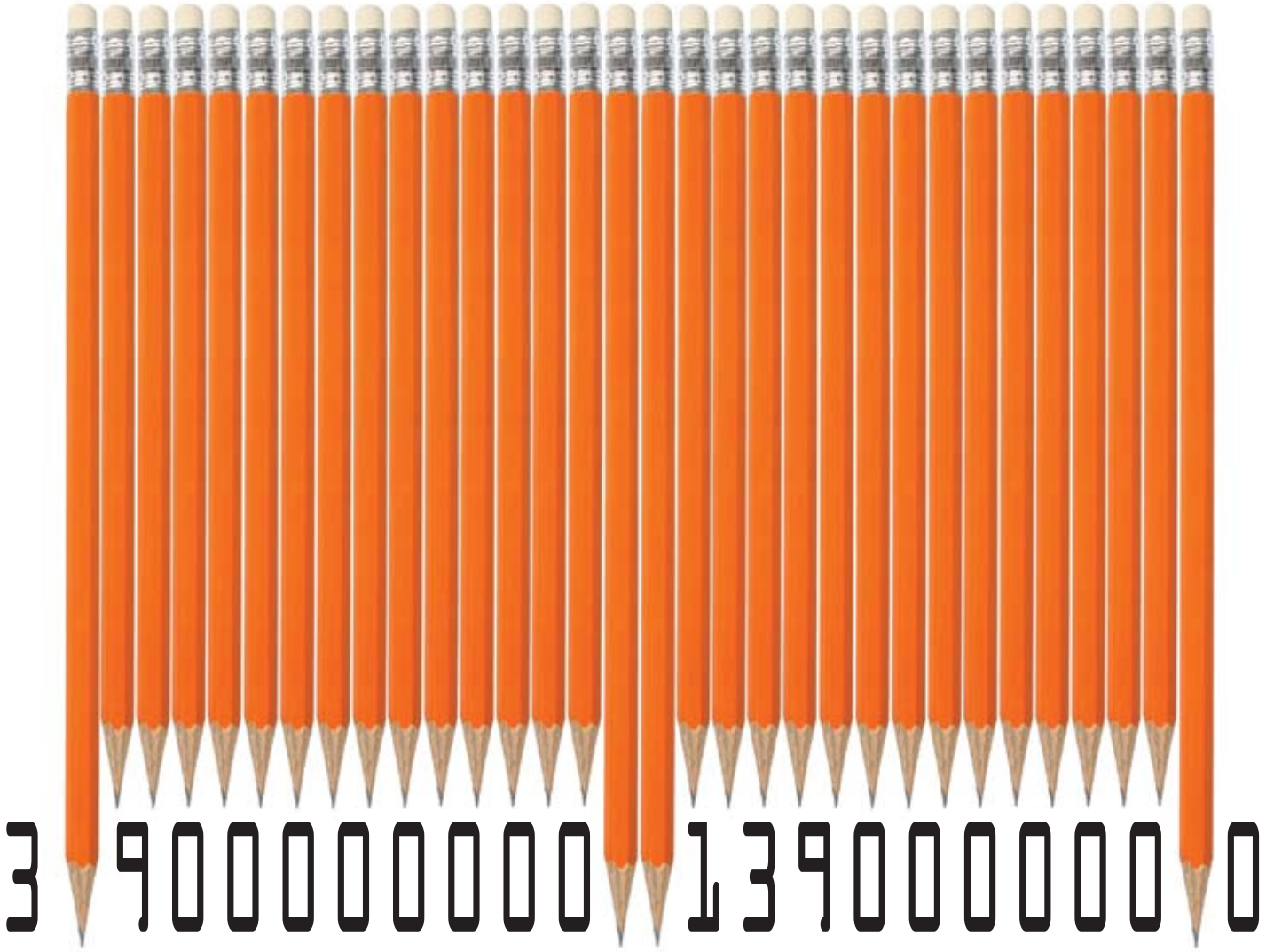

The High Price of Failure in California

How Inadequate Education Costs Schools, Students, and Society

By Vicki E. Murray, Ph.D.

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July 2008

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Executive Summary

More than a decade ago, in 1996, the California State University (CSU) trustees adopted a policy to reduce the need for remediation to no more than 10 percent of incoming freshmen by 2007.[1] In 1998, the state outlawed K–12 social promotion, requiring schools to retain any student performing below grade-level proficiency.[2] Results to date are not encouraging.

In the fall of 2007, only 44 percent of incoming CSU freshmen were proficient in both reading and math.[3] Of that cohort of students, 37 percent needed remediation in math, and 46 percent needed remediation in reading.[4] As of 2006, the most recent year for which complete data were available, at least 30 percent of University of California (UC) freshmen, 60 percent of CSU freshmen, and up to 90 percent of California Community College (CCC) freshmen required remediation—more than 655,000 students in all. Empirical evidence spanning two decades indicates that approximately 41 percent of those students, nearly 270,000 college freshmen, likely will not earn their degrees.

This study estimates the annual direct and indirect costs of inadequate education to students, schools, and the state for a single cohort of college freshmen requiring remedial instruction across all California public postsecondary systems, both two- and four-year. It finds that the total estimated annual cost ranges from $3.9 to $13.9 billion annually, driven largely by lost individual earnings associated with lower educational attainment and the related social costs. There is no way to predict how many of the estimated 255,000 community college students unlikely to earn a degree because they are in a remedial education plan to pursue four-year bachelor's degrees. Therefore, this study uses low and high projections and finds that the annual estimated cost of inadequate academic preparation includes:

- $274 million in direct remediation costs to California public postsecondary institutions.
- $107 to $447 million in direct remediation costs to California businesses.
- $1.1 to $5.5 billion in diminished annual earnings to college students, which corresponds with:
- $245 million to $1.27 billion in reduced annual federal spending on California.
- $194 million to $1.05 billion in reduced state and local tax receipts.
- $1.9 to $5.4 billion in increased health care, crime, and social welfare costs.

Those annual projections are conservative because they 1) do not include special-admit students; 2) assume students take and complete only one remedial course each in a given year; and 3) include only freshmen. Moreover, the projected costs to students and society are understated since they do not account for the fact that students' entry into the workforce is delayed because remedial classes do not count toward a college degree.

A bipartisan coalition of California lawmakers and education leaders headed by Governor Arnold Schwarzenegger vowed last year that 2008 would be the year of education reform.[5] With a projected state budget deficit as high as $20 billion, the governor and other stakeholders now want to postpone much-needed improvements.[6] California can no longer afford its "promote now, pay later" approach to academic preparation. On average, only four out of 10 students achieve grade-level proficiency or higher in English language arts on the California Standards Test (CST). About seven out of 10 students pass the California High School Exit Examination (CAHSEE) in English language arts on their first try as sophomores, but barely two out of 10 high school juniors are deemed college-ready in this core subject according to the California State University's Early Assessment Program (EAP).

The state also does not track the effectiveness or costs of numerous remedial education and prevention programs; nor does it require independent, annual evaluations of their effectiveness. Postsecondary K–12 outreach efforts to prevent the need for remedial education are so loosely defined it is difficult to identify the programs they encompass from year to year. Likewise, the California Department of Education (CDE) does not report on remedial-education-related programs, making it practically impossible to isolate all the corresponding funding embedded within well over 100 regular and categorical educational programs. Another complication concerns terminology. While education experts distinguish between "remedial education" and "developmental education" official state and institution reports do not.[7] Therefore, this study uses the broader term "remedial education" when referring to courses and services for undergraduates who are not prepared for college-level work.

This study finds that an ounce of prevention today can save pounds of remediation-related costs tomorrow. Specific recommendations include:

- Do not wait until the 11th grade to measure college readiness. Use the existing CST "advanced" performance marker to gauge students' four-year college-readiness trajectory throughout the education pipeline, beginning in second grade, and eliminate redundant assessments.

- Replace confusing state and federal measures of growth toward K–12 proficiency with a single statistical forecasting model that can reliably track individual student, student subgroup, and schoolwide progress toward proficiency.

- Add teeth to California's existing ban on social promotion and bring accountability to postsecondary remedial education. Redirect all current funding for disparate elementary, secondary, and postsecondary remedial education and related prevention programs—as well as funding for redundant assessments and associated preparation services—toward "money-back-guarantee" remediation grants for individual students.

Such a system would replace ineffective programs and mandates with powerful incentives to improve basic skills and college-readiness rates. It would also promote a competitive, data-driven network of remedial education providers free to develop a variety of effective strategies that could be replicated statewide.

What Is Remedial Education?

In this study, the term *remedial education* refers to course work for undergraduates lacking the necessary skills to perform college-level work at their postsecondary institutions.[8] Institutions may classify such course work as "basic skills," "compensatory," or even "developmental," although the latter term, strictly speaking, should be distinct from remedial education. Students in developmental education courses have learning disabilities or differences that require specialized instruction. Enrollment in developmental course work, therefore, would ideally be kept distinct from enrollment in remedial education. Regardless of enrollment in developmental course work, those students should receive the programs and services they need to keep them performing at a postsecondary level.

Additionally, remedial education is not simply a review. Most, if not all, postsecondary educators likely refresh material their students have covered but may have forgotten. Remediation, on the other hand, is providing students with the skills they have not mastered before coming to college.

California Leads the Nation

More than three-quarters of American colleges and universities now offer remedial courses in reading, writing, or math because significant numbers of high school graduates arrive unprepared.[9] When mandated testing began in the 1980s, about 30 percent of entering freshmen in most states needed at least some remediation.[10] Today, some 60 percent of community college freshmen and one-quarter of freshmen at four-year public institutions nationwide complete at least one remedial course.[11] The proportion of postsecondary institutions with students averaging a full year or more of remediation has also increased—to 40 percent, up from 33 percent in 1995.[12] California remediation rates are higher.

At California State University institutions, more than 60 percent of first-time freshmen required remedial courses in English, mathematics, or both in 2006.[13] As many as 90 percent of California community college freshmen needed remediation in math, and 75 percent needed remediation in English.[14] This is an alarming increase since 1989, when 38 percent of California freshmen needed remediation in English, and 23 percent needed it in math.[15]

Some education researchers blame student apathy for growing remediation rates.[16] A majority of California teachers and principals also cited a lack of motivation as the leading impediment to effective high school remediation for students who failed the required California High School Exit Examination in 2006.[17] Other experts believe school officials are too quick to blame student apathy for poor performance.

Laurence Steinberg, a psychology professor at Temple University, conducted a large-scale study of student study habits throughout the 1980s and early 1990s. Bad study habits and negative peer pressure, he found, certainly do affect student effort in school. Yet when schools "hesitate to give students bad grades, hold them back or fail to graduate them," Steinberg explains, students "believe with some accuracy there are no real consequences of doing poorly in school . . . [and] choose the path of least resistance."[18]

The rates of remedial education in California and across the country are increasing, and so are the stakes for society and students, who are aware of the problem. Nearly nine out of 10 high school respondents to the annual *State of Our Nation's Youth* survey say they would work harder if their schools demanded more, set higher standards, and raised

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expectations. Ninety percent of students also said they want more opportunities to take challenging classes.[19] "The good old times in high schools are being replaced by good old hard work," says Peter Hart, whose company conducted the survey. "There's recognition among students that they have to be more ready to compete."[20] That recognition is reflected in the growing number of high school students who want a college degree.

An average of 80 percent of high school sophomores across all racial subgroups expects to earn a four-year postsecondary degree, nearly twice as many as two decades ago. Two-thirds of sophomores from the lowest socioeconomic quartile plan to earn a college degree, a threefold increase since 1980.[21] Responses from students in all high school grades and across all socioeconomic groups show that nine out of 10 aspire to college. Almost six out of 10 enroll the semester after graduation, and others head off to college just a few years later.[22] Students are also enrolling in more challenging coursework.

The Census Bureau finds that nearly one out of every four students nationwide is in a gifted or advanced academic class, up from one in five a decade ago.[23] Public-high-school transcripts also indicate that more college-bound students from all socioeconomic backgrounds are completing college-prep, academic curricula than 20 years ago.[24] More high school graduates are also passing Advanced Placement (AP) tests today than in 2000, 15 percent compared to 10 percent.[25] At 20 percent, California has one of the highest AP participation rates in the country, with students scoring at levels indicating a high probability of college success.[26]

Even though more U.S. high school students than ever before are completing purportedly rigorous courses, the College Board reports that about half of all entering freshmen take at least one remedial class, and many more drop out because they are not prepared.[27] CSU, which accepts the top third of high school graduates, acknowledges that more than 60 percent of its first-time freshmen need at least one remedial course, adding, "These 25,000 freshmen all have taken the required college preparatory curriculum and earned at least a B grade point average in high school. The cost in time and money to these students and to the state is substantial. Moreover, these students are confused by seemingly having done the right things in high school only to find out after admission to the CSU that they need further preparation."[28]

One undergraduate voiced her frustration in a recent *San Diego Union-Tribune* article. "I took a lot of AP classes in high school, so I thought I was prepared." Upon learning she would have to take remedial writing her freshman year, "I was, like, mad. It's frustrating," she explained, "because you think you're doing well and find out you're not up to the standard."[29]

Thus students appear to be doing their part, but as researchers from the National Center for Public Policy and Higher Education sum up, "[E]ducators and policymakers have not fulfilled their side of the bargain."[30] The consequences of such failure are grave.

Some researchers predict that the current generation will be the first in American history to be less literate than the preceding generation.[31] "Ignorance in the United States isn't just bliss, it's widespread," *New York Times* columnist Bob Herbert wrote recently. He explained,

> A recent survey of teenagers by the education advocacy group Common Core found that a quarter could not identify Adolf Hitler, a third did not know that the Bill of Rights guaranteed freedom of speech and religion, and fewer than half knew that the Civil War took place between 1850 and 1900. . . . [N]early 20 percent of respondents did not know who the U.S. fought in World War II. Eleven percent thought that Dwight Eisenhower was the president forced from office by the Watergate scandal. Another 11 percent thought it was Harry Truman. We've got work to do.[32]

Recent research also shows an alarming decline in basic quantitative and comprehension skills among college graduates. Nationwide, most college graduates can add the prices of a sandwich and a salad; however, 20 percent of graduates from four-year institutions and 30 percent of graduates from two-year institutions lack a "basic" level of quantitative skills sufficient to calculate how much gasoline is needed to make it to the next filling station.[33] The average literacy among college-educated Americans has also declined sharply since 1992. As of 2003, only 25 percent of college graduates had "proficient" comprehension skills, which the government defines as "using printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential." A significant lack of preparation before students enter college and the inability of post-secondary institutions to remediate those students are principal contributing factors, according to researchers.[34]

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The competitiveness of the U.S. workforce is also projected to decline unless educational achievement improves. Educational attainment among U.S. workers between 24 and 34 years old has

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-Thomas J. Tierney, Chairman and Co-Founder, Bridgespan Group

slipped in recent years; the United States now ranks behind Canada, Japan, South Korea, Finland, Norway, Sweden, and Belgium.[35] Out of every 100 ninth graders, only 18 nationwide and 17 in California have achieved a college degree 10 years later.[36] "Rather than forcefully addressing the needs of the future," says Thomas J. Tierney, chairman and co-founder of the Bridgespan Group, "we are resting on the achievements of the past."[37] Such complacency comes at a time when California, and the country, can least afford it. Thomas J. Donohue, president and CEO of the U.S. Chamber of Commerce, concludes, "To maintain a competitive business environment in America, we need to have an accountable educational environment. We simply cannot have one without the other. For the American Dream to thrive, it will require economic prosperity and opportunity for every American—and that requires a quality education that prepares our youth for the challenges of today and tomorrow."[38]

Research has long shown the connection between education and higher individual earnings. Six out of 10 of the fastest-growing jobs in the coming decade will require a bachelor's degree, compared to only two out of 10 in 1959.[39] Tierney believes that soon every new job will require some postsecondary education. "We must face up to our current educational underperformance—and turn it around," he warns. "[U]nless we improve our educational system, many individual Americans will find that a middle-class life is hopelessly beyond their reach."[40]

If the trend Tierney describes holds, college-degree attainment could decline, along with average per-capita income and economic growth. By 2020, one-third of states could experience a decline in average per-capita income of $400; California's decline could be as steep as $2,500. In contrast, raising educational performance across student groups could result in a 17 to 24 percent improvement in college-degree attainment by 2020, which translates into an $825 increase in average per-capita income.[41] Increasing the national average education level by a single year could translate into as much as a 15 percent gain in economic

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-College Board

Nationwide, most college graduates can add the prices of a sandwich and a salad; however, 20 percent of graduates from four-year institutions and 30 percent of graduates from two-year institutions lack a "basic" level of quantitative skills sufficient to calculate how much gasoline is needed to make it to the next filling station.

growth.[42] To put such growth into perspective, if U.S. literacy and skills resembled those in Sweden, routinely a leader in the international student achievement rankings across a variety of subjects, the United States' gross domestic product (GDP) could increase by more than $460 billion. That increase would translate into $162 billion more in federal, state, and local tax receipts nationwide.[43]

As it stands, college-educated immigrants have historically helped California meet the growing demand for highly skilled workers. To meet the state's projected near-term workforce needs, however, migration rates would have to double. That scenario is highly unlikely, making production of home-grown talent an urgent public policy concern.[44] California's weak educational system also has national repercussions. The state enrolls the largest share of the country's public-school students at 14 percent, roughly equivalent to the combined student populations of Texas and New York.[45] Meanwhile, California's gross state product (GSP) accounts for 13 percent of the national GDP.[46] Insofar as educational achievement and economic vitality are linked, as California goes, so goes the nation.

An Ounce of Prevention Is Worth Pounds of Remediation

Much of the remedial education debate in recent years has focused on whether, and to what extent, remedial education should take place at two-year colleges instead of four-year, baccalaureate-granting institutions.[47] A growing number of four-year postsecondary institutions are outsourcing remedial education because they simply cannot afford to provide large numbers of unprepared students with the services they need to perform college-level work.[48]

Different states address the issue of college remediation in various ways. Arizona and Connecticut prohibit remedial courses at public postsecondary institutions. In the late 1990s, the City University of New York (CUNY) system joined a growing number of public postsecondary systems that do not offer remedial courses at their four-year institutions. Along with Texas, Tennessee, and Utah, California limits the amount of time students can spend taking remedial classes. Florida students who must repeat courses pay for their own remediation. Minnesota briefly allowed colleges to bill high schools for their graduates' remediation costs. [49]

The essential question, of course, is whether remediation can make up for years of defective preparation. The evidence is not encouraging. "Despite assistance offered through remediation, students enrolled in remediation are less likely to earn a degree or certificate," according to the U.S. Department of Education.

The essential question, of course, is whether remediation can make up for years of defective preparation. The evidence is not encouraging. "Despite assistance offered through remediation, students enrolled in remediation are less likely to earn a degree or certificate," according to the U.S. Department of Education. Nationwide, 69 percent of students who do not enroll in remedial courses earn formal degrees, compared to 27 percent of students who took one or two remedial mathematics courses, 39 percent of students who took only one remedial course in a subject other than math or reading, and 41 to 57 percent of students who took any other combination of remedial courses. The U.S. Department of Education adds, "Regardless of the combination of remedial coursework, students who completed any remedial courses were less likely to earn a degree or certificate than students who had no remediation."[50]

At the margins, college remediation may help students master basic knowledge and skills; however, it is no substitute for a rigorous education beginning in elementary school. Northwestern University sociologist James E. Rosenbaum

High schools and postsecondary institutions cannot provide students with years' worth of education in just a matter of semesters.

explains, "Many high school graduates lack basic 9th grade academic skills . . . . Community college administrators report that many of their students must take basic reading and arithmetic courses at an 8th grade level. These 'college students' are taking 8th grade courses, and they may have to cover several years of high school curricula for which they will not receive college credits."[51]

Put another way, high schools and postsecondary institutions cannot provide students with years' worth of education in just a matter of semesters. Rosenbaum's observations underscore the need for a profound public policy shift in California:

> Educators should not give up on academics, but they cannot count on large numbers of students who have fallen several years below grade level after ten years of school to close that gap in the last two years of high school, even if schools make large new efforts. Indeed, improved academic instruction would probably be better directed at the early years of elementary schools, since the gap tends to grow over the school career, and early prevention is probably easier than fixing the problem after it has become severe.[52]

The CSU trustees resolved in 1996 to reduce the need for English and math remediation to no more than 10 percent each by 2007.[53] Two years later, the state legislature outlawed K–12 social promotion and required schools to retain any student performing below grade-level proficiency.[54] As of the fall of 2006, more than 60 percent of first-time

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CSU freshmen needed at least one remedial course, even though CSU freshmen are typically in the top third of their graduating high school class.[55] A closer look at California's historical college remediation rates and at the past achievement results of the freshman cohort of 2007 as they moved along the K–12 education pipeline reveals that a 10 percent remediation rate was hardly realistic. It was also unlikely that such a low remediation rate would be attainable in the UC system, let alone the community college system.

High schools are under fire from prominent American business leaders who have launched expansive reform efforts to improve secondary school performance. AT&T chief executive Randall Stephenson, for example, recently criticized high school dropout rates as high as 50 percent in some communities. "If I had a business that half the product we turned out was defective or you couldn't put into the marketplace, I would shut that business down."[56] Likewise, Microsoft founder Bill Gates has called high schools "obsolete," adding, "By obsolete, I mean our high schools—even when they're working as designed—cannot teach all our students what they need to know today." Gates concludes, "When I compare our high schools with what I see when I'm traveling abroad, I am terrified for our work force of tomorrow."[57]

Despite legitimate criticism of American high school performance, focusing remediation prevention efforts on the final stretch of the K–12 education pipeline may be a case of too little, too late. According to Rosenbaum, intensifying efforts to improve secondary students' achievement "seems to be a noble and uncontroversial goal. However, by high

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school, higher achievement has been schools' goal for ten years, yet many students are two, three, or more years below grade level in achievement."[58] Other California programs, such as the 1998 ban on social promotion, do focus on the earlier grades. In light of chronically high college remediation rates, they are not having a widespread impact.[59]

A common excuse for high remediation rates is that growing numbers of students from historically disadvantaged socioeconomic backgrounds are enrolling in college. Demographics, however, do not destine students for remedial education. Research shows that 96 percent of low-income students attend postsecondary institutions at the same rates as middle- and high-income students if they are adequately prepared, and 83 percent of those students attend four-year colleges or universities. In fact, students from the lowest two socioeconomic status (SES) quintiles who also have the most intense, highest-quality high school curricula earn bachelor's degrees at a higher rate than most students from the top SES quintile.[60]

Absent high-quality elementary education, many students are unlikely in high school to raise their academic performance sufficiently to be prepared for college. The Legislative Analyst's Office (LAO) cites evidence from the National Research Council (NRC) that "disadvantaged, low-achieving ninth graders typically do not significantly raise their skill levels by twelfth grade. The NRC report cites one study showing that only 15 percent of students identified as weak readers in eighth grade had progressed to an intermediate or advanced level by twelfth grade. The report concludes that, by eighth grade, most low-achieving students had lost their belief that they could make significant progress in school." The LAO adds, "Thus, it makes sense to address the achievement problem before high school, when students are more engaged and when academic deficits are smaller."[61]

There is broad consensus, however, that alarming numbers of California students across socioeconomic subgroups are ill-prepared for college. At more than one in 10 affluent suburban schools statewide, a majority of students in at least one grade were not proficient in English language arts or math in 2006. At hundreds more high schools, students who tested proficient on the CST were not deemed college-ready on the Early Assessment Program. Previous research, including Stanford University's comprehensive *Getting Down to Facts* reports, corroborates those findings.[62] The following sections consider efforts to address such poor preparation and reduce the need for college remediation in California.

Postsecondary Outreach and K–12 Collaboration

Outreach programs typically target students before they enter eighth grade to help ensure they are performing at grade level and are on track for college. These programs are intended to increase opportunities for disadvantaged students and provide a solid academic foundation for at-risk students. Such efforts have been a priority since the 1960s as part of Lyndon Johnson's War on Poverty. During the 1998 reauthorization of the Higher Education Act of 1965, Congress and the U.S. Department of Education created Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP). GEAR UP encourages community partnerships that can direct resources to college preparation, tutoring, and mentoring, especially for low-income students. Today, there are more than 1,000 such outreach programs nationwide.[63]

California funds 20 major outreach programs, also known as academic preparation programs, administered by the CSU and UC systems, including some that were instituted 25 years ago. Since 1997, the state has spent an estimated $1.2 billion in 2007 inflation-adjusted dollars on outreach programs. Current funding to the CSU and UC systems for their outreach programs is $57 million.[64] The LAO, however, raises numerous concerns. "[T]he term outreach can take on many different meanings depending on the context of the discussion. This often makes it difficult to clearly define the state's outreach efforts. For example, over the years UC and CSU have repeatedly changed their definition of outreach, and have reclassified which programs fall under their definition."[65]

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-Legislative Analyst's Office

In its most recent review, the LAO reiterates its conclusion from previous reports that "...the Legislature has minimal information on the effectiveness and efficiency of UC and CSU outreach programs. In part, this is because the universities are often the ones charged with evaluating the effectiveness of their own programs, and thus have little incentive to be critical in the evaluations."[66] The LAO also questions the effectiveness of existing outreach programs given that remediation rates are rising, many programs are redundant, and there is negligible accountability regarding whether at-risk students are receiving the assistance they need.[67]

"State assessment directors rightly point out that their tests were never designed to measure college readiness," says David Conley, director of the Standards for Success program at the University of Oregon. "While states have raised academic standards, they have rarely considered how their standards contribute to improved student success in college."

Elementary, Secondary, and Postsecondary Standards Alignment

A recent but popular strategy for improving college preparation is better collaboration between secondary and postsecondary schools to promote more clearly aligned academic standards.[68] "State assessment directors rightly point out that their tests were never designed to measure college readiness," says David Conley, director of the Standards for Success program at the University of Oregon. "While states have raised academic standards, they have rarely considered how their standards contribute to improved student success in college."[69] To address that issue, several multi-state efforts are underway.

California is one of four states now participating in the Quality in Undergraduate Education (QUE) program. Launched in 1997, QUE is made up of faculty from selected four-year and two-year public postsecondary institutions who are creating voluntary, outcomes-oriented standards in six disciplines: biology, chemistry, English, history, mathematics, and physics.[70] In 2001, Achieve, Inc., the Education Trust, the Fordham Foundation, and the National Alliance of Business formed a national coalition called the American Diploma Project (ADP), with support from the Hewlett Foundation. ADP's network of 30 states, including California, is working to improve high schools[71] Other reform strategies encourage broader collaboration among elementary, secondary, and postsecondary institutions. The National Association of System Heads (NASH) and the Education Trust, for example, have assembled a network of leaders from 22 states who represent the K–12 sector and state university systems, including the CSU and UC systems, to implement statewide K–16 (kindergarten through postsecondary) improvement strategies.[72]

P–16 initiatives (preschool through postsecondary) are underway in 30 states and are a primary component of alignment efforts. These initiatives focus on what is often called the "education pipeline," an idea that dates back to the 1980s.[73] Common to both K–16 and P–16 efforts nationwide is the desire to ease the transition from high school to college and reduce remediation.[74] In December 2004, California Superintendent of Public Instruction Jack O'Connell launched the Superintendent's P-16 Council, which brings together education, business, and community leaders, including representatives from the state legislature; the UC, CSU, and CCC systems; and local school districts.[75]

The immediate focus of the council is improving high school student achievement. "[L]ess than 10 percent of California's high schools have reached the optimum level of 800 on the Academic Performance Index (API),"

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Superintendent O'Connell explains, "and during the past five years, California's high schools have met their annual API growth targets about 40 percent of the time. In 2004, 210 of California's 1,059 comprehensive high schools were state-monitored high schools, indicating unsatisfactory performance in reaching annual academic growth targets."[76]

High school graduation requirements are another important college alignment vehicle.[77] All public-high-school students are now required to pass the California High School Exit Examination (CAHSEE) to graduate.[78] Despite the poor performance of many California high schools, about seven out of 10 students pass the CAHSEE.[79] Current state funding for intensive instruction and related services for students who do not pass the CAHSEE, including the administration and evaluation of follow-up tests, is $83.9 million.[80]

California lacks college-aligned high school graduation requirements in English, math, and foreign languages, and it has only partial alignment in science.

Fourteen states, including California, have fully aligned social studies graduation requirements. Yet California lacks college-aligned high school graduation requirements in English, math, and foreign languages, and it has only partial alignment in science. California does align all of its honors/college-prep diploma requirements in those subjects with college admissions requirements. In fact, it is one of only four states out of the 25 states currently offering a special honors/college-prep diploma to do so.[81]

While no state requires high school students to complete a curriculum aligned with state-set college admissions requirements, some states offer an optional aligned curriculum, and Indiana, Oklahoma, and South Dakota plan to make a college-aligned high school curriculum mandatory.[82] The Education Commission of the States reports that a growing number of states are embedding "courses that are aligned with college admissions requirements, which are generally more challenging than the state- or district-mandated high school graduation requirements." States are also using a variety of assessment strategies with college-readiness indicators in standard college placement exams, such as the SAT and the ACT, and even pre-ACT tests (EXPLORE and PLAN), as well as their own state tests.[83]

Another effort is the Early Assessment Program (EAP).[84] The EAP began in 2000 as a collaborative effort by the State Board of Education (SBE), the California Department of Education (CDE), and the CSU system at the request of the California Education Round Table. It is designed to help students improve their skills during their senior year of high school so they are prepared to perform college-level work once they graduate.[85] The EAP Early Assessment of Readiness for College English and Early Assessment of Readiness for College Mathematics are optional exams for high school juniors administered during the spring semester as part of the required California Standards Test.[86] The EAP exams are designed to inform students whether they are ready for college-level work in those core subjects. Results are sent to the students' schools at the beginning of their senior year so those not yet ready for college-level work can improve their performance to help avoid the need for remedial courses later.[87] Qualifying students are eligible to enroll in college-level courses at CSU without having to take placement tests.

The first EAP exams were administered in the 2002–03 school year at 100 high schools, and the program was expanded statewide the following school year. From 2004 to 2006, the number of students opting to take EAP English language arts increased 37 percent (from 153,000 to 210,000 students), and the number of students opting to take EAP math increased 17 percent (from 115,000 to 134,000 students).[88] Despite the growth in the number of students opting to participate in the EAP, the proportion of students deemed college-ready has remained steady at just under 25 percent in English language arts and slightly more than half in math.[89]

Despite the growth in the number of students opting to participate in the EAP, the proportion of students deemed college-ready has remained steady at just under 25 percent in English language arts and slightly more than half in math.

In addition to adjusting their senior-year courses, students may receive additional help, which includes access to the online CSU Diagnostic Writing Service and materials from the Mathematics Diagnostic Testing Project. Students may also take a specially designed writing course that is aligned with California state standards and designed for college-level English.[90] In 2005–06, CSU received $5.1 million in state general funds for 11th grade assessment and scoring, high school outreach, development and implementation of the 12th grade Expository Reading and Writing Course, and teacher professional development.[91]

California Community Colleges, meanwhile, received $33.1 million for the Student Success Initiative, designed to improve outcomes for students not adequately prepared for college-level work, with additional counseling and academic assessment, specialized services referrals, study skills evaluation, and course selection advising.[92] An additional $21.2 million in state general funds supports enrollment growth in numerous categorical programs, including basic skills programs and services.[93]

"My students can't spell the word 'school.' I have to buy books that are two and three grades below them so they can understand the text. But if I hold them back, I know I will get fired."

Replacing Social Promotion with Standards-Based Promotion

The CDE does not report on remedial education or related college-readiness programs, making it practically impossible to isolate corresponding funding embedded within more than 100 educational programs. In 1998, however, the state outlawed K–12 social promotion and required schools to retain any student performing below grade-level proficiency.[94] Since January 1999, school district governing boards have had to adopt standards-based promotion policies. The promotion or retention of students between the second and fourth grades is based largely on reading proficiency. The promotion or retention of students between the fourth and eighth grades also includes English language arts and mathematics proficiency. Parents must be notified as early as possible about students' promotion or retention, be apprised of remedial education opportunities, and have the right to appeal. Students who fail to meet grade-level proficiency requirements can be promoted if their regular classroom teachers provide a written explanation detailing the reasons retention would be inappropriate for them.[95]

The CDE does not report on remedial education or related college readiness programs.

Opposition to retaining students remains strong within the K–12 education community. There are reports of school principals interfering with teachers' decisions to hold students back. "The principal won't let me, and says it's too damaging for their self-esteem," one Oakland middle school teacher told the *San Francisco Chronicle* on the condition of anonymity. "My students can't spell the word 'school.' I have to buy books that are two and three grades below them so they can understand the text. But if I hold them back, I know I will get fired."[96] Writing for the *Los Angeles Daily News*, Los Angeles Unified School District teacher Paul Kujawsky believes the harshest blow to students' self-esteem is lack of preparation, not retention: "Notably, the counselors don't discuss the shame and stress of falling further behind in school, or of finally leaving school unable to read, write or calculate well. . . . [Retention] isn't punishment; it's just proper placement."

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-Paul Kujawsky

For all the outreach, alignment, and other efforts to bolster basic skills and college readiness, remediation rates remain high across all California postsecondary systems.

Kujawsky also details how LAUSD elementary schools skirt the state's prohibition on social promotion. Students are graded on a scale of 1 to 4, progressing from not proficient (1) to partially proficient (2) to proficient (3) to advanced (4); however, students can be retained only if they score 1s. Kujawsky concludes,

> The system pushes students up the ladder, capable or not. At some point, everyone reaches the limit of his or her ability to pretend that these students have been properly educated. I doubt this is what the Legislature intended when it thought it had outlawed social promotion. I have colleagues who wear T-shirts with the slogan, "Failure is not an option." To which one can only respond: "Sure, if 'success' is defined loosely enough."[97]

For all the outreach, alignment, and other efforts to bolster basic skills and college readiness, remediation rates remain high across all California postsecondary systems. Significantly, nine out of 10 freshmen are California residents, so the state's college remediation rates cannot be blamed on out-of-state students.[98] UC remediation rates are between 30 and 35 percent, according to the LAO, although the UC system does not officially report any remedial instruction.[99] The CSU remediation rate exceeds 60 percent, and remediation rates for the CCC system are as high as 90 percent.[100] Students who have passed annual state assessments and received good grades throughout elementary and secondary school are stunned when they wind up in remedial classes in college.

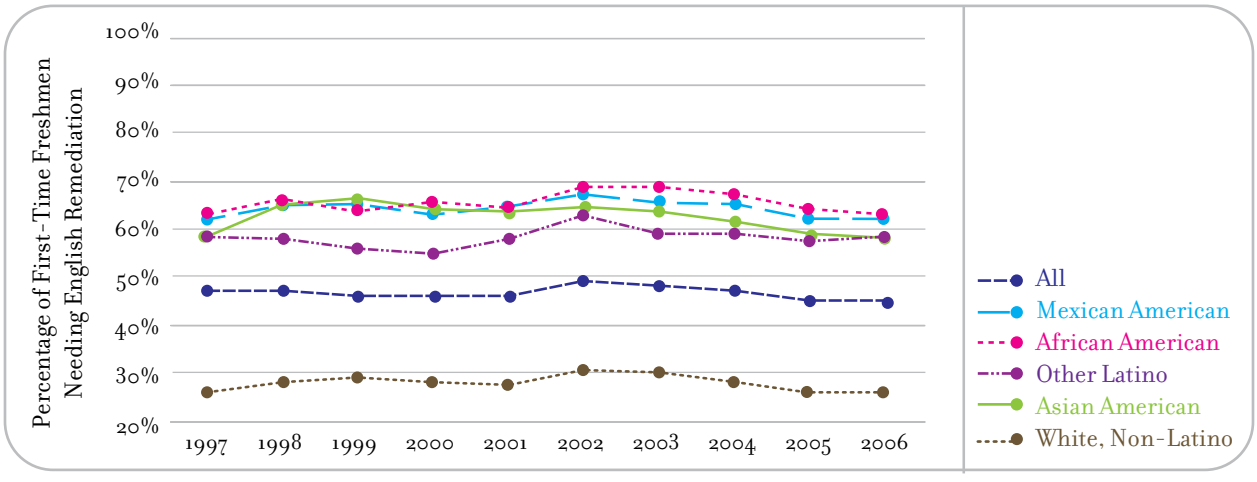
"This is the thing," says one undergraduate. "I've always done well in grammar, and I've always done well in English. I got As throughout high school, and I was placed in the lowest English [course in the community college]."[101] As the *San Diego Union-Tribune* recently editorialized, "It's a cruel fiction that starts as early as elementary school…"[102]

The following section takes a deeper look at how the state's current elementary and secondary proficiency assessments mislead students and their parents about their preparedness for college.

K–12 "Proficiency" and College Readiness: California's Great Divide

Historical data indicated that achieving the CSU trustees' 1996 goal of reducing remediation to 10 percent of the freshmen entering CSU in 2007 was unlikely.[103] This section focuses on English because research shows that the need for remedial reading is perhaps the most serious barrier to degree completion, with only 17 to 30 percent of students enrolled in remedial reading courses earning formal degrees. Remedial reading is also associated with higher rates of total remediation.[104] Remediation rates have averaged around half of all entering California freshmen over the past decade. As of 2006, just over one-quarter of white, non-Latino freshmen needed English remediation (26 percent). Alarmingly, more African American freshmen needed remediation in English (63 percent) than Mexican American (62 percent) and other Latino (59 percent) freshmen, who typically represent the largest proportion of English language learners.[105]

Figure 1: Statewide CSU First-Time Freshman Remedial English Rates, Fall 1997 to Fall 2006



Source: Author's figure based on data from California State University, "Fall 2006 Final Regularly Admitted First-Time Freshmen Proficiency Systemwide."

Notes: 1. Remediation rates include only English.
2. For readability, only the largest student subgroups are represented in the figure.

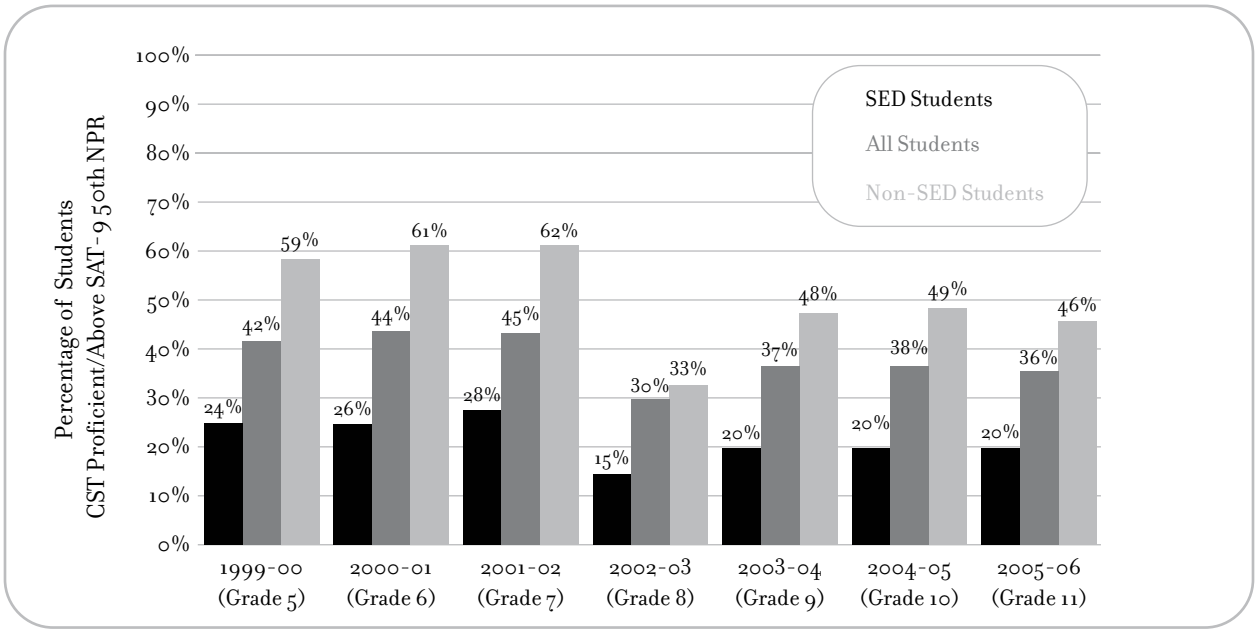
A growing body of research documents the misalignment between secondary and postsecondary education, even in states like California with K–12 academic content standards.[106] The state's measure of student proficiency is the California Standards Test (CST). The CST is a standards-based test that measures grade-level student achievement against state content standards, and it has been completely aligned with those standards since 2003.[107] Performance on the CST is supposed to indicate whether students possess the grade-appropriate skills placing them on a trajectory for admission to a four-year college. Thus the likelihood that students will need remediation should be apparent long before they enter college. And yet, according to CST proficiency assessments, alarming numbers of students continue to miss state performance benchmarks year after year. Additionally, many students are deemed "proficient" on the CST but are not college-ready.

Turning to the most commonly used state K–12 proficiency assessments in recent years, it is clear that a significant proportion of the freshmen entering college in 2007 was not on track for college-level work. Those data are available beginning in the 2002–03 school year, when the freshmen entering college in 2007 would have been in eighth grade. (CST math scores cannot be used in proficiency comparisons because high school students take different math subject tests.)[108] Statewide Stanford-9 (SAT-9) reading scores, the assessment used prior to the CST, are available back to the 1999–00 school year, when the freshman cohort of 2007 would have been in fifth grade.

Neither CST English language arts proficiency rates nor the proportion of students at or above the 50th National Percentile Rank (NPR) in SAT-9 reading for the freshman cohort of 2007 is encouraging.[109] Student test scores dipped appreciably between 2001–02 and 2002–03, when the CST replaced the SAT-9. Even at their highest performance levels, less than two-thirds of non–socioeconomically disadvantaged students did better than average in SAT-9 reading. Less than half of all students and only slightly more than one-quarter of socioeconomically disadvantaged students ever did better than average in SAT-9 reading.

What the CST results reveal beginning in the 2002–03 school year is that a majority of students across economic subgroups who would enter college in 2007 never achieved proficiency in English language arts. Overall, slightly more than one-third of all students tested proficient or above on the CST English language arts assessment, plummeting to only one-fifth of socioeconomically disadvantaged students.[110] Fewer than half of non–socioeconomically disadvantaged students ever achieved proficiency. Regardless of the assessment used, most students in the freshman cohort of 2007 were not performing well long before they ever reached high school.

Figure 2: CST English Language Arts and SAT-9 Reading Results for the Freshman Cohort of 2007, 1999–2006



Source: Author's figure based on data from the California Department of Education.

Notes: 1. SED stands for socioeconomically disadvantaged, and Non-SED stands for non–socioeconomically disadvantaged.
2. NPR stands for national percentile rank.
3. Test results are not available prior to 1999. SAT-9 Reading was used through 2001–02. In 2002–03, the CST was used. For more information on those assessments, see note 109.

Most students in the freshman cohort of 2007 were not performing well long before they ever reached high school.

The low proportion of students testing at grade-level proficiency may convince some policy makers that the state standards are too high, putting California at a disadvantage compared to other states. Research does in fact document wide disparities among state definitions of proficiency, with Massachusetts ranking first, and California among the top 10. For example, the proficiency difference between a fourth grader in near-worst Tennessee and that of a fourth grader in top-ranked Massachusetts amounts to four whole grade levels.[111] Lowering California academic standards, however, would not help but rather would cripple California students, who increasingly must compete with peers from other states as well as other countries for college admission and for jobs. Teaching quality, not high academic content standards is the more likely culprit in California.

The state's high school exit exam, meanwhile, measures middle school competency, not 12th grade high school proficiency.

Research on grade-level proficiency in affluent public schools statewide reveals wildly inconsistent peaks and valleys in student performance across all grades, despite the fact that at those schools most, if not all, teachers are state certified. At those schools less than one-third of students are socioeconomically disadvantaged, and few are English language learners or have disabilities. All California public schools use a state-approved curriculum as well as state-approved textbooks. Only the teachers differ, which suggests a wide variance in teacher quality, rather than a problem with California's academic content standards.[112] The content-standards-aligned CST is a straightforward, binary test, meaning that either students are receiving the instruction they need to reach grade-level proficiency in the core subjects tested or they are not.

The state's high school exit exam, meanwhile, measures middle school competency, not 12th grade high school proficiency. Large gaps exist between the percentages of students who pass English language arts on the CAHSEE, score proficient on the CST, and are deemed college-ready on the EAP. The CAHSEE is first administered in 10th grade to "identify students who are not developing skills that are essential for life after high school" and to help them "significantly" improve their skills. Proficiency on the 11th grade CST is supposed to indicate that students have acquired the skills they need for entry into a four-year college. Turning to the freshman cohort of 2007, corresponding EAP college-readiness rates indicate that neither the CAHSEE nor the CST is living up to its stated intention.

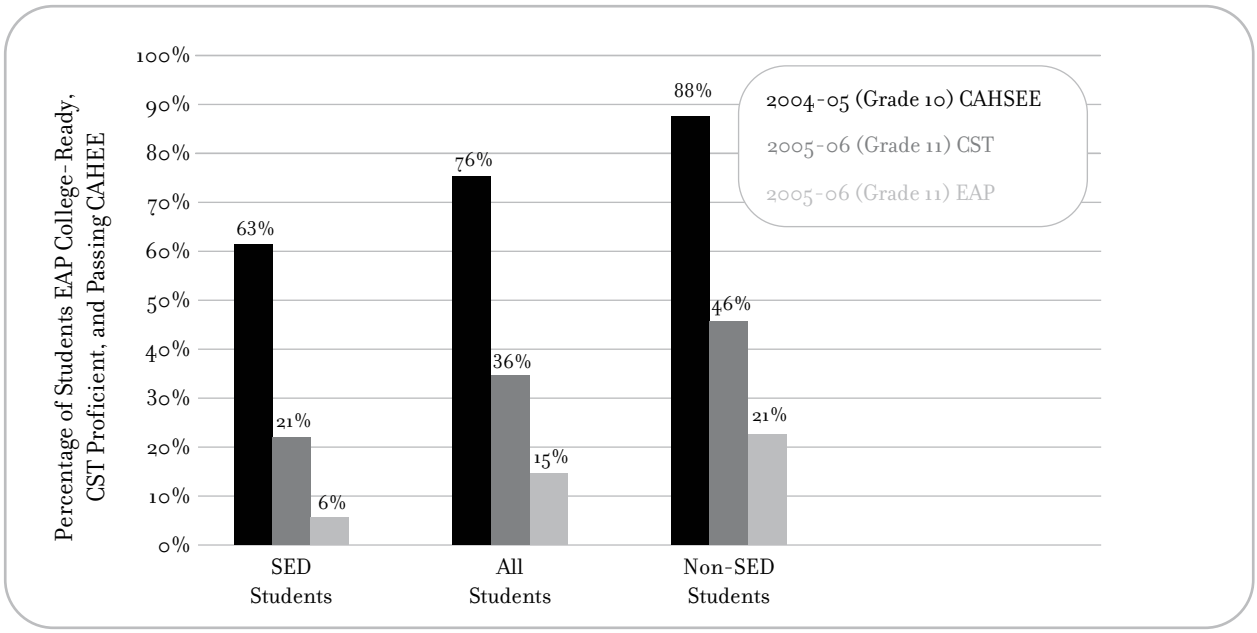
More than three-fourths of the entire freshman cohort of 2007 passed the CAHSEE in 10th grade, the earliest that students can take the exam. The following year, however, fewer than half of those students scored at proficient or higher levels on the CST, and only one-fifth of them were deemed college-ready on the EAP. Those discrepancies

More than three-fourths of the entire freshman cohort of 2007 passed the CAHSEE in 10th grade, the earliest that students can take the exam. The following year, however, fewer than half of those students scored at proficient or higher levels on the CST, and only one-fifth of them were deemed college-ready on the EAP.

are even more pronounced for socioeconomically disadvantaged students. Nearly three-fourths of socioeconomically disadvantaged students passed the CAHSEE in 10th grade, but the following year only one-third scored proficient or higher on the CST, and less than one-tenth were deemed college-ready.

There was an average 20-percentage-point difference across student subgroups between 11th-grade CST proficiency and EAP college-readiness in English language arts. The average gap between 10th grade CAHSEE passing rates and EAP college-readiness rates in English language arts across student subgroups was nearly three times as high, at 61 percentage points. Less than two in 10 of all students from the freshman cohort of 2007 were deemed college-ready. Among socioeconomically disadvantaged students, not even one in 10 was deemed college-ready, compared to one in five non–socioeconomically disadvantaged students.

Figure 3: English Language Arts CST, EAP, and CAHSEE Results for the Freshman Cohort of 2007



Sources: Author's figure based on data from the California Department of Education and California State University.

Notes: 1. SED stands for socioeconomically disadvantaged, and Non-SED stands for non–socioeconomically disadvantaged.

2. Taking the EAP, which is embedded in the CST, is optional for high school juniors. CST proficiency and EAP college readiness percentages are for the 2005–06 school year, when the freshman cohort of 2007 was in 11th grade. The percentage of students passing the CAHSEE is for the 2004–05 school year, when the freshman cohort of 2007 was in 10th grade (the first time students may take the high school exit exam).

This pattern is not unique to the freshmen entering college in 2007. At many high schools statewide where the majority of students are not socioeconomically disadvantaged and the majority of students are scoring at grade-level proficiency in English language arts on the CST, an alarming proportion of students is not deemed college-ready according to the EAP.[115] Considering just the 157 California high schools where less than 33 percent of students were socioeconomically disadvantaged and at least 90 percent of 11th graders took both the CST and the EAP English language arts exam, not one had an EAP college-ready rate higher than the 11th grade CST English "proficient" rate in 2006. In fact, the CST English language arts proficient rate averaged 28 percentage points higher than the EAP college-ready rate.[116]

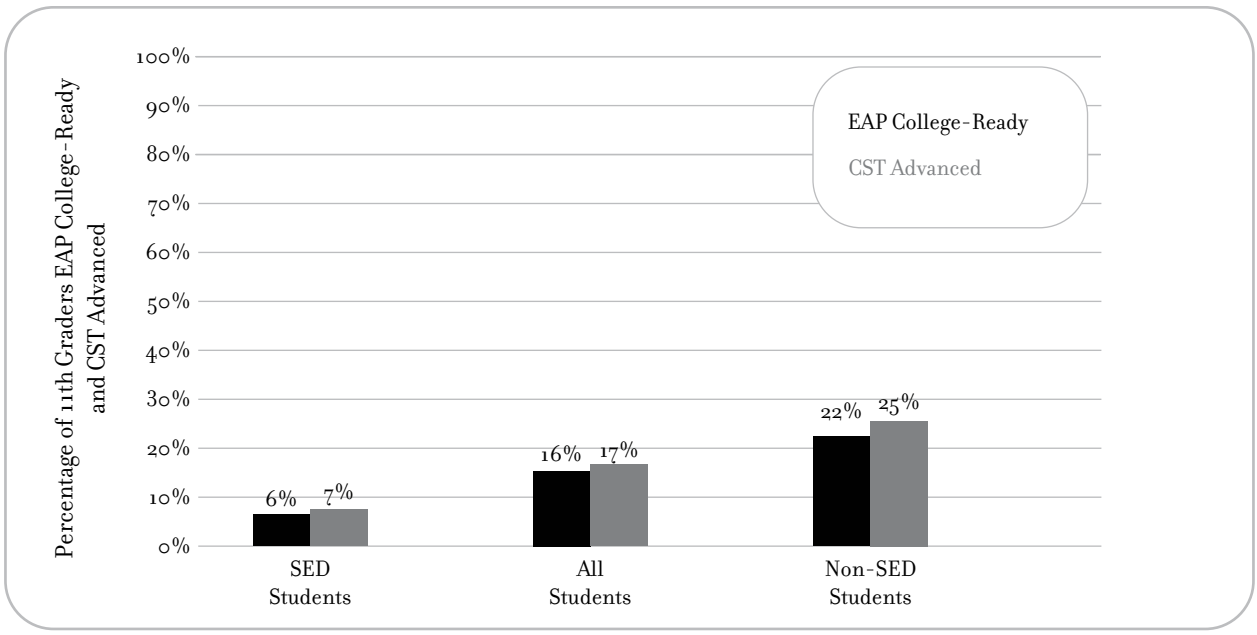
EAP college-readiness and CST advanced rates in English language arts for 11th graders statewide are also closely matched across socioeconomic subgroups. Those similarities suggest that for high school English language arts, the CST advanced performance benchmark is a better indicator of college readiness than the proficient benchmark.

In contrast, the average EAP college-readiness rate at those same 157 high schools was within four percentage points of the 11th grade CST English "advanced" rate in 2006. In English language arts, the rates for 11th grade EAP college readiness and CST advanced matched at 12 schools; at 29 more high schools the CST advanced rates exceeded the EAP college-ready rate in English language arts. EAP college-readiness and CST advanced rates in English language arts for 11th graders statewide are also closely matched across socioeconomic subgroups. Those similarities suggest that for high school English language arts, the CST advanced performance benchmark is a better indicator of college readiness than the proficient benchmark.

Such wild discrepancies between what the K–12 community deems "proficient" and what the higher education community deems "college-ready"—especially among socioeconomically disadvantaged students—contribute to California's high remediation rates because students are led to believe they are on track for college-level work, when in fact they are more likely to be heading for remedial classes. Discovering this harsh reality at the beginning of their senior year of high school hardly gives students enough time to prepare for the rigors of college.

This lack of preparation so far along the California education pipeline is cause for serious reevaluation of existing efforts toward academic preparation, remediation prevention, postsecondary outreach, and K-12 alignment. The following section projects the cost of such poor academic preparation to schools, students, and the state.

Figure 4: Percentage of 11th Graders Statewide Scoring EAP College-Ready and CST Advanced in English Language Arts, 2006–07



Sources: Author's figure based on data from the California Department of Education and California State University.

Notes:
1. SED stands for socioeconomically disadvantaged, and Non-SED stands for non–socioeconomically disadvantaged.
2. Taking the EAP, which is embedded in the CST, is optional for high school juniors.
3. CST advanced and EAP college-readiness percentages are for the 2006–07 school year. Those percentages are nearly identical to the 2005–06 school year results across all student socioeconomic subgroups.
4. In the 2006–07 school year, three out of four 11th graders, on average, across all student socioeconomic subgroups participated in the optional EAP exam: SED students, 74 percent; all students, 78 percent; and non-SED students, 81 percent. Participation had increased an average of three percentage points across all student subgroups compared to the 2005–06 school year.

Such wild discrepancies between what the K–12 community deems "proficient" and what the higher education community deems "college-ready"—especially among socioeconomically disadvantaged students—contribute to California's high remediation rates, because students are led to believe they are on track for college-level work, when in fact they are more likely to be heading for remedial classes.

Because CSU schools, and more recently community colleges, receive the same funding for students whether they are enrolled in remedial or regular courses, there is a powerful incentive to accept students regardless of their preparation and little incentive to remediate students in a timely manner. Such funding also removes incentives to pressure elementary and secondary schools to prepare students better and avoid the need for remediation altogether.

The High Price of Poor Preparation in California

Assessing the exact annual cost of remedial education in California, and across the country, is complicated for several reasons. Temple University's Laurence Steinberg explains that "we still know precious little about how much the nation spends on postsecondary remediation, about the content of such courses, about the prevalence of such instruction, or about the characteristics of students who enroll in such classes. . . . it is virtually impossible to make sensible policy recommendations."[117] In addition to the direct costs to schools of remediating students not prepared for college work, students pay for their lack of preparation in lower individual earnings. Those diminished earnings translate into diminished state and local income tax revenues and lower federal spending for the state.

Inadequate accountability is a chronic problem in California. Available remedial education assessments and program evaluations are inconclusive and not wholly reliable. The LAO, for example, has routinely noted the impropriety of putting institutions receiving funding for remedial education programs in charge of evaluating the effectiveness of those programs.[118] State funding to postsecondary institutions for remedial education is opaque and inconsistent, and introduces perverse incentives. Because CSU schools, and more recently community colleges, receive the same funding for students whether they are enrolled in remedial or regular courses, there is a powerful incentive to accept students regardless of their preparation and little incentive to remediate students in a timely manner. Such funding also removes incentives to pressure elementary and secondary schools to prepare students better and avoid the need for remediation altogether. UC schools, on the other hand, receive no additional funding for remedial education, which introduces incentives to mainstream students in regular courses for which they may not be prepared rather than lose funding.[119]

Despite those and other challenges, remedial education cost estimates are possible.[120] Using national data from 2004, the Alliance for Excellent Education found that the annual cost of remediation just in the CCC system was more than $135 million, plus an additional $553 million in annual economic losses from students' diminished earning power.[121] Adjusted for inflation, those figures amount to $150 million and $615 million, respectively, in 2007 dollars. In an earlier analysis, Dean David W. Breneman of the Curry School of Education calculated that the annual cost of remedial education at the CCC system in 1993–94 was as much as $300 million, approximately $434 million in 2007 dollars. Breneman also noted that in 1995 CSU staff estimated that their annual remedial education costs at

Existing estimates for the combined cost of providing remedial education in the CCC and CSU systems range from $162 to $447 million annually in 2007 dollars.

19 campuses amounted to $9.3 million, roughly $12.8 million in 2007 dollars. However, "an official in the Chancellor's office reported in a phone conversation that he thought the number was an underestimate," according to Breneman, who added, "but he had no way of knowing by how much." Cost estimates were unavailable for the UC system because it does not officially report any remedial instruction. Depending on the severity of students' academic deficiencies, some UC campuses enroll them in community college remedial courses, while others mainstream them into regular courses.[122]

Thus, existing estimates for the combined cost of providing remedial education in the CCC and CSU systems range from $162 to $447 million annually in 2007 dollars. In addition to the direct annual costs to postsecondary institutions of providing remedial instruction, inadequate education results in numerous ongoing costs to students and society. Students who enroll in any remedial course are less likely to complete their college degrees, which diminishes their eventual earnings. Diminished earnings translate into smaller local, state, and federal tax collections. Businesses also pay a steep price for inadequately educated employees who lack basic skills. Those costs approached an estimated $17 billion nationwide in 2000 and include the costs of training, technology expenditures to compensate for the lack of basic skills, and lost productivity.[123] Research also shows that inadequate education and related diminished earnings are associated with increased public health, crime, and welfare costs.[124]

To get a more comprehensive picture, the analyses that follow estimate the annual direct and indirect costs of inadequate education to students, schools, and the state for a single cohort of college freshmen requiring remedial instruction across all California public postsecondary systems, both two- and four-year.

Cost to Postsecondary Institutions of Providing Remedial Education

Data available as of 2007 indicate that 55 percent of regularly admitted CSU freshmen, 23,849 students, need at least one remedial course in some subject, not just math or English.[125] Approximately 75 percent of California Community College freshmen, 620,707, need remediation in English.[126] This analysis uses this rate instead of the higher 90 percent community college remediation rate in math because, as noted previously, the need for remedial reading is a leading barrier to degree completion and is associated with higher rates of total remediation.[127] As noted, the latest published UC remediation estimates range from 30 to 35 percent.[128] This analysis uses the lower 30 percent figure, 11,351 students, as a conservative estimate. Thus the total estimate of California freshmen needing remediation annually is 655,907.[129]

This is a conservative figure because 1) it does not include special-admit students; 2) it assumes each student takes and completes only one remedial course in a given year; and 3) it includes only freshmen. For example, community college students do not necessarily have to take remedial coursework their freshman year. The calculation therefore excludes more than 191,000 undergraduates who are not classified as freshmen but are enrolled in non-credit community college courses, which do not count toward a degree.[130] Thus, the annual remedial education cost projections are likely understated.

It is also reasonable to question why taxpayers should be expected to pay twice for basic skills undergraduates should have mastered by high school graduation.

Absent publicly reported figures on per-student remedial education costs, average educational fees (tuition) and annual student course loads are used to estimate direct annual freshman remediation costs to CCC, CSU, and UC institutions.[131] The direct annual remediation cost for an estimated 655,907 freshmen is $274 million.[132] To put that amount in perspective, $274 million represents 2.3 percent of all 2007–2008 state spending for higher education.[133] However, K–12 education spending, at 40 percent, historically represents the largest share of California budgetary spending, twice as much as health care, and more than three times higher education, criminal justice, and social services put together.[134] It is therefore reasonable to question why students are not prepared for college in the first place. Moreover, insofar as additional postsecondary funds must be diverted to remedial education, it is also reasonable to question why taxpayers should be expected to pay twice for basic skills undergraduates should have mastered by high school graduation.

Thus, depending on how many community college students enrolled in remedial education who do not complete their degrees intend to pursue a four-year degree, the estimated combined loss in annual earnings is between $1.1 and $5.5 billion.

Cost to Students Requiring Remediation: Diminished Annual Earnings

On average, about 41 percent of students enrolled in remedial courses are unlikely to earn a degree.[135] Not earning a college degree reduces a high school graduate's earnings. According the U.S. Bureau of Labor Statistics and the U.S. Census Bureau, in 2006 the average annual individual earnings for those 25 to 64 with some college but no degree were $38,799; for those with two-year associate's degrees, $41,920; and for those with four-year bachelor's degrees, $59,382.[136] The difference in average annual individual earnings between those with some college but no degree and those with a two-year college degree is $3,121. In comparison, the difference between those with some college but no degree and those with a four-year college degree is $20,583—more than six and a half times greater than the two-year-college-degree difference.

An estimated 268,922 college freshmen out of the 655,907 enrolled in remedial education, 41 percent, likely will not complete their degrees. The following cost projections assume that all 14,432 CSU and UC students unlikely to earn a degree because they are in remedial education intend to pursue a four-year bachelor's degree. The failure to earn that degree translates into a $20,583 reduction in average annual earnings (the difference between the annual earnings of individuals with bachelor's degrees [$59,382] and the annual earnings of individuals with some college but no degree [$38,799]).

There is no way to estimate how many of the 254,490 community college students unlikely to earn a degree because they are in remedial education plan to pursue four-year bachelor's degrees. Therefore, this and subsequent calculations use low and high estimates. The low estimates assume that all of the 254,490 community college students plan to pursue two-year associate's degrees. The high estimates assume they all plan to pursue four-year bachelor's degrees. On the low estimate, if all 254,490 community college students unlikely to earn a degree because they are in remedial education actually *did* earn their associate's degrees, and all 14,432 CSU and UC students unlikely to earn a degree because they are in remedial education *did* earn their bachelor's degrees, their combined annual earnings would be $11.5 billion. On the high estimate, if all 268,922 college freshmen unlikely to earn degrees because they are in remedial education actually *did* earn bachelor's degrees, their combined annual earnings would be nearly $16 billion.[137] In contrast, if none of the 268,922 freshmen in remedial courses earn degrees, their combined annual earnings amount to only $10.4 billion, which represents a combined annual earnings loss of between $1.1 billion and $5.5 billion.[138]

Thus, depending on how many community college students enrolled in remedial education who do not complete their degrees intend to pursue a four-year degree, the estimated combined loss in annual earnings is between $1.1 and $5.5 billion. Assumptions about the type of college degree not completed significantly affect the estimates of costs to students, as well as other costs to society— treated in the following sections—that are based on annual individual earnings. It should be borne in mind, however, that the projected costs to students and society are understated because they do not account for students' delayed entry into the workforce because they are enrolled in remedial classes that do not count toward a college degree.

Cost to Society of Inadequate Education

The estimated freshman remediation cost to California public postsecondary institutions of $274 million represents an actual cost. The combined projected earnings loss to those individual freshmen, however, represents an annualized cost. That is, the freshmen currently enrolled in remedial education and likely to leave college before completing a degree are still in school, and so the combined $1.1 to $5.5 billion projected loss in individual earnings will not be realized in the current year. Nor will it necessarily be realized the first year after they leave college. Instead, that figure is derived by annualizing the average difference in lifetime individual earnings between individuals with two- or four-year college degrees and those with some college but no degree.

Better educated persons pay more in taxes and they alleviate the pressure for government spending on health, crime and welfare.

The broader costs to society of inadequate education are also annualized projections that depend heavily on individual earnings. According to two experts associated with the California Dropout Research Project, Clive Belfield of Queens College, City University of New York, and Henry Levin of Columbia University Teachers College,

> Increasingly, a good education is becoming critical for individuals to prosper and to participate as productive citizens. Social science research has compellingly shown that an individual's income is strongly influenced by their schooling . . . . In addition, evidence is accumulating that persons with more education are healthier, they are less likely to be involved in criminal activities, and they are less likely to be on welfare. . . . Better educated persons pay more in taxes and they alleviate the pressure for government spending on health, crime and welfare. . . . Thus, there is a fiscal benefit to the taxpayer from each new high school and college graduate. . . . It is therefore in a state's best interest to ensure all children receive an adequate education.[139]

The value of such annualized estimates is that they provide a conceptual framework for grasping the magnitude of the costs of not adequately preparing students for college. Consider just the costs incurred by the single cohort of more than 250,000 freshmen currently enrolled in remedial education who likely will not earn a degree. Ideally, those students will be in the adult workforce between the ages of 21 and 65 when they retire. Over that 44-year

period, their estimated earnings loss will amount to between $48.4 and $242 billion in current, unadjusted dollars ($1.1 and $5.5 billion diminished annual individual earnings losses x 44 years). In addition, the cumulative cost to California public postsecondary institutions of providing a single remedial education course per year to each of the estimated 656,000 unprepared freshmen over a 44-year period amounts to $12.1 billion in current, unadjusted dollars ($274 million x 44).

The sections that follow examine the several costs to society associated with inadequate education that Belfield and Levin identify, namely, direct tax losses at various levels, along with increased health care, crime, and welfare costs. Because the tax losses projected below are based on annualized earnings losses, they too—along with other related public spending examined in the following sections—represent annualized, not actual, costs. Most research on the social costs of inadequate education focuses on the differences between high school dropouts and students who earn a high school diploma.[140] The analyses below compare the fiscal impact of students with some college but no degree and students who earn a college degree. Those fiscal impacts are presented as ranges because they depend on whether students forgo two-year associate's degrees or four-year bachelor's degrees.

Reduced Federal Income Tax Receipts Mean Lower Federal Spending on California. To estimate the effect of individuals' education levels and their corresponding annual earnings on federal and state income taxes, the following analysis uses the 2006 income data cited in the previous section from the *Current Population Survey 2007* and the TAXSIM tax calculator administered by the National Bureau of Economic Research.[141] The effects on local and other state taxes are derived using the methodology developed by Belfield and Levin to estimate the economic losses to California from high school dropouts.[142]

Individuals with some college but no degree earn, on average, $38,799 annually and pay $4,145 in federal income taxes; individuals with two-year associate's degrees earn $41,920 and pay $4,895 in federal income taxes; individuals with four-year bachelor's degrees earn $59,382 and pay $9,261 in federal income taxes.

As with the previous estimates of diminished earnings, the following analysis assumes that all 14,432 CSU and UC students unlikely to earn a degree because they are in remedial education intend to pursue a four-year bachelor's degree. Again, there is no way to determine how many of the 254,490 community college students unlikely to earn a degree because they are in remedial education plan to pursue four-year degrees. The low estimate therefore assumes that all of those students plan to earn two-year associate's degrees, and the high estimate assumes they all plan to earn four-year bachelor's degrees.

On the low estimate, if all 254,490 community college students in remedial courses *did* earn their two-year associate's degrees, and all 14,432 CSU and UC students in remedial education *did* earn their four-year bachelor's degrees,

the combined annual federal income tax receipts would amount to $1.4 billion.[143] On the high estimate, if all 268,922 college freshmen in remedial courses *did* earn four-year bachelor's degrees, the combined annual federal income tax receipts would amount to $2.5 billion.[144] In contrast, if none of the 268,922 college freshmen in remedial courses were to earn degrees, the combined annual federal income tax receipts would amount to only $1.1 billion. These figures represent an annual federal income tax loss of between $264 million and $1.4 billion.[145]

For every dollar Californians send to Washington, D.C., each year the state receives an average of $0.93 back in federal spending.[146] Thus, lower federal income tax receipts translate into lower federal spending on California. On the low estimate, with 254,490 community college students completing associate's degrees and 14,432 CSU and UC students completing bachelor's degrees, corresponding annual federal spending amounts to $1.3 billion. On the high estimate, with all 268,922 college freshmen earning bachelor's degrees, corresponding annual federal spending amounts to $2.3 billion.[147] In contrast, if none of the 268,922 college freshmen in remedial courses were to earn degrees, corresponding annual federal spending in California would be only $1 billion. These figures represent an annual federal spending loss of between $245 million and $1.27 billion.[148]

Reduced Annual Earnings Lowers State Income Tax Receipts. To calculate the effect of individuals' education levels and their corresponding annual earnings on California state income taxes, the following analysis also uses 2006 earnings and income tax data from the *Current Population Survey 2007* and TAXSIM. Individuals with some college but no degree earn $38,799 annually and pay $1,177 in state income taxes; individuals with two-year associate's degrees earn $41,920 and pay $1,427 in state income taxes; individuals with four-year bachelor's degrees earn $59,382 and pay $2,987 in state income taxes.

As with the previous calculations, this calculation assumes that all 14,432 CSU and UC students unlikely to earn a degree because they are in remedial education intend to pursue a four-year bachelor's degree. On the low estimate, if all 254,490 community college students in remedial courses *did* earn their two-year associate's degrees, and all 14,432 CSU and UC students in remedial education *did* earn their four-year bachelor's degrees, the combined annual state income tax receipts would amount to $406 million. On the high estimate, with all 268,922 college freshmen earning bachelor's degrees, the combined annual state income tax receipts would amount to $803 million. In contrast, if none of the 268,922 college freshmen in remedial courses were to earn degrees, corresponding annual state income tax receipts would amount to $317 million, which represents annual state income tax losses between $90 million and $487 million.[149]

Lower Education Levels Reduce State Sales, Excise, Corporate, and Local Property Taxes. In their analysis of the fiscal effects of dropouts in California, Belfield and Levin also include forgone state sales, excise, and corporate taxes. They exclude local property taxes because no research exists concerning the effect of education

level on property tax payments.[150] Cecilia Rouse of Princeton University notes, however, that individuals with higher incomes are more likely to own property and therefore pay property taxes. In her analysis for the National Bureau of Economic Research, she explains that,

> . . . property tax revenues likely form a non-trivial component of the social losses arising from inadequate education. . . . Given that over 90 percent of educational revenues come from state and local sources, the increased contributions to these taxes that would result from improved education are very important as one considers the costs and benefits of educational improvements or interventions.[151]

State and local contributions accounted for 90.3 percent of California's $69 billion K–12 education budget in 2007, 70.6 percent from all state sources ($49 billion) and 19.7 percent from local property taxes ($14 billion).[152] Given the sizable contribution local property taxes make to K–12 education, this calculation includes the projected annual property tax losses potentially associated with lower education levels.

Belfield and Levin calculate state sales, excise, and corporate tax losses as a proportion of total California tax collections, which in 2007 are as follows: income taxes, 46.5 percent; sales taxes, 28.5 percent; selective sales or excise taxes—which are taxes on specific goods or activities, including gasoline, tobacco, alcohol, and gambling—6.8 percent; corporate taxes, 9.7 percent; and other taxes, 6.6 percent.[153] This analysis also includes local property taxes as a proportion of total California tax collections, 2.0 percent.

Belfield and Levin explain that this methodology may overstate some tax losses and understate others because it assumes that the share of those taxes each individual pays matches the proportion each contributes to overall state tax collections. The losses in local property taxes may also be overestimated for two reasons. First, the calculation assumes those taxes are a function of individual income based on education level, which, again, has not been established in the scientific literature; however, as Rouse points out, higher education and income levels may reasonably be associated with an increased likelihood of property ownership. Second, total property tax payments are based on housing value, regardless of whether those payments are made singly or jointly.

Finally, this calculation assumes that all students who do not complete college degrees own homes and therefore pay direct property taxes. It does not include the indirect contributions made by renters. Those limitations are mitigated by the fact that local property taxes account for just two percent of total California state tax collections; however, given the large share they contribute to K–12 education revenue, inclusion of potential forgone local property taxes is an important illustration of the potential annual cost to the K–12 system itself when students are not adequately educated.

Table 1 summarizes the estimated effects on annual state income, sales, excise, corporate, and local property taxes under various scenarios. The first scenario calculates the effect of 268,922 college freshmen unlikely to earn degrees because they are enrolled in remedial classes. The second scenario estimates the effect if all 254,490 community college students in remedial courses *did* earn their two-year associate's degrees, and all 14,432 CSU and UC students in remedial courses *did* earn their four-year bachelor's degrees. The third scenario estimates the effect if all 268,922 college freshmen unlikely to earn degrees because they are enrolled in remedial classes *did* earn four-year bachelor's degrees.

Table 1: The Combined Annual Effect of Education Level on State Tax Collection by Source (in $ millions)

	Income Tax	Sales Tax	Excise Tax	Corporate Tax	Property Tax	Other State Tax	Total
Scenario 1	$317	$194	$46	$66	$14	$45	$682
Scenario 2	$406	$249	$59	$85	$18	$58	$875
Scenario 3	$803	$492	$118	$168	$35	$114	$1,730

Sources: Author's table based on 2006 earnings and income tax data from the *Current Population Survey 2007*, TAXSIM, and the Federation of Tax Administrators.

The estimated annual cost of inadequate education to Californians in terms of forgone state tax collections is significant, between $193 million (Scenario 2, $875 million, minus Scenario 1, $682 million) and $1.05 billion annually (Scenario 3, $1.730 billion, minus Scenario 1, $682 million).

Lower Education Levels are Associated with Higher Health and Medical Costs. A significant body of research indicates that increased levels of education are strongly correlated with healthier behaviors and improved overall health.[154] Diminished incomes associated with lower education levels increase the likelihood that individuals will rely on publicly subsidized health care programs such as Medicaid, or Medi-Cal as it is called in California, and Medicare, which is available to individuals under 65 who qualify for Social Security Disability Insurance (SSDI). Belfield and Levin note that no reliable data exist correlating education levels and within-family services such as the State's Children's Health Insurance Program (SCHIP).[155] This exclusion, as well as the exclusion of health care programs for families, children, and communities, underestimates the total cost of the failure to achieve a college degree associated with enrollment in remedial course work.

Researchers from the Center for Benefit-Cost Studies of Education at Teachers College, Columbia University, hypothesize that "if there is a causal link between educational attainment and disability, the public sector will save money by reducing enrollment in Medicare among persons under the age of 65. It may also reduce expenditures among

Medicaid beneficiaries by reducing the number of severely ill enrollees." This reduction could have a significant cost impact since the cost per disabled participant is about three times higher than the cost per non-disabled participant.[157] Over the course of an adult's working lifetime, roughly 44 years from age 21 to 65, the health and medical care savings from improving education levels are significant.

National data indicate that average lifetime per-capita (not per-enrollee) public health care costs for individuals with some college but no degree are more than four times as high as for those with a college degree: $12,900 compared to $3,100 for men, and $15,900 compared to $3,600 for women.[158] Based on these data, each college student who completes a degree could yield a potential average lifetime savings of $11,050. If the 268,922 California freshmen unlikely to complete college degrees because of enrollment in remedial course work actually *did* earn their degrees, the potential lifetime savings could be nearly $3 billion. That works out to roughly $68 million a year when annualized over 44 years. Available state-level data indicate that these costs are probably much higher.

Turning to California health care programs, Medi-Cal enrolls 6.6 million people and is the country's largest Medicaid program. Nearly one in five Californians under the age of 65 receives health care through Medi-Cal. At 17 percent, Medi-Cal accounts for the second largest share of the state general fund after K–12 education. Since 1998, Medi-Cal costs have doubled, and Medi-Cal spending has grown about three times faster than general inflation. Medi-Cal spending for adults has grown the most in the past decade, at a combined compound annual rate of 8 percent—7.3 percent for adults with disabilities and 0.7 percent for adults without disabilities.[159]

Medi-Cal spending was $37 billion in 2007. Approximately $14.4 billion came from the general fund (39 percent), $2 billion from other state funds (five percent), and $20.5 billion came from federal funds (56 percent).[160] Calculating the effect of individual education and corresponding income levels on Medi-Cal is complicated because Medi-Cal serves families, children, and those over 65, the typical retirement age, and because state-level data on Medi-Cal participation by education level are unavailable. One way to calculate the projected annual impact of individual education is by using available national data.

National data indicate that individuals with some college but no degree account for three percent of Medicaid and Medicare enrollment, and college graduates account for one percent.[161] By failing to reduce the need for college remediation—and thus to improve the likelihood that college students will earn degrees—California forgoes significant potential savings. Reported annual average Medi-Cal spending per beneficiary is $5,257. Medi-Cal is means-tested, so increased individual income through improved educational attainment could reduce the number of eligible participants.[162] Thus, if the 268,922 college freshmen unlikely to earn a degree because they are enrolled in remedial courses actually *did* earn degrees, associate's or bachelor's, they would likely exceed the income threshold, resulting in an estimated annual savings of more than $1.4 billion.[163]

The same calculation for the 268,922 college freshmen can be done using the average annual Medi-Cal cost, not spending, of $2,873 per adult without disabilities, which yields an estimated annual savings of $773 million. If we use the average annual Medi-Cal cost of $15,073 per child or adult with a disability, the estimated annual savings is $4.1 billion.[164] Thus, depending on the calculation, failing to improving education levels just for this one freshman cohort from some college to actual degree attainment results in projected annual Medi-Cal costs ranging from $773 million to $4.1 billion. Given the rising cost of health care and the rapid increase in Medi-Cal enrollment, those savings will likely be much higher in future years.

Lower Education Levels Are Associated with Increased Crime and Related Costs. More than half of all inmates do not have a high school diploma when they enter the prison system. Research suggests that increasing education levels holds great potential for reducing crime and incarceration rates.[165] Such a reduction is a pressing public policy concern for the state. The California Department of Corrections and Rehabilitation budget alone has almost doubled in real, inflation-adjusted terms to $9.7 billion, up from about $5.2 billion a decade ago.[166] The state's inmate population now exceeds 170,000, with approximately 130,000 more parolees, and today 31 of the state's 33 prisons exceed their capacity.[167]

The human cost to victims of crime is incalculable. The economic costs to society are more tangible. Maintenance of the criminal justice system, incarceration and oversight of parolees, compensation to victims of crime, and crime prevention programs account for most of those costs.[168] All told, Californians pay approximately $14.1 billion annually to support the judicial and criminal justice system, excluding the $102 billion in federal funding for undocumented felons.[169] That amount includes $3.4 billion for the Judicial Branch, excluding the Commission on Judicial Performance and the Judges' Retirement System; $737 million for the Department of Justice; and $290 million in criminal justice local assistance.

The Victim Compensation and Government Claims Board also has a Restitution Fund of around $120 million that supports the Victim Compensation Program; however, increased claims and program expansions could make it insolvent as early as 2011.[170] Other costs to society of crime include steps individuals take to prevent becoming victims of crime, such as purchasing home security systems and buying property insurance and other forms of insurance to assist if they do become crime victims. Additionally, higher incarceration rates lower the regular labor force and reduce tax collections.[171] Given the growth in labor costs associated with running California prisons and court-mandated programs for inmates, including expanded health care programs, incarceration costs are expected to increase in the near term.[172]

National data indicate that the percentage of state prison inmates with some college but no degree is around four times as high as that of inmates with at least a college degree across offense categories: violent crime, 8.6 percent

compared to 2.2 percent; property crime, 9.6 percent compared to 2.5 percent; drug offenses, 8.9 percent compared to 2.3 percent; and public order offenses, 9.4 percent compared to 2.5 percent.[173] Comprehensive per-capita crime costs are not available, but an estimate of those costs can be derived as a portion of the $14.1 billion judicial and criminal justice system budget. At 69 percent, the California Department of Corrections and Rehabilitation represents the largest share of the budget. Maintaining the Judicial Branch represents the next highest share at 24 percent, followed by the Department of Justice at five percent. Criminal justice local assistance accounts for the remaining two percent of the budget.

As of 2007, the annual incarceration cost per prisoner in California was $43,149; total incarceration costs correspond to the California Department of Corrections and Rehabilitation budget share of 69 percent.[174] Per-capita funding corresponding to the 24 percent Judicial Branch share is roughly $15,124; to the five percent Department of Justice share, $3,278; and to the two percent criminal justice local assistance share, $1,290. Thus, the total estimated annual per-inmate crime cost for California is $62,842.

To estimate the impact of reducing crime and associated costs for the 268,922 California college freshmen unlikely to earn a degree because they are enrolled in remedial course work, this analysis uses the average national incarceration rates by education level detailed above. This methodology does not take into account the cost variances of different types of crimes, nor can it identify potential inmates by gender, an important distinction because men tend to commit more crimes overall as well as more expensive crimes. The fact that incarceration rates by the education levels examined here remain fairly constant across more and less expensive types of crime, however, minimizes potential overestimates.

Higher education levels are associated with a significant reduction in incarceration rates; they drop from an average of 9.1 percent of inmates with some college but no degree to 2.4 percent of inmates with a college degree or more. Applying those incarceration rates to the 268,922 California college freshmen unlikely to earn a degree because they are enrolled in remedial course work yields an estimated 24,472 potential inmates at 9.1 percent. To bring that rate down to 2.4 percent, or 6,454 potential inmates, 18,018 of those freshmen would have to earn college degrees, saving an estimated $62,842 each in annual incarceration and associated costs, for a combined annual savings of approximately $1.13 billion.

Lower Education Levels Are Associated with Higher Welfare Program Participation. The cost of increased welfare program participation because of lower education levels is smaller than the costs associated with health care and crime. Belfield and Levin explain that welfare benefits are time-limited; children and the elderly receive large portions of welfare benefits; and research has not established what effect if any education levels have on federal welfare program participation. Research has, however, established a strong relationship between lower

The estimated annual welfare savings achievable by improving the education levels of the 268,922 California freshmen unlikely to earn degrees because of remedial education enrollment is between $38 million and $129 million.

education levels and participation in three welfare programs: cash assistance through Temporary Assistance to Needy Families (TANF), housing assistance, and food stamps.[175]

The previous analyses estimate social costs when college students do not complete their degrees. Participation by education level is not reported for all of those public assistance programs, only for food stamps. For this reason, food stamp participation rates by education level are used in this analysis for both TANF and housing assistance participation as well. While those resulting calculations help improve the accuracy of cost estimates, they may overestimate participation in some programs and underestimate participation in others.

The closest comparison for all of those programs isolates participation by high school graduates and college graduates. It does include a distinct participation category for some college but no degree. Because welfare program participation is so heavily influenced by income level, it is important to distinguish those categories in a finer level of detail. For example, the average annual income difference between a high school graduate and a student with some college but no degree is nearly $4,800; while the income difference between a high school graduate and a college graduate is nearly $7,900.[176]

The data indicate that food stamp participation rates decline as education levels rise. Individuals with some college but no degree represent five percent of food stamp program participants. Individuals with an associate's degree

represent four percent of all participants; the figure drops to only one percent for individuals with bachelor's degrees.[177] California provides program participants estimated average annual support of $5,154 for TANF, $1,232 for food stamps, and $5,656 per household for housing assistance.[178] The failure to improve the education levels of just the 268,922 college freshmen unlikely to earn a college degree because of their enrollment in remedial course work translates into significant public welfare costs.

Applying the welfare participation rates for the food stamp program to those 268,922 students with some college but unlikely to earn degrees, an estimated five percent, or 13,446, would participate in at least one program. To reduce welfare participation to the lowest level of one percent, or 2,689 enrollees, all 268,922 of those students would have to earn bachelor's degrees. Thus, on the high estimate for this analysis, welfare participation would be reduced by 10,757 (13,446 minus 2,689). On the low estimate, the 254,490 community college students enrolled in remedial education *would* earn their associate's degrees, reducing their corresponding welfare program participation rate from five percent to four percent, or from 12,724 enrollees to 10,180 (a reduction of 2,544 enrollees). Also on this estimate, the 14,432 CSU and UC students enrolled in remedial education *would* earn their bachelor's degrees, reducing their corresponding welfare program participation rate from five percent to one percent, or from 722 enrollees to 144 (a reduction of 578 enrollees). Thus, under the high estimate, welfare rolls are reduced by 10,757, and under the low estimate they are reduced by 3,122. The estimated annual savings are summarized in Table 2.

Table 2: Estimated Annual Welfare Savings, by Program (in $ millions)

Estimate	Number of Fewer Enrollees	Food Stamps	TANF	Housing	Total
Low	3,122	$4	$16	$18	$38
High	10,757	$13	$55	$61	$129

Sources: Author's table based on data from Clive Belfield and Henry Levin, *The Economic Losses from High School Dropouts in California, 2007*; and the *College Board, 2007*.

Thus, depending upon the number of freshmen who complete bachelor's degrees and in how many welfare programs students eventually enroll, the estimated annual welfare savings achievable by improving the education levels of the 268,922 California freshmen unlikely to earn degrees because of remedial education enrollment is between $38 million and $129 million.

The Cost of Poor Preparation to California Businesses and the Economy

There is growing concern that students are poorly prepared in the basic skills needed for the workforce. AT&T, for example, wants to return 5,000 customer service jobs from India to the United States but has only managed to fill about 1,400 positions. "We're having trouble finding the numbers that we need with the skills that are required to do these jobs," explained AT&T Chief Executive Randall Stephenson. "I know you don't like hearing that, but that's the way it is."[179]

The American labor force is increasingly reliant on foreign students for innovation and productivity. In fact, in some areas of math and science, foreign students earn more than one-third of U.S. advanced degrees.[180] One recent national survey of employers representing a combined workforce of more than two million U.S. employees found that nearly half of respondents consider new hires with two-year college degrees deficient in English. A full quarter of employers responded that new hires with four-year college degrees are deficient in English.

As one employer concluded, "If corporate America produced end-products equal to the end-products of the public school system, our economy would collapse."

This poor preparation impairs new hires' written communication. Employers report, "Spelling errors, improper use of grammar, and the misuse of words were common in written reports, PowerPoint presentations, and email messages."[181] Employers report that most of their instructions, policies, and other such materials must be written at a middle school level, and one financial firm even reported that an employee "invented" her own filing system because she could not alphabetize folders. As one employer concluded, "If corporate America produced end-products equal to the end-products of the public school system, our economy would collapse."[182]

Recent reports also underscore growing alarm among employers about the impact of declining educational quality on the competitiveness of the American workforce. In fact, students' knowledge and skills are so weak that the United States fails to rank among the world's leaders in any area of achievement with regard to educational output.[183] Most of America's business community believes schools are failing to prepare students for the rigors of the workforce, according to the U.S. Chamber of Commerce.[184] Another national survey finds that a majority of employers consider new hires

ill prepared in both basic and technical skills, and as many as nine out of 10 respondents think K–12 schools are doing a poor job at preparing students for the workplace.[185] Such prominent business leaders as Apple Inc. CEO Steve Jobs and Microsoft Corporation chairman Bill Gates also openly criticized public school performance in 2007.[186]

Not surprisingly, growing numbers of U.S. employers report increased spending for training across all employee groups, not just executives. Close to two-thirds of this training is for basic skills (32 percent) and technical skills (30 percent), including problem-solving, basic or advanced mathematics, basic reading and writing—all of which are considered standard skills for high-performance workforces.[187]

Tracking the cost to businesses of such remedial training is challenging for several reasons. One is that formal training costs are typically reported within company units, not companywide.[188] Informal remedial training is not tracked at all, and even when such costs are tracked, they understate the larger costs of lost productivity.

A final challenge for the present analysis is that no surveys of California businesses exist detailing the annual costs of remediating poorly prepared employees. A 2006 national survey found that the median cost to the U.S. businesses surveyed just for training unprepared workers was $500 per employee.[189] That figure is about five times as high as the figures reported in surveys of businesses in Michigan and Alabama, $90.43 and $111.10, respectively. The $500 national cost figure is likely higher because it includes nearly equal shares of technical training and basic training. The Michigan and Alabama estimates include only basic training and associated technology expenses, which make those figures more broadly applicable to a variety of industries across states. Using these lower cost estimates, however, likely underestimates the true cost to California businesses in more technical fields. For example, the manufacturing industry represents the largest employment sector in California, followed by the professional, scientific, and technical services sector. Together, these two industry sectors employ close to three million people, nearly one-quarter of the state's workforce.[190]

Students' knowledge and skills are so weak that the United States fails to rank among the world's leaders in any area of achievement with regard to educational output.

To calculate the most accurate estimate possible of direct annual costs to California businesses of unprepared workers, this analysis uses the national figure to generate a high estimate and a derived figure from the Alabama and Michigan surveys to generate a low estimate. This analysis uses the averages of the reported Alabama and Michigan per-employee costs, adjusts them for 2007 dollars, and weights them to reflect California's higher cost of living.[191] The estimated annual cost derived for California businesses based on those figures differs from the Alabama and Michigan estimates in one other respect. Given employers' dissatisfaction with workforce quality, it would certainly be reasonable to apply per-employee remediation costs to California's entire workforce of 13.4 million paid employees,

Employers already express dissatisfaction with new hires who hold college degrees.

as the Alabama and Michigan analyses do.[192] Nevertheless, this analysis focuses only on the cost of a single cohort of college freshmen needing remediation. It is therefore a much more conservative estimate.

Unlike the previous analyses, however, the cost to California businesses is not affected by students' annual individual earnings, which are heavily influenced by college degree attainment. For this reason, in estimating the cost to businesses of remediating unprepared workers, this analysis assumes that all 655,907 freshmen needing college remediation will require some workforce remediation, not just the 268,922 unlikely to earn their degrees. There is a danger that including all those students could overstate the annual cost to California businesses. This possibility is mitigated by the fact that employers already express dissatisfaction with new hires who hold college degrees, as well as by the fact that enrollment in remedial course work itself indicates weaker preparation relative to other students entering the workforce. There are also no available aggregate data on the effectiveness of remedial course work in California to suggest that students receiving it are at least as workforce-ready as their peers who did not.

The Alabama and Michigan surveys identify two direct annual costs businesses incur when employees lack necessary knowledge and skills to perform their jobs: the cost of providing basic skills training and of purchasing additional technology to compensate for workers' deficiencies. It should be noted that calculating the direct cost of basic skills training likely understates the actual cost to businesses because it assumes workers requiring basic skills training are already productive employees, and that additional training is a routine expense of doing business. In reality, workers needing remedial training frequently exhibit poor job performance. As Christopher Hammonds, author of the Alabama study, explains,

> One employer provided the example of employees in their construction company who serve as construction workers but have difficulty with basic math associated with the job such as adding and subtracting fractions, converting from inches to feet, and understanding angles. In short, employees who lack basic skills may not individually produce enough return to cover the costs of their own employment. These losses are masked by the overall productivity of other employees. Nonetheless, they represent a real loss to the state's business community in terms of lost productivity.[193]

Poor preparation of just the current cohort of California freshmen enrolled in remedial classes is projected to cost California businesses between $107 and $447 million annually.

Purchasing technology to compensate for poor basic skills includes such things as acquiring sophisticated cash registers because workers cannot add or subtract well enough to make change. Some businesses buy touch-screen computers with pictures so workers do not have to be able to read. Even now-commonplace items such as spell-check and inventory control systems are purchased, at least in part, because workers lack the English reading and math skills to perform those tasks themselves.[194]

Using the low estimate based on the Michigan and Alabama studies, poor preparation costs California businesses an average of $163 per employee each year, $25 in basic skills training, and another $138 in compensatory technology purchases. According to the high estimate based on the adjusted national per-employee cost, poor preparation costs California businesses an average of $681 per employee. Thus poor preparation of just the current cohort of California freshmen enrolled in remedial classes is projected to cost California businesses between $107 and $447 million annually.

Table 3: Estimated Annual Direct Costs to California Businesses of Poor Preparation

Estimate	Number of Freshmen in Remedial Education	Per-Employee Cost	Total Cost
Low	655,907	$163	$106,912,841
High	655,907	$681	$446,672,667

Sources: See corresponding endnotes in the relevant sections of the text.

Notes: 1. Dollar amounts represent averages based on costs reported by U.S., Michigan, and Alabama businesses.
2. Amounts are given in 2007 inflation-adjusted dollars.
3. Amounts have been adjusted to reflect California's fourth quarter 2007 cost of living.

Even the high estimate likely underestimates the full cost to California businesses of a single cohort of students in remedial education because the direct costs of remedial training do not include indirect costs associated with lost productivity and diminished national and global competitiveness.

Thus, the total estimated cost to California students, schools, and society of inadequate education resulting in the need for remediation amounts to $3.9 to $13.9 billion annually.

Table 4: Summary of All Estimated Annual Costs Associated with Current Cohort of Freshmen in Remedial Education

Annual Costs To:	Description	Low	High
Schools-postsecondary	Direct remediation	$274,000,000	$274,000,000
Students	Diminished annual earnings	$1,100,000,000	$5,500,000,000
Society	Diminished federal spending on California	$245,000,000	$1,272,000,000
Society	Diminished state income tax receipts	$90,000,000	$487,000,000
Society	Diminished state sales tax receipts	$55,000,000	$298,000,000
Society	Diminished state excise taxes	$13,000,000	$72,000,000
Society	Diminished state corporate tax receipts	$19,000,000	$102,000,000
Society	Diminished property tax receipts	$4,000,000	$21,000,000
Society	Diminished "other" state tax receipts	$13,000,000	$69,000,000
Society	Higher Medi-Cal costs	$773,000,000	$4,100,000,000
Society	Higher crime costs	$1,130,000,000	$1,130,000,000
Society	Higher food-stamp costs	$4,000,000	$13,000,000
Society	Higher TANF costs	$16,000,000	$55,000,000
Society	Higher housing-assistance costs	$18,000,000	$61,000,000
Society	Direct remediation costs to businesses	$107,000,000	$447,000,000
Total		**$3,861,000,000**	**$13,901,000,000**

Sources: See corresponding endnotes in the relevant sections of the text.

Notes:
1. High and low cost estimates to schools and California businesses are based on the entire cohort of freshmen enrolled in remedial classes, 655,907 students.
2. High and low estimates for the costs to students and the remaining costs to society are based on the 268,922 freshmen enrolled in remedial classes who are unlikely to earn college degrees. Not earning a degree influences individual annual earnings, which in turn affects tax receipts and the costs of publicly funded health care, crime, and welfare program participation.
3. Lower diminished earnings also diminish federal income tax receipts, by an amount estimated to be between $300 million and $1.4 billion for the 268,922 freshmen enrolled in remedial classes who are unlikely to earn college degrees. Lower federal income tax receipts translate into lower federal spending on California, which is included in the table. The forgone federal income tax receipts are excluded to avoid double counting, as this analysis is concerned with the annual fiscal impact on the state.

If those students were better prepared, those costs would turn into savings; however, it is reasonable to ask whether the cost of keeping the 268,922 freshmen unlikely to earn their degrees in school another year outweighs the cost of not earning a degree. If all of those students remained in school, the estimated state and local cost would amount to just under $931 million per year. However, if that one year's remediation enabled them to go on to earn their degree, the resulting savings would still be an estimated $2.9 to $13 billion annually, far outweighing the cost of keeping students in school and working toward a degree.

Table 5: State and Local Expenditures for Students Staying in School an Additional Year

	CCC	CSU	UC	Totals
Number of Freshmen	254,490	9,778	4,654	268,922
Annual Cost per Student	$3,590	$10,539	$22,518	
State and Local Share	$2,980	$8,747	$18,690	
Totals	**$758,303,466**	**$85,532,571**	**$86,981,299**	**$930,817,335**

Source: Author's table based on data from Clive Belfield and Henry Levin, *The Economic Losses from High School Dropouts in California*, 2007; tuition figures reported by *The Chronicle of Higher Education's Almanac 2007–08*, the Western Interstate Commission of Higher Education, and the College Board.

Notes: 1. Number of Freshmen represents the freshmen unlikely to earn a degree because of their enrollment in remedial course work.
2. Annual Cost per Student represents the full cost, not just tuition price, for an additional year of school.
3. State and Local Share represents 83 percent of the total annual cost.

Should current freshman remediation rates remain constant over time, as they appear to have done over the past decade, along with degree-completion rates for students enrolled in remedial education, then the $3.9 to $13.9 billion combined actual and annualized cost figure for freshmen needing remediation can at least bring the high cost of inadequate college preparation into perspective. This framework is constructive generally since at 40 percent, K–12 education spending historically represents the largest share of California's annual budgetary spending, twice as much as annual spending on health care, and more than three times annual spending on higher education, criminal justice, and social services.[195] It is therefore reasonable to question why students are not prepared for college in the first place. Moreover, insofar as additional postsecondary funds must be diverted to remedial education, it is also reasonable to question why California taxpayers and employers should be expected to pay twice for basic skills undergraduates should have mastered by high school graduation.

This conceptual framework also helps provide the appropriate sense of urgency concerning necessary elementary, secondary, and postsecondary education reforms given California's current fiscal emergency.[196] Yet poor preparation costs California more than money. Temple University's Laurence Steinberg explains that the scope of remedial education in colleges and universities "is symptomatic of the 'promote now, pay later' philosophy that has dominated educational practice in this country for the last quarter-century." Steinberg adds,

> Any analysis of the cost of postsecondary remediation must also ask what impact the existence of such widespread remedial opportunity has on the scholastic motivation of high school students and, by extension, on the academic climate of their schools. Providing remedial education in such basic academic skills as reading, writing, and mathematics to entering college students has trivialized the significance of the high school diploma, diminished the meaning of college admission, eroded the value of a college degree, and drained resources away from bona fide college-level instruction.[197]

Conclusion: California Can No Longer Afford the Rising Price of Failure

Freshman remediation rates improved slightly in math from 2006 to 2007, down from 37.5 percent to 37.2 percent; however, they worsened slightly in English, up from 45.3 percent to 46.2 percent.[198] Elementary and secondary student performance over the past decade suggested that achieving the goal of a 10 percent college remediation rate by 2007 was unlikely. In fact, in the fall of 2007, more than one-third of entering freshmen were not proficient in math, and just under half were not proficient in English.[199]

Such unpreparedness among a single cohort of freshmen conservatively costs students, schools, and the public at large up to $13.9 billion annually. Culprits include inadequate elementary and secondary preparation, a staggering disconnect between what the K–12 and postsecondary communities deem "proficient," the failure to enforce California's decade-old ban on social promotion, and an untenable dearth of information about the effectiveness of current remedial and prevention programs at all levels. The California Department of Education does not report on K–12 remediation effectiveness, and the Legislative Analyst's Office has been critical of oversight and evaluations of postsecondary institutions' remedial education programs.

California can no longer afford its "promote now, pay later" approach to academic preparation.

Today California ranks 48th in basic reading and math skills.[200] A bipartisan coalition of California lawmakers and education leaders headed by Governor Arnold Schwarzenegger vowed last year that 2008 would be the year of education reform.[201] With a projected state budget deficit as high as $20 billion, however, the governor and other stakeholders now want to postpone much-needed improvements.[202] California can no longer afford its "promote now, pay later" approach to academic preparation. An ounce of prevention today can save pounds of remediation-related costs tomorrow. The following recommendations are fiscally and educationally responsible improvements to existing policy that do not require costly program overhauls.

The total estimated cost to California students, schools, and society of inadequate education resulting in the need for remediation amounts to $3.9 to $13.9 billion annually.

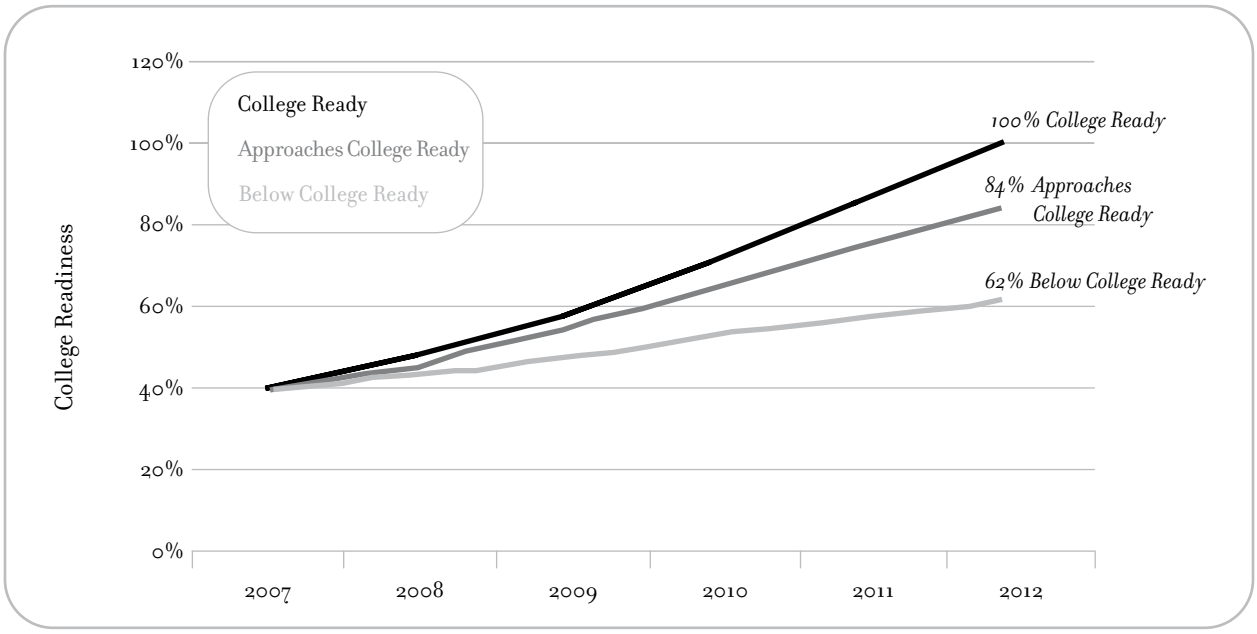
Recommendations for Slashing the High Price of Failure

Annually Assess College Readiness, not K–12 "Proficiency." Preparation is the best remedial prevention strategy. College readiness should therefore be the measure of K–12 student achievement.[203] Assessments also should not be delayed until 11th grade. Research suggests the CST "advanced" performance marker is a reliable grade-level measure of four-year-college readiness.[204] Existing CST performance levels could simply be amended: "advanced" would become "college-ready"; "proficient" would become "approaches college-ready"; "basic" would become "below college-ready"; and "below basic" and "far below basic" would be eliminated altogether. A single enhanced CST would make redundant both the CAHSEE, an unreliable indicator of high school skills mastery, and the optional EAP.[205]

As soon as high school students test college-ready in a given subject, they can focus on other subject areas in need of improvement for the remainder of their high school years and/or they can take more advanced, specialized courses. As with the current California High School Proficiency Examination, as soon as students test college-ready in all required courses, they may opt, with their parents' permission, to enroll in a two- or four-year postsecondary institution, or they may continue in high school taking more advanced, specialized courses for college credit. To bolster student preparation, the CST could be augmented with input from the business, armed services, and community college communities to encompass two-year-college and workforce readiness. Twenty-one states currently define workforce readiness, and 35 states give the option of a standard high school diploma with a concentration or specialization in a career-technical field.[206]

Use Statistical Forecasting to Track Annual Achievement. Aligning annual student achievement with college readiness enables parents and educators to identify student deficiencies in core subjects early on and target interventions more effectively. To ensure that students' progress is on track for college-level work beginning at the earliest stages of the education pipeline, a statistical forecasting model should replace the existing Academic Performance Index (API).[207] Businesses use statistical forecasting to determine whether they will make annual earnings targets. Airlines use it to project flight arrival times, and weather agencies use it to track trajectories of hurricanes. Take a seventh grade student who is testing at only 40 percent college-ready in English in 2007. Statistical forecasting shows that student, his parents, and his teachers where he will be in 2012 at his current trajectory as well as how much he needs to improve to be on track for four-year college.

Figure 5: Sample Statistical Forecasting Snapshot



Source: Author's figure inspired by the statistical forecasting recommendation of Caroline M. Hoxby, "Inadequate Yearly Progress," *Education Next*, Summer 2005, pp. 47–51.

There are numerous advantages to statistical forecasting. It provides a reliable and easily comprehensible gauge of student-level academic progress that can also be used to chart annual academic progress for student subgroups as well as schools, both of which are measurements required under the federal No Child Left Behind (NCLB) Act.[208] Such early identification is essential, because 85 percent of students in eighth grade identified as weak readers, for example, do not progress to proficient or advanced levels by 12th grade.[209] Statistical forecasting of annual grade-level college readiness uses students, not schools, as the core measure of progress. It streamlines the current system of multiple, disjointed state and federal academic achievement assessments, and gives students, parents, and educators clear, meaningful information in a cost-effective way. Statistical forecasting of grade-level college readiness would also facilitate more precise targeting of limited public resources and would provide much-needed transparency about the effectiveness of early interventions.

According to the existing law banning social promotion, parents of students who are not rated "proficient" on the CST or who are judged to be at risk of being retained are supposed to receive timely notification early in the school

year. Snapshots like the one in Figure 5 should accompany the letters to those parents, along with notification that their children are immediately eligible for "money-back-guarantee" remediation grants, described below, to pay for necessary subject-area tutoring services.

Implement "Money-Back-Guarantee" K–12 and Postsecondary Remediation Grants. Replace the current patchwork system of interventions, programs, and college remedial classes with K–12 and postsecondary money-back-guarantee remediation grants. Such programs would enable timely and highly targeted interventions that would help reduce the need later on for more costly postsecondary remedial education classes. Funding for the grant program and for annual, independent audits could come from redundant remedial programs, K–12 annual proficiency assessments, and related services. The two programs would work in similar ways. Parents whose children test below college-readiness levels on annual assessments and undergraduates who do not pass subject-area college placement tests would be eligible to apply for K–12 or postsecondary money-back-guarantee remediation grants. Letters notifying parents and undergraduates of their eligibility and directing them to the designated grant oversight agency, such as the State Controller's Office, should accompany test results. Any qualified provider, including but not limited to elementary, secondary, and postsecondary institutions, wishing to offer remedial education classes and services would fill out a simple affidavit describing its programs and costs for inclusion on the designated grant agency's website. Parents or undergraduates would choose their preferred provider and work together to develop a customized education plan, complete with timelines, measurable objectives, and costs. Once both parties agree to the tutoring plan, they would submit their application to the designated grant agency.

Require Contracts and Annual Evaluations. Applications for both the K–12 and postsecondary money-back-guarantee remediation grants should contain contracts that the parents or undergraduates and providers must sign. Providers would stipulate that they will meet the objectives of the tutoring plans they offer at the stated price. Parents would stipulate that their children will attend all required classes and/or tutoring sessions and complete all assignments; undergraduates would make the same stipulation for themselves. All parties would agree that if they do not live up to those stipulations, they will repay their half of the grant. Grant funds would be paid in regular installments to providers, co-signed by parents or undergraduates. The final installment will be disbursed once the State Controller's Office, or other designated agency, receives a completed program evaluation, which includes a parent/undergraduate satisfaction survey. An external, independent auditor, such as the LAO or a private firm, could compile annual reports based on those evaluations. Initial audit findings would be made available to each provider, which could submit a formal response for inclusion in the final remediation grant program audits. No annual general fund appropriations should be made without receipt and review of the program audits. To promote transparency the final audits must be publicly released. Money-back-guarantee remediation grant audits should contain the following information:

1) The number of students tested; the number of K–12 students who scored below college-ready on annual assessments or of undergraduates who did not pass college placement exams; and the number of eligible grant applicants, by grade level, subject area, and school or postsecondary institution. (The number of students who need remedial services in more than one subject should be identified so that the total number of students needing remediation is not inflated.)
2) The number and value of grants awarded by grade level, subject area, school or postsecondary institution, and chosen provider.
3) The number and value of grants denied—along with explanations for the denials—by grade level, subject area, school or postsecondary institution, and chosen provider.
4) The number of grant recipients who completed, and the number who did not complete, remedial services, by grade level, subject area, school or postsecondary institution, and chosen provider.
5) An evaluation summary for each provider.
6) The aggregate number of parents or undergraduates required to repay grants, along with total amounts repaid and outstanding.
7) A list of providers required to repay grants, along with amounts owed or repaid.
8) A list of providers that have not submitted required evaluations, along with the number of outstanding evaluations they owe; the number of students served, by grade level, subject area, and school or postsecondary institution; and the corresponding grant funding awarded.
9) The number of students who received grants in the current year who also received grants in previous years, by grade level, subject area, school or postsecondary institution, and chosen provider. For undergraduates, how many grant recipients passed placement exams after receiving tutoring services and went on to matriculate in regular classes.

There are several advantages to redirecting remedial education resources in the form of grants. Students receive the individualized attention they need to achieve college readiness. Parents, undergraduates, and providers have powerful incentives to work together and succeed because they have signed contracts making them personally responsible for grant funding. Providers also have to compete for students, which improves the overall quality of remedial services California students receive. A grant system also encourages innovation, because parents and undergraduates are not limited to the programs, courses, and services their schools or postsecondary institutions provide. Schools and postsecondary institutions are also free to design specialized services because grant funding is based on individual students' needs, not one-size-fits-all program mandates or categorical funding regulations. With such freedom, districts could authorize intensive charter schools, and public/private partnerships could combine academics with real-world applications to improve students' skills and help keep them motivated. Annual, publicly reported evaluations also promote best practices and communication among all providers to help ensure that parents and students have access to high-quality programs that will help prepare students for college.

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About the Pacific Research Institute

The Pacific Research Institute (PRI) champions freedom, opportunity, and personal responsibility by advancing free-market policy solutions. It provides practical solutions for the policy issues that impact the daily lives of all Americans, and demonstrates why the free market is more effective than the government at providing the important results we all seek: good schools, quality health care, a clean environment, and a robust economy.

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PRI shows how the entrepreneurial spirit—the engine of economic growth and opportunity—is stifled by onerous taxes, regulations, and litigation. It advances policy reforms that promote a robust economy, consumer choice, and innovation.

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PRI proposes market-based reforms that would improve affordability, access, quality, and consumer choice. PRI also demonstrates why a single-payer, Canadian model would be detrimental to the health care of all Americans.

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PRI advances policies to defend individual liberty, foster high-tech growth and innovation, and limit regulation.

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PRI reveals the dramatic and long-term trend toward a cleaner, healthier environment. It also examines and promotes the essential ingredients for abundant resources and environmental quality: property rights, markets, local action, and private initiative.

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[59] The most recent program is the Quality Education Investment Act (QEIA), which was approved in 2006 as part of the *CTA et al. v. Schwarzenegger et al*. lawsuit settlement. The lawsuit was filed jointly by Superintendent of Public Instruction Jack O'Connell and the California Teachers Association (CTA) against Governor Arnold Schwarzenegger and the California Department of Finance for failing to fund Proposition 98 in the 2004–05 budget year based on an agreement from the previous year. The QEIA provides nearly $3 billion so that school districts and other local educational agencies that are ranked in either decile 1 or 2 on the 2005 Academic Performance Index (API) can apply for funding. Appropriations of about $268 million begin in fiscal year 2007–08, increasing to $402 million annually through 2013–14. See California Department of Education, "School Chief Jack O'Connell, California Teachers Association Announce Availability of $3 Billion to Assist Struggling Schools," News Release, February 12, 2007, http://www.cde.ca.gov/nr/ne/yr07/yr07rel27.asp; and "Quality Education Investment Act of 2006," http://www.cde.ca.gov/ta/lp/qe/ and http://www.cde.ca.gov/fg/fo/r15/qeia07rfa.asp. See also Senate Bill 1133, Chapter 751, Statutes of 2006, http://www.leginfo.ca.gov/pub/05-06/bill/sen/sb_1101-1150/sb_1133_bill_20060929_chaptered.html.

[60] Steve Silver, Education Program Specialist, GEAR UP, http://www.ed.gov/gearup; and U.S. Department of Education, "GEAR UP: A Capstone for Reform" website, http://www.gearup.mass.edu/ed_reform/ed_reform.htm#_ftnref1. See also U.S. Department of Education, National Center for Education Statistics, *The Condition of Education 2000*, indicator 31.

[61] Legislative Analyst's Office, *Improving High School: A Strategic Approach*, May 2005, p. 24, http://www.lao.ca.gov/2005/high_schools/improving_hs_050905.pdf.

[62] See Lance T. Izumi, Vicki E. Murray, and Rachel Chaney, *Not as Good as You Think: Why the Middle Class Needs School Choice* (San Francisco: Pacific Research Institute, 2007), especially pp. 62–63 and 83 ff. See also Susannah Loeb, Anthony Byrk, and Eric Hanushek, "Overview Paper," part of *Getting Down to Facts: School Finance and Governance in California*, Institute for Research on Education Policy and Practice, Stanford University, March 2007, p. 1, http://irepp.stanford.edu/projects/cafinance.htm; Mark Baldassare, "Statewide Survey: Special Survey on Education," Public Policy Institute of California, April 2006, p. 1, http://www.ppic.org/main/publication.asp?i=681; and Patricia L. de Cos, "High School Dropouts, Enrollment, and Graduation Rates in California," requested by Assembly Member Joe Baca Jr., California Research Bureau, November 2005, http://www.library.ca.gov/crb/05/08/05-008.pdf.

[63] Education Commission of the States, "Outreach" website available through the "Preparation" link on the "Postsecondary Issues" website, http://www.ecs.org/ecsmain.asp?page=/html/issuesPS.asp.

[64] Legislative Analyst's Office, "UC and CSU Outreach Programs," February 21, 2007, pp. E-165–173, http://www.lao.ca.gov/laoapp/PubDetails.aspx?id=1600. See also, University of California (UC)/California State University (CSU), "Academic Preparation and Support Services Programs," Items 6440–6610, Assembly Budget Subcommittee No. 2 on Education Finance, Assemblymember Julia Brownley, Chair, Wednesday, May 9, 2007, State Capitol, Room 126, 4:00 P.M., http://www.assembly.ca.gov/acs/committee/c2/hearing/may%209%20%202007-outreach-cte-public-cm1.doc. The governor's 2007–08 budget also redirects $33.1 million from the CCC basic skills overcap categorical program to the matriculation categorical program. See the Legislative Analyst's Office, "Analysis of the 2007–08 Budget Bill: Education—California Community Colleges (6870)," http://192.234.213.2/analysis_2007/education/ed_22_6870_anl07.aspx.

[65] LAO, "UC and CSU Outreach Programs," p. E-166.

[66] Ibid., pp. E-165–173. Quotation from p. E-172. On the lack of comprehensive evaluation data, see also Winnie Wenyi Wang, "How Outreach Programs Are Implemented Affects Student Academic Achievement," University of California All Campus Consortium on Research for Diversity, Los Angeles, CA, 2005, http://www.ecs.org/html/Document.asp?chouseid=6178; and Jennifer Brown Lerner and Betsy Brand, *The College Ladder: Linking Secondary and Postsecondary Education for Success for All Students*, American Youth Policy Forum, September 2006, http://www.aypf.org/publications/The College Ladder/TheCollegeLadderlinkingsecondaryandpostsecondaryeducation.pdf.

[67] LAO, "UC and CSU Outreach Programs," pp. E-165–173; *Improving High School*; "Analysis of the 2003–04 Budget Bill," http://www.lao.ca.gov/analysis_2003/education/hied_08_6610_anl03.htm; and "Improving Academic Preparation for Higher Education," February 2001, http://www.lao.ca.gov/2001/remediation/020801_remediation.html. See also Watson Scott Swail, "Value Added: The Costs and Benefits of College Preparatory Programs, Educational Policy Institute," November 2004, http://www.educationalpolicy.org/pdf/value_added.pdf. For various University of California outreach reports and information, see California Postsecondary Education Commission, "The Road Ahead: Enhancing the Evaluation of University Academic Preparation Programs," June 2006, http://www.cpec.ca.gov/completereports/2006reports/06-11.pdf; "UC Academic Preparation: Expanding Educational Horizons," http://www.universityofcalifornia.edu/collegeprep/welcome.html; "Admissions Research and Student Academic Preparation Evaluation Documents," UC Office of the President, Office of Academic Affairs, http://www.ucop.edu/sas/research/researchandplanning/welcome.html; and "Outreach News and Publications," http://www.universityofcalifornia.edu/collegeprep/news.html. On UC's largest outreach program, see the "Early Academic Outreach Program (EAOP)" website, http://www.eaop.org/; the "EAOP in the News" website, http://www.eaop.org/about/news.html; and *Practices with Promise: A Collection of Working Solutions for College Opportunity*, Campaign for College Opportunity, October 2007, http://www.eaop.org/documents/practices_promises2007.pdf.

[68] Crowe, "Statewide Remedial Education Policies," http://www.sheeo.org/k16/transit/transit-sb-remed.pdf; and Callan et al., *Claiming Common Ground*, pp. 5–6.

[69] David Conley, "Mixed Messages: What State High School Tests Communicate about Student Readiness for College," Center for Educational Policy Research, University of Oregon, 2003, p. 5, http://www.s4s.org/Mixed_Messages.pdf. See also Rosenbaum, *Beyond Empty Promises*, especially pp. 21–24.

[70] Education Trust, http://www2.edtrust.org/EdTrust/State+and+Local+K-16+Initiatives/quality+education; and Quality in Undergraduate Education, http://www2.gsu.edu/~wwwque/about/index.html.

[71] Education Trust, http://www2.edtrust.org/EdTrust/State+and+Local+K-16+Initiatives/adp.htm; and American Diploma Project, http://www.achieve.org/node/604.

[72] Education Trust, http://www2.edtrust.org/EdTrust/State+and+Local+K-16+Initiatives/State+and+Local+Example.htm; and National Association of System Heads (NASH), http://www.nashonline.org/.

[73] Education Commission of the States, "Outreach" website available through the "Preparation" link on the "Postsecondary Issues" website, http://www.ecs.org/ecsmain.asp?page=/html/issuesPS.asp; and the "P–16" website available through the pulldown menu on the "Postsecondary Issues" website, http://www.ecs.org/ecsmain.asp?page=/html/issuesPS.asp. Regarding the education pipeline, "If people begin to see the educational system as a single entity through which people move," wrote Harold Hodgkinson, director of the Center for Demographic Policy at the Institute for Educational Leadership in Washington, D.C., in 1985, "they may begin to behave as if all of education were related." See Harold Hodgkinson, "All One System: Demographics of Education," Institute for Educational Leadership, 1985, p. 1, http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/2e/e3/a3.pdf. See also Harold Hodgkinson, "All One System: A Second Look," Institute for Educational Leadership, 1999. For an overview of P–16 efforts, see Carl Krueger, "The Progress of P–16 Collaboration in the States," Education Commission of the States Policy Brief, April 2006, http://www.ecs.org/clearinghouse/68/71/6871.pdf.

[74] Education Commission of the States, "P–16 Collaboration in the States" website, updated June 2006, http://www.ecs.org/clearinghouse/69/26/6926.pdf; and Krueger, "The Progress of P–16 Collaboration in the States."

[75] California Department of Education, "P–16 Council" website, http://www.cde.ca.gov/eo/in/pc/. See also the Education Commission of the States, "P–16 Collaboration in the States" website, http://www.ecs.org/ecsmain.asp?page=/html/issuesPS.asp; and "State Notes: P–16," updated June 2006, http://www.ecs.org/ecsmain.asp?page=/html/issuesPS.asp.

[76] California Department of Education, "P–16 Council—High School Reform—2006: Report and Recommendations" website, http://www.cde.ca.gov/eo/in/pc/hsreformrptrecomnd.asp.

[77] Most states (42), including California, plus the District of Columbia, have statewide high school graduation requirements, typically minimum requirements that local districts can augment. See Jennifer Dounay, "Alignment of High School Graduation Requirements and State-Set College Admissions Requirements," Education Commission of the States, April 2006, especially table 2, http://www.ecs.org/clearinghouse/68/60/6860.pdf. See also National Association of System Heads, "Aligning K–12 and Postsecondary Expectations: State Policy in Transition," October 2002, http://www.nashonline.org/content/ALIGNreport.pdf.

[78] California Department of Education, "Program Overview" website, http://www.cde.ca.gov/ta/tg/hs/overview.asp. See also the "California High School Exit Examination (CAHSEE)" website, http://www.cde.ca.gov/ta/tg/hs/.

[79] California Department of Education, "P–16 Council—High School Reform—2006" website, http://www.cde.ca.gov/eo/in/pc/hsreform-rptrecomnd.asp.

[80] California Department of Education, Fiscal Policy Division, *Report on the Budget Act of 2007*, December 6, 2007, pp. 27–28 and 113, http://www.cde.ca.gov/fg/fr/eb/documents/2007BudgetReport2007-12-06nc.pdf. See also California Department of Education, "Education Budget" website, http://www.cde.ca.gov/fg/fr/eb/. See "2007 Budget Act and Related legislation," October 1, 2007, p. 10, http://www.cde.ca.gov/fg/fr/eb/documents/BudgetLetterFY07.pdf.

[81] Dounay, "Alignment," table 3.

[82] Jennifer Dounay, "Embedding College Readiness Indicators in High School Curriculum and Assessments," Education Commission of the States, April 2006, http://www.ecs.org/clearinghouse/68/55/6855.htm.

[83] Ibid.

[84] California Department of Education, "Early Assessment Program" website, http://www.cde.ca.gov/ci/gs/ps/eapindex.asp; and the California State University, "Early Assessment Program" website, http://www.calstate.edu/EAP/.

[85] California Department of Education, "Three Education Agencies Launch a Groundbreaking Program to Help High School Students Enter College," November 3, 2003, News Release, http://www.cde.ca.gov/nr/ne/yr03/yr03rel73.asp.

[86] California State University, Early Assessment Program, "Student Brochure," http://www.calstate.edu/eap/marketing_materials.shtml.

[87] Izumi, Murray, and Chaney, "A National Perspective on Student Achievement and School Choice," chapter 2 of *Not as Good as You Think*, especially pp. 62–63 and 83 ff. See also, California State University, Early Assessment Program, "Student Flyer," http://www.calstate.edu/eap/marketing_materials.shtml.

[88] Callan et al., *Claiming Common Ground*, p. 10.

[89] Author's rounded figures for the number of students exempted are derived from percentages provided by Callan et al., *Claiming Common Ground*, p. 10; and UC/CSU, "Academic Preparation and Support Services Programs," Items 6440–6610, http://www.assembly.ca.gov/acs/committee/c2/hearing/may%209%20%202007-outreach-cte-public-cm1.doc.

[90] Callan et al., Claiming Common Ground, p. 9, http://www.highereducation.org/reports/common_ground/index.shtml.

[91] UC/CSU, "Academic Preparation and Support Services Programs," Items 6440–6610, http://www.assembly.ca.gov/acs/committee/c2/hearing/may%209%20%202007-outreach-cte-public-cm1.doc. The $5.1 million in annual funding to CSU for administration of the EAP is included in the $57 million appropriated to the UC and CSU systems for their various outreach programs. See LAO, "UC and CSU Outreach Programs," pp. E-165 ff., http://www.lao.ca.gov/laoapp/PubDetails.aspx?id=1600.

[92] California Department of Finance, *State Budget Highlights 2007–08*, October 2007, http://www.dof.ca.gov/budget/Historical_Documents.php; and "CCC Student Success Initiative," on the "Governor's Budget 2007–08" website, http://www.ebudget.ca.gov/BudgetSummary/HED/26642245.html. See also LAO, "Analysis of the 2007–08 Budget Bill: Education—California Community Colleges (6870)," http://192.234.213.2/analysis_2007/education/ed_22_6870_anl07.aspx. On the shortcomings of the California Community College system's student assessment, placement, and evaluation policies, see Colleen Moore and Nancy Shulock, et al., *Beyond the Open Door: Increasing Student Success in the California Community Colleges*, Institute for Higher Education Leadership & Policy, August 2007, http://www.csus.edu/ihe/PDFs/R_Beyond_Open_Door_08-07.pdf; and Richard S. Brown and David N. Niemi, I*nvestigating the Alignment of High School and Community College Assessments in California*, National Center for Public Policy and Higher Education, June 2007, http://cos.edu/ImageUpload_Links/Alignment-HS&CCCassessment.pdf.

[93] California Department of Finance, *State Budget Highlights 2007–08*, October 2007, pp. 89 ff., http://www.dof.ca.gov/budget/Historical_Documents.php.

[94] California Department of Education, "Pupil Promotion and Retention," http://www.cde.ca.gov/re/lr/pr/; and Education Code 48070-48070.5, http://www.leginfo.ca.gov/cgi-bin/displaycode?section=edc&group=48001-49000&file=48070-48070.5. See also Education Commission of the States, "Promotion/Retention," http://www.ecs.org/ecsmain.asp?page=/html/issuesK12.asp; and Zinth, "Student Promotion/Retention Policies," p. 10.

[95] Zinth, "Student Promotion/Retention Policies." http://www.ecs.org/clearinghouse/65/51/6551.pdf.

[96] Meredith May, "State Social Promotion Law Taxes Schools," *San Francisco Chronicle*, May 29, 2000.

[97] Paul Kujawsky, "LAUSD promotion policy fails students," *Los Angeles Daily News*, December 8, 2007.

[98] "California" in the *Chronicle of Higher Education 2007–2008 Almanac of Higher Education*, http://chronicle.com/weekly/almanac/2007/states/ca.htm.

[99] Data from the LAO on Subject-A English requirement preparedness for regular-admit students indicate 35 percent of freshmen are unprepared. See "Improving Academic Preparation for Higher Education," http://www.lao.ca.gov/2001/remediation/020801_remediation.html. That figure is also frequently cited in other published accounts. See Susan Estrich, "It's Not Who Goes; It's Who Can Stay," *USA Today*, May 12, 1998, http://www.geocities.com/CapitolHill/4834/edu2.htm; and Judy Cresanta, "Placing the Blame for Remedial Education," Nevada Policy Research Institute, July 15, 1998, http://www.npri.org/issues/issues98/i_b061598.htm. However, in another LAO report, 30 percent of UC freshmen needed remediation in reading and writing. See *Improving High School*, p. 56, http://www.lao.ca.gov/2005/high_schools/improving_hs_050905.pdf. Some UC students who are not prepared take remedial courses at community colleges, while others are mainstreamed in regular classes. See Breneman and Haarlow, "Remedial Education," p. 4.

[100] CSU, "About EAP 2006," http://eap2006.ets.org/. Quotation on "Early Assessment Program" page, http://www.calstate.edu/eap/index.shtml; and Kirst, "Failure to Complete College."

[101] Quotation from Kirst, "Failure to Complete College."

[102] "Grade Separation," *San Diego Union-Tribune* editorial, April 15, 2008.

[103] Breneman and Haarlow, "Remedial Education," p. 8.

[104] National Center for Education Statistics, *The Condition of Education 2004*, indicator 18.

[105] CSU, "Fall 2006 Final Regularly Admitted First-time Freshmen Proficiency Systemwide," http://www.asd.calstate.edu/proficiency/2006/Prof_Sys_fall2006.htm.

[106] For a brief survey of this research, see Brown and Niemi, *Investigating the Alignment*, p. 9.

[107] "State Superintendent Jack O'Connell Releases 2007 STAR Results Showing Encouraging, Troubling Trends," August 15, 2007, California Department of Education News Release, http://www.cde.ca.gov/nr/ne/yr07/yr07rel98.asp. For more detailed information, see the "STAR CST Blueprints" website, http://www.cde.ca.gov/ta/tg/sr/blueprints.asp.

[108] Izumi, Murray, and Chaney, *Not as Good as You Think*, p. 62.

[109] The SAT-9 was first administered to all students in grades two through 11 in 1999 and did not change over the years it was administered in California. The SAT-9 is a nationally normed test, meaning it is representative of a national cross-section of students but not necessarily students statewide. For that, the CST augmented the SAT-9 beginning in 1999 to assess students' proficiency against state academic content standards. A percentile rank is the percentage of students in the norming sample who have scores lower than or equal to a student's score. A student with a reading comprehension score at the 50th percentile scored equal to or better than 50 percent of the students in the norming sample. Scoring above the 50th National Percentile Rank (NPR) means that the student scored in the top half nationally. For more information on the SAT-9 and CST, see the California Department of Education, "STAR 2000 Reports" website, http://star.cde.ca.gov/star2000f/index_index.html; and "Score Explanations" website, http://star.cde.ca.gov/star2000f/reporthelp_b.html.

[110] The California Department of Education defines students as "socioeconomically disadvantaged" (SED) if they participated in the free- or reduced-price lunch program, also known as the National School Lunch Program, or if neither of their parents graduated from high school. The same definition is used for the state's Academic Performance Index, the federal adequate yearly progress (AYP) mandate,

the state standardized testing and reporting (STAR) program, and the California High School Exit Examination. See the "Technical Questions and Answers 2006–07" webpage, http://www.cde.ca.gov/ta/ac/ap/techqa06e.asp.

[111] Author's telephone interview with James T. Lanich, president of California Business for Education Excellence (CBEE), December 17, 2007. See also National Center for Education Statistics, *Mapping 2005 State Proficiency Standards onto the NAEP Scales* (NCES 2007-482), (Washington, D.C.: U.S. Department of Education, 2007),http://nces.ed.gov/nationsreportcard/pubs/studies/2007482.asp.

[112] Izumi, Murray, and Chaney, *Not as Good as You Think*; and Loeb, Byrk, and Hanushek, "Overview Paper."

[113] Author's telephone interview with James T. Lanich.

[114] California Department of Education, "Overview of the California High School Exit Examination (CAHSEE)" website, http://www.cde.ca.gov/ta/tg/hs/overview.asp. For the difference between CAHSEE and the California High School Proficiency Examination (CHSPE), see the California Department of Education, "Frequently Asked Questions" on the "California High School Proficiency Examination" website, http://www.cde.ca.gov/ta/tg/sp/; cf. http://www.chspe.net/about/.

[115] Dounay, "Embedding College Readiness Indicators." See also California State University and the Educational Testing Service, "Early Assessment Program (EAP) for College Readiness" website, http://eap2006.ets.org/. Examples of high praise for the EAP include Callan et al., *Claiming Common Ground*, pp. 8–10; Achieve, Inc., *Closing the Expectations Gap 2007: An Annual 50-State Progress Report on the Alignment of High School Policies with the Demands of College and Work*, American Diploma Project Network, 2007, http://www.achieve.org/files/50-state-07-Final.pdf. Some researchers raise concerns that the different missions and selectivity of the CSU and UC systems could undermine the effectiveness of the EAP. See Venezia, Kirst, and Antonio, *Betraying the College Dream*, p. 18.

[116] Since the New Jersey-based Education Testing Service produces both the CST and the EAP, mismatched assessments are not responsible for those discrepancies. See Izumi, Murray, and Chaney, *Not as Good as You Think*, pp. 62–63 and 83 ff.

[117] Laurence Steinberg commentary on Breneman and Haarlow, "Remedial Education," p. 1, http://www.edexcellence.net/institute/publication/publication.cfm?id=34.

[118] LAO, "UC and CSU Outreach Programs," pp. E-165–173; *Improving High School*; "Analysis of the 2003–04 Budget Bill;" and "Improving Academic Preparation for Higher Education."

[119] *Inside Higher Education*, "Changing the Equation," October 4, 2006, http://www.insidehighered.com/news/2006/10/04/califcc. See also LAO, "Education," in "Analysis of the 2003–04 Budget Bill," http://www.lao.ca.gov/analysis_2003/education/hied_08_6610_anl03.htm; "Improving Academic Preparation for Higher Education," http://www.lao.ca.gov/2001/remediation/020801_remediation.html; and "Education" in *Analysis of the 2007–08 Budget Bill*, pp. E- 208–209, http://www.lao.ca.gov/analysis_2007/education/ed_anl07.pdf.

[120] For a review of some of the remedial education cost literature, see D. Patrick Saxon and Hunter R. Boylan, "The Cost of Remedial Education in Higher Education," *Journal of Developmental Education*, Vol. 25, Issue 2 (Winter 2001), http://www.ncde.appstate.edu/reserve_reading/V25-2saxon.htm.

[121] Alliance for Excellent Education, "Paying Double: Inadequate High Schools and Community College Remediation," Issue Brief, August 2006, http://www.all4ed.org/publications/remediation.pdf.

[122] Breneman and Haarlow, "Remedial Education," pp. 4 and 7–8, and notes 8, 9, and 10.

[123] Jay P. Greene, *The Cost of Remedial Education: How Much Michigan Pays When Students Fail to Learn Basic Skills*, Mackinac Center for Public Policy, September 2000.

[124] Clive Belfield and Henry Levin, *The Economic Losses from High School Dropouts in California*, California Dropout Research Project Report #1, August 2007, http://www.cbcse.org/media/download_gallery/California%20Dropout%20Study%20Report%201FINAL.pdf.

[125] California State University, "Fall 2005 Freshman Proficiency at Entry (Fall 2005) and One Year Later (Fall 2006) Systemwide," http://www.asd.calstate.edu/performance/proficiency.shtml.

[126] CSU, "About EAP 2006," http://eap2006.ets.org/. Quotation on "Early Assessment Program" page, http://www.calstate.edu/eap/index.shtml.

[127] National Center for Education Statistics, *The Condition of Education 2004*, indicator 18.

[128] The average remediation rates are conservative, reflecting only "regular admit" freshman preparedness rates in the Subject-A English requirement. In 2001 the LAO reported that unpreparedness rates vary considerably among UC campuses for both regular-admit (17 to 60 percent) and special-admit freshmen (57 to 100 percent); cf. "Improving Academic Preparation for Higher Education" and *Improving High School*, p. 56. See also Breneman and Haarlow, "Remedial Education," p. 4; and n. 99 above.

[129] Enrollment data from the California Commission for Postsecondary Education, "Enrollment—Student Level at Public Institutions," http://www.cpec.ca.gov/OnLineData/GenerateReport.ASP.

[130] California Commission for Postsecondary Education. The students enrolled in non-credit courses who are not counted in the annual remediation cost estimate are: 89,870 community college district students; 101,472 community college students who are sophomores, unclassified, or unknown, or who hold degrees/certificates but have returned to college. Thus the total number of excluded students is 191,342. Additionally, 2,226 concurrent high school students taking non-credit community college courses are not included in the calculation.

[131] For more on methodology and sources, see note 1 in Alliance for Excellent Education, "Paying Double,"http://www.all4ed.org/publications/remediation.pdf. This methodology uses the formula presented by the College Board to estimate the cost of each remedial course. According to the College Board, tuition and fees constitute approximately one-third of the total budget for in-state students in public four-year colleges and about 20 percent of the total budget for public two-year-college students. See College Board, *Trends in College Pricing: 2007*, pp. 2, 7, and 11, available on the "Trends in College Pricing: 2007" website, http://professionals.collegeboard.com/data-reports-research/trends/college-pricing-2006.

[132] For enrollment figures, see the California Postsecondary Education Commission's "Custom Data Reports" database for "Higher Education Enrollment" for student-level data, http://www.cpec.ca.gov/OnLineData/OnLineData.asp; and CSU, "Fall 2005 Freshman Proficiency," http://www.asd.calstate.edu/performance/proficiency.shtml. Average enrollment fees for 2007–2008 for the CSU and UC systems are $3,513 and $7,506, respectively. See Western Interstate Commission for Higher Education, *Detailed Tuition and Fees Tables*, November 2007, http://www.wiche.edu/policy/Tuition_and_Fees/Tuition_and_Fees2007-08.pdf. The average enrollment fee for the Community College system is $718. See Sarah Hebel, "California," in the *Chronicle of Higher Education Almanac of Higher Education 2007–08*. Author's total remediation cost estimate is based on 655,907 freshmen: 620,707 from the community college system; 23,849 from the CSU system; and 11,351 from the UC system. Average tuition figures used are: CCC, $718; CSU, $3,513; and UC, $7,506. Based on the College Board *Trends in College Pricing 2007* report, tuition represents one-fifth of the total community college education cost, and one-third of the four-year public university cost. Thus the tuition figures were multiplied by five and three, respectively, resulting in the following amounts: CCC, $3,590; CSU, $10,539; and UC, $22,518. The Alliance for Excellent Education reports that students take an average of 10 courses in an academic year, so those figures are divided by 10 to get the estimated cost of one remedial course: CCC, $359; CSU, $1,054; and UC, $2,252. Those amounts are then multiplied by the estimated number of freshmen enrolled in remedial courses for each sector. The resulting estimated total annual freshman remediation cost to institutions are $273,528,456: CCC, $222,833,813; CSU, $25,134,461; and UC, $25,560,182. Author's community college remedial cost estimate differs from the Alliance for Excellent Education's estimate of $135,307,841 because the Alliance calculation uses the national average community college remediation rate of 42.5 percent, which is significantly lower than the 75 percent rate used in the present calculation. See Kirst, "Failure to Complete College." There are possible sources of overestimation with the author's freshman remedial cost projections. Because the UC system does not officially offer remedial instruction, the cost estimated for UC remedial education may be overstated. Some UC students receive their remedial instruction at community colleges, at an estimated cost of $359, not $2,252, while other students are simply mainstreamed into regular courses. However, the potential overstatement of remedial costs to UC institutions is mitigated by the fact that the projection uses the lower 30 percent remediation rate instead of the higher published rate of 35 percent. See also n. 128 above, which details the wide variances in the rates of remedial course taking at UC campuses. The projection also assumes that only 30 percent of full-time freshmen, not of all full-time students, require remediation in any given year, and it assumes that freshmen take and successfully complete only one remedial course in a given year. The cost of one remedial course at CCC institutions may also be overstated because the College Board does not specify whether its tuition/education cost ratio for community colleges accounts for the fact that most community college students are commuters, and therefore do not need dormitories, lowering the education cost to community colleges. Author's February 11, 2008,

request to the College Board for a clarification on this point was not answered. It is likely, however, that the lower tuition/education ratio does take into account the lower cost to community colleges. Also, potential overestimation of the annual remediation cost is mitigated by other factors. As with the UC remedial cost projection, the CCC projection uses the lower 75 percent remediation rate instead of the 90 percent remediation rate, includes only freshmen, and conservatively assumes that freshmen take and successfully complete only one remedial course in a given year. It should be kept in mind, however, that while education costs to community colleges may be lower when they do not provide student housing, students enrolled in remedial education courses bear the cost of traveling to and from campus to attend courses that do not count toward a degree.

[133] State spending for higher education was $11,940,861,000 in fiscal year 2007. See the Legislative Analyst's Office, "State Spending, 2007-08 Budget Enactment," August 2007, http://www.lao.ca.gov/sections/econ_fiscal/Historical_Expenditures_Pivot.xls.

[134] Ibid.

[135] As discussed previously, students enrolled in any remedial courses are less likely to complete college degrees than students who are not enrolled in any remedial courses. Depending on the subjects and the number of classes taken, the percentage of college students needing remediation who will likely earn their degrees can be 27, 39, 41, or 57. Because the UC, CSU, and CCC systems do not provide comprehensive remedial course-taking data, it is impossible to calculate the exact number of students enrolled in remedial classes who will likely complete their degrees. Instead, the average student completion rate of 41 percent for various remedial education course-taking patterns reported by the U.S. Department of Education is used. See the National Center for Education Statistics, *The Condition of Education 2004*, indicator 18, p. 63. See also Clifford Adelman, *Principal Indicators of Student Academic Histories in Postsecondary Education, 1972–2000* (Washington, D.C.: U.S. Department of Education, 2004), table 7.3, http://preview.ed.gov/rschstat/research/pubs/prinindicat/index.html.

[136] U.S. Bureau of Labor Statistics and U.S. Census Bureau, *Current Population Survey 2007*, PINC-03, Annual Social and Economic (ASEC) Supplement, http://pubdb3.census.gov/macro/032007/perinc/new03_019.htm.

[137] The $11.5 and $16 billion combined annual earnings estimates are derived in the following way. For the low estimate, 254,490 community college students x $41,920 (the average annual earnings for individuals with associate's degrees) = $10,668,220,800; and 14,432 CSU and UC students x $59,382 (the average annual earnings for individuals with bachelor's degrees) = $857,001,024, for a combined total of $11,525,221,824. For the high estimate, which assumes all 268,922 college freshmen go on to earn bachelor's degrees, 268,922 x $59,382 = $15,969,126,204.

[138] Here and in subsequent analyses, figures may not total due to rounding.

[139] Belfield and Levin, *The Economic Losses*, p. 2.

[140] See, for example, Belfield and Levin, *The Economic Losses*; and Cecilia Elena Rouse, "The Labor Market Consequences of an Inadequate Education," Prepared for the Equity Symposium on "The Social Costs of Inadequate Education" at Teachers College, Columbia University, September 2005, http://devweb.tc.columbia.edu/manager/symposium/Files/77_Rouse_paper.pdf.

[141] U.S. Bureau of Labor Statistics and U.S. Census Bureau, *Current Population Survey 2007*, http://pubdb3.census.gov/macro/032007/perinc/new03_019.htm; and National Bureau of Economic Research, TAXSIM (version 8), http://www.nber.org/~taxsim/taxsim-calc8/index.html. The TAXSIM calculation used for individuals' federal and state income taxes excludes rents and other expenses.

[142] Belfield and Levin, *The Economic Losses*, pp. 18–20.

[143] The $1.4 billion annual federal income tax revenue figure is derived in the following way: 254,490 community college students x $4,895 (the average federal income tax on $41,920 in average annual earnings for individuals with two-year associate's degrees) = $1,152,297,856; 14,432 CSU and UC students x $9,261 (the average federal income tax on $59,382 in average annual earnings for individuals with four-year bachelor's degrees) = $123,623,971. Adding those two amounts yields $1,379,374,948 in combined annual federal income taxes.

[144] The $2.5 billion annual federal income tax revenue figure is derived in the following way: all 268,922 college students x $9,261 (the average federal income tax on $59,382 in average annual earnings for individuals with four-year bachelor's degrees) = $2,490,353,181.

[145] The estimates for forgone annual federal income tax revenues are derived by subtracting $1,114,641,352 (the combined average annual income of individuals with some college but no degree [$38,799] x 268,922 students) from the low estimate of combined annual federal income tax revenue of $1,379,374,948, and from the high estimate of combined annual federal income tax revenue of $2,490,353,181.

[146] For every tax dollar Californians send to the federal government, the state receives an average of $0.925 back in federal spending. The Tax Foundation, "California: Federal Taxes Paid vs. Federal Spending Received, 1981–Present," http://www.taxfoundation.org.

[147] The $1.3 and $2.3 billion annual federal spending estimates are derived in the following way. For the low estimate, $1,379,374,948 in combined annual federal income taxes x 0.925 = $1,275,921,827. For the high estimate, $2,490,353,181 in combined annual federal income taxes x 0.925 = $2,303,575,767.

[148] The forgone annual federal spending estimates of $245 million and $1.272 billion are derived in the following way: for the low estimate, $1,031,043,250, the annual federal spending amount based on combined annual federal income taxes for all 268,922 college students with some college but no degree ($1,114,641,352 [$4,145 x 268,922] x 0.925), is subtracted from $1,275,921,827. For the high estimate, $1,031,043,250 is subtracted from $2,303,575,767.

[149] The annual state income tax loss estimates of $90 million and $487 billion are derived in the following way; for the low estimate, $406,243,283 (the combined annual state income taxes of $363,139,084 from community college students earning associate's degrees [254,490 x $1,427] and $43,104,199 from CSU and UC students earning bachelor's degrees [14,432 x $2,987]) minus $316,588,425, the annual state income taxes for all 268,922 college students with some college but no degree (268,922 x $1,117 = $89,654,858. For the high estimate, $803,192,027 in annual state income taxes (all 268,922 college students earning bachelor's degrees x $2,987) minus $316,588,425, the annual state income taxes for all 268,922 college students with some college but no degree (268,922 x $1,117) = $486,603,602.

[150] Belfield and Levin, *The Economic Losses*, p. 19, n.12; and Rouse, "The Labor Market Consequences," p. 19.

[151] Ibid., pp. 3–4, n. 5, and pp. 18–20. Quotation from pp. 20 and 26.

[152] California Department of Education, *Report on the Budget Act of 2007*, Table 2, p. 5, http://www.cde.ca.gov/fg/fr/eb/documents/budgetreport07.pdf.

[153] Belfield and Levin, *The Economic Losses*, p. 19, n.12,; Federation of Tax Administrators, "2007 State Tax Collections by Source," http://www.taxadmin.org/fta/rate/07taxdis.html; and Tax Foundation, "Excise Taxes," http://www.taxfoundation.org/research/topic/2.html.

[154] For a review of the literature correlating higher education levels and improved health, see Belfield and Levin, *The Economic Losses*, pp. 20-21. See also Peter Muennig, "The Economic Value of Health Gains Associated with Education Interventions (draft version)," Columbia University, September 2005, http://www.schoolfunding.info/news/policy/Muennig%20-%20Health%20and%20Education.pdf.

[155] Belfield and Levin, *The Economic Losses*, pp. 22–23.

[156] Henry Levin, Clive Belfield, Peter Muennig, and Cecilia Rouse, "The Costs and Benefits of an Excellent Education for America's Children," Center for Benefit-Cost Studies of Education at Teachers College, Columbia University, January 2007, p. 10, http://www.cbcse.org/media/download_gallery/Leeds_Report_Final_Jan2007.pdf.

[157] Ibid.

[158] Ibid., p. 12.

[159] California Healthcare Foundation, *Medi-Cal Facts and Figures: A Look at California's Medicaid Program 2007*, pp. 3, 7, 53, 54, and 58, http://www.chcf.org/documents/policy/MediCalFactsAndFigures2007.pdf.

[160] Legislative Analyst's Office, *California Spending Plan 2007–08: The Budget Act and Related Legislation*, October 15, 2007, p. 28, http://lao.ca.gov/2007/spend_plan/spending_plan_07-08.pdf. Federal, state, and local shares were derived from data from the National Association of State Budget Officers, *State Expenditure Report 2006*, Fall 2007, table 28, p. 49, http://www.nasbo.org/publicationsReport.php.

[161] Belfield and Levin, *The Economic Losses*, p. 23; and Levin et al., "The Costs and Benefits of an Excellent Education," pp. 10–11.

[162] California Healthcare Foundation, *Medi-Cal Facts and Figures*, p. 36. Because this analysis focuses on the impact to California of inadequate education, the effect of lower education levels on federal Medicare is not included; however, Medicare beneficiaries who are eligible for Supplemental Security Income (SSI) payments are automatically eligible to receive Medi-Cal. See California Health Advocates, "Fact Sheet, Medicare and People with Disabilities: An Overview (I-001 rev. 06-06-07)," p. 3, http://www.cahealthadvocates.org/_pdf/facts/I-001-CHAFactSheet.pdf.

[163] California Healthcare Foundation, *Medi-Cal Facts and Figures*, p. 36.

[164] Ibid., p. 34.

[165] For a review of some of the recent literature correlating higher education levels and crime, see Belfield and Levin, *The Economic Losses*, pp. 24–27, http://www.cbcse.org/media/download_gallery/California%20Dropout%20Study%20Report%201FINAL.pdf.

[166] Urban Strategies Council, "The Rising Cost of Incarceration: Criminal Investment Decisions," August 8, 2007, p. 1, http://www.urbanstrategies.org/programs/csj/documents/CostsofIncarcerationFlyer_08.06.07_BH.pdf. Author's $5.2 billion figure is the 1998–1999 $44.1 billion figure cited on page one, adjusted to 2007 dollars. See also Legislative Analyst's Office, *California Spending Plan 2007–08*, p. 41, http://lao.ca.gov/2007/spend_plan/spending_plan_07-08.pdf.

[167] Ibid., p. 42; and Urban Strategies Council, "The Rising Cost of Incarceration," p. 1.

[168] Levin et al., "The Costs and Benefits of an Excellent Education," p. 13.

[169] Legislative Analyst's Office, *Analysis of the 2008–09 Budget Bill*, Judicial and Criminal Justice Chapter, February 20, 2008, p. D-8, http://www.lao.ca.gov/analysis_2008/crim_justice/crimjust_anl08.pdf.

[170] Ibid., pp. D-68 ff.. See also the Victim Compensation and Government Claims Board, http://www.boc.ca.gov/.

[171] Belfield and Levin, *The Economic Losses*, p. 25.

[172] LAO, *Analysis of the 2008–09 Budget Bill*, p. D-10.

[173] Caroline Wolf Harlow, "Education and Correctional Populations," Bureau of Justice Statistics Special Report, 2003, Table 13, p. 9, http://www.ojp.gov/bjs/pub/pdf/ecp.pdf.

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[175] Belfield and Levin, *The Economic Losses*, pp. 29 and 31.

[176] U.S. Bureau of Labor Statistics and U.S. Census Bureau, *Current Population Survey 2007*, http://pubdb3.census.gov/macro/032007/perinc/new03_019.htm.

[177] Sandy Baum and Jennifer Ma, *Education Pays: The Benefits of Higher Education for Individuals and Society*, College Board, 2007, figure 1.12, http://www.collegeboard.com/prod_downloads/about/news_info/trends/ed_pays_2007.pdf.

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