

Reforming California Public Higher Education for the 21st Century





353 Sacramento Street, Suite 1000
San Francisco, California 94111
www.bayareaeconomy.org
bacei@bayareacouncil.org



Cover photos courtesy of the University of California: Sather Gate and Campanile at Night created by Alan Nyiri, courtesy of the Atkinson Photographic Archive; Students at Commencement Convocation created by Steve McConnell, UC Berkeley; Students in Lecture Hall created by Erik Jepsen, UC San Diego Publications.

Reforming California Public Higher Education for the 21st Century

by Sean Randolph, President & CEO, Bay Area Council Economic Institute

Hans Johnson, Bren Fellow, Public Policy Institute of California

A Bay Area Council Economic Institute White Paper
December 2014

Contents

Executive Summary	2
Key Recommendations.....	3
Background	4
The Importance of Public Higher Education to California and Its Economy.....	5
Origins of the Master Plan	6
What Has Changed in California’s Economic and Educational Environments	8
California’s Public Higher Education Systems Are Not Producing the Graduates Needed by Its Economy	10
Funding for Higher Education	12
<i>Graph: Higher Education Funding as a Share of All General Fund Expenditures</i>	14
<i>Graph: General Fund Appropriations per FTE Student</i>	14
<i>Graph: Rising Tuition and Fees</i>	15
New Issues and Drivers.....	15
Preparedness for College	16
Technology	16
Skills Development	18
Outreach and Outcomes	20
Assessment and Certification.....	20
Eligibility and Transfer	21
Research and the University.....	23
Governance	23
Conclusion	24
A Call for Action at the State Level.....	25
<i>Map: University of California Campuses</i>	29
<i>Map: California State University Campuses</i>	30
<i>Map: California Community Colleges Campuses</i>	31
Acknowledgements	32

Executive Summary

The Master Plan for Higher Education in California, produced in 1960, was a visionary document for its time, but must be updated to reflect the changed economic, demographic and financial environment of the current century. California's economic future will depend on the outcome.

There have been key changes in California's economic and educational environments. When the Master Plan was written, only 11 percent of jobs in California were filled by workers who held at least a bachelor's degree; today about one-third of jobs in California are filled by college graduates. Ten-year projections point to a significant gap between the number of college-educated workers the state is expected to produce and California's workforce needs. This workforce gap can be resolved in just two ways: by improving Californian's educational outcomes, or by accepting the loss of quality jobs in the state.

A second key change is demographic. In 1960, 82 percent of the state's high school graduates were non-Hispanic whites; by 2011 that share had fallen to 28 percent. This poses new challenges for providing educational access that will allow all of California's citizens to fully contribute to and benefit from its economy.

California's higher education system is hobbled in its ability to meet these needs. Its ability to generate the workforce of the future has been impacted by deep cuts in public support, particularly in the last decade. Higher education's share of state budget expenditures has dropped from 18 percent in 1977 to 11.6 percent today. General Fund appropriations per FTE (full-time equivalent) student have also dropped precipitously for the University of California (UC), but also for the California State University (CSU) system.

Schools have responded with increased fees and reduced offerings. But fees can't rise indefinitely, and further gains from increased efficiencies may also be limited. Although Proposition 30 (2012) stemmed the decline in state support, the additional funding it provides pales in comparison to the size of cuts in previous years and won't fundamentally resolve the long-term structural challenges that public higher education faces. It is highly unlikely that state support for higher education will return to earlier levels, much less to the full funding that was provided when the Master Plan was drafted. Technology and the market for educational services are changing faster than the system is responding. To ensure that California has the skilled workforce it will need to compete globally, and that all its residents have the opportunity to contribute to its economic future, reforms are needed now. Strengthened state funding will be required but should also be linked to innovative strategies and new performance metrics.

Key Recommendations

Enable More Flexible Governance

- Give the UC, CSU and Community Colleges systems the flexibility and responsibility to develop innovative responses to the fiscal and other challenges they face, by reducing administrative and operating mandates.
- Allow differential course fees for high value/high cost courses at community colleges.
- Consider designating “charter” Community Colleges campuses that can experiment with service delivery free of current administrative restrictions.

Link Academics to Workforce Needs

- Expand eligibility thresholds for UC and CSU, with an intensified focus on college readiness.
- Improve transfer rates from Community Colleges to CSU campuses.
- Create learning assessment and certification programs to enable residents with some college credits to complete their degrees.
- To better align workforce preparation with regional industry needs, support the development of regional consortia of Community Colleges (the Bay Area Community College Consortium offers a good model).
- To better leverage educational resources across the board, encourage regional consortia of UC, CSU and Community Colleges campuses, coordinated with K–12.
- Consolidate or better integrate the state’s 72 Community Colleges districts.
- Preserve the distinct role of the University of California as a research university.

Stabilize and Strengthen State Funding

- Stabilize and strengthen General Fund support.

Improve Performance through Innovative Management

- Develop new goals, with greater emphasis on outcomes (e.g., transfer and completion rates, and low income students enrolled).
- Continue to expand the use of digital (online) education, supporting and spreading successful pilots.
- Expand the use of public-private partnerships to fund capital (construction) projects, conserving limited public resources for educational priorities.
- Improve alignment between the UC, CSU and Community College systems through a new statewide coordinating mechanism.
- Implement a robust tracking system for student achievement, from K–12 through higher education and eventual employment.

Background

Despite recent increases, state support for public higher education has declined sharply over the past decade. The University of California (UC), the California State University (CSU) and the California Community Colleges systems have responded with pay reductions, library and administrative staff reductions, fewer classes, reduced admissions and higher fees, while continuing to serve and graduate more students. Even if state funding stabilizes with an improving economy and the help of Proposition 30 (passed by voters in 2012), it is unlikely that California will return to a status quo ante world in which funds for public higher education are flush.

As documented in the recent report from BASIC (Bay Area Science and Innovation Consortium), *The Bay Area Innovation System: How the San Francisco Bay Area Became the World's Leading Innovation Hub and What Will be Necessary to Secure its Future*,¹ how California responds to this challenge will have a significant impacts on its future competitiveness. These impacts are likely to come in at least two forms: 1) diminished excellence in faculty and research output, and 2) a degraded workforce, as fewer Californians with the necessary skills will be available to support business and economic growth. Workforce quality is a key component in global economic competitiveness, and any diminution in the scale and quality of California's workforce should be viewed with great concern.

In this new environment, the state colleges and university systems can't cut their way back to academic excellence. Instead, new means must be found to achieve resource efficiency consistent with quality, and new ways of delivering education must be developed to meet California's educational and industry needs in a constrained resource setting. Improved technology and efficiency are important, but by themselves won't be sufficient to meet the systems' costs

and the rising demands being placed on them; these needs can't be resolved without addressing the issue of stable funding. This points to the need to revisit the Master Plan for Higher Education in California, a move that would be required even if the systems' budgetary circumstances were less onerous. We are a different state, with a different demography and economy, from California in the 1960s.

The Master Plan for Higher Education in California, adopted in 1960, laid out a strategy that helped California's public university and college systems lead the nation. The goal of the Plan, led by UC President Clark Kerr, was to anticipate a tidal wave of expected enrollments, create a rational structure for the state's three higher education systems, and ensure that every high school graduate in the state with the potential to attend college would have that opportunity. A major innovation in social policy, the Master Plan made California the first state in the nation to embrace the principle of universal access to higher education.²

The Plan established an integrated set of roles for each of the three systems—UC, CSU and the California Community Colleges—linked to ambitious goals. The Community Colleges would admit any student capable of benefiting from instruction. The top one-third of high school graduating classes would be eligible for admission to CSU, which would have a teaching mission focused on bachelor's and master's level education. And UC would function as a top-end research university, selecting high school students from the top 12.5% of graduating classes, with a further emphasis on graduate and professional programs and the exclusive right to grant doctorates. All this was to occur in a tuition-free environment.

While that vision remains compelling, it is outdated. Moreover, its implementation is failing and is largely honored in the breach.

¹ Randolph, Sean and Olaf Groth, *The Bay Area Innovation System: How the San Francisco Bay Area became the World's Leading Innovation Hub and What Will Be Necessary to Secure Its Future* (San Francisco: Bay Area Council Economic Institute, 2012). Available online at <http://www.bayareaeconomy.org>

² Callan, Patrick M., "The Perils of Success: Clark Kerr and the Master Plan for Higher Education," in *Clark Kerr's World of Higher Education Reaches the 21st Century*, ed. Sheldon Rothblatt, Higher Education Dynamics series, Vol 38 (Dordrecht: Springer Science+Business Media, 2012), 61–84. Available online at <http://link.springer.com>

With higher education at all levels in a state of extended crisis, it is time to revisit the ideas behind the Master Plan for Higher Education, to review its goals, and to establish new strategies and pathways that will ensure the quality of public higher education in California for the next fifty years. This includes considerations of access, how education is funded, the role of the state, the role of the private sector, governance, the relationship between the different levels of the state's higher education systems, the role of technology, best practices from other jurisdictions, and the efficiency with which educational services are delivered.

This white paper has been primarily developed from the perspective of California's economy and the key role that higher education plays in ensuring the availability of a workforce with the skills needed by industry. A flexible and educated workforce is critical to national and global competitiveness and to the equitable distribution of opportunity for California residents. The authors also recognize the important role of higher education in developing broadly educated citizens who can fully participate in and contribute to community and civic life. California's educational goals must embrace both objectives.

The Importance of Public Higher Education to California and Its Economy

The long history of California's economic progress is closely tied to its colleges and universities. The state's higher education institutions have not only been centers of innovation and research, but have also enabled generations of Californians to acquire the skills necessary to succeed in an ever changing economy. Companies and the employees that staff them depend on a strong higher education sector.

The benefits of a college education are well documented. College graduates are more likely to prosper economically, civically, and socially than less educated individuals. They are much less likely to depend on social welfare programs, and they earn far higher wages than other workers. One recent study estimates that for every dollar the state invests in higher education, it

will receive a net return of \$4.50, as the higher earnings of graduates are taxed in later years and as use of social welfare programs is lowered through reduced poverty and incarceration rates.³ The same study finds that, based on these factors, each resident who completes a BA degree or higher generates more than \$145,000 for the state. Experience in Wisconsin has shown that, for this same reason, BA completion can be critical to a state's ability to recover its investment in K-12 education.

These wage and employment benefits vary by major, but even students with degrees in the least remunerated majors experience strongly positive wage returns.⁴ Entrepreneurship is also more common among highly educated adults. Not only are college graduates more likely to

³ Stiles, Jon, Michael Hout and Henry Brady, *California's Fiscal Returns on Investments in Higher Education*, Research and Occasion Paper Series: CSHE.15.12 (October 2012), 5. Available online at <http://cshe.berkeley.edu/publications/californias-fiscal-returns-investments-higher-education>

⁴ Johnson, Hans, Marisol Cuellar Mejia, David Ezekial and Betsey Zeiger, *Student Debt and the Value of a College Degree* (San Francisco: Public Policy Institute of California, 2013), 10. Available online at <http://www.ppic.org>

start a business, but the businesses they start are more likely to be successful.

In California, as in most states, higher education is primarily a public sector undertaking. The vast majority of postsecondary students in California are enrolled in the state's public colleges or universities. Over 70 percent of all bachelor's degrees awarded each year in California go to University of California or California State University students. With over 100 campuses in every part of the state, the California Community Colleges enroll more students than any other higher education system in the country.

Insufficient investment in higher education will therefore entail major costs to the state and its economy in future years. Adjusted for inflation, the level of direct investment by the state in its public colleges and universities is approximately the same as it was in 1992, but with far more students. On a per student basis, California's

general fund contributions to UC and CSU are at the lowest levels in decades. Recent increases in funding through Proposition 30 and due to the economic recovery, while welcome, are small relative to the size of past cuts, and many years of sustained funding increases would be needed to recover the ground already lost.

CSU and Community Colleges campuses provide particularly important pathways for opportunity and upward mobility, especially in urban areas. With a large cohort of California college-aged residents (2.8 million) and a larger number of residents (aged 15–19) nearing college, and with Latinos constituting about half of that number, providing access to and ensuring success in college must be a priority for the state, its businesses, and its residents. While access is a major challenge, it is equally important that this incoming cohort of Latino and other students approaching college be college-ready. Today many are not, and dropout rates, particularly among Latinos, are too high.

Insufficient investment in higher education will entail major costs to the state and its economy.

Origins of the Master Plan

The Master Plan for Higher Education in California was enacted at a time when the state faced tremendous infrastructure challenges. Its population was growing dramatically, fueled both by the baby boom and huge domestic migration flows of young adults to the state following the end of World War II. Between 1950 and 1960, when the plan was enacted, the state's population grew 49 percent. Projections suggested that this

growth was going to continue, and indeed it did. Between 1960 and 1995, the state's population doubled. Accommodating this growth was a key goal of the Master Plan.

Prior to the development of the Master Plan, the state's colleges and universities had no cohesive plan to accommodate growth. New state college campuses were established in an

ad hoc manner, and were not necessarily sited in locations where demand would be greatest. Strong leadership among higher education officials and strong political leadership, particularly from the governor, produced the Master Plan, which was developed to provide a systematic framework for higher education in the state and to ensure universal access to higher education.

This latter goal made California unique among states. Between 1960 and 2011, the number of UC campuses grew from 7 to 10, CSU campuses grew from 16 to 23, and Community Colleges campuses from 64 to 112. The plan also delineated the primary responsibilities for each of the three systems. The Community Colleges system was to provide low-cost (initially free of tuition or fees) postsecondary educational opportunities for any interested Californian. Its mission included lower-division academic coursework that could lead to transfer to a four-year college or university, vocational or career technical education, basic skills education, and enrichment courses. The California State University system was to provide the bulk of undergraduate education and offer some master's programs, and the University of California was to be the state's primary research university system, offering bachelor's, master's, professional, and doctoral degrees.

Through this division of responsibilities, the state sought to ensure access and quality in its higher education systems. Access was ensured by low fees and the state's student grant program. Impending dramatic increases in enrollment, known to and even forecasted by the Master Plan committee, were to be accommodated without any charges for instruction (tuition); fees were allowed, but only to "collect sufficient revenues to cover such operating costs as those for laboratory fees, health, intercollegiate athletics, student

activities, and other services incidental to, but not directly related to, instruction."⁵

Undergirding the Master Plan and essential to its success was the commitment of the state. Up to the 1980s, California and its residents supported the growth of the systems through capital expenditures for new buildings and new campuses, and provided funds for operating expenses and for instruction that kept student fees among the lowest in the nation.

On numerous occasions over the past 50 years, policymakers have sought to revise or re-energize the Master Plan.⁶ Building on the Master Plan's priority of broad access to higher education, subsequent reviews have focused on the importance of diversity. A review in 1989 focused particularly on equity issues, noting that economic and social mobility is strongly tied to improvements in educational attainment. State Senator Dede Alpert subsequently led a review that included K–12 education. These reviews, however, have not altered the Master Plan's major tenets, including the eligibility assignments for UC and CSU. Nor have they led to substantial changes in the division of responsibilities between the systems.⁷

In fact, the most significant change in higher education policy over the past 50 years has not been a consequence of any purposeful reconsideration of the Master Plan. Instead, the most dramatic alterations have occurred in response to budget constraints. To update the Master Plan in order to ensure that public higher education continues to deliver high quality programs and opportunity for Californians and to plan successfully for its future, California must set new goals that account for significant changes in the educational environment and that specifically consider new educational strategies and funding mechanisms.

⁵ A Master Plan for Higher Education in California (Sacramento: California State Department of Education, 1960). Available online at http://sunsite.berkeley.edu/UCHistory/archives_exhibits/masterplan/

⁶ Patrick M. Callan provides an excellent review of the Master Plan in *California Higher Education, the Master Plan, and the Erosion of College Opportunity*, an occasional paper published in February 2009 by the National Center for Public Policy and Higher Education (<http://highereducation.org>). This section also borrows from Hans Johnson's *Higher Education in California: New Goals for the Master Plan*, published in April 2010 by the Public Policy Institute of California (<http://www.ppic.org>).

⁷ The major exception was the additional authority given to CSU in 2005 to independently grant doctoral degrees in education.

What Has Changed in California's Economic and Educational Environments

Today, California's economy requires more highly skilled and educated workers than in the past. Not only has the economy shifted toward occupations and industries that require higher levels of education, but education and skill requirements have also increased within occupations and industries. When the Master Plan was developed, only 11 percent of jobs in California were filled by workers who held at least a bachelor's degree. Today, about one-third of jobs in California are filled by college graduates. These shifts have occurred even as the wage premium for college graduates has grown, an indication that the demand for highly educated workers has grown even more rapidly than the increase in supply. Continued growth in technology and healthcare will lead to even greater demand for college graduates.

The Master Plan's goals of access, affordability, and quality allowed for the top 12.5 percent of high school graduates to be admitted to a University of California campus and the top 33 percent of high school graduates to be admitted to a California State University campus. The Master Plan thereby both anticipated and provided for a large increase in college enrollment and the awarding of college degrees in California. It was understood that the state needed to provide funding to realize the enrollment increases, and until the past decade, the state was, for the most part, willing and able to do so.

Today, over 50 years after the Master Plan went into effect, the same eligibility shares for the UC

and CSU systems are in place—even though workforce demands in California have changed dramatically. Currently, about one-third of working-age adults in California have at least a bachelor's degree, a dramatic increase over 1960 but still too low for an economy that will increasingly demand more highly educated workers. Projections by the Public Policy Institute of California show that by 2025, about 40 percent of jobs in California will require at least a bachelor's degree. In today's economic and educational context, then, the Master Plan perpetuates levels of college completion that are insufficient for the challenges of the current century.

Another shift has been the dramatic change in the state's population, from one that was relatively homogenous economically and ethnically to one that is very diverse. In 1960, 82 percent of the state's high school students were non-Hispanic whites; by 2011 that share had fallen to 28 percent. Latinos made up only 11 percent of high school students in 1960, but by 2011 they constituted the majority (51 percent) of high school students. Income inequality has risen overall, including among families with students. Family poverty rates of high school students are twice as high now (22 percent in 2011) as in 1960 (11 percent). At the other end of the income spectrum, a larger share of high school students come from high-income families today than in the past, with 20 percent of high school students from families with incomes more than five times the poverty threshold in 2011, compared to only 9 percent in 1960.⁸

⁸ Authors' analyses based on 1960 census data and 2011 American Community Survey data, accessed via IPUMS.

The diversity of student bodies has increased in each of the state's higher education systems, with Community Colleges campuses being most representative of California's ethnic makeup. Despite the elimination of affirmative action in 1995, CSU has experienced a large increase in the share of Latino students. In 2012, Latinos were the largest group of students, composing 33 percent of undergraduates at CSU, up from 20 percent in 1995. This increase, however, has barely kept pace with the increasing diversity of the state's high school graduates. In the state's most selective system, the University of California, Latinos and African Americans are still underrepresented.

Students from more advantaged backgrounds, with better-educated parents and greater family financial resources, are more likely than students from less-advantaged backgrounds to have met eligibility standards at UC and CSU.⁹ To a large extent, differences in eligibility between ethnic groups reflect these socioeconomic differences, with Latino and African American students more likely to be from less-advantaged backgrounds and less likely than whites or Asian Americans to be eligible for UC and CSU. Even though eligibility rates for Latinos and African Americans have improved over the past decade, those rates are still substantially lower than for whites and Asians. Eligibility rates are highest for Asian high school graduates and lowest for Latino and African

American graduates. Differences in eligibility rates are especially large at UC, with rates for Asians over four times higher than those for Latinos and African Americans.

These differences in eligibility pose a particular challenge for UC and to a lesser extent for CSU. Partly to improve equity, UC has adopted new admissions plans that take a more comprehensive approach to evaluating applicants. A recent analysis by the University of California Office of the President predicted that under the new approach, more whites, Latinos, and African Americans would be admitted, but fewer Asians (the group most overrepresented) would be admitted.¹⁰ However, a bill recently proposed in the State Senate to legislatively address this gap was met with strong opposition in the Asian community.¹¹

Another factor that differentiates the student bodies of the UC and CSU systems should be noted: on the whole, CSU students are older, are more likely to be parents or working part time, are less proficient in English (for 35 percent English is a second language), and are more place-bound (often commuting from homes in close proximity to the campus). CSU students are also more diverse. In 2012–13, 62 percent of bachelor's degrees awarded in the state to Hispanics were awarded by CSU.

California's economy requires more highly skilled and educated workers than in the past.

⁹ Eligibility for the state's UC and CSU campuses is based on high school courses, grades, and college entrance exams (the SAT or ACT). Students must take an approved set of courses (the a–g requirements) and achieve certain test scores and GPAs to be eligible.

¹⁰ University of California Office of the President, "Proposal on Eligibility Reform" (Action Item memo to Members of the Committee on Educational Policy for Meeting of February 4, 2009), 8. <http://www.universityofcalifornia.edu/regents/regmeet/feb09/e2.pdf> These admissions policies lower the share of high school graduates who are guaranteed admission to about 10 percent of high school graduates, but they expand the pool of students who are *eligible for consideration* for admission to make up the remaining 2.5 percent of high school graduates, so that the total share of high school graduates *eligible for admission* would remain at 12.5 percent. It was projected that the new policy would lead to a *consideration* for admission of about 22 percent of California's high school graduates. The share of low-income students would increase slightly, as would the proportion of Latino and African American students. But the largest change would be an increase in the share of white students eligible and a decline in the share of Asian students.

¹¹ Murphy, Katy, "California affirmative action revival bill is dead," *San Jose Mercury News*, March 18, 2014. Available online at http://www.mercurynews.com/education/ci_25361339/california-affirmative-action-challenge-is-dead

California's Public Higher Education Systems Are Not Producing the Graduates Needed by Its Economy

Generational increases in educational attainment, a long-standing trend in the United States for decades, have now leveled off. In fact, young adults in the United States are no more likely than older adults to have graduated from college. In contrast, rates of college enrollment and graduation continue to increase in most other developed countries and in many less-developed countries. The situation is even more worrisome in California, which has lagged behind other states in college attendance and graduation. In 2011, older adults (ages 55–64) born in California were more likely to have graduated from college than younger adults (ages 25–34). Not a single OECD country has lower college graduation rates for young adults versus older adults.

Even as college graduation has lagged, educational attainment has become an increasingly important predictor of labor market success. Education serves as the primary means by which individuals can achieve upward economic mobility. Over the past few decades, wages for individuals with no more than a high school diploma

have stagnated. In contrast, college graduates in California and the United States have continued to experience increasing improvements in their economic well-being. Wage premiums for college graduates—the degree to which wages for college graduates exceed those of less-educated workers—have grown dramatically over the past quarter century, so that today a worker with a bachelor's degree earns almost twice as much as a worker with only a high school diploma. In the recent economic downturn, unemployment rates for college graduates were in the single digits and were less than half the unemployment rates of workers with only a high school diploma.¹²

Studies by the Public Policy Institute of California (PPIC) and others have affirmed the advantages of higher education and the challenges facing the state if improvements in college enrollment and college completion are not realized.¹³ Improvements in educational attainment lead to higher incomes, more tax revenue, and less demand for social services, while the costs of not achieving those improvements are significant.

Education serves as the primary means by which individuals can achieve upward economic mobility. Over the past few decades, wages for individuals with no more than a high school diploma have stagnated. In contrast, college graduates in California and the United States have continued to experience increasing improvements in their economic well-being.

¹² The economic value of a college degree has been most recently documented by the Federal Reserve Bank of San Francisco (Mary Daly and Leila Bengali, FRBSF Economic Letter, May 5, 2014), which found that the benefits of college in terms of higher earnings far outweigh the costs of a degree. The average college graduate paying annual tuition of about \$20,000 can recoup the investment by age 40, and after that the difference between earnings continues such that the average college student earns over \$800,000 more than the average high school graduate by retirement age. In 2011 (the latest year for which data was available) college graduates earned on average \$20,050 (61%) more per year than high school graduates. The gap in earnings between college and high school graduates increases over the course of a worker's life, a premium that has been consistent across graduating cohorts since the 1970s. In other words, the value of a college education is increasing, not decreasing as some have speculated. In good economies or bad, those with only a high school education face a lower probability of employment, in addition to lower average earnings once employed.

¹³ See: PPIC publications by Deborah Reed (2003 and 2008) and Hans Johnson (2009) available online at <http://www.ppic.org>; Offenstein, Jeremy and Nancy Shulock, *Technical Difficulties* (2009) available at http://csus.edu/ihelp/PDFs/R_STEM_06-09.pdf; Brady, Henry, Michael Hout and John Stiles, *Return on Investment* (2005) available at http://ucdata.berkeley.edu/proj_list.php?recid=2

Including both public and private institutions, California is expected to produce 180,000 baccalaureate degrees in 2025. With this base, PPIC research has identified an impending shortage of one million college educated workers in the state.¹⁴ Economic projections suggest that by 2025, 41 percent of jobs in California will require at least a bachelor's degree. However, given current trends, the state's population is unlikely to supply these highly educated workers: PPIC's population projections indicate that just 35 percent of adults in 2025 will have at least a bachelor's degree. This gap is magnified by the fact that in the last several years more than 25,000 California students have registered as freshmen in neighboring states. These students may or may not return to join the California workforce.

To a significant degree, the state depends on immigration, with immigrants from Asia and Europe in particular making up a large portion of the STEM (science, technology, engineering and mathematics) workforce. Many initially come to California through universities (UC in particular), and remain as valuable contributors to the economy. From this perspective, the university

systems are an important on-ramp for global talent coming to California.

The state should not over-rely on imported talent, however, and must educate and support its own citizens. Apart from immigration, the gap between the supply and the economic demand for college-educated workers can be resolved in just two ways: by improving Californians' educational outcomes or by accepting the loss of quality jobs in the state. Clearly, improving educational outcomes is a much-preferred strategy for the state and its residents.

The state's policies regarding higher education, therefore, are critical and will largely determine the supply of college graduates available to California employers. Higher education in California is primarily a public endeavor (although private institutions do play an important role, especially at the graduate level). Over 80 percent of all college students in California are enrolled in public institutions, and three of every four baccalaureate degrees awarded in California each year are awarded by either the University of California or the California State University.

Over 80 percent of all college students in California are enrolled in public institutions, and three of every four baccalaureate degrees awarded in California each year are awarded by either the University of California or the California State University.

¹⁴ See PPIC publications by Ellen Hanak and Mark Baldassare (2005), David Neumark (2005), Hans Johnson and Ria Sangupta (2009), Deborah Reed (2008), and Hans Johnson (2009) available at <http://www.ppic.org>

Funding for Higher Education

Perhaps the greatest challenge going forward is identifying how to fund the current systems and, if we are to close the education skills gap, how to fund increases in enrollment and improvements in outcomes such as transfer and completion.

One piece of good news is the state's demography. Projections by the California Department of Finance indicate that the number of high school graduates will not change appreciably in the near future as the children of baby boomers are replaced by the smaller cohorts of children born to members of the baby bust generation. Compared to the rapid growth in the number of high school graduates over the past 15 years, the next 15 years will offer some respite in accommodating new high school graduates in the state's higher education systems.

It should be noted that state support for higher education in the General Fund is subject to changing budgetary inputs that are independent of educational considerations. In recent years, these have included the increase in funding being directed to cities and counties to compensate for loss of the Vehicle License Fee, or the state's 2011 fiscal realignment, which pulled in the opposite direction. That said, the trend is clearly one of decline.

As state support has fallen, the three systems have responded by raising tuition and fees and making cuts. From 2006 to 2011, tuition and fees grew 71 percent at UC and 84 percent at CSU; this came on top of large increases put in place over the previous five years (2001–2006).¹⁵ Even students receiving Cal Grants (about 23% of students at UC and CSU) face rising costs, and many students confront the prospect of graduating with significant debt. This debt is unevenly distributed across segments of the systems, and is most

burdensome for graduate students in business, law and medicine.

Both UC and CSU have reserved a substantial share of their tuition increases in order to increase grant and scholarship aid. When increases in both grant and scholarship aid and Cal Grants are taken into account, net prices for many students are substantially lower than the full tuition and fee amounts. Students from middle income families that don't qualify for lower-income grants or subsidies are now eligible for a new state-sponsored middle class scholarship program at both UC and CSU. In general, fee and tuition levels at UC and CSU are not unusually high by national standards, and debt levels at UC and CSU are much lower than at private colleges or at most public universities in other states. Nevertheless, the rising levels of both represent a significant deviation from the Master Plan's idea of free public education.¹⁶

UC expanded out-of-state and international admissions for its fall 2013 class by 21 percent, which represents a 73 percent increase over the fall of 2011. At the same time, in-state admissions for 2013 dropped more than 2 percent. Of the newly-admitted freshmen, 73 percent are from California (down from 77 percent in 2012 and 82 percent in 2011). The reasons are straightforward: students at UC are enrolled based on the available funding. While in-state students pay approximately \$13,000 for tuition and fees (still a comparatively good deal compared to private education), non-residents pay over \$36,000.¹⁷ At CSU, 90 percent of newly admitted freshmen in 2013 were in-state, compared to 94 percent in 2011. In-state students at CSU pay an average of \$6,700 in tuition and fees, while out-of-state students pay close to \$20,000.¹⁸

¹⁵ University of California Office of the President (UCOP) and CSU Chancellor's Office.

¹⁶ At CSU, for example, 49 percent of undergraduates receive Pell grants (compared to 35 percent at public four-year universities nationally). The average net tuition and fees paid by CSU students was \$2,418 in 2012–2013, against an average sticker cost of \$6,479—or just 37 percent of official combined tuition and fee levels. Only 19 percent of CSU baccalaureate recipients assumed loans, compared to 52 percent of all students in the state. See <http://www.calstate.edu/value/systemwide>

¹⁷ Asimov, Nanette, "UC gets big boost in admitting more out-of-state-students," *San Francisco Chronicle*, April 19, 2014. Available online at <http://www.sfgate.com/default/article/UC-gets-big-boost-in-admitting-more-out-of-state-5414161.php>

¹⁸ Author's estimates based on research and interviews. For CSU's published information on costs, see <http://www.calstate.edu/sas/costofattendance/>

UC and CSU have also made up for the erosion in state support through increased student fees. Tuition increases have not fully offset state funding declines, leading to a substantial decrease in instruction-related expenditures, which has resulted in increased class sizes, reductions in course offerings, faculty furloughs, reduced services (including library services), and declines in the hiring of lecturers and faculty. Reductions in funding have been less severe at the Community Colleges, but enrollment rates have declined. Because of the open access policy of the Community Colleges, reductions in the number of students served have occurred indirectly through reduced course offerings and services (such as counseling, assessment, and placement).

The extent to which efficiency gains can further reduce costs in higher education is uncertain. For example, the primary instructional expenses are faculty salaries. Even before the recent cuts, faculty salaries at public institutions had not kept pace with their private counterparts. UC believes that, in the long run, the quality of its faculty and research will suffer as a consequence.

The path forward is not clear. Suggested funding solutions for higher education range from partial

privatization to renewed public support. Californians are strongly in favor of efforts to provide more funding for students through work-study opportunities (85 percent favor) and more funding for scholarships and grants (80 percent favor). But many are opposed to paying higher taxes and most do not support increasing student fees (68 percent oppose, 29 percent favor).¹⁹

To keep fees from increasing, half of Californians favor shifting spending from other government programs (49 percent favor, 43 percent oppose). Whatever path is chosen, policymakers, higher education officials, and Californians need a deliberative discussion about what role higher education should play in the state's future and how to fund it.

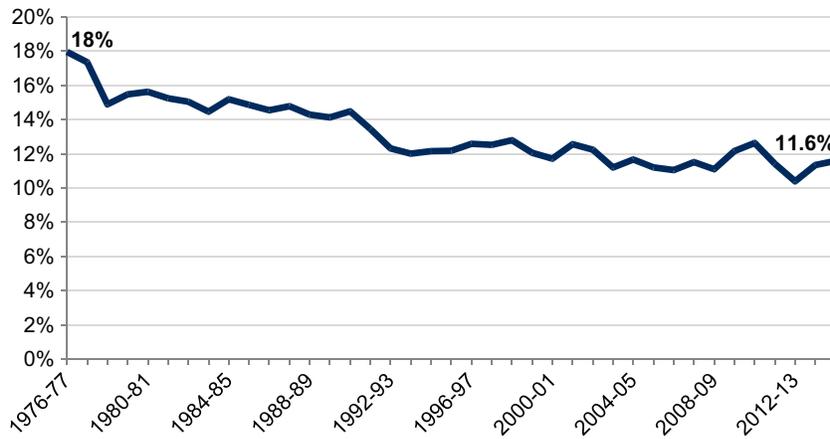
The passage of Proposition 30 in 2012 and the recovering economy have led to a substantial increase in state General Fund support for higher education in the most recent fiscal year. This has been linked by the governor to agreements by UC and CSU not to raise tuition in the near term.²⁰ Although the increase in funding is sizable, it pales in comparison to the size of cuts in previous years and does not fundamentally resolve the long-term structural challenges facing California higher education as a whole.

Although the increase in funding [from Proposition 30] is sizable, it pales in comparison to the size of cuts in previous years and does not fundamentally resolve the long-term structural challenges facing California higher education as a whole.

¹⁹ Baldassare, Mark, Dean Bonner, Jennifer Paluch and Sonja Petek, *PPIC Statewide Survey: Californians and Higher Education* (San Francisco: Public Policy Institute of California, 2009), 15. Available online at <http://www.ppic.org>

²⁰ Some CSU campuses, however, are still seeking substantial increases in fees, which are campus based.

Higher Education Funding as a Share of All General Fund Expenditures

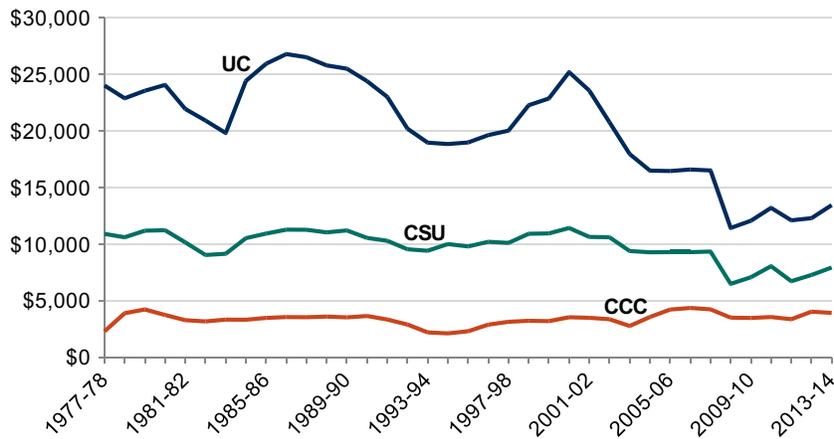


Data Source: California Department of Finance

Note: Because of many changes over the years, this data may not provide sufficient information to evaluate trends.

Analysis: Bay Area Council Economic Institute

General Fund Appropriations per FTE Student (in 2013 dollars adjusted for inflation)

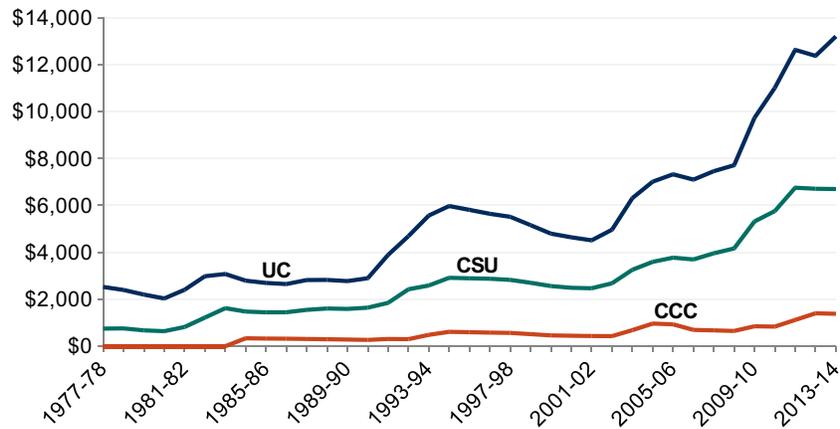


Data Source: California Postsecondary Education Commission "Fiscal Profiles 2010"
Legislative Analyst's Office

Note: Definition of FTE (full-time equivalent) Student has changed over the years.

Analysis: Bay Area Council Economic Institute

Rising Tuition and Fees
(average tuition and fees in 2013 dollars adjusted for inflation)



Data Source: University of California InfoCenter, CSU Budget Office, California Community Colleges Chancellor's Office

Note: Figures shown are annualized charge levels for undergraduate students (full-time or 30 units).

Analysis: Bay Area Council Economic Institute

New Issues and Drivers

The issues that confront public higher education in California should be considered in relation to recent changes in technology and the setting in which higher education takes place. This will require new paradigms for how education is funded and delivered.

It is unlikely that California will ever return to the conditions that prevailed at the time that the Master Plan was drafted in 1960, when the state fully funded higher education. Even if it were to

increase from current levels, state funding by itself will be inadequate to fill the resource gap. Colleges and universities will need to think differently, and the state must give them the flexibility to act differently. With a population that is increasingly connected, education will need to be more accessible to students and professionals who work, are mobile, or need retraining. A stronger connection is also needed to industry and the demand for skills in a rapidly changing economy. Several specific challenges should be addressed.

Colleges and universities will need to think differently, and the state must give them the flexibility to act differently.

Preparedness for College

One issue impacting higher education as a whole, the answer to which lies outside the higher education systems, is the lack of readiness of many entering students. This is particularly the case at the Community Colleges, where the large majority of students require remedial support.

Preparedness is also an issue at CSU, where half of all freshmen require remedial support. This can affect costs as well as time to degree and degree completion rates. Greater attention should be placed at the high school level on readiness for college and on meeting the testing requirements for all CSU freshmen. CSU is experimenting with

summer “early start” programs for high school graduates before their freshman year, an initiative that is seeing good results.

Programs of this kind have costs, but can also yield substantial payoffs for both the university and students. Despite the attention this issue has received in the last quarter century, however, there has been scant progress in resolving it. Investments of this kind need to be strategic, and focus on programs and practices that have been shown to work. If educational quality and standards are to be maintained, the goal of increased access to higher education cannot be considered independently of the issue of college preparedness.

The goal of increased access to higher education cannot be considered independently of the issue of college preparedness.

Technology

Digital technology is transforming how both businesses and individuals interact. Higher education is overdue for a similar transformation. This is already happening. According to the Sloan Consortium, more than 6 million students, one third of all students in higher education, took at least one online course in the fall semester of 2011.

Greater use of online courses, particularly for entry level requirements, has the potential both to reduce costs and provide new vehicles for creative interaction between faculty and students

and between students themselves. In this respect, digital education can complement or enhance existing systems. Good places to start are strategically positioned online courses (for over-enrolled mandatory courses, for example) and blended classrooms that combine online learning with live classroom interaction.

Over the last several years, new formats for digital education have become available, and both commercial and non-commercial enterprises are entering the field. This is impacting the landscape for both public and private higher education. Massive Open Online Courses (MOOCs) at Stanford have

Digital technology is transforming how both businesses and individuals interact. Higher education is overdue for a similar transformation.

attracted more than 350,000 users from 190 countries for three online computer courses, with 43,000 receiving certificates of completion. Coursera, a private company founded by two Stanford professors, has developed web-based classes for four leading universities: Stanford, Princeton, the University of Michigan and the University of Pennsylvania.²¹ And Harvard, MIT, Berkeley and Stanford have jointly created edX, as a shared nonprofit platform for online course development. To date, edX has attracted more than 1.3 million users.

In a significant California test case, San Jose State University announced in January 2013 a partnership with *Udacity*, a leading corporate provider of MOOCs, for a pilot program to offer for-credit courses.²²

Early assessments of Udacity's partnership with San Jose State—which in Spring 2013 included courses in college algebra, elementary statistics and entry-level math taken by 300 students—point to the difficulties that can be encountered with online offerings. Initial pass and retention rates were lower than expected, particularly for high-risk (less-well-prepared) students. One explanation may be that at-risk students have less access to broadband and computers, and less experience using technology. In the summer of 2013 more than 1,300 students from a broader demographic set took the same courses, plus introductory courses in psychology and computer programming, with better results. After being put on hold pending further analysis and the identification of further fixes, however, the program was subsequently dropped. Reacting to faculty resistance, Udacity founder Sebastian Thrun has expressed

exasperation working with the CSU system and has indicated that in the future the company will shift its focus to vocational training.

CSU has moved more quickly with the announcement in 2012 of Cal State Online, a system designed to provide access to online courses at all CSU campuses. Cal State East Bay already has ten fully online programs, and 25 percent of enrollment is in either totally online (17 percent) or hybrid (8 percent) courses. While it is unlikely that for most students entire degrees could be completed this way, for some students and programs full degree completion may be feasible, and it is likely that in other cases independent students could accelerate their times to degree or credential at lower cost. In fact, CSU's online degree program is primarily geared towards former students (those who have completed 60 semester units) who are looking to return to college to complete a bachelor's degree.

The California Community Colleges have also actively embraced online learning. With course enrollment totaling almost one million students, the California Community Colleges system is almost certainly the largest public provider of online credit courses in the country. Governor Brown put \$16.9 million in the Community Colleges budget in 2013 to expand online learning statewide and has committed an additional \$10 million in future years. Components of the program include totally online associate degrees for transfer, credit by examination, faculty professional and online skills development, and student support services. Implementation of the initiative began in December 2013.

²¹ Blanchero, Stephanie, "Top Schools Join Move to Offer Free Courses Online," *Wall Street Journal*, July 18, 2012 (available online at <http://online.wsj.com/news/articles/SB10001424052702303612804577533264272308308>). Twelve additional universities have subsequently joined the consortium, including the California Institute of Technology; Duke University; the Georgia Institute of Technology; Johns Hopkins University; Rice University; University of California, San Francisco; the University of Illinois, Urbana-Champaign; the University of Washington; the University of Virginia; the University of Edinburgh; the University of Toronto; and the École Polytechnique Fédérale de Lausanne. Courses are developed by the universities, with Coursera providing the online platform. Approximately 5 million students have taken Coursera courses, but the completion rate is low. Homework is assigned, with mid-year and year-end assessments, graded by peers under standards set by the professor. Courses are free and not for credit, but universities may choose to charge fees for courses that could receive credit. The University of Washington has indicated that it plans to do so.

²² Udacity originated in a 2011 MOOC on artificial intelligence taught by former Stanford professor and current Google VP Sebastian Thrun, which attracted 160,000 students. The venture-backed firm's business model initially targeted two demographics: entry-level college preparation and corporate workforce development.

Digital education comes with issues. Completion rates for online courses are low, and concerns have been raised regarding access for disadvantaged students in light of the digital divide and differences in access to and familiarity with computer technology. In all cases, quality remains a paramount concern.

It is clear that digital education is not a panacea that will by definition improve learning or reduce systems costs. Nor is it a complete substitute for traditional classroom learning. San Jose State's experience suggests that online education may be less useful for students (of any age) who require remediation, and more useful for self-directed students and students with higher basic skills. Nor is online education cost-free, as resources are required for both faculty preparation and student support.

The potential efficiencies and improved outreach that digital education offers, however, suggest that UC, CSU and the Community Colleges should increase their investment in pilot and experimental programs to test the efficacy of different models and implement what proves successful. This will be a trial-and-error process that won't produce uniformly positive results. The transformative potential of technology is compelling, however, and should be embedded in the strategic development of all three systems.

Skills Development

Most graduates of the state's higher education systems will be employed by, or would like to be employed by, California companies. Other graduates choose to be entrepreneurs, and need tools to increase their chances of success. Still others will choose to remain in academia. It is important that all three systems—UC, CSU and the Community Colleges—support these goals by producing graduates with the skills required by a rapidly changing economy.

This is particularly the case with STEM (science, technology, engineering and math) education, where the number of graduates in California and the nation falls well short of industry needs, and participation rates by women and underserved students is low. As the importance of technology grows, this is particularly important to California's economic leadership. Beyond STEM, the National Science Foundation has suggested that college graduates should have a level of competency in NBIC (nano, bio, info, cogno) disciplines.

San Jose State University President Mo Qayoumi has proposed moving to a new model of courses based on open content that is standardized across institutions, which it is argued will reduce costs to students, make transferring credit easier, reduce time to degree, increase student success, and increase the throughput of higher education across the board. This would be done by redesigning key lower division courses through open courseware that most institutions would adopt. Upper division courses would be more tailored to the needs of individual institutions, in partnership with entities such as national laboratories, corporations developing learning products, libraries and other external organizations. Credit would be offered if the course is provided through an institution or degree program.²³

Deeper engagement with the business community is also needed, particularly at the Community Colleges level, in order to develop real-world experience and align student skills with the employment marketplace. For the Community Colleges, this calls for greater coordination of skills-related training at the regional level (as opposed to the current system where multiple campuses offer duplicative and geographically dispersed programs). The Community Colleges system has recently taken significant steps in this direction with the development of infrastructure to support regional networks of career technical education (CTE) programs. These structures

²³ Qayoumi, Mohammed and Kim Polese, *Reinventing Public Higher Education: A Call to Action* (San Jose: San Jose State University Office of the President, 2012). Available online at <http://www.sjsu.edu/president/whitepaper>

would enable the pooling and coordination of resources, improved faculty and curriculum development, greater flexibility for students, and more efficient engagement with business (which would have less need to engage with and support multiple institutions individually).

The Bay Area Community College Consortium is currently developing two such programs, focusing on computer network and user support technicians and on nursing and allied health workers. The Community Colleges system's Doing What MATTERS for Jobs and the Economy initiative is supporting this strategy with 10 sector-specific grants across 15 California regions to enable workforce training partnerships between community college consortia, other educational and technical assistance providers, and industry focused on workforce needs in major occupational clusters. In the Bay Area, Skyline College (San Mateo County) is leading a program focusing on the retail/hospitality/tourism sector that has engaged the K–12 community, CSU campuses, and industry leaders such as Google and Bon Appetit.²⁴

In addition to technical skills, employers also express the need for graduates who have the ability to communicate (orally and in writing), think creatively, problem solve and work in teams. This points to the need for both hard and soft skills development.

To achieve these goals, the Community Colleges need more flexibility to respond to the employ-

ment marketplace and to develop industry partnerships. In particular, the funding framework for career technical education at the California Community Colleges needs reform.

Some states provide higher funding and allow differential tuition or course fees based on their cost of delivery. Other states also provide performance-based funding linked to degree and certificate completion through economic metrics such as job placement, wages, high-need completions and industry certifications. In California, on the other hand, CTE funding is enrollment based, with the same tuition charged for all programs and the same level of funding provided regardless of a program's cost of delivery (with a few exceptions, such as nursing). Course fees are prescribed by statute. This has the effect of disadvantaging CTE, as the cost per credit hour (national average) varies widely across program areas: \$52 for humanities, \$64 for biology, \$73 for engineering-related technologies, \$131 for health and medical assisting services, \$163 for drafting and design engineering, and \$265 for respiratory care therapy.²⁵ Current fee policies push the system toward lower-cost courses and away from higher-cost programs that are more closely connected to jobs and skills required in the market place. While preserving equal opportunity for students to access programs, the Community Colleges need more flexibility to offer programs their communities and businesses need.

The Community Colleges need more flexibility to respond to the employment marketplace and to develop industry partnerships. In particular, the funding framework for career technical education at the California Community Colleges needs reform.

²⁴ See <http://www.doingwhatmatters.cccco.edu> for more information on Doing What MATTERS for Jobs and the Economy.

²⁵ Shulock, Nancy, Jodi Lewis and Connie Tan, *Workforce Investments: State Strategies to Preserve Higher-Cost Career Education Programs in Community and Technical Colleges*, (Sacramento: Institute for Higher Education Leadership & Policy at California State University, Sacramento, 2013), 1. Available online at http://www.csus.edu/ihelp/PDFS/R_Workforce_Invest_0913.pdf

This change should be reflected in revised policies regarding course fees and greater latitude for the Community Colleges to experiment with innovative programs. In addition to more flexible fee policies, the Community Colleges need more flexibility to develop industry partnerships, particularly when existing courses may be fully subscribed and there are opportunities to add new sections with industry support.²⁶

Businesses that require skilled workers also need to step up. In-house workforce skills development by companies has declined in recent years, shifting more of the burden to the Community Colleges. Businesses need to reconsider their commitment in this area and increase their investment, whether internally or through resources directed to partner institutions.

Outreach and Outcomes

Public higher education also has to do a better job reaching beyond the traditional target of the higher education community—18 to 24-year-olds—to engage the 85 percent of other potential degree-seeking citizens who are older, working, and often supporting families. Many of these residents, aged 25–65, do not have degrees but may have some credit toward college and frequently need support with employment-related skills development. Potential tools include online instruction that can be accessed across institutions, cross-registration, standardized numbering, open courseware, recognition of credit between institutions, and examination and assessment programs for degree completion. University extension programs can play a particularly important role in supporting mid-career skills development in a non-degree setting, keeping the core focus of university and college academic programs on degree attainment.

Assessment and Certification

The assessment and certification of learning that has occurred and skills that have been mastered has important value both for students and workforce participants who are seeking to upgrade their skills and for potential employers. Improved assessment tools and processes are needed to evaluate student competency, particularly for online and distance learning programs. For students who are already in the workforce but need additional credits to earn a degree, the use of examination-based assessment to enable degree completion can potentially provide large numbers of students with partial credit to complete their educations. The use of digital tools could offer an efficient pathway. This is particularly the case for students who are employed, are in the military, or are economically disadvantaged.

Public higher education has to do a better job reaching beyond the traditional target of the higher education community—18 to 24-year-olds—to engage the 85 percent of other potential degree seeking citizens who are older, working, and often supporting families.

²⁶ The governor's proposed budget for 2014–2015 includes \$50 million for CTE and, in recognition of CTE's higher costs, proposes a new "shared investment" funding formula.

Eligibility and Transfer

To accommodate more students, the share of the state's high school graduates eligible for CSU should be increased from the top 33.3 percent to the top 40 percent. (It should be noted that the share of high school graduates eligible for and applying to UC already exceeds 15 percent.) This change cannot be considered in isolation, however, as the number of technically eligible students at CSU requiring English and/or math remediation is extremely high. To maintain standards, increased eligibility targets must be linked to improvements in college readiness among high school graduates.

A 21st century plan should set explicit goals for transfer from the Community Colleges to UC and CSU. Currently, the Master Plan does not have specific goals with respect to transfer levels or rates.²⁷ It should be noted that the transfer pathway brings its own risks. National survey data shows that students who enter a community college are less likely to finish a degree than otherwise similar students who go straight to a four-year college or university. Of high school graduates who had completed UC's and CSU's college preparatory curriculum (known as the a–g course requirements) with a minimum GPA of 3.0, 66 percent of those who went straight to a four-year university earned a bachelor's degree within six years, compared to just over one in five who went to a community college.

There has been some progress. The Community Colleges system's Associate Degrees for Transfer program, launched in the 2011–2012 academic

year, requires the Community Colleges to grant an associate degree for transfer, once specified requirements are met, with eligibility for admission as a junior at CSU; these students are given priority admission and cannot be required to repeat courses similar to those they have already taken. Recent implementation of some of the recommendations of the Community College Student Success Task Force, such as requiring education plans for new students and providing incentives for successful students (such as enrollment priority) are steps in the right direction.

Improving the transfer function will require an increased emphasis on identifying successful pathways at the Community Colleges, and coordination with CSU and UC. Because of the large number of students enrolled in the Community Colleges, this could lead to dramatic increases in college completion at the baccalaureate level. From the state's perspective, increasing the success of the transfer pathway is critical to closing the workforce skills gap. Establishing performance standards and outcome measures associated with transfer and tying some funding to attaining those standards would at least partially align outcomes-based goals with the state's higher education funding.²⁸ The state can also encourage coordination between the systems by giving UC and CSU incentives to accept more transfer students.

As another way to increase the number of baccalaureates generated in the state, since 2004 there have been four different bills in the Legislature to authorize one or more of the Community Colleges to offer a limited number of baccalaureate

Increasing the success of the transfer pathway is critical to closing the workforce skills gap.

²⁷The Master Plan does set a target enrollment ratio of 60:40 for upper- to lower-division students. (This ratio is intended to encourage the enrollment of Community Colleges transfer students, but only indirectly encourages transfer.)

²⁸ Shulock, Nancy and Colleen Moore, *Invest in Success: How Finance Policy Can Increase Student Success in California's Community Colleges* (Sacramento: Institute for Higher Education Leadership & Policy at California State University, Sacramento, 2007). Available online at http://csus.edu/ihelp/PDFs/R_InvestInSuccess_10-07.pdf

degrees.²⁹ While the initial bills failed, SB 850 (introduced in January 2014) succeeded and was signed into law by Governor Brown in September 2014. The new legislation authorizes a pilot program that will allow 15 community colleges to offer bachelor's degrees in job-related fields where comparable courses aren't offered by the UC or CSU systems. The program, which has significant potential to address workforce needs in technical fields, with lower degree costs for graduates, will begin in the 2017–18 academic year and run through 2022–23.

Currently, 21 states authorize community colleges to offer a limited range of baccalaureate degrees, which typically address workforce needs in applied fields such as healthcare or technology. While following this approach aims to increase access to B.A. degrees at more affordable costs, it also represents a significant change from the allocation of responsibilities in the 1960 Master Plan. Degree creep (where over time colleges would be tempted to offer more than just a few applied degrees) is a concern, but related experience has shown that this has not become a problem with CSU, where a doctorate in education program established in 2005 has not led to a proliferation of doctorates in other fields.

A new component of higher education policy that focuses on outcomes—specifically, completion rates—should also be part of the state's 21st century goals. The Master Plan does not include targets for college completion, nor have

subsequent reviews of the Master Plan suggested that completion rates be a part of the state's goals for higher education. Previous research, however, has identified improved completion rates, particularly at CSU, as one of the most cost-effective ways to increase the number of baccalaureate degrees awarded in the state.³⁰

Both UC and CSU have programs and policies to improve student persistence. Those programs include reviews of course requirements and curriculum, student support, and academic advising. Because completion rates at UC are already high (with six-year graduation rates in excess of 80%), increases in completion there will not lead to large gains in the number of bachelor's degrees awarded. However, at CSU only about half of incoming freshmen graduate within six years.

In the mid-1970s, only one of every three CSU freshmen graduated within six years, but completion rates at CSU have been improving. In 2010, CSU identified a new target: to increase six-year graduation rates by 8 percentage points by 2016.³¹ The target is ambitious, but not unrealistic, as it requires a slight acceleration in the gains in the six-year graduation rates that CSU has seen over the past decade. This target would put CSU graduation rates on a path to 69 percent by 2025, a level that is in line with studies finding that an increase to that level is required to help close the projected workforce skills gap. Increasing the completion rates of students already in the state's public universities is the least

A new component of higher education policy that focuses on outcomes—specifically, completion rates—should be part of the state's 21st century goals.

²⁹ Also, in 2013, the Chancellor of the California Community Colleges system created a Baccalaureate Degree Study Group, to analyze the issue of adding bachelor's degree options to the Community Colleges mission. While recommending further study, the Study Group concluded that such a program should not change the Community Colleges' core mission, but should seek to address the needs of employers (http://californiacommunitycolleges.cccco.edu/portals/0/reportsTB/2014_01_BacDegree_StudyGroup_WEB.pdf).

³⁰ Johnson, Hans and Ria Sengupta, *Closing the Gap: Meeting California's Need for College Graduates* (San Francisco: Public Policy Institute of California, 2009), 18. Available online at <http://www.ppic.org>

³¹ California State University, "California State University Launches Bold Graduation Initiative to Increase Number of Students Earning Degrees" (press release, CSU Public Affairs office, January 27, 2010). Available online at <http://www.calstate.edu/PA/News/2010/release/2graduation-initiative.shtml>

expensive way to generate new college graduates, since these students are already in the systems. There is one important caution: in establishing completion rate targets, the educational institutions must ensure that those targets are not met by lowering the quality of postsecondary education.

Research and the University

When evaluating the funding and performance of public higher education in California, it is important to distinguish the research role of the University of California, a core component of the original Master Plan that remains important today. The University of California is one of the world's major research universities, with campuses such as UC Berkeley, UC San Francisco, UCLA and UC San Diego ranking among the leading schools. Through these and other campuses, the University attracts research revenue that exceeds the financial support it now receives from the state's General Fund. In 2013, UC received over \$5 billion in external research funding from the federal government, other government sources, businesses, foundations and other nonprofit entities, compared to \$2.4 billion in state General Fund appropriations.

That research activity supports both faculty and graduate students and is the source of a significant pipeline of technology licenses and intellectual property that generates revenue for the university but, more importantly, it supports new company formation and long-term job creation. A recent study by the Bay Area Council Economic Institute on companies founded by UC Berkeley graduates and faculty found, for example, that Berkeley entrepreneurs have launched more than

2,600 companies, with global revenues of over \$317 billion and more than 540,000 direct employees. When the indirect effects of this activity are included, companies associated with Berkeley founders are responsible for \$238 billion in US output and almost 1,250,000 jobs. Most of this activity is concentrated in California and the Bay Area.³² Companies from across the nation and around the world hire large numbers of UC-generated PhDs and come to California to be close to the UC research system and the talent that it generates. Supporting the University of California's distinct role as a critical source of innovation for the state and its economy must be a priority.

Governance

The connection between K–12 education (which prepares students for higher education), the California Community Colleges, the California State University and the University of California is critical. More integrated planning is needed to develop a more comprehensive strategy and to ensure the most effective utilization of resources and maximum throughput in the higher education systems. This requires a review of governance processes between the UC, CSU and Community Colleges systems. Consideration should also be given to critical linkages to the K–12 system and its ability to generate college-ready students. To facilitate higher transfer rates into the CSU and UC systems from the Community Colleges and between campuses within a system, it has also been proposed that a common course numbering system be introduced for all three systems for at least the first two years of college. In a resource-constrained environment, the state and its students will not be well served by siloed systems.

³² Bay Area Council Economic Institute, *UC Berkeley: Stimulating Entrepreneurship in the Bay Area and Nationwide* (San Francisco, 2014). Available online at <http://www.bayareaeconomy.org>

Conclusion

Just over fifty years ago, the Master Plan for Higher Education in California provided a forward-looking strategy for handling the challenges then facing the state. California's population was increasing dramatically and policymakers realized that long-term planning for the state's prosperity required a higher education plan that would accommodate large numbers of Californians.

Today, California is at another critical juncture with respect to higher education, particularly in terms of workforce skills and the state's budget. A deliberative discussion of the future of higher education in California—the goals we would like to achieve and the policies necessary to get us there—is essential. Moving in the direction outlined in this analysis will put the state on a firm path toward closing the impending workforce skills gap and will provide residents with the increased economic mobility and opportunity that come with higher education.

Funding will undoubtedly be the greatest challenge. Improved efficiency in education delivery, through the creative use of technology for example, can make important contributions but by itself will be insufficient to meet the systems' needs. Additional funds will almost certainly be necessary to support the substantial increases in enrollment and graduation that are necessary to meet future economic demands. Since it is unrealistic to expect the state to fully restore the funds that have been cut over the past ten years, it is also clear that increased public funding by itself can't be the answer. Public higher education in California must find a new business paradigm

that enables it to deliver cost-effective education to a growing and increasingly diverse population with educational needs at many levels.

Reform needs to extend beyond marginal budgetary or program fixes. Institutional resistance to change is likely. The future of public higher education will no longer be set in faculty committees, as important as those may be to academic excellence, but by what is fast becoming an education marketplace. With new services available from a range of providers, students at all levels will increasingly find and use the systems that enable them to obtain the skills they need, in the most efficient and cost-effective manner. Public higher education in California can embrace and lead that transition. If it fails to do so, this transition will take its own course. That, in turn, will weaken the systems and negatively impact the ability of California's residents to compete in the global economy and the ability of the state to compete for high-value jobs and businesses in an economic environment where access to human capital is a prime determinant of business location and success.

All of the problems that have led to the current crises can be solved, but doing so will require new vision and strong leadership by policymakers in Sacramento and by leaders in higher education. It will also require engagement by the state's business community, whose workforce depends on UC, CSU and Community Colleges graduates and whose future competitiveness will be impacted by the reach and quality of California's higher education systems.

A Call for Action at the State Level

Revisiting key components of the 1960 Master Plan for Higher Education in California is important to closing the education skills gap and ensuring equity, opportunity and California's future prosperity. To support California's economy with the workforce of the future, stabilized and strengthened state funding should be linked with innovative management and clear performance metrics.

Enable More Flexible Governance

- **Community Colleges, CSU and UC campuses must be given greater responsibility and flexibility to creatively develop responses to the fiscal and other challenges they face.** Funding from the state has precipitously declined, but California's higher education systems remain shackled with administrative and operating requirements that are inhibiting their abilities to respond to changing circumstances. If, as seems likely, funding from the state is not substantially restored, then the systems' institutions need the freedom to innovate.
- The Community Colleges system's fiscal and regulatory framework inhibits experimentation and innovation. **Differential course fees should be permitted for high-cost/high-value courses and courses where extra sections are needed to meet industry demand. The state should also consider designating some Community Colleges campuses as "charter campuses" with the flexibility to experiment free of current restrictions.**

Link Academics to Workforce Needs

- **Eligibility thresholds for the UC and CSU systems should be expanded,** linked to an intensified focus on college readiness in the final year of high school.
- **The Community Colleges system's experiment with regional consortia of campuses for career technical education, as seen in the Bay Area Community College Consortium, should be supported and expanded.**

- California arguably has too many Community Colleges districts (72 districts for 112 colleges). **Better economies of scale may be achieved, resources may be used more efficiently, and stronger alignment with regional needs may be achieved if districts are consolidated and their number reduced.** At a minimum, greater collaboration and the development of more regional consortia between Community Colleges campuses can prevent unnecessary duplication of programs.
- **Regional consortia of UC, CSU, and Community Colleges campuses and K–12 systems should also be considered.**³³
- More than CSU campuses, University of California campuses compete nationally and internationally for students, faculty and research funding. **The distinct role of the University of California as a research university, identified in the original Master Plan, must be supported.**

Stabilize and Strengthen State Support

- **New ways must be found to fund the systems.** A failure by the state to invest in its future through public higher education will significantly impair California’s economy for years to come. Sustaining strong public higher education in California will require continued significant funding. Given the dramatic budget cuts of the past decade, however, which Proposition 30 (2012) stemmed but did not reverse, additional resources are needed. With rising levels of student debt, the systems cannot rely primarily on increased fees. This calls for a systematic review of the optimal role of fees in future revenues, including consideration of a predictable schedule for fee and tuition increases. New revenue and cost allocation strategies are particularly important for the CSU and the Community Colleges systems which, in contrast to UC, cannot rely on research income.

³³ See Shulock, Nancy, Coleen Moore and Connie Tan, *A New Vision for California Higher Education: A Model Public Agenda* (Sacramento: Institute for Higher Education Leadership & Policy at Sacramento State University, Sacramento, 2014). Available online at http://www.csus.edu/ihelp/PDFs/R_PublicAgenda_0314.pdf

Improve Performance through Innovative Management

- **The state needs to set new goals.** The Master Plan set out an ambitious agenda for its time, but a failure to adjust the plan to meet 21st century economic realities will stunt the state's economic potential and that of its citizens. The ideal of free public education, for example, should be revisited. This is also an important time to consider not just operational adjustments, but transformational goals for California higher education.³⁴
- **Greater emphasis should be placed on outcomes** (e.g., persistence rates, transfer rates, completion rates, and number of low-income students served).
- **While not a panacea, digital education offers one avenue for increasing efficiency and lowering costs.** Online courses entail costs for faculty development and student assistance but can be cost-effective over time due to their efficiency of delivery. Pilot programs and initiatives to accelerate the use of online courses, particularly in conjunction with classroom learning, should be supported, encouraged, and reflected in strategic plans.
- **Innovation is needed in how capital projects are funded.** With pressure growing to increase student enrollment, reinvestment in physical infrastructure is important. As reduced state funding must be spread across both facilities and teaching, universities and colleges should be allowed to draw on a wider range of delivery options for capital investment projects. In particular, increased use should be made of public-private partnerships to finance, build and maintain selected facilities. Public-private partnerships have been used effectively throughout the world to develop educational and other social infrastructure. In the University of California system, successful but isolated examples can be seen in the Sandler Neuroscience Center at UC San Francisco and the

³⁴ For example, as a Moore's Law for education, faculty could move 10 percent of their lectures each year to a digital vehicle, which becomes a prerequisite for the course. New lectures could be added based on research results in top journals or industry applications. After a period of years, courses could look very different and would integrate more leading research related to industry needs.

West Village at UC Davis. Public-private partnerships can be used at greater scale in California to meet construction and operating needs while conserving limited public funds for core educational missions.

- **Efficiencies can be achieved through statewide consortia of UC and CSU campuses**, for example by using distance learning technology to offer courses with low per-campus enrollment that may not otherwise be financially viable.³⁵
- **Planning, alignment, and coordination between UC, CSU and the Community Colleges should be improved**, by creating a higher education coordinating body to replace and improve upon the California Postsecondary Commission, which was closed in 2011.

³⁵ This idea has been proposed by the state Legislative Analyst's Office (LAO) but has not been acted on. See Steenhausen, Paul, *The Master Plan at 50: Using Distance Education to Increase College Access and Efficiency* (Sacramento: Legislative Analyst's Office, 2010), 5. Available online at <http://lao.ca.gov/Publications/Detail/2360> (See also American Council of Trustees and Alumni, *Best Laid Plans: The Unfulfilled Promise of Public Higher Education in California* (Washington, DC: American Council of Trustees and Alumni, 2012), 50–52. Available online at http://www.goacta.org/publications/best_laid_plans)

University of California Campuses



Source: University of California ASSIST, <http://www2.assist.org/browseUCs.do>

California State University Campuses



Source California State University, http://www.calstate.edu/datastore/campus_map.shtml

California Community Colleges Campuses



Source: Chancellor's Office, California Community Colleges; California Community College Student Affairs Association, <http://cccsaa.org/regions.html>

Acknowledgements

The authors are indebted to the education and business leaders who generously gave their time to review this analysis and contributed valuable insight and perspective.

Roberta Achtenberg, Member, Board of Trustees, California State University

Dr. Steven Currall, Dean and Professor of Management, Graduate School of Management, University of California, Davis

Dr. John Ebersole, President, Excelsior College

Dr. Gregory Farrington, Executive Director, California Academy of Sciences

Tim Gage, Blue Sky Consulting Group, and former Director of Finance, State of California

Dr. Lance Izumi, Koret Senior Fellow and Director of Education Studies, Pacific Research Institute, and Member, Board of Governors, California Community Colleges

Dr. Linda Katehi, Chancellor, University of California, Davis

Loren Kaye, President, California Foundation for Commerce and Education

Dr. James Koch, Senior Founding Fellow, Center for Science, Technology & Society, Leavey School of Business, Santa Clara University

Ted Lempert, President, Children Now, and former State Assemblymember

Robert Linscheid, President & CEO, San Francisco Chamber of Commerce, and Chairman, California State University Board of Trustees

Dr. Leroy Moroshita, President, California State University, East Bay

Rock Pfothenauer, Dean of Instruction, Career Education and Economic Development, Cabrillo College, and Chair, Bay Area Community College Consortium

Dr. Mohammed Qayoumi, President, San Jose State University

Dr. Darlene Solomon, Senior Vice President and CTO, Agilent Technologies

Dr. Jim Spohrer, Director, IBM University Programs Worldwide, and Innovation Champion, IBM Almaden Research Center

Van Ton-Quinlivan, Vice Chancellor for Workforce and Economic Development, California Community Colleges

John Wilton, Vice Chancellor for Administration and Finance, University of California, Berkeley

Dr. Leslie Wong, President, San Francisco State University



353 Sacramento Street, Suite 1000
San Francisco, California 94111
www.bayareaeconomy.org
bacei@bayareacouncil.org

The Bay Area Council Economic Institute is a partnership of business with labor, government, higher education and community leaders that works to support the economic vitality and competitiveness of California and the Bay Area. It produces authoritative analyses on key economic issues in the region and the state, and mobilizes leaders from diverse backgrounds around targeted policy initiatives. A sought-after source of economic perspective, its public-private governance and fact-based approach to economic analysis underpin the Institute's forward-looking thought leadership.

Bay Area Council Economic Institute
353 Sacramento Street, Suite 1000, San Francisco, CA 94111
www.bayareaeconomy.org • bacei@bayareacouncil.org