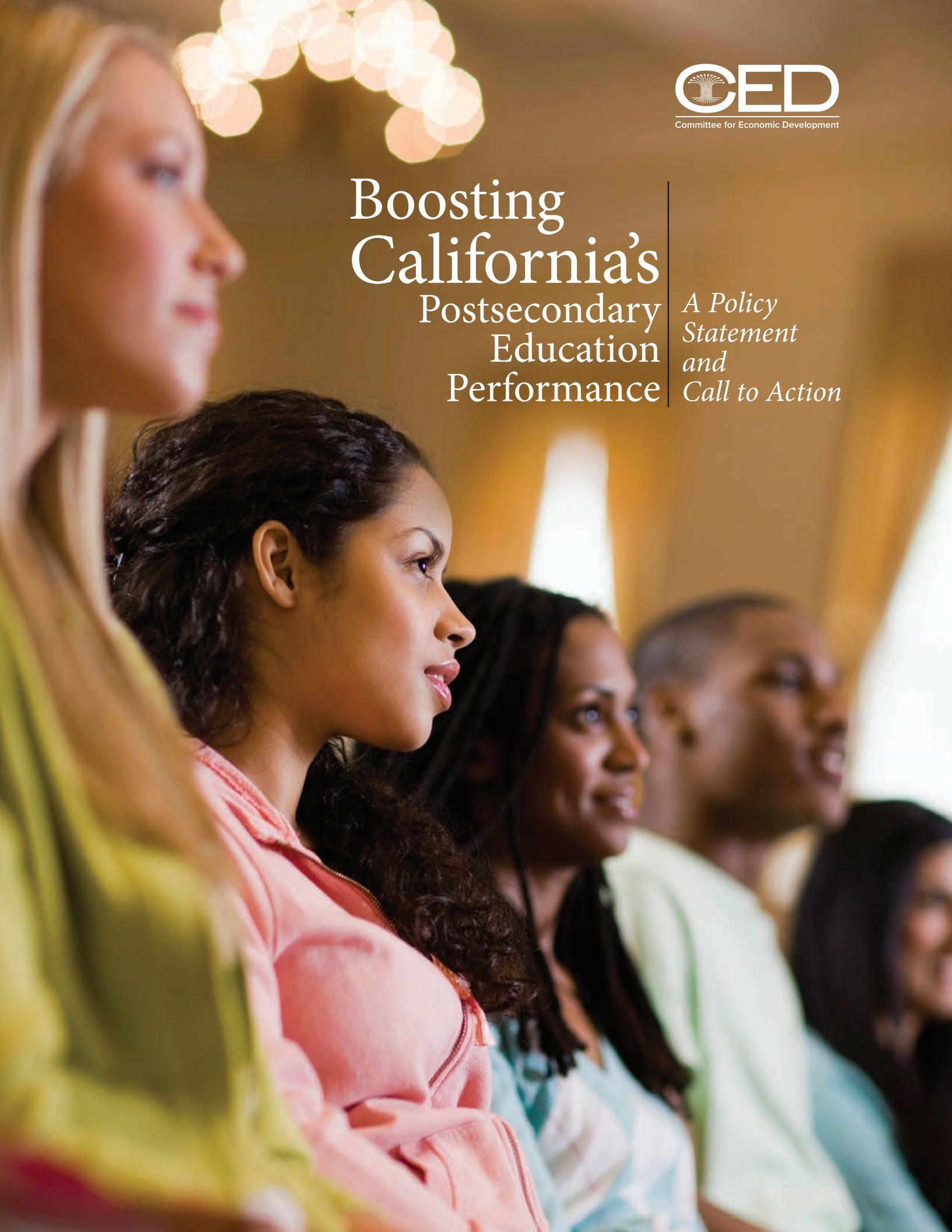

CED
Committee for Economic Development

Boosting California's Postsecondary Education Performance

A Policy Statement and Call to Action

Acknowledgments

Patrick M. Callan, President of the Higher Education Policy Institute (HEPI) and the principal author of the policy statement, was assisted by HEPI staff members. Noreen Savelle, executive assistant, coordinated the preparation of the statement and contributed editorial and research support. Darcie Harvey was the senior policy analyst, responsible for research and analysis as well as editorial assistance. In addition, Dennis Jones, President of The National Center for Higher Education Management Systems and Nancy Shulock, Executive Director, Institute for Higher Education Leadership & Policy at California State University, Sacramento, reviewed drafts and offered helpful criticism and advice. Heather Jack was editor of Boosting the Productivity of California Higher Education.

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Introduction

Lieutenant Governor Gavin Newsom

This policy statement calls for new directions for California higher education, directions that recognize the need to educate and train greater numbers of Californians to higher levels of knowledge and skills. It discusses some of the profound economic and demographic changes that are reshaping our society and our state that require rethinking of our successful twentieth century models of higher education. It documents the erosion of California's national and international leadership in higher education and the consequences if these trends continue. It points to new directions and new collaborations to provide educational opportunity and assure economic competitiveness for the 21st century. It calls for public-private partnerships and for deep engagement and support of California's business community for higher education and its transformation.

As a mayor, lieutenant governor and member of the governing boards of both the University of California and the California State University systems, I have seen first-hand the commitment and creativity of our college and university faculty, staff and administrators. And yet I have wondered why our state's performance in higher education access and attainment has slipped relative to other states and nations, including many of our economic competitors. I have wondered why steep tuition and enrollment restrictions have often seemed to be our first, rather than last, responses to financial adversity. I have wondered why there is so little cooperation across higher education sectors on a scale that could have an impact on college opportunity. And I have wondered why a state that justifiably prides itself on innovation in so many spheres has seemed so reluctant to aggressively, systematically and collaboratively explore the potential of super connective digital technologies that have the potential to contribute to student learning and constraining costs in the delivery of instruction off and on campus.

With these questions, I read and participated in discussions of the Committee for Economic Development's (CED) 2012 policy statement on the national imperative to improve the productivity of higher education. CED is an independent, non-profit, nonpartisan research and policy organization of business and education leaders that supports policies that promote economic growth, equal opportunity and improved quality of life for all. The report raised a set of issues about the productivity of American higher education that seemed to fit many of my questions and concerns about California. I invited CED to collaborate on a parallel policy statement that would focus on California.

Focusing on the education and training of Californians—developing the human talent needed for our state's economic and civic progress—this policy statement points to our underperformance in developing the educated citizenry required for economic competitiveness and individual opportunity. The magnitude of this underperformance is such that it will not be successfully addressed by modest injections of funding or by tweaks in current educational policy and practice. So this document calls for a more fundamental rethinking than has been undertaken since the mid-20th century—one that begins with California's higher education needs and with the aspirations of Californians.

I do not know—and this statement does not propose—what a blueprint for the future of California higher education should look like but it does suggest that our focus must be on the broad-access institutions. Particularly, the California Community Colleges, the California State University and locally and regionally focused private non-profit and for-profit colleges and universities.

I do know that developing plans that will meet the needs specified in this statement will require a new sense of urgency, unprecedented collaborations among higher education institutions and sectors, greater engagement of higher education with K-12 schools, new public-private partnerships and the willingness to seize on opportunities for delivering and credentialing learning that were not available when the current configuration of California higher education was put in place more than six decades ago. California does not lack the talent and creativity for the design, experimentation, innovation and reform that will be needed to reshape our higher education for the 21st century and the knowledge-based global economy. What has been missing is boldness in framing these issues and recognition that addressing them must be among the highest priorities for all who are concerned about California's future.

For my part, I plan to raise these issues in discussions with education and business leaders and other concerned Californians in public forums throughout California over the next year. I will propose that business and higher education leaders sponsor a major forum in 2015 to assess our progress in addressing the issues raised in this statement. I will press for action-oriented planning, including the roles of public and private finance, in meeting California's higher education needs that I believe should be in place by 2016.

All this may seem ambitious, and it is. It will depend upon the good will and commitment of higher education leaders, the business community and the many stakeholders in California's future. But I'm convinced that time is not our ally unless we use it to proactively shape our future.

Executive Summary

California's colleges and universities, long the envy of the world, no longer produce all of the graduates with the necessary postsecondary education to ensure both our state's prosperity and opportunities for individuals in the 21st century. After decades as a national and international leader, California has been falling behind other states and nations for some time in providing students with postsecondary credentials that have value in the workplace. Despite high numbers of individuals unemployed and seeking work, business leaders complain they cannot find enough workers with the necessary training and skills. Individuals without appropriate education and training beyond high school are increasingly less likely to find jobs that support a middle-class standard of living or contribute to innovation and productivity growth throughout the economy.

Meeting California's current and future needs for higher education opportunity and for economic competitiveness requires that postsecondary institutions improve their success rates with current students and attract and graduate individuals who have traditionally been under-represented in postsecondary education, most notably working-age adults and minorities who make up a growing proportion of the state's population. Moreover, higher education institutions must address these challenges at a time when fiscal pressures leave relatively few new financial resources available.

California's postsecondary education will have to achieve better results with the resources it already has and use new public and private resources to leverage productivity increases through improvements in practice, policy and educational innovation. Existing institutions must boost performance to become more productive and more effective. New kinds of institutions utilizing new delivery systems and new business models will need to be created, nurtured and duplicated.

The overwhelming majority of California college students attend "broad-access" public institutions—the California State University campuses and community colleges—not the elite public and private research universities. The challenge of enlarging the pool of educated and skilled Californians will fall primarily on these broad-access institutions, including locally and regionally focused private non-profit and for-profit colleges and universities. Broad-access institutions (those already in existence and those that might be "invented" by utilizing new instructional technologies and business models) are an under-appreciated component of the California postsecondary education system. It is often the more prestigious and elite institutions that garner most of the attention of the media and the public.

Without quantum increases in educational access, productivity, and effectiveness of the state's postsecondary institutions, particularly those with broad-access missions, there is little likelihood that California will have the human capital to compete successfully in the global economy or assure its citizens access to economic prosperity and a middle-class life. Our state needs ingenuity and process improvement throughout the economy, and needs a well-educated workforce to innovate and move the economy forward. By training California's current and future workforce, our broad-access educational institutions can drive productivity growth and leadership in the competitive world marketplace.

These daunting challenges will demand new ideas, new types of leadership and new partnerships—both public and private. Business leaders, in particular, should engage the future of higher education and partner in supporting innovation and productivity improvements.

Boosting California's Postsecondary Education Performance

California's prosperity and individual opportunity depend as never before on education—in particular, the effectiveness and productivity of higher education.

For California, as for the nation as a whole, rising standards of living depend upon process improvements in the production of goods and services. Although productivity advancements are commonly identified with technical work in laboratories, productivity improvements in the production and distribution of both goods and services can add as much to income and wealth. Our economy needs innovation at every point in the production chain to maintain its prosperity and world standing. This especially will be true as our baby boom generation retires and when a slower growing labor force will need to supply goods and services to a faster growing population of retirees. More and better education—of which increased participation and completion of postsecondary education are necessary components—can stimulate and enhance process improvements.

Better education is also a key to a better life for each individual. **Education and training beyond high school is now a necessary, if not sufficient, prerequisite for most jobs that support middle-class standards of living.** Employers say that they increasingly expect new hires to have a solid postsecondary education and credential. Greater educational attainment leads to lower rates of unemployment and crime. Education is also associated with better health, and with more involvement in society and greater satisfaction with life broadly. Postsecondary education provides the individual with the knowledge and skills necessary to successfully cope with the everyday demands of an increasingly complicated world.

More Californians must enroll in and complete postsecondary education programs that prepare them for work and life in the 21st century if the state is to maintain a healthy economy and society. **Many countries and states with which we compete in the global marketplace are achieving higher levels of postsecondary attainment.** The United States is falling behind other countries and California is falling behind other states.

Demographic and economic realities pose very real challenges to California postsecondary attainment. Enlarging the pool of postsecondary education students will require drawing in low-income and minority individuals with whom education has been least successful and whose participation in postsecondary education has been comparatively low. Yet tuitions are becoming—if they are not already—unaffordable to low-income students and families, and even comparatively affluent students are entering their working lives with crushing levels of higher education debt. Colleges will need to expand and to serve students more effectively precisely at a time when public resistance to tuition and fee increases is growing, and state and federal governments have been hard-pressed to maintain their subsidies to public institutions and to students. Therefore, it is critical that the state's postsecondary institutions boost their performance through productivity gains and innovation rather than relying primarily on new money to underwrite improvement.

Every sector of California postsecondary education, including public and private research universities and highly selective colleges and universities, plays an important role in preparing the workforce of the future. The major public and private research institutions helped establish California as a world leader in postsecondary education in the 20th century. They also set the standard for those higher education institutions now competing with us abroad. **But the state's major research institutions will not be the central players in improving the level of undergraduate attainment of the state's population. The principal responsibility**

will inevitably fall to the state's "broad-access" institutions—the California State University campuses, the California Community Colleges, the regionally focused non-profit colleges and for-profit colleges and universities. These institutions currently enroll the vast majority of California's students who pursue education and training beyond high school. And these are the most realistic options for the majority of the large underserved populations, including low-income and minority students and working adults, who must be educated to build the workforce of the future. The essential contribution these higher education institutions make to postsecondary education and training is frequently unappreciated.

This is why **it is urgent that Californians recognize their strong stake in postsecondary education as essential to a well-educated and trained citizenry and workforce—and an indispensable key to the state's economic and social health.** This policy statement assesses California's needs and performance in postsecondary education and calls for new directions that must be taken in order to return California to its historic place as a leader in economic and social opportunity.

Falling Behind in Postsecondary Education and Training

The United States has a proud history of expanding and transforming its postsecondary institutions to meet changing societal needs. California has traditionally led the nation in these efforts with exceptional public and private research universities and unprecedented opportunities for its population for education and training beyond high school.

The last great transformation of higher education took place over the decades following World War II, and California was the national and global leader of this transformation. Going to college became a mass rather than an elite phenomenon for citizens in the state, with enrollments rising dramatically (see Tables 1 and 2). As a result, public institutions increased in number, community colleges were created, "normal schools" providing teacher training were transformed into regional state universities, and new state colleges offering a variety of academic programs were established. Late in the 20th century, private for-profit institutions began

Table 1: California: Historical Increases in Institutions by Sector, 1990-2012

Year	Public			Private Four-Year	Private Two-Year
	CCC	CSU	UC		
2012	112	23	10	220	90
2010	112	23	10	202	87
2005	108	23	10	192	63
2000*	107	22	9	199	77
1995	106	22	9	159	39
1990	106	21	9	140	32

*2000: Private data is from 2001 as 2000 data not available from NCES.
Private: Includes both nonprofit and for profit private institutions
Sources: California Postsecondary Education Commission, California Colleges Mailing List, http://www.cpec.ca.gov/StudentData/AddressOptions.asp (accessed on August 19, 2013); National Center for Education Statistics, Digest of Education Statistics: 1990-2012.

rapid growth that made them significant players alongside the more traditional public and private non-profit providers of postsecondary education.

All these colleges were filled first by returning veterans and then by the "baby boomers." *The 1960 California Master Plan for Higher Education*[1] promised that every high school graduate who was able to benefit could attend a college or university.

Under the auspices of the plan, postsecondary access was significantly broadened; the expansion of public institutions, particularly state universities and community college campuses, provided unprecedented college opportunity, and the growth of both federal and state student aid programs made it possible for many low-income students to attend public and private colleges and universities throughout the state.

Table 2: California: Historical Increases in Undergraduate Enrollment by Sector, 1980-2012

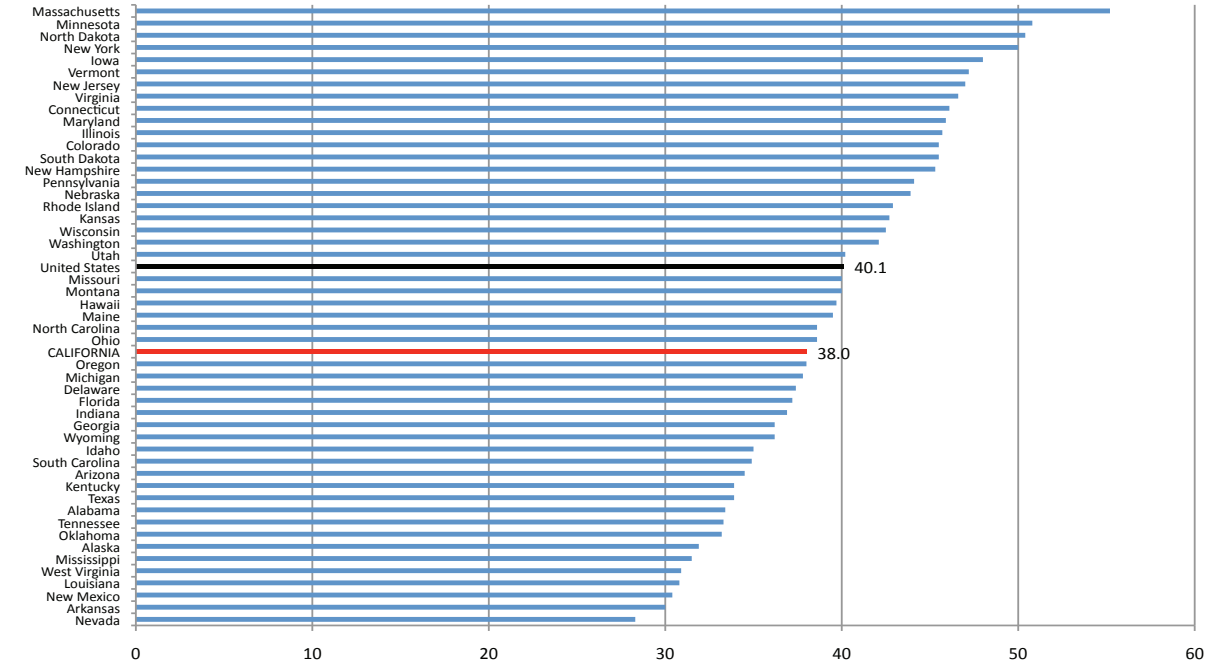
Year	Public			Private Two-Year and Four-Year	
	CCC	CSU	UC	Non-Profit	For-Profit
2011	1,526,012	368,380	181,197	156,977	206,852
2010	1,609,773	349,907	179,245	148,608	195,306
2000	1,379,072	291,476	140,938	123,030	78,165
1990	1,058,363	294,041	124,243	102,530	16,624
1980	885,658	255,204	96,080	96,738	3,202

Source: National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Student Enrollment Files 1980-2012.

As a result, **California in the latter half of the 20th century was a world leader in the proportion of its working-age population that had participated in education and training programs beyond the high-school level.**

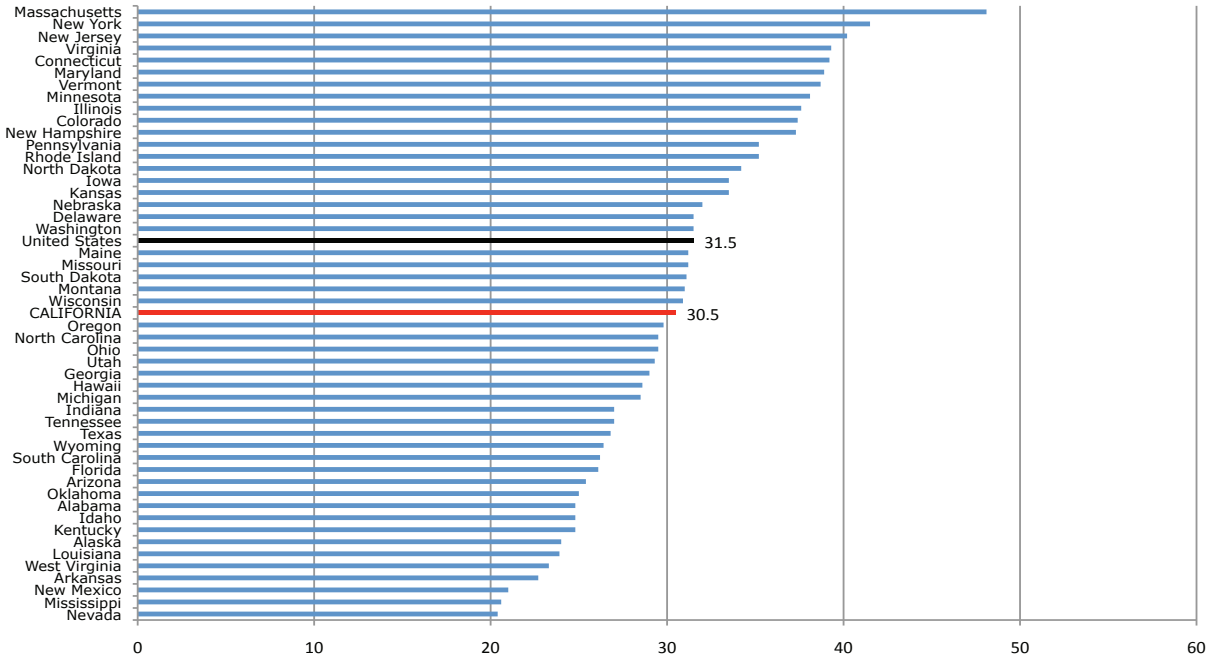
However, by century's end, the state's leadership had eroded. **While California and the United States still rank near the top internationally in terms of the proportion of working-age adults with associate degrees or higher, the nation and the state compare less well when younger adults, ages 25-34, are considered. (See Figures 1, 2, 3, 4 and 5) As our relatively better educated older generations retire and younger cohorts age, we are in danger of seeing our overall workforce attainment level decline relative to other countries.** The state's postsecondary attainment levels have stagnated, while a number of our international economic competitors have significantly boosted the proportion of their younger population participating in and completing postsecondary degrees and certificates.

Figure 1: Percent of Adults (25-34) Holding an Associate's Degree by State, 2011



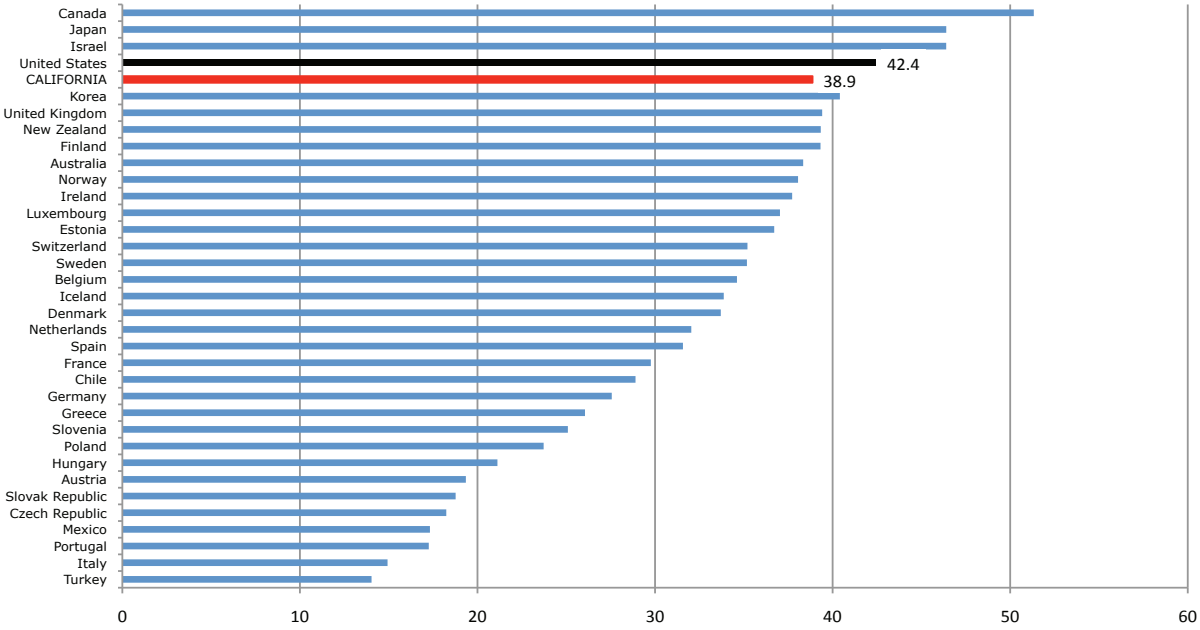
Source: National Center for Higher Education Management Systems (NCHEMS), Higher Ed Info Center (www.higheredinfo.org) citing American Community Survey 2011.

Figure 2: Percent of Adults (25-34) Holding a Bachelor's Degree by State, 2011



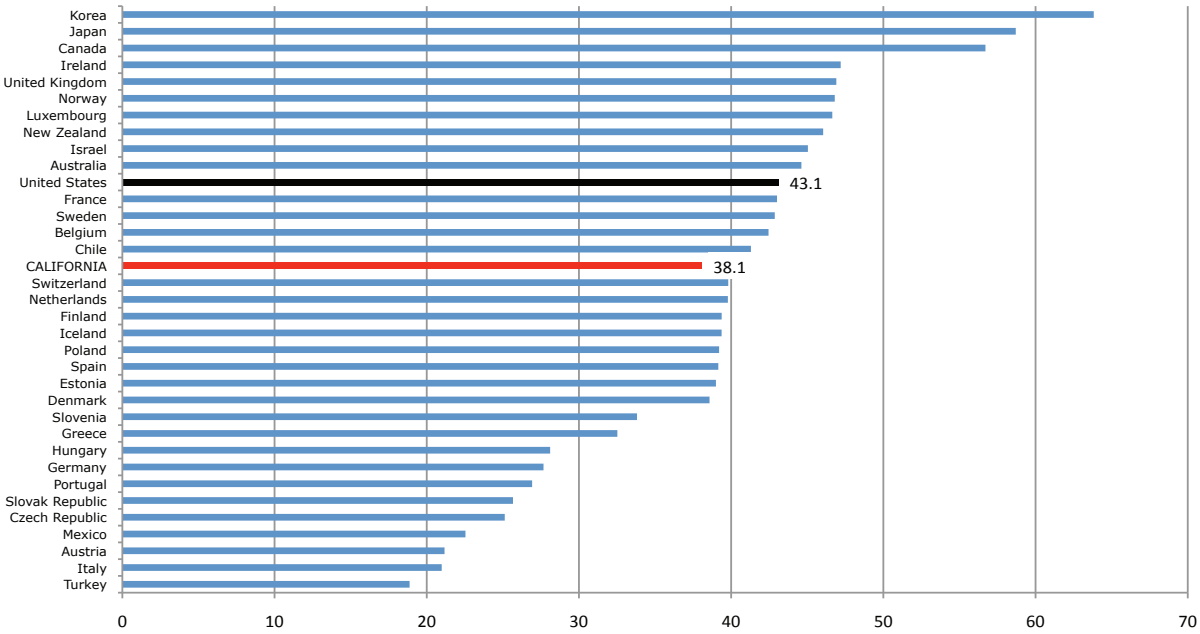
Source: National Center for Higher Education Management Systems (NCHEMS), Higher Ed Info Center (www.higheredinfo.org) citing American Community Survey 2011.

Figure 3: Percent of Adults (25-64) Holding an Associate's Degree or Higher



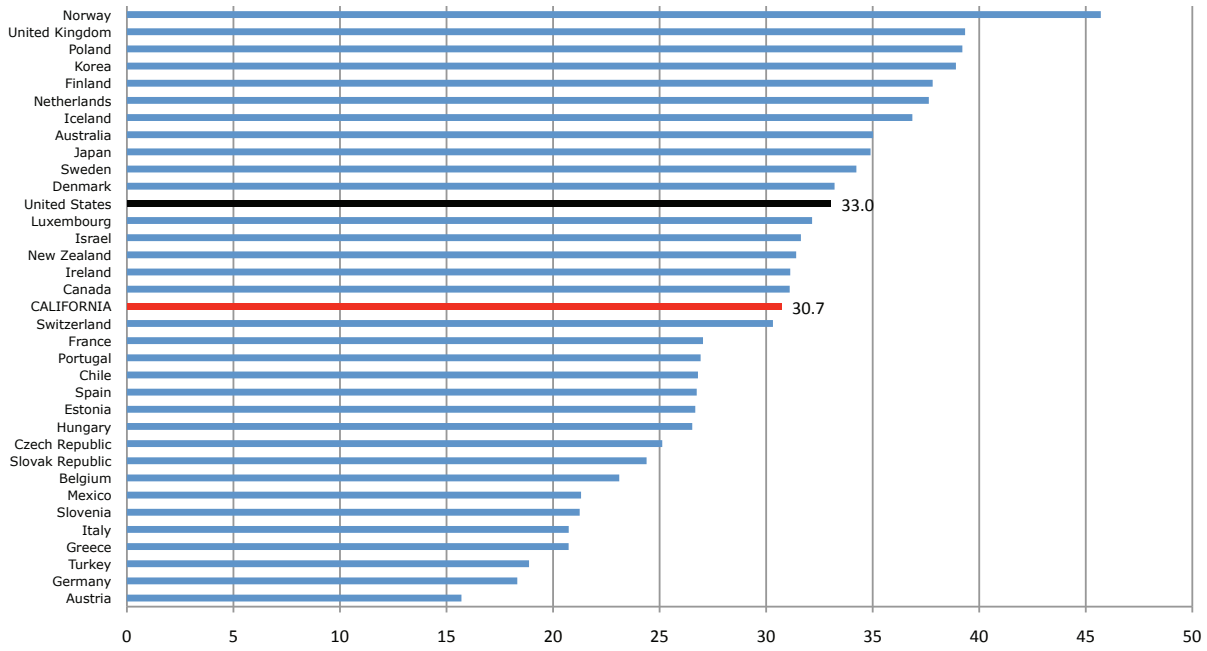
Sources: International and National data from the Organisation for Economic Cooperation and Development (OECD), Education At A Glance 2013, Table A1.3a; California data from U.S. Census Bureau, 2009-11 American Community Survey (ACS) Public Use Micro-data Sample (PUMS) File. Data analysis provided by the National Center for Higher Education Management Systems (NCHEMS).

Figure 4: Percent of Adults (25-34) Holding an Associate's Degree or Higher



Sources: International and National data from the Organisation for Economic Cooperation and Development (OECD), Education At A Glance 2013, Table A1.3a; California data from U.S. Census Bureau, 2009-11 American Community Survey (ACS) Public Use Micro-data Sample (PUMS) File. Data analysis provided by the National Center for Higher Education Management Systems (NCHEMS).

Figure 5: Percent of Adults (25-34) Holding a Bachelor's Degree or Higher



Sources: International and National data from the Organisation for Economic Cooperation and Development (OECD), Education At A Glance 2013, Table A1.3a; California data from U.S. Census Bureau, 2009-11 American Community Survey (ACS) Public Use Microdata Sample (PUMS) File. Data analysis provided by the National Center for Higher Education Management Systems (NCHEMS)

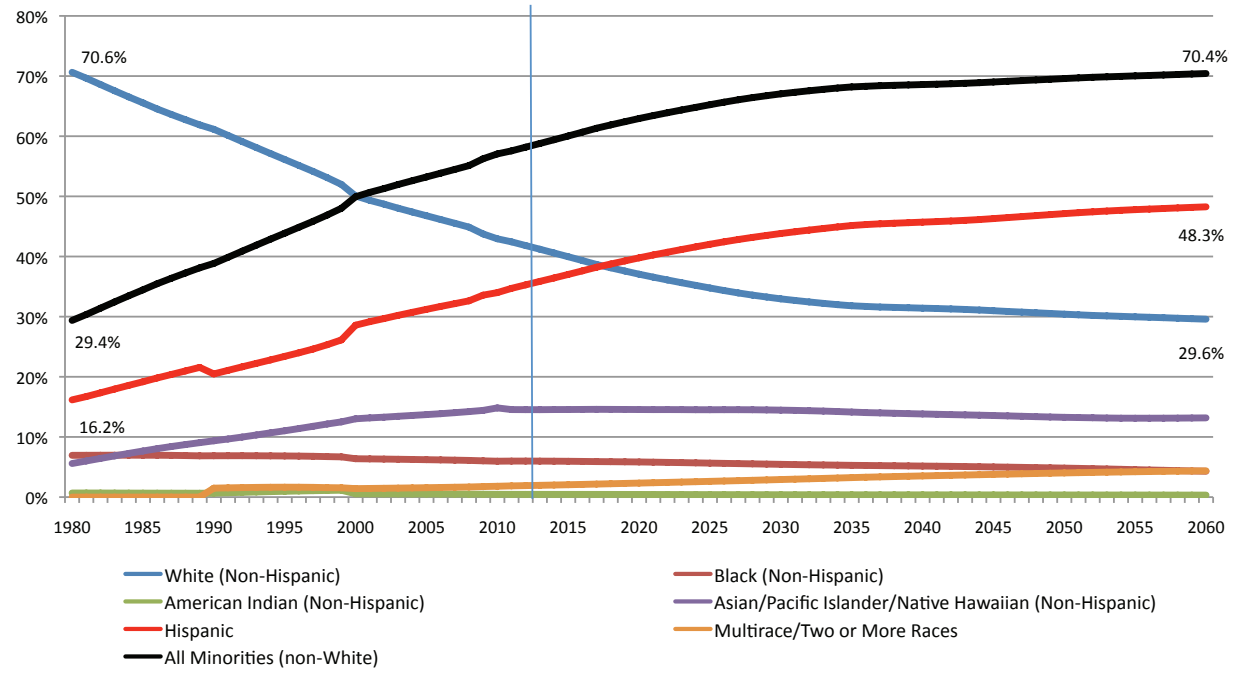
If current trends continue, more states are likely to surpass California's level of postsecondary attainment in the workforce. At the same time, **there are already signs that California businesses will not have all the well-prepared employees they will need to remain nationally and internationally competitive.** Two recent analyses and projections of future workforce requirements by the Public Policy Institute of California (PPIC) and the Georgetown University Center on Education and the Workforce[2] show that California is on a course to produce significantly fewer college degree and certificate holders than the job market will require. The PPIC study concludes that if current trends persist, in 2025 only 35 percent of working-age adults in California will have at least a bachelor's degree, but 41 percent of jobs will require a bachelor's degree. This equates to a shortfall of over a million college graduates. It is most likely that these educational deficits will motivate employers to look outside of California for their workforce needs, and to move to, and create jobs in, states and countries that produce the workforces they need to compete.

Demographic and Economic Challenges to Boosting Postsecondary Attainment

Educating enough well-trained workers to keep California's economic engine competitive requires increasing the number of individuals who have postsecondary credentials and degrees that are valuable in the workplace. Demographic and economic realities pose at least two challenges. First, the large "baby boom" generation (usually referring to those born between 1946 and 1964) is aging out of the workforce and will be replaced by smaller population cohorts that are much more ethnically and economically diverse. Colleges must do a better job of attracting and retaining students who have traditionally not been well represented in postsecondary education, and who often need special services and encouragement to persist and succeed. Second, expanding institutional capacity to meet workforce projections will have to be accomplished while both governments and families face significant financial constraints. In some recent years, California public higher education reduced the numbers of students served.

Postsecondary institutions in general, and the broad-access institutions in particular, must adapt to the dramatic demographic changes taking place in California. **We are increasingly a multi-racial, multi-ethnic society.** Changing population patterns have been apparent in the make-up of the working-age population for some time. Between 1980 and 2060, the proportion of minorities in this population group is expected to increase from 29 to 70 percent. (See Figure 6) Over these years, the proportion of working-age Hispanics is projected to grow from 16 to 48 percent. The increase in racial and ethnic diversity is even more evident in younger age cohorts, as reflected in the state's public school enrollment. (See Table 3)

Figure 6: California Population and Population Projections (25-64), Percent Share by Ethnicity, 1980-2060



Sources: State of California, Department of Finance, Race/Ethnic Population with Age and Sex Detail, 1980-1989, 1990-1999, 2000–2010. Sacramento, California, September 2012, and 2000-2060 Population Projections , January 2013.

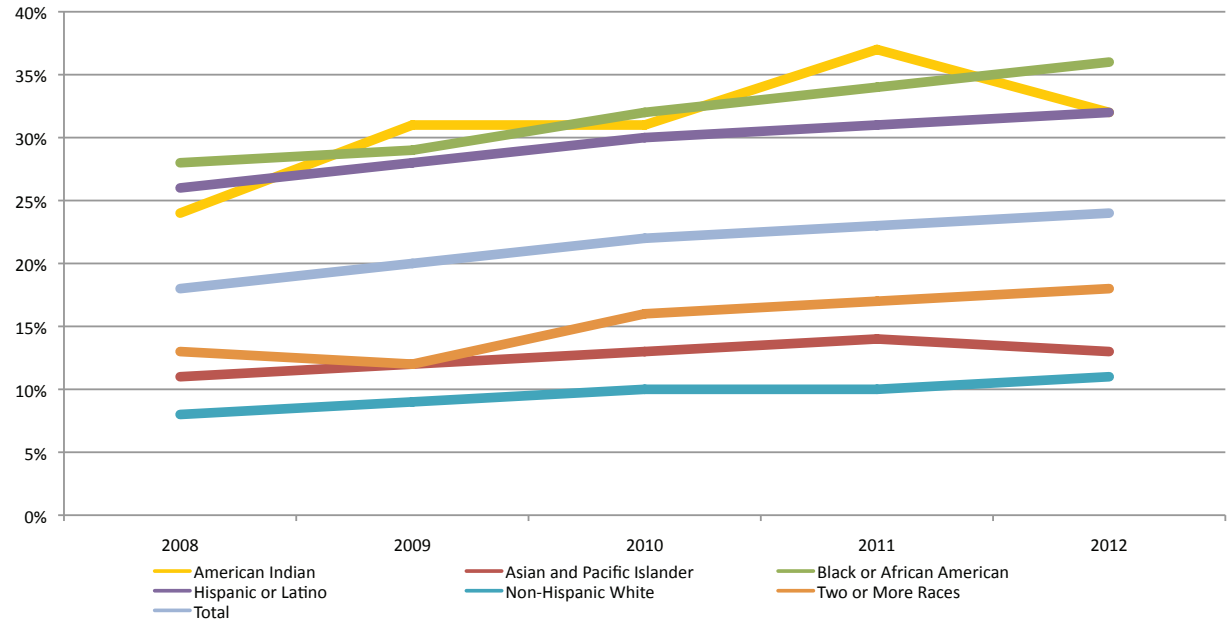
Table 3: California Public School Enrollment by Ethnicity and Grade Level Percent of Total Grade Level 2012-13

	American Indian or Alaska Native, Not Hispanic	Asian, Not Hispanic	Pacific Islander, Not Hispanic	Filipino, Not Hispanic	Hispanic or Latino	African American, Not Hispanic	White, Not Hispanic	Two or More Races, Not Hispanic
Kindergarten	1%	8%	1%	2%	56%	5%	24%	3%
Grade 1	1%	8%	0%	2%	56%	6%	24%	3%
Grade 2	1%	9%	1%	2%	55%	6%	24%	3%
Grade 3	1%	9%	1%	2%	54%	6%	25%	3%
Grade 4	1%	9%	1%	2%	53%	6%	25%	2%
Grade 5	1%	9%	1%	3%	53%	6%	25%	2%
Grade 6	1%	9%	1%	3%	53%	6%	25%	2%
Grade 7	1%	9%	1%	3%	52%	7%	26%	2%
Grade 8	1%	8%	1%	3%	52%	7%	26%	2%
Grade 9	1%	8%	1%	3%	53%	7%	26%	2%
Grade 10	1%	9%	1%	3%	51%	7%	27%	2%
Grade 11	1%	9%	1%	3%	50%	7%	28%	2%
Grade 12	1%	9%	1%	3%	49%	7%	28%	2%
Enrollment TOTAL*	1%	9%	1%	2%	53%	6%	26%	2%

*Total school enrollment for fields Kindergarten (KDGN) through grade twelve (GR_12) plus ungraded elementary (UNGR_ELM) and ungraded secondary classes (UNGR_SEC). Adults in kindergarten through grade twelve programs are not included.
Source: National Center for Education Statistics, Integrated Postsecondary Education Data System (Ipeds), Student Enrollment Files 1980-2012.

The challenge posed by the increasingly diverse nature of California's population is exacerbated by differences in income levels. **Black and Hispanic children, in particular, suffer from very high rates of poverty;** in 2011, about a third of these youngsters under 18 years-of-age lived in households with incomes below the poverty level.[3] Family income has long been correlated with educational attainment: children from lower-income families are less likely to complete high school, to enroll in college, to transfer from a community college to a baccalaureate-granting institution, or to complete a postsecondary education program. (See Figure 7)

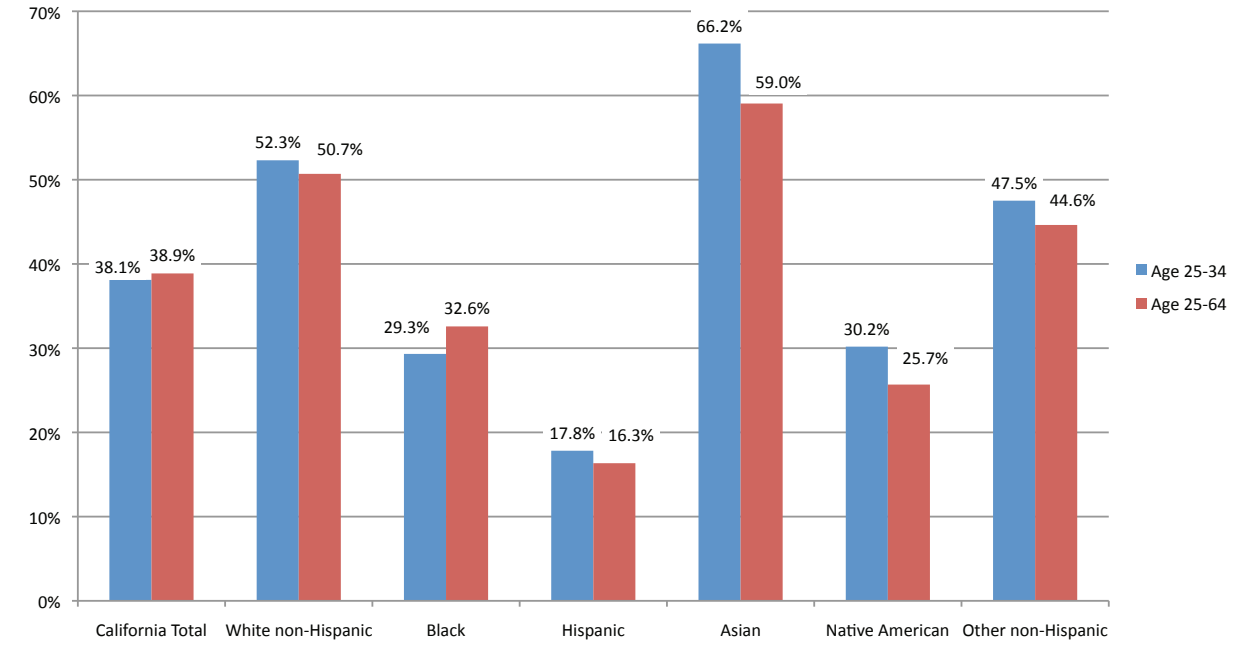
Figure 7: California Children in Poverty by Race and Ethnicity, 2008-2012



Definitions: The share of children under age 18 who live in families with incomes below the federal poverty level, as defined by the U.S. Office of Management and Budget, by race and ethnicity.
Data Source: Kidscount.org citing Population Reference Bureau, analysis of data from the U.S. Census Bureau, Census 2000 Supplementary Survey, 2001 Supplementary Survey, 2002 through 2012 American Community Survey.

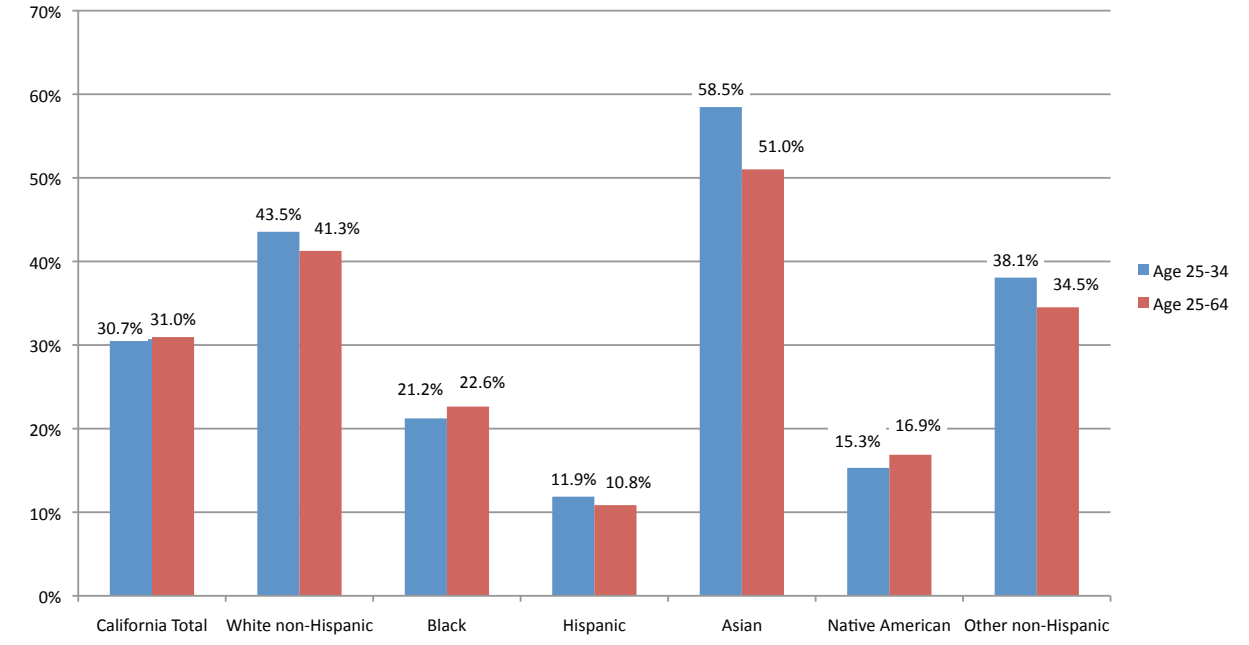
Increasing the proportion of the state's working-age adults who have postsecondary education and training will require better serving populations whose educational attainment has traditionally lagged their white and more economically advantaged peers. Hispanics in particular have very low levels of educational attainment. Only 19 percent of Hispanics in the state have attended postsecondary education, while only 11 percent (compared to 41 percent of whites) have received a bachelor's degree. (See Figures 8, 9 and 10)

Figure 8: Share of California Population with an Associate's Degree or Higher, By Ethnicity and Age



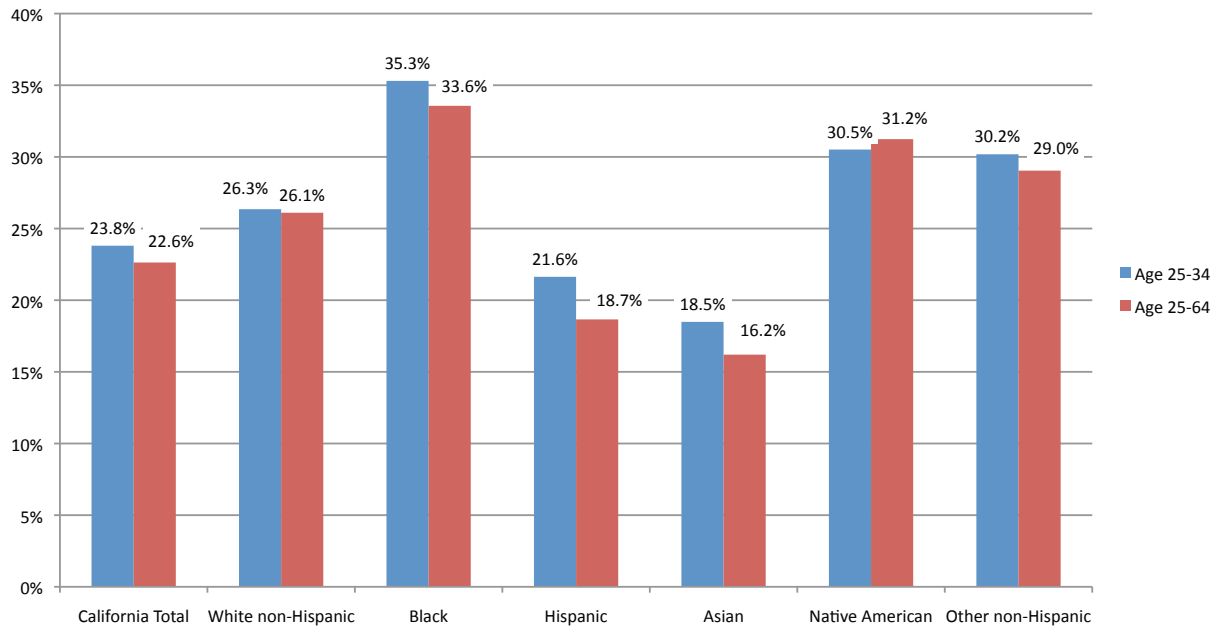
Source: U.S. Census Bureau, 2009-11 American Community Survey (ACS) Public Use Microdata Sample (PUMS) File. Data analysis provided by the National Center for Higher Education Management Systems (NCHEMS).

Figure 9: Share of California Population with a Bachelor's Degree or Higher, By Ethnicity and Age



Source: U.S. Census Bureau, 2009-11 American Community Survey (ACS) Public Use Microdata Sample (PUMS) File. Data analysis provided by the National Center for Higher Education Management Systems (NCHEMS).

Figure 10: Share of California Population with Some College but No Degree, By Ethnicity and Age



Source: U.S. Census Bureau, 2009-11 American Community Survey (ACS) Public Use Microdata Sample (PUMS) File. Data Analysis provided by the National Center for Higher Education Management Systems (NCHEMS).

In the face of these demographic changes, it will be a major challenge for the state to overcome historical inequities and significantly raise the postsecondary participation and attainment rates of the youngsters now in elementary and secondary school. And **even if California raised postsecondary participation and attainment rates to the levels of those states that currently demonstrate the highest performance, it is estimated that there will still be a deficit of one million college-educated workers in 2025 compared to what workforce projections indicate will be needed.**[4]

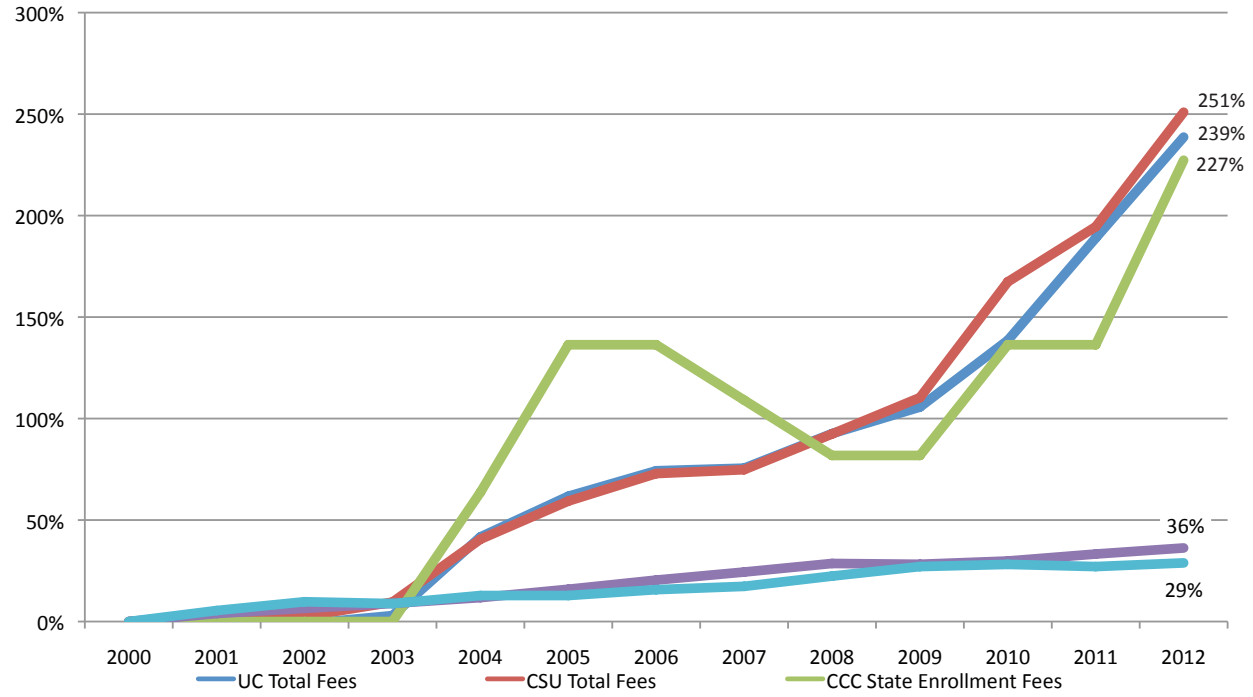
Furthermore, this gap cannot be closed by simply raising the attainment rate for younger individuals throughout the state. **It will also be necessary for California to increase participation and attainment among working-age adults who never enrolled in college or who left without completing a program.** This means making college accessible and affordable for older individuals who have significant workplace and family responsibilities. Many of these potential working-age students are likely to be most interested in short-term postsecondary programs that offer credentials with immediate value in the labor market. Others may want to complete unfinished associate and baccalaureate degree programs; an estimated 4.5 million[5] working-age adults in California have participated in postsecondary education at some point in time but did not receive a credential or degree.

Given the demographic realities of the state, most of the future increases in college enrollments and graduates must come from families whose economic means are limited at best. For more than 25 years, however, college tuition and fees have been increasing far faster than median family incomes and have outstripped the Consumer Price Index and even fast-rising medical costs. As noted above, most of the necessary increases in college enrollments

and graduates must come from the members of society who are economically disadvantaged; high proportions of the state's affluent populations already have college degrees. Low-income students are price sensitive, a major reason for their choices of lower cost broad-access institutions.

It is highly improbable that California's recent trajectory of postsecondary tuition increases can continue, even with student financial assistance, without further undermining the access of underrepresented low-income groups and of middle-income students.

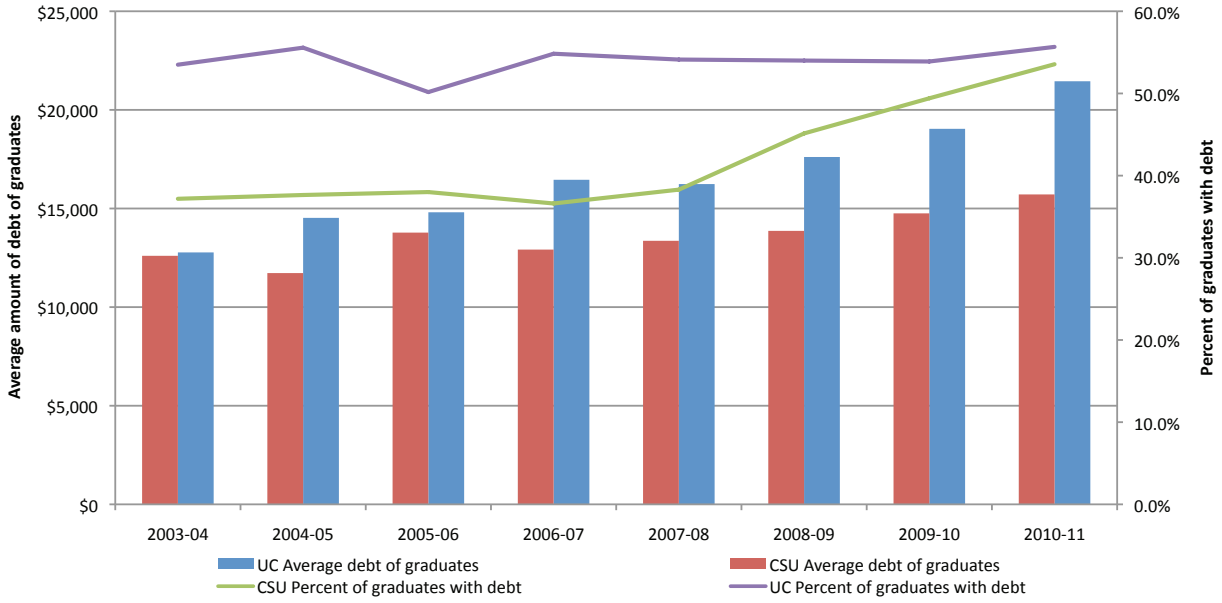
Figure 11: Percent Increase in Tuition and Median Family Income Since 2000



Sources: CCC, CSU, UC data from California Postsecondary Education Commission and from CCC, CSU, and UC, CPI from U.S. Bureau of Labor Statistics, Income from U.S. Department of Housing and Urban Developments, State Income Limits, Median Family Income

Additional public and private investments in California's postsecondary education system and in its student financial assistance programs will no doubt be needed in the future to maintain national and international educational and economic competitiveness, and equitably raise living standards.

Figure 12: College-Level Debt, University of California and California State University, 2004-11

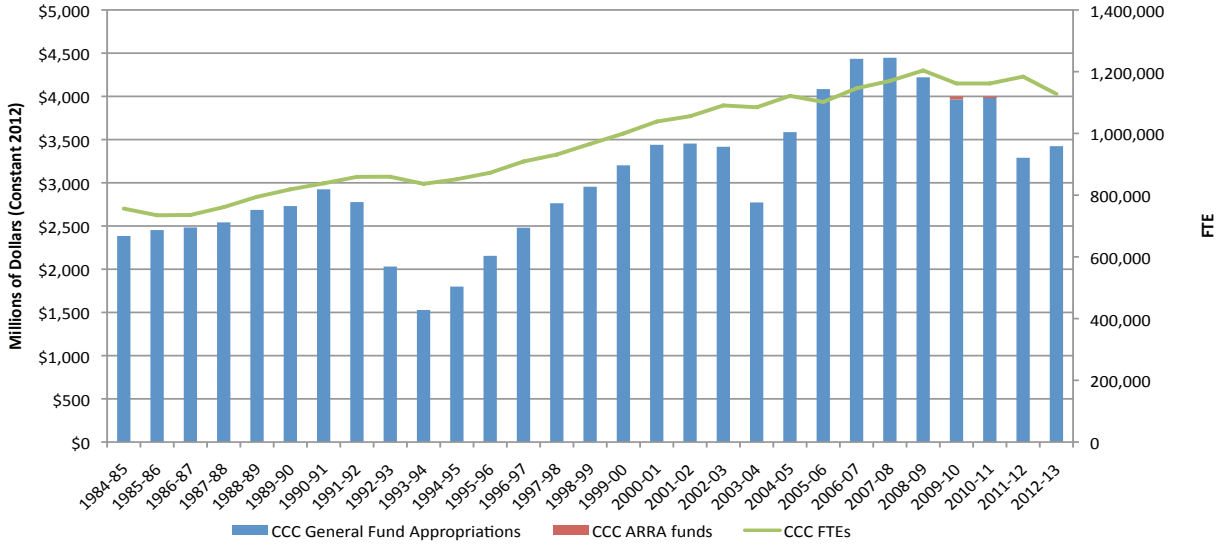


Source: Source: The Institute for College Access & Success, College InSight, http://www.college-insight.org. Most college-level data are taken directly from U.S. Department of Education sources and the Common Data Set (CDS).

Public opinion research shows that Californians value higher education and hold high college aspirations for themselves and for their children. For example, a majority of California parents hope their child will achieve at least a four-year college degree, and 46 percent of Latinos and 51 percent of whites aspire to graduate degrees for their children. A recent Public Policy Institute of California statewide survey found that 85 percent of Californians view the higher education system as very important for the state's quality of life and economic vitality over the next 20 years.[6]

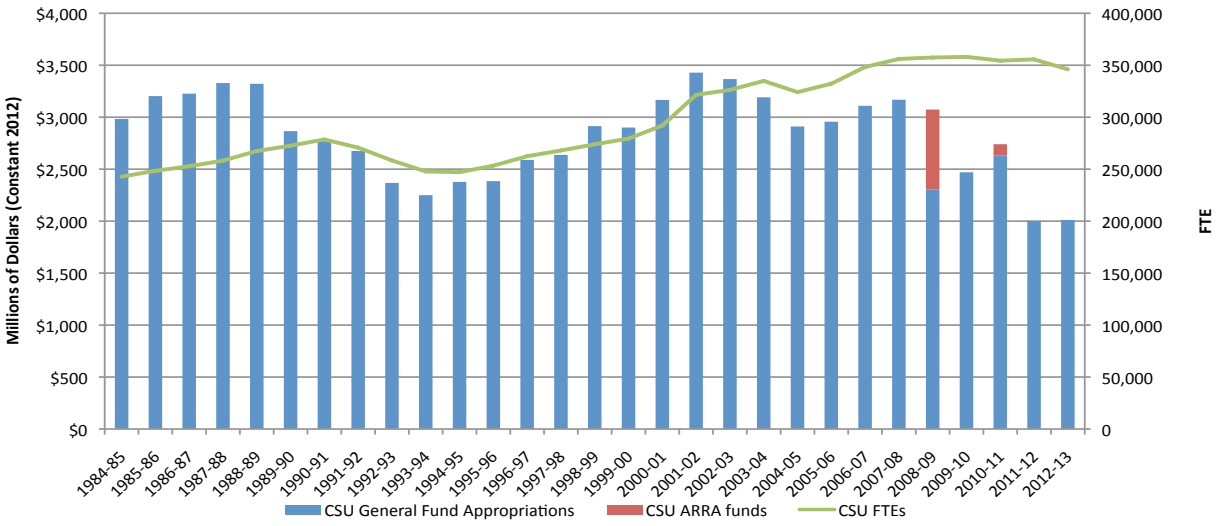
In 2012 and 2013, the people of California, through the initiative process and then the governor and the legislature, increased state investment in public higher education. There can be little doubt that continuing public investment will be required if California is to successfully confront the economic and demographic challenges. **Realistically, even with additional public investment, the prospects for meeting the state's needs for significantly raising higher education attainment are poor unless new and existing financial resources are devoted to major improvements in the educational productivity of the state's colleges and universities.**

Figure 13: California Community Colleges: Appropriations and Enrollment (FTE), 1985-2013



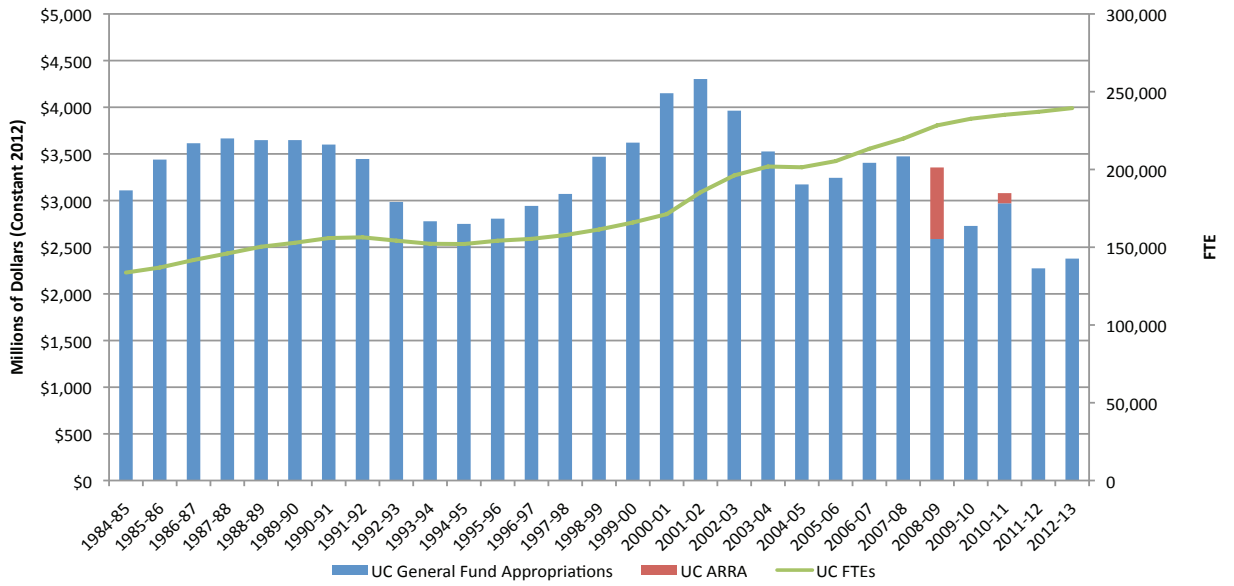
ARRA indicates federal funding provided to the state through the American Recovery and Reinvestment Act of 2009.
Sources: Appropriations from California Legislative Analyst, FTE from California Postsecondary Education Commission (1984-2011); 2012 and 2013 data from Governor's Proposed Budget 2013-14 (http://www.ebudget.ca.gov/2013-14/pdf/Governors-Budget/6000/6440_fig1f.pdf accessed on 10-21-2013) and California Community College Datamart (http://datamart.cccco.edu/ accessed on 10-21-2013). Inflation adjustment per U.S. Bureau of Labor Statistics.

Figure 14:California State University: Appropriations and Enrollment (FTE), 1985-2013



ARRA indicates federal funding provided to the state through the American Recovery and Reinvestment Act of 2009.
Sources: Appropriations from California Legislative Analyst, FTE from California Postsecondary Education Commission (1984-2011); 2012 and 2013 data from Governor's Proposed Budget 2013-14 (http://www.ebudget.ca.gov/2013-14/pdf/Governors-Budget/6000/6440_fig1f.pdf accessed on 10-21-2013) and California Community College Datamart (http://datamart.cccco.edu/ accessed on 10-21-2013). Inflation adjustment per U.S. Bureau of Labor Statistics.

Figure 15: University of California: Appropriations and Enrollment (FTE), 1985-2013



ARRA indicates federal funding provided to the state through the American Recovery and Reinvestment Act of 2009.
Sources: Appropriations from California Legislative Analyst, FTE from California Postsecondary Education Commission (1984-2011); 2012 and 2013 data from Governor's Proposed Budget 2013-14 (http://www.ebudget.ca.gov/2013-14/pdf/GovernorsBudget/6000/6440_fig1f.pdf accessed on 10-21-2013) and California Community College Datamart (http://datamart.cccco.edu/ accessed on 10-21-2013). Inflation adjustment per U.S. Bureau of Labor Statistics.

The Pivotal Role of Broad Access Institutions

One key strength of California's postsecondary education is its broad range of institutions with diverse goals and missions. These institutions were collectively responsible for California's leadership in postsecondary education in the second half of the 20th century. As already noted, every sector of postsecondary education (including research universities and highly selective colleges and universities) must be called upon to contribute to the improvement of our state's postsecondary performance and to the closing of attainment gaps associated with income and ethnicity.

Inescapably, however, the major challenge and opportunity for enlarging the pool of college-educated and trained Californians will fall to the broad-access colleges and universities, which include the California Community Colleges, the California State University campuses, some locally and some regionally focused private non-profit institutions, and the for-profit postsecondary institutions.

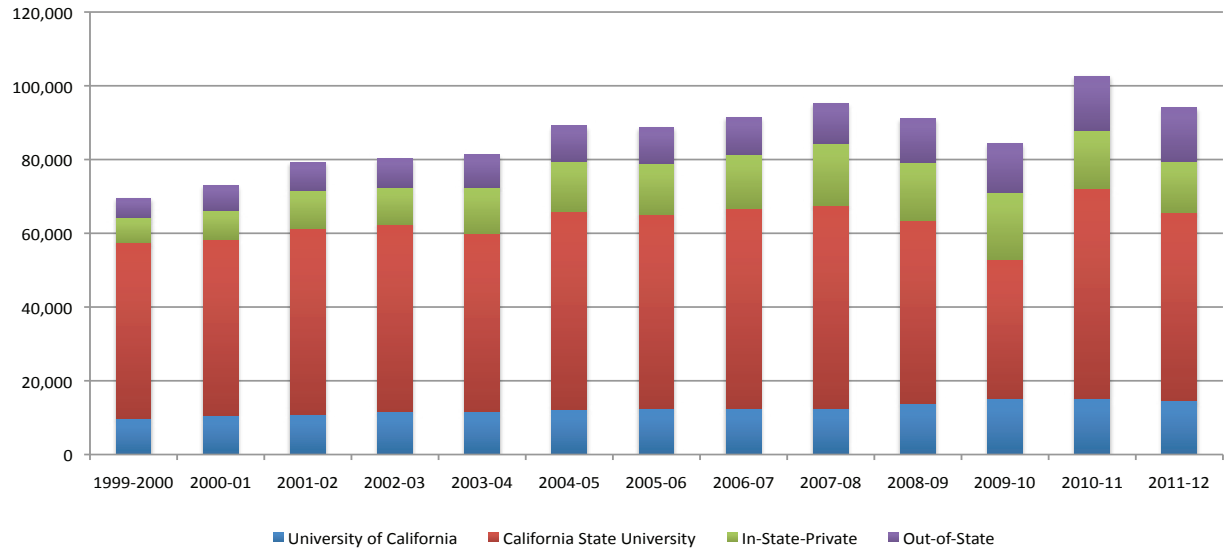
While there is enormous diversity among these higher education institutions, they have in common the principal and often exclusive mission of providing undergraduate instruction. Moreover, historically, they have enrolled the majority of those from underserved groups who participate in California postsecondary education and who must participate in larger numbers in the future. Current undergraduate enrollments are heavily concentrated in these colleges, particularly in public institutions that are financially supported primarily by state appropriations and tuition. The path to baccalaureate degrees for most students who seek them is to enroll initially in community colleges for

Table 4: Transfer Students from the California Community Colleges by Destination

Year	University of California	California State University	In-State-Private	Out-of-State	Total CCC Transfer Students	Total CCC FTEs	Transfer total as a % of Total FTEs
2011-12	14,528	51,050	13,908	14,680	94,166	1,184,003	8.0%
2010-11	15,223	56,959	15,789	14,656	102,627	1,161,807	8.8%
2009-10	15,200	37,651	18,197	13,335	84,383	1,161,807	7.3%
2008-09	13,755	49,768	15,776	11,892	91,191	1,203,925	7.6%
2007-08	12,592	54,970	16,825	10,916	95,303	1,170,126	8.1%
2006-07	12,386	54,379	14,493	10,260	91,518	1,146,163	8.0%
2005-06	12,404	52,640	13,839	9,840	88,723	1,101,903	8.1%
2004-05	12,205	53,693	13,659	9,589	89,146	1,121,680	7.9%
2003-04	11,599	48,317	12,626	8,721	81,263	1,084,644	7.5%
2002-03	11,569	50,744	10,155	7,895	80,363	1,090,704	7.4%
2001-02	10,820	50,427	10,322	7,752	79,321	1,055,641	7.5%
2000-01	10,516	47,858	7,840	6,876	73,090	1,038,474	7.0%
1999-2000	9,711	47,674	6,834	5,309	69,528	999,652	7.0%

Sources: UC: UC Application, Admission and Enrollment of California Resident Traasfers for Fall 1989 through 2012, http://www.ucop.edu/news/studstaff.html, CSU: 1989-2010 CPEC "Transfer Pathways", 2011-12 CSU Analystic Studies "California Community College Transfers to the California State University System" http://www.calstate.edu/as/ccct/index.shtml, In-State Private and Out-of-State: CCC Chancellor's Office, ARCC Transfer Volume Summary Report (9-11-2013). FTE data from California Postsecondary Education Commission, and Governor's Proposed Budget, 2013-14.

Figure 16: California Community Colleges Transfer Students by Destination, 2000-2012



Sources: UC: UC Application, Admission and Enrollment of California Resident Transfers for Fall 1989 through 2012, http://www.ucop.edu/news/studstaff.html, CSU: 1989-2010 CPEC "Transfer Pathways", 2011-12 CSU Analystic Studies "California Community College Transfers to the California State University System" http://www.calstate.edu/as/ccct/index.shtml, In-State Private and Out-of-State: CCC Chancellor's Office, ARCC Transfer Volume Summary Report (9-11-2013).

lower division courses, and then transfer to four-year institutions. (See Table 4 and Figure 16) The numbers of transfer students is low, given the need and the fact that the California higher education depends upon large numbers following this track to produce bachelor's degrees.

Yet compared to the elite and often research-focused institutions throughout the state, the critical role of these broad-access colleges and universities is often unrecognized. Their contributions are not well understood (or valued) by the public and by government, civic and business leaders. These institutions receive far less attention and often have far less political clout. They are also frequently perceived and defined as what they are not—institutions that seek to build their reputations on the basis of graduate education and research—instead of what they are: the backbone of the state's and nation's workforce development system, creators of human capital, and engines of economic growth. Their effectiveness and productivity will determine whether California succeeds in significantly raising postsecondary education attainment.

The educational challenges facing broad-access colleges are great. Their students and prospective students, whether recent high school graduates or older adults, are often inadequately prepared for college-level coursework; many attend part-time and are responsible for supporting themselves and their families; many are the first members of their families to attend college; and many attend multiple institutions; for example, taking lower division courses at one or more community colleges and then transferring to a four-year college, or taking courses at a local college and from an internet provider at the same time. Completion rates for these broad-access institutions are considerably lower than those of highly selective institutions.

The Productivity Challenge

An economically competitive workforce, and a citizenry that can maintain and enhance democratic institutions and values, requires that improving higher education participation and completion rates be placed at the core of California's public agenda. Focusing policy discussion on the outcomes of postsecondary education rather than its inputs represents a sea change from current practice. In this statement, we have repeatedly referred to the need for higher levels of postsecondary attainment. In addition, implicitly if not explicitly, we have suggested that this change be measured by the number of degrees and credentials awarded in the state.

But we do not view the task of boosting postsecondary performance in California as merely a numbers game; degrees and credentials must also have value to their recipients in the workplace and in their future lives. Ideally, what we would like to measure are the skills and knowledge that individuals gain through their participation in higher education. Unfortunately, direct evidence about student learning outcomes presently is uneven and limited, and the available information does not lend itself to systematic comparisons between similar institutions or among states. For this reason, degrees and certificates are for now the best proxies available for measuring and comparing college-level knowledge and skills across differing populations and jurisdictions.

But in our view, boosting California's postsecondary performance means both raising postsecondary attainment as indicated by increasing degrees and credentials awarded and finding ways to identify what graduates need to know and be able to do, building these expectations into degree and certificate offerings, and verifying what students are learning. Ultimately, learning and competence, rather than credit hours and other measures of time devoted to postsecondary instruction, should become the primary determinant of educational quality.

This is what we define as the "productivity challenge." We believe that it will require transformational changes in existing higher education institutions throughout the state and also new kinds of institutions that take advantage of innovative instructional technologies and business plans to develop nontraditional ways of providing high-quality postsecondary education programs.

We are by no means the first to articulate this challenge or to offer ideas on boosting the outputs and the quality of postsecondary institutions. In fact, **examples of innovations and productivity improvements can be found throughout postsecondary education, including at broad-access institutions.** Some descriptions of what postsecondary education at its best could accomplish are provided in the appendix to this report. **The key problem is that successful innovations have not spread; they remain isolated in individual departments, institutions and sectors; they are seldom developed collaboratively or implemented at a scale that leads to significant productivity gains. Some reasons are:**

- At the institutional level, there are strong forces favoring business as usual and comparatively few incentives to undertake disruptive transformative change. "Not invented here" is still a big obstacle to adopting or learning from innovations created elsewhere.
- Even the financial pressures of the past decade have not been sufficient to overcome the forces working against change. The conventional institutional response to fiscal problems has often been to hunker down, raise tuition, freeze or even contract enrollments, maintain current practices and wait for better times to return.
- Some college and university leaders have argued that postsecondary education is characterized by an "iron triangle" of access, quality and cost: improvement on one dimension necessarily comes at the expense of the other values. For example, the argument goes, access cannot be improved without commensurate increases in costs or without a decline in quality; or quality cannot be improved without a decline in access or increases in costs. This argument is refuted by examples cited in this policy statement's appendix. Nevertheless, as the conventional wisdom, this perception is a major barrier to innovation and productivity improvements.[7]
- The changes required to meet the productivity challenge are not incumbent on California's higher education institutions alone and must be met with equal vigor and seriousness by partners in the business community if we are to realistically meet California's workforce needs.

Conclusion

California postsecondary education has unique strengths—including its heterogeneous array of institutional missions, decentralized governance and control, diversity of funding sources, and the considerable degree that the "system" is shaped by student choices rather than top-down centralized planning. Yet now the postsecondary system confronts new challenges as global economic competition makes new demands at a time of changing demography, pressures to control costs and public budgetary constraints.

California postsecondary education is underperforming in terms of the state's needs for opportunity for individuals and for a globally competitive workforce. The economic and demographic realities of contemporary California point to an urgent need to significantly raise postsecondary education productivity through innovation and improvement as well as additional public investment—and on a scale that will extend and raise higher education access and attainment and that will enable more Californians to enter and successfully complete high quality postsecondary education programs at a cost that is affordable to students and to the state.

- Economic and demographic changes are reshaping 21st century California, the nation and the world and challenge California to regain its national and international role as a leader and innovator in higher education.

- Higher education in California has focused primarily on the recent and current financial problems of our colleges and universities. There has been less attention given to the future higher education needs of the state, its economy, its students and citizens. California needs a convergence of these topics.

- The transformation of California higher education needed to address the productivity agenda described in this policy statement will require leadership from within and from outside higher education. The capacity and creativity to meet the challenges described in this policy statement exist in our higher education community and in our state, as does the expertise to design innovative programs and solutions. What is needed is boldness from all sectors, particularly higher education and business, in facing up to the magnitude of the challenge, a sense of urgency with respect to the educational leadership opportunity at hand, along with recognition of the negative consequences for the future of the state, its economy, and for higher education if these challenges are not addressed.

- Core elements of this transformation include:

  - Demonstrated learning outcomes and competence—not seat time—should increasingly determine the progression of students and the awarding of postsecondary certificates and degrees.

  - In contrast to previous approaches (*the 1960 California Master Plan for Higher Education*) that emphasized the independent activities of institutions and sectors (e.g. community colleges, California State University, or the University of California), the new challenges require full utilization of California's collective capacities for postsecondary education. This can be achieved only by integrated and collaborative approaches to development, delivery, evaluation and credentialing of higher education across the public institutions and systems and between public, private, non-profit and for-profit sectors.

  - The other area that requires greater collaboration is higher education's linkage with K-12 education. California's implementation of the Common Core State Standards provides the opportunity and the necessity for clearer and stronger signals from broad access colleges and universities about the academic preparation needed for college and improved curricular alignment with high schools to improve college access and college completion rates.

- Most of our current capacity for postsecondary education is concentrated in California's public broad-access colleges and universities. The community colleges are the point of access for most Californians seeking a bachelor's degree or workforce training. The California State University awards most of the state's bachelor's degrees, many in areas critical to California's economy. The effectiveness of these institutions in addressing the productivity challenge is essential to California's economic and civic success.

This cannot be accomplished without partners from all major sectors of California educational, civic and economic life. Business leaders in particular must be advocates, partners and participants in supporting transformational change.

California ought to be leading the transformation of higher education—on its own behalf and for the nation.

Appendix

Examples of Good Practices and Policy For Boosting Higher Education Productivity

Competency-Based Higher Education: Western Governors University and the University of Wisconsin

Western Governors University (WGU) has created a model that harnesses technology to increase student access and reduce costs while also maintaining quality by measuring student learning outcomes based on something other than credit hours. Instead of earning credits based on the number of courses taken, students' progress is measured by successfully completing required competency assessments. Utilizing technology using this method allows students to learn at their own pace. Students can accelerate their higher education program depending upon the competencies they already possess. WGU provides personal faculty mentoring for all students, and all students are part of learning communities throughout their degree programs. The university enrolls more than 40,000 students, is still growing 30 percent annually, and has over 16,000 graduates across all 50 states. WGU offers over 50 bachelor's and master's degree programs in education, information technology, business, and healthcare.

The one-year retention rate for students who attend WGU is 79 percent. WGU students also do well on national standardized tests. Time to graduation for students has been dramatically shortened: The average time to complete a bachelor's degree is 30 months. Two-thirds of WGU graduates report that they received a promotion, salary increase, or a new position as a result of completing their degree.

WGU is self-sustaining on tuition of less than $6,000 per year, and has not increased tuition for the past four years. Students pay a flat fee of $2,980 every six months, at which time they can progress as rapidly as they are able to pass assessments. In WGU's competency-based model, technology is used to deliver content created by third-party providers, and faculty supports student learning as needed. This model enables individualized learning and teaching and drives down overall costs since faculty are able to spend more time directly helping students, while also serving large numbers of students. Additionally, WGU is a completely online institution, and does not have the customary costs for buildings, facilities, athletics or research as other traditional colleges and universities. WGU is a student-centric university and places its focus on student learning and success.

WGU reduces costs and increases performance while maintaining high quality. According to a 2011 survey of employers, 98 percent of those surveyed agreed that WGU graduates meet or exceed their expectations. In addition, those surveyed rate WGU graduates as equal to or better than graduates of other universities (42 percent rated WGU graduates as better), and consider WGU graduates strongly prepared for their jobs.

In addition, WGU has partnered with five states to create new state-based universities. WGU Indiana was created in 2010, Texas and Washington in 2011, and Missouri and Tennessee in 2013.

The California Legislature recommended in 2010 that lawmakers convene a taskforce to pursue a public-private partnership with WGU, with the goal of expanding access to higher education with minimal costs to the state.

A recent initiative of the **University of Wisconsin** System campuses and UW-Extension—the new and innovative UW Flexible Option—offers a more personalized, convenient, and affordable way for adults and other nontraditional students to earn a University of Wisconsin degree or certificate while balancing work, family, and other commitments.

The UW Flexible Option includes self-paced, competency-based degree and certificate programs that allow students to make progress by demonstrating what they know, whether that knowledge was gained through prior coursework, military training, on-the-job training, or other learning experiences. By emphasizing what is known instead of how much time was spent learning, the Flexible Option lets students advance toward a UW degree at a pace they set.

Rather than create courses, expert faculty from the University of Wisconsin System campuses identify competencies—skills and knowledge—that they consider necessary to earn a UW degree. Students make progress by mastering these competencies and passing assessments that demonstrate what they know.

Course Redesign to Improve Learning and Cost Effectiveness

The National Center for Academic Transformation (NCAT) has created a course redesign method that has demonstrated how colleges and universities can redesign their instructional approaches using information technology to achieve greater learning success and cost savings. The course-redesign projects focus on large-enrollment, introductory courses that reach significant student numbers. In fact, just 25 courses generate about 50 percent of student enrollment at the community college level and about 35 percent of enrollment at the baccalaureate level. By making improvements in a restricted number of large-enrollment courses, a college or university can literally affect every student who attends.

These courses are redesigned by **changing the way subjects are taught;** most redesigns shift instruction from lecture format to a student-based approach utilizing technology. Students are able to be more active learners, and faculty spend less time delivering lectures and more time with one-on-one student contact. These self-paced interactive learning models have led to increased student learning. Course redesigns require significant faculty participation in both planning and execution; faculty establish learning goals, help design curricula, and teach redesigned courses. NCAT's redesign methodology addresses higher education's primary challenges: enhancing quality, improving retention, expanding access, and increasing institutional capacity.

NCAT courses have shown consistent improvements in the quality of student learning. The methodology has also produced increases in course completion and student retention. NCAT's redesign enables institutions to increase enrollments and provide greater access while maintaining the same or even a reduced level of investment. In the initial project with 30 institutions, 25 of 30 course-redesign projects showed significant increases in student learning. Of the 24 projects that measured student retention, 18 reported a noticeable decrease in drop-failure-withdrawal rates as well as higher course completion rates.

NCAT's redesign methodology enables higher education institutions to increase student enrollment in high-demand courses without increasing associated costs. All 30 institutions in the initial NCAT redesign project reduced their costs by 37 percent on average, ranging from 20 percent to 77 percent, and produced a collective annual savings of about $3 million. NCAT estimates that if all U.S. colleges and universities adopted these redesign methods for the top 25 courses, the cost of instruction would decrease by approximately 16 percent.

The NCAT methodology changes the way students learn, changing students from passive note takers to active learners. NCAT surveys have shown that students in redesigned courses have better attitudes toward the subject matter and that both students and faculty were more satisfied with the new mode of instruction.

Educational and Administrative Productivity

The **University of Maryland System** adopted the Effectiveness and Efficiency Initiative (E&E) in 2004 as its signature program to contain costs while improving overall administrative and academic operations across the system. The overarching goals of the E&E Initiative are to: address increases in effectiveness and efficiencies in the University of Maryland operating model; increase quality; serve more students; and reduce the pressure on tuition. The E&E Initiative provides annual progress reports. Additionally the E&E Initiative streamlined its transfer program with Maryland community colleges, resulting in fewer lost credits by students and better integration into four-year programs. Also restructured was the use of spring freshman admission programs to allow institutions to eliminate waiting lists, guarantee admission to greater numbers of qualified students, and counter the loss of students through fall attrition. Some other new initiatives include the requirement that students earn at least 12 credits outside the traditional classroom—through online courses, study abroad programs, internships or Advanced Placement credits. An important goal of this initiative is that students graduate with less debt.

E&E has increased enrollments by 6 percent while cutting baseline operating costs by 3 percent, and holding average annual tuition increases to less than 2 percent. Some examples include increasing instructional workload as a measure of productivity at the system's seven comprehensive universities, decreasing student time-to-degree, and increasing four-year graduation rates.

Officials estimate that the E&E Initiative cumulative cost savings for the past decade is $365 million.

Online Learning

Rio Salado, a Maricopa, Arizona, Community College, is recognized as a national leader in online learning. As the largest of the 10 Maricopa Community Colleges, Rio Salado serves over 43,000 students annually. Rio Salado has been a pioneer in online learning development and even partnered with industry leaders Microsoft and Dell to develop a custom online learning platform, RioLearn. Through RioLearn, students turn in assignments, contact instructors and fellow students, view class syllabi, access student services and more.

Rio Salado offers a unique academic calendar with courses in 16-week blocks. Courses start 48 times per year, which allows students to select a course without semester restrictions. Tuition is $81 per credit for in-state students and $215 per credit for out-of-state online students. In addition to offering courses online, in 2008 Rio Salado opened its virtual student union, RioLounge, which was designed to offer online students similar social interactions that they would have at a traditional campus with just a click of the mouse. From 2000-2010, the college grew 173 percent. It also partners with more than 50 major employers.

Reduced Time to Degree

Southern New Hampshire University now offers a three-year honors program in business. This program contains the same number of credits as a traditional four-year degree but is specifically designed to be accomplished in three years, without night or weekend classes. The accelerated time frame of the degree means that students save a year of tuition and associated costs, which totals about $40,000. This three-year honors program takes an interdisciplinary approach offering "modules" rather than traditional three-credit courses. Because classes are interdisciplinary, subjects that are usually taken as separate courses are integrated into the curriculum. For example, honors students in this program fulfill the public speaking requirement

through required business classes, with client and public presentations. Students also take all courses with the other honors students, but participate in activities with students from across the university.

Like other business programs, the three-year honors program allows specialization in a variety of fields including, but not limited to, accounting, marketing, and computer information technology. This honors program also emphasizes real world application of skills. Each semester students participate in a weeklong group project in which students apply what they have learned to solve real business challenges. Third-year students act as consultants, completing projects for real companies and organizations, through the New Paradigm Design experience. Students from this program have recently worked with American Express, Camp Sunshine and Delta Mu Delta.

Statewide Performance and Productivity

Tennessee enacted its Complete College Act of 2010 that includes a provision for an outcomes formula model. This Act directed the Tennessee Higher Education Commission (THEC), in conjunction with the University of Tennessee, the Tennessee Board of Regents, and state government, to develop a new model that was effective with the 2011–2012 budget cycle. The formula-funding design is intended to promote higher education outcomes important to the state, such as student degree attainment, transfer activity, and student retention. This law requires Tennessee to compile a "fact book" related to actual data on these outcomes. "Award points" for these outcomes are provided to higher education institutions through the funding formula. Assignment of points is based on the institution's mission.

Tennessee officials hope the formula will strengthen links to the state's master plan for higher education, which identifies specific educational attainment goals, such as enhancing institutional incentives to focus on student retention and introducing a focus on productivity (defined as degree production, transfer activity, student access, education for adult students, etc.). This formula spreads the financial incentives to a larger, more appropriate set of variables—not just student enrollment—and calibrates it specifically to a postsecondary institution's mission by utilizing the nationally accepted criteria for classifying institutional missions. The previous funding formula was approximately 60 percent enrollment-driven with incentives heavily focused on student inputs. With implementation of the new system, 100 percent of funding is based on outcomes and zero on enrollment.

In addition to the Complete College Tennessee Act, the state also conducted a policy audit, which reviewed state policies and practices affecting higher-education access, success, and productivity. The audit identified gaps between state policies as written and as implemented and pointed out unintended consequences of some policies.

Indiana first adopted a performance-funding system in 2003 that offered incentives to state universities that seek federal research grants. Since then Indiana has passed legislation that links incentive funds for all higher education institutions to performance indicators. The enrollment-driven portion of the formula is shifting over time to completion of credit hours rather than attempted credit hours. By 2007, the state had distributed 65 percent of the increase in state appropriations from the year before based on performance. For the 2010-11 biennium, with no additional revenues, the state's higher education commission recommended allocating a portion of institutions' base funding on the basis of performance, and that policy has been maintained through the 2012-13 biennial state budget.

Late in 2011, **Indiana** made several revisions to the performance-funding arrangement. The new rules changed some of the performance metrics and also the percent of funding allocated to the institution through performance funding. After the Commission's approval of the new funding formula, the percent of funding allocated based on performance metrics increased from 5 percent

to 6 percent in 2013-14 (an estimated $73 million based on current funding levels), and 7 percent by 2014–15. The new performance metrics are: overall degree completion; at-risk student degree completion (based on students eligible for Pell Grants); high-impact degree completion (this is a new metric that rewards institutions for granting degrees in STEM—science, technology, engineering and mathematics—fields); student persistence incentive (tracking how many students complete a certain number of credit hours); remediation success incentive; on-time graduation rates; and a new "wild-card" metric which allows universities themselves to select one benchmark for the state to use in determining their share of the pot of performance funding. In addition, the 2011 revision eliminated the metric that linked performance funding to an institution's research.

In the last biennium, Indiana has increased funding for performance outcomes to 5 percent of state appropriations for higher education. It plans to be at 7 percent by 2015.

Administrative Costs

DeVry University has taken steps to hold tuition down by minimizing administrative costs. One method used has been to limit auxiliary services to those that relate directly to its core mission (so, for example, spending nothing on research or public service). In addition, DeVry has relied on experts in process redesign to notably simplify financial aid processing. DeVry has moved to electronic forms for financial aid and admissions, thus dramatically reducing the amount of time required to process paperwork. DeVry also allows for student "self-service"—for instance, students can accept their financial aid awards online. Refund checks and holds at DeVry are also now processed automatically whereas in the past checks were manually processed, with holds manually set and removed. As a result, financial aid applications are processed more rapidly while driving down costs.

Selected Readings and Resources

Richard Arum and Josipa Roska (2012). *Academically Adrift*. University of Chicago Press.

Mark Baldassare, Dean Bonner, Sonja Petek, and Jul Shrestha (December 2010). *Californians & the Future,* Public Policy Institute of California http://www.ppic.org/content/pubs/survey/S_1212MBS.pdf

Sarah Bohn (January 2013). *California Economy: Planning for a Better Future.* Public Policy Institute of California http://www.ppic.org/content/pubs/report/R_113SBR.pdf

William G. Bowen, *Higher Education in the Digital Age* (2013). Princeton University Press.

Meghan Wilson Brenneman, Patrick M. Callan, Peter T. Ewell, Joni E. Finney, Dennis P. Jones, and Stacey Zis (November 2010). *Good Policy, Good Practice II—Improving Outcomes and Productivity in Higher Education: A Guide for Policymakers.* The National Center for Public Policy and Higher Education and the National Center for Higher Education Management Systems. http://www.highereducation.org/reports/Policy_Practice_2010/GPGPII.pdf

Anthony Carnevale, Nicole Smith, Jeff Strohl (June 2010). *Help Wanted: Projections of Job and Education Requirements through 2015.* Georgetown University Press, Center on Education and the Workforce, June 2010, http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/FullReport.pdf

Clayton M. Christensen, Michael B. Horn, Louis Caldera, and Louis Soares (February 2011). *Disrupting College: How Disruptive Innovation Can Deliver Quality and Affordability to Postsecondary Education*. http://www.americanprogress.org/issues/2011/02/pdf/disrupting_college.pdf

John Daniel, Asha Kanwar, and Stamenka Uvalic-Trumbic (March/April 2009). "Breaking Higher Education's Iron Triangle: Access, Cost, and Quality." *Change: The Magazine of Higher Learning*. http://www.changemag.org/Archives/Back%20Issues/March-April%202009/full-iron-triangle.html

Hans Johnson (January 2013). *California Workforce: Planning for a Better Future*. Public Policy Institute of California http://www.ppic.org/content/pubs/report/R_113HJ3R.pdf

Hans Johnson (May 2012). *Defunding Higher Education: What Are the Effects on College Enrollment?* Public Policy Institute of California http://www.ppic.org/content/pubs/report/R_512HJR.pdf

Dennis Jones for Complete College America (September 9, 2013). *Outcomes-Based Funding: The Wave of Implementation*. National Center for Higher Education Management Systems. http://nchems.org/pubs/docs/Outcomes-Based%20Funding%20Paper%20091613.pdf

Andrew P. Kelly and Kevin Carey (ed.) (2013). *Stretching the Higher Education Dollar, How Innovation Can Improve Access, Equity, and Affordability*. Harvard University Press.

Michael W. Kirst (March 2013). "The Common Core Meets State Policy: This Changes Almost Everything." *Policy Memorandum*, Policy Analysis for California Education (PACE) http://www.edpolicyinca.org/sites/default/files/PACE_Common%20Core_Final.pdf

Little Hoover Commission (October 2013). *A New Plan for A New Economy: Reimagining Higher Education* http://www.lhc.ca.gov/studies/218/Report%20218.pdf

Lumina Foundation for Education (2013). *A Stronger Nation Through Higher Education: Visualizing data to help us achieve a big goal for college attainment.* http://www.luminafoundation.org/stronger_nation_2013/downloads/pdfs/a-stronger-nation-2013.pdf

McKinsey&Company (2010). *Winning by Degrees:*

The Strategies of Highly Productive Higher-Education Institutions. http://www.mckinseyonsociety.com/downloads/reports/Education/Winning%20by%20degrees%20report%20fullreport%20v5.pdf

Sheldon Rothblatt (ed.) (2012). *Clark Kerr[1]s World of Higher Education Reaches the 21st Century: Chapters in a special History*. Springer.

Nancy Shulock, Jodi Lewis, Connie Tan (August 2013). *Workforce Investments: State Strategies to Preserve Higher-Cost Career Education Programs in Community and Technical Colleges.* Institute for Higher Education Leadership & Policy http://www.csus.edu/ihelp/PDFs/R_Workforce_Invest_0913.pdf

Candace Thille and Joel Smith (March/April 2011). "Cold Rolled Steel and Knowledge: What Can Higher Education Learn About Productivity?" *Change: The Magazine of Higher Learning*. http://www.changemag.org/Archives/Back%20Issues/2011/March-april%202011/cold-rolled-steel-full.html

Kim Tran, Michele Siqueiros, Audrey Dow (May 2013). *Working Hard Left Behind: Education as a pathway from poverty to prosperity for working Californians*. The Campaign for College Opportunity http://www.collegecampaign.org/files/4213/6797/3065/Working_Hard_Left_Behind_Executive_Summary.pdf

The State of Latinos in Higher Education in California: The economic and social imperative for advancing Latino college achievement. November 2013. The Campaign for College Opportunity http://www.collegecampaign.org/files/6013/8361/4629/State_of_Higher_Education_Latino_FINAL.pdf

William H. Trombley and Todd Sallo (2012). *American Higher Education: Journalistic and Policy Perspectives from National CrossTalk*. National Center for Public Policy and Higher Education. http://www.highereducation.org/crosstalk/ctbook/index.shtml

Carol Twigg (June 2005). "Course Redesign Improves Learning and Reduces Costs." *Policy Alert*. http://www.highereducation.org/reports/pa_core/index.shtml

William Zumeta, David W. Breneman, Patrick M. Callan and Joni E. Finney (2012). *Financing American Higher Education in the Era of Globalization*. Harvard Education Press.

Endnotes

[1] Arthur Coons, et, al, *A Master Plan for Higher Education in California, 1960-1975*, California State Department of Education, Sacramento, 1960, http://www.ucop.edu/acadinit/mastplan/MasterPlan1960.pdf

[2] Hans Johnson, *California Workforce*, Public Policy Institute of California, January 2013, http://www.ppic.org/content/pubs/report/R_113HJ3R.pdf; Anthony Carnevale, Nicole Smith, Jeff Strohl, *Help Wanted: Projections of Job and Education Requirements through 2015*. Georgetown University Press, Center on Education and the Workforce, June 2010, http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/FullReport.pdf

[3] Sarah Bohn and Matt Levin, *Child Poverty in California,* Public Policy Institute of California, Sacramento, August 2013, http://www.ppic.org/main/publication_show.asp?i=721

[4] Hans Johnson, *Higher Education in California: New Goals for the Master Plan*, Public Policy Institute of California, Sacramento, April 2010, http://www.ppic.org/content/pubs/report/R_410HJR.pdf

[5] Lumina Foundation for Education, *A Stronger Nation through Higher Education*, Lumina Foundation, Indianapolis, 2013, California data, http://www.luminafoundation.org/stronger_nation/report/#california

[6] Public Policy Institute of California. *California Workforce* http://www.ppic.org/content/pubs/report/R_113HJ3R.pdf; Mark Baldassare, Dean Bonner, Sonja Petek, and Jul Shrestha (December 2010). *Californians & the Future*, Public Policy Institute of California http://www.ppic.org/content/pubs/survey/S_1212MBS.pdf

[7] John Immerwahr, Jean Johnson, and Paul Gasbarra, *The Iron Triangle: College Presidents Talk about Costs, Access, and Quality,* National Center for Public Policy and Higher Education and Public Agenda, San Jose, October 2008, http://highereducation.org/reports/iron_triangle/index.shtml

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