



# Mind the Gap:

## Delivering on California's Promise for Higher Education

California Competes  
Higher Education for a Strong Economy

**For the past 3 years, the state has tread water in terms of closing the degree gap. A degree gap is bad for the economy, our citizenry, and the state as a whole.**

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## Introduction: College still matters

In today's technology-driven, service-based economy serious questions have been posed about whether a college degree matters. A recent report found that 15 percent of college-educated workers are a part of California's low-wage workforce, a figure that has been on the rise since 1979. <sup>[1]</sup>

The Great Recession of 2009 cast further doubt on the value of a college degree, with many recent college graduates unable to get "good jobs" that would set them on a trajectory for wage growth and career development. Increasingly, stories of college graduates working for minimum wage are juxtaposed against narratives about in-demand technology skills which need not necessarily be learned in college, or examples of entrepreneurs without college degrees starting companies and becoming billionaires. Furthermore, the rising cost of college and the skyrocketing of student debt reinforce doubt about whether one should aspire to earn a college degree. According to the Institute for College Access and Success, over half (55 percent) of 2013 California graduates carry college loan debt, with an average of \$20,340 per borrower. <sup>[2]</sup>

Despite these criticisms and obstacles, college still is important as both a private and public good. As a private good, a college degree historically has returned real wage increases to those individuals who earned one. A degree also serves as a powerful market signal to employers about the expertise, knowledge, and diligence of jobseekers. The importance of a college degree has placed postsecondary education on state and national policy agendas. At the federal level, policymakers have prioritized maintaining affordability, most recently with wide-ranging proposals for free and/or debt-free

college. California's vast higher education ecosystem and \$2 billion student aid program demonstrate the state's commitment to higher education, even as limited enrollments and the looming threat of tuition hikes prompt state legislators to pay greater attention to how the system is functioning overall.

Society as a whole has also intrinsically bought into the importance and value of a higher degree as a public good. Beyond the benefits conferred to the economy, it is widely believed that a college degree promotes social cohesion and civic engagement. (See sidebar The Social Value of Degrees). The more degrees we have the better off individuals, the economy, and society will be.

Given the significance of a college degree, this report presents current data on California's degree attainment and the gap that will be faced by the state by 2025. It also explores trends in bachelor's degrees as well as sub-baccalaureate (associate's degrees and one- and two-year certificates) credentials over a 10-year period, including the rise and decline of specific college majors, and the top producers<sup>[3]</sup> of different degrees. The report then examines how the top majors and choice of institutions vary by race/ethnicity. Finally, the report concludes with a set of recommendations for policymakers that seek to accelerate degree attainment.

1 Luke Reidenbach, "How California's Workforce Is Changing and Why State Policy Has to Change With It," California Budget & Policy Center, September 2015, <http://calbudgetcenter.org/resources/how-californias-workforce-is-changing-and-why-state-policy-has-to-change-with-it/>. Retrieved October 8, 2015.

2 The Institute for College Access and Success, "Project on Student Debt - State by State Data 2013," 2013, <http://ticas.org/posd/map-state-data-2014#>. Retrieved October 8, 2015.

3 Throughout this report we refer to these producers collectively as the educational "segments." They include the University of California system, the California State University system, California Community College system, for-profit institutions, and independent, nonprofit colleges and universities.

**It would take increases of nearly ten percent per year, every year, to close the 2.4 million-degree gap by 2025.**

## The Social Value of Degrees

There is a lot of debate about what a college degree does or should represent. Most people have a long list: subject matter knowledge, critical thinking skills, the ability to get along with others, an appreciation of art, a deeper understanding of history, an ethical approach to life, the ability to lead in both business and citizenship, and so on.

Counting college degrees, therefore, is like counting the number of children with trophies for good participation in soccer. It means something, but it does not mean everything. And there is a danger that by focusing too much on trophies, the underlying meaning will be lost—that is, an assumption that unless there is a trophy there is no value for those who participated.

While the common view is that there is some set of skills and/or knowledge that a degree signifies, it is also true that the prospect of a college degree serves as a tangible mechanism to encourage more education beyond high school. Wherever the high school graduate starts in their skills and knowledge, we suggest continuing onward and upward. We could suggest a class to take or a book to read, but that is not a very effective motivation. So instead we have trophies called degrees that we give for roughly two or four years of additional plowing of the educational fields.

We do this because education is good for individuals, and also good for society.

There is also evidence that, especially in recent decades, there has been a rising economic return to more education. People with college degrees earn more on average and have lower unemployment rates. Because of the economic returns, it is politically more effective to say that we need to provide more access to higher education because “the economy demands it,” but in reality, higher education does much more than just help the economy. Does a stay-at-home parent need a degree? Not for the basics of the job, but certainly children will benefit if a parent uses richer language and knows more about the world. Does the guy who sells suits at a department store need a degree? No, but some customers’ experience might be better if he has a sense of their work, or if he understands why the customer might care about the labor practices where the suit is made.

And when his neighborhood is affected by a chemical spill, he might be better prepared as a citizen to do the political advocacy to get help for the community afterwards. And he will be a smarter voter.



## Is California on track to produce the number of college degrees it needs?

In 2012, California Competes declared in our publication *The Road Ahead* that California will face a gap of 2.3 million college degrees and credentials by 2025, a number that has gained wide currency.<sup>[4]</sup> California's higher education leaders used this number in their advocacy efforts in Sacramento, citing the gap in an effort to increase state funding and attention to higher education issues. The degree gap also garnered significant media coverage. The interest in our figure was no doubt a sign of the times: a flagging economy, increasing tuition, and enrollment caps were ubiquitous problems that piqued the media's interest in the story.

Since first publicizing the impending degree gap, California Competes has steadily pursued the implementation of a policy blueprint that would position the state for ongoing economic strength and a cohesive social fabric by increasing the number of degrees produced, ensuring that degrees are meaningful, and investing in improvements that yield the largest returns. However, with no designated statewide leadership for higher education, actual policy progress has been episodic and opportunistic.

To develop the current degree gap, California Competes returned to our original premise calling for California to be among the top 10 states by 2025 in terms of the proportion of adults with college degrees.<sup>[5]</sup> The resulting target is 55 percent, a figure we initially set in 2012 in *The Road Ahead*. We should note that other organizations have set different targets. In particular, the Lumina Foundation has established a national target of 60 percent of adults with at least an associate's degree. By contrast, other organizations such as Public Policy Institute of California have calculated a degree attainment gap without using a target but instead by estimating demand for higher education in a specific year and comparing that with estimated supply.

While our differing approaches result in differing numeric results, both analyses point in the same direction.

New U.S. Census data indicate that, compared to our 2012 analysis, California has slightly exceeded our projection for the number of adults with degrees. If the state's overall adult population stayed about the same, then the degree attainment gap would have been reduced. However, California's population has increased and is expected to increase in the coming years.<sup>[6]</sup> Based on our revised projections of adults with degrees, we find that if all trends continue, California is slated to produce 9,523,000 degrees by 2025. In order to reach our 55% degree attainment target, it will need to produce 11,920,000 degrees, meaning that California is now facing a 2.4 million degree gap in 2025.

With a growing degree gap, and only ten years to address it, it is highly unlikely that California can catch up. It would take increases in the number of degrees of nearly 10 percent per year, every year, to close the 2.4 million degree gap by 2025. For reference, the production of bachelor's degrees has increased by between two and three percent each year over the past decade (as discussed further in a subsequent section of the report). And while sub-baccalaureate credentials (less than four-year degrees or certificates) increased by an eight percent annual average, most of the increase was in one recession-fueled year when recruitment by for-profit colleges was at its height.

If all trends continue, the number of degrees and credentials awarded in 2025 would reach 298,400. If we were able to close the gap and increase the number of degrees by 10 percent every year for the next ten years, we would produce 796,800 degrees and credentials in 2025, meaning that what we are expected to produce in 2025 is less than half of what we need to produce. In other words, we need our colleges to double the output that they have now to close the gap by 2025, as shown in Figure 1.

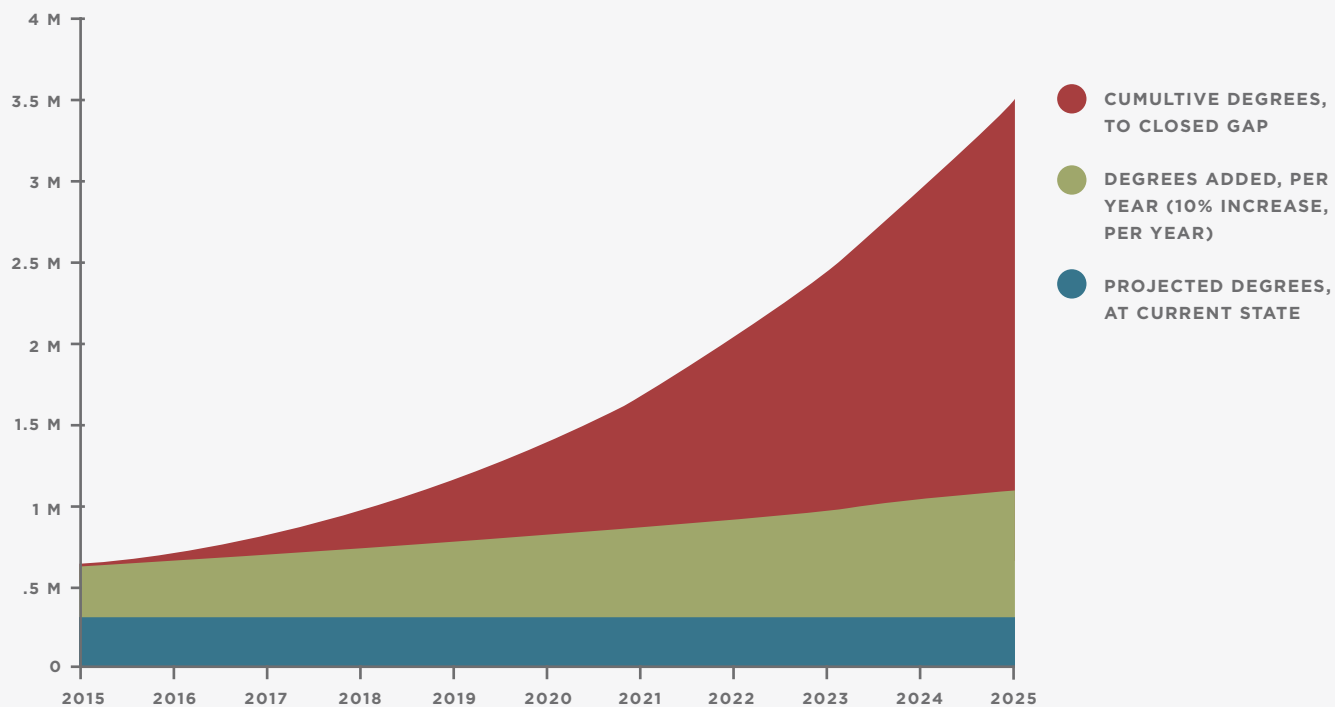
<sup>4</sup> California Competes, *The Road Ahead*, 2012, <http://californiacompetes.org/wp-content/uploads/2012/06/The-Road-Ahead.pdf>. Retrieved November 13, 2015.

<sup>5</sup> For more detail on how a college degree is defined please see the Technical Appendix.

<sup>6</sup> California Department of Finance, "Demographic Research Unit - Projections," <http://www.dof.ca.gov/research/demographic/dru/index.php>. Retrieved October 8, 2015.

FIGURE 1

## The Degree Gap: Projected, Needed, &amp; Cumulative



	(PROJECTED) "DEGREES NEEDED" (i.e. 55% of estimated population)	(PROJECTED) ADULTS WITH DEGREES IF ALL TRENDS CONTINUE	DEGREE GAP
2010	10,916,729	7,701,256	3,215,473
2011	11,011,864	7,788,391	3,223,473
2012	11,083,431	8,018,762	3,064,669
2013	11,156,005	8,032,324	3,123,681
2014	11,244,562	8,187,211	3,057,351
2015	11,336,323	8,341,821	2,994,502
2016	11,432,868	8,484,984	2,947,884
2017	11,525,823	8,626,679	2,899,144
2018	11,607,133	8,760,757	2,846,376
2019	11,677,103	8,887,231	2,789,872
2020	11,732,387	9,003,317	2,729,070
2021	11,782,761	9,116,301	2,666,460
2022	11,825,384	9,223,876	2,601,508
2023	11,860,759	9,326,289	2,534,470
2024	11,894,741	9,428,045	2,466,696
2025	11,920,060	9,523,307	2,396,753



# Bachelor's degrees

## Overview

Between 2004 and 2013, the number of bachelor's degrees awarded per year by California-based colleges and universities overall has grown by a little more than a quarter (27 percent), from a total of 141,900, to 180,600. Whether that increase is paltry or impressive depends, of course, on how it relates to the state's population that might be interested in a degree. The increase in bachelor's degrees awarded matches the growth in four-year college enrollment—that is, an increase of more than a quarter (26 percent)—with 610,800 full-time students enrolled in California institutions in 2004 and 770,500 in 2013. This matched growth in bachelor's degrees awarded and enrollment means that, while California is producing more bachelor's degrees, it is not producing a higher percentage of degrees, but simply keeping pace with previous levels of output.

That bachelor's degree attainment and enrollment both increased by about a quarter might imply a stronger positive correlation between the two factors than actually exists. If you were to plot the start and end points (2004 and 2013, respectively) for bachelor's degrees awarded and enrollment figures, it would be tempting to connect each pair of points with a diagonal line, resulting in roughly parallel lines, as demonstrated in Figure 2.

However, Figure 2 is overly simplistic. As shown in Figure 3, when the years in between 2004 and 2013 are plotted, the enrollment line looks more erratic. This is especially noticeable after the recession first hit in 2007, with the largest increase in enrollment occurring between fall of 2010 and fall of 2011, when enrollment

FIGURE 2

### Bachelor's Degree Enrollment and Attainment: An Incomplete View

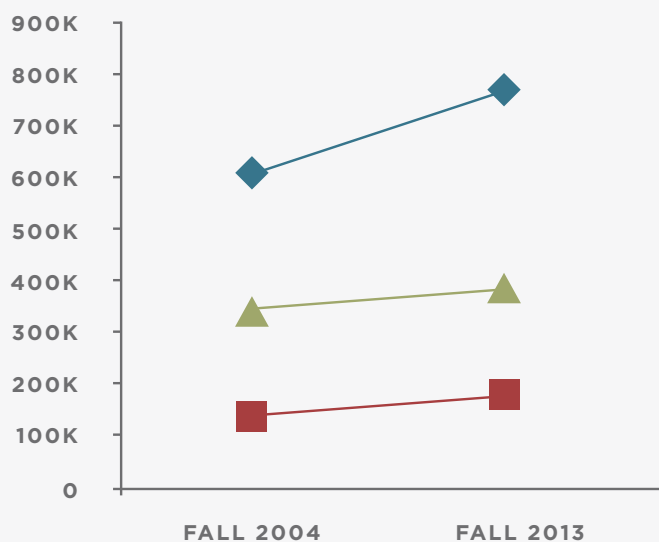
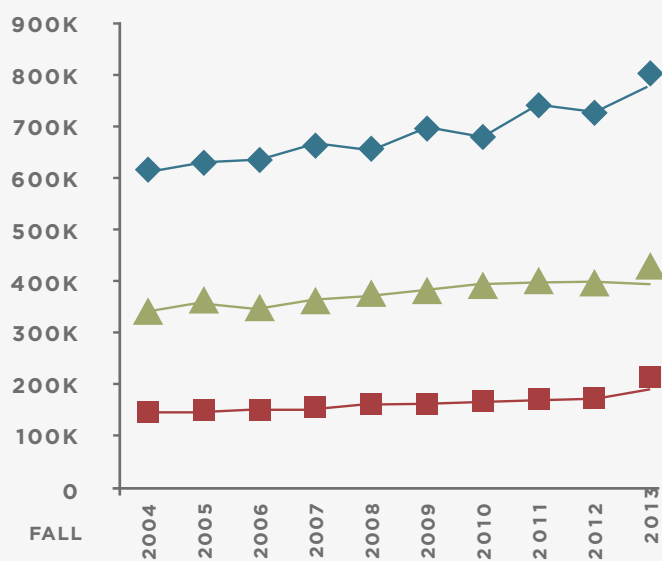


FIGURE 3

### Bachelor's Degree Attainment and Enrollment Over Time: A Nuanced View



◆ ENROLLMENT

▲ BACHELOR'S  
DEGREE  
ATTAINMENT■ HIGH SCHOOL  
GRADUATES

rose almost nine percent and then dipped back down the following year. While enrollments have been more variable, and have increased unpredictably, graduation rates for bachelor's degrees have been remarkably stable: California has reliably increased graduation rates at about 3 percent per year, irrespective of the more dramatic increases in enrollment. Figure 3 also shows that bumps in enrollment have not translated to bumps in degree attainment, four, five or six years later. This means that there is no causal relationship between four-year college enrollment and bachelor's degrees awarded.

Also depicted in Figures 2 and 3 is the number of high school graduates, which has increased by about 16 percent over the last decade, with a slight lag in growth in the last few years. If this trend continues, it would be interesting to see if bachelor's degree enrollment begins to see a lag since there would be fewer students to qualify for admission.

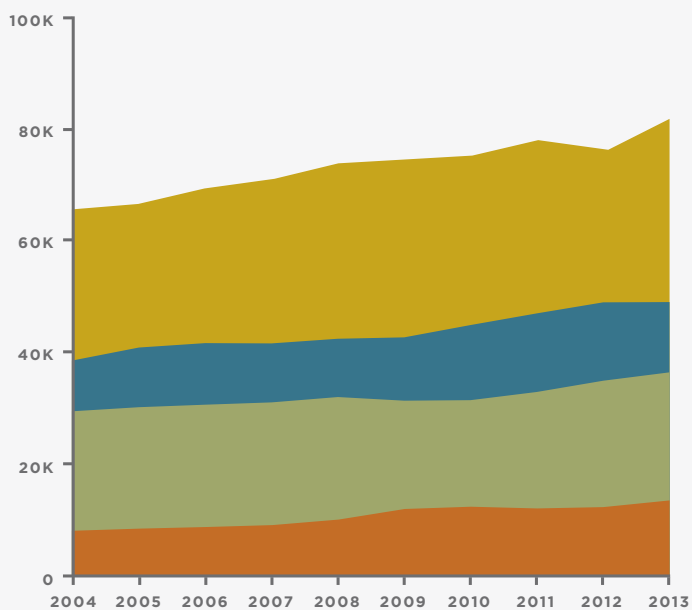
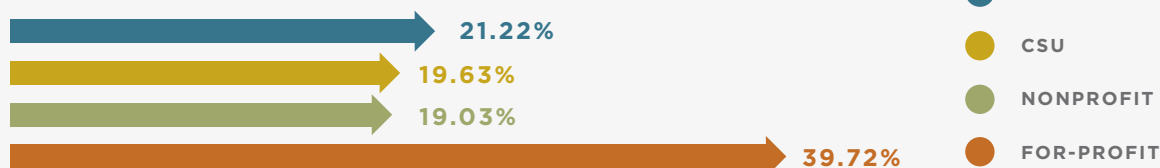
## Producers of degrees

Over the last decade, the dominant producers of bachelor's degrees have remained largely the same, as illustrated in Figure 4. The 23-campus CSU system awards nearly half of the bachelor's degrees (about 45 percent), and the nine undergraduate UC campuses carry just over one-fourth (27 percent) of the load. Private nonprofit institutions confer about a fifth (20 percent) of the bachelor's degrees produced in California, while for-profit institutions are responsible for the smallest portion of degrees (seven percent). With roughly 70 percent of bachelor's degrees being produced by California's public colleges and universities, the state relies less on independent and private for-profit colleges than many other states. This is particularly true compared to New England and the mid-east in general, where on average the split between public and private is 50:50.

FIGURE 4

### Producers of Bachelor's Degrees Over a Decade

#### RATE OF GROWTH BY SEGMENT (2004 - 2013)



	UC	CSU	NON PROFIT	FOR-PROFIT
2004	38,558	65,743	29,455	8,117
2005	40,851	66,768	30,185	8,469
2006	41,639	69,361	30,631	8,751
2007	41,587	71,074	31,040	9,094
2008	42,416	73,762	31,990	10,071
2009	42,664	74,643	31,343	11,949
2010	44,856	75,419	31,435	12,350
2011	46,935	77,731	32,892	12,045
2012	48,899	76,427	34,889	12,281
2013	48,946	81,803	36,378	13,465

**With roughly 70 percent of bachelor's degrees being produced by California's public colleges and universities, the state relies less on independent and private for-profit colleges than many other states.**

### A look at majors...

Underneath the overall trends of bachelor's degree attainment and producers, it is valuable to examine the nuances in college majors and the producers of those corresponding degrees. Indeed, the preferred majors at four-year colleges have shifted over the past decade, as presented in Figure 5, with the most dramatic change being the rise of biology and health professions majors and resulting bachelor's degrees. Degrees in business and marketing (which range in focus from business administration to accounting and finance) continue to hold the top ranking, as they have nationally since the 1980s. But business degrees are on the decline, with the proportion of students earning bachelor's degrees down three percentage points between 2004 and 2013. In contrast, the number of graduates in health professions — principally those majoring in nursing, health services<sup>[7]</sup>, and public health — nearly tripled, moving it into the top 10.

The two types of degrees that declined most over the period from 2004 to 2013 were liberal arts and computer and information sciences, presented in Figure 5. California requires teacher training after the bachelor's degree, so an education major is not as common here as in other states; instead, those planning to teach in elementary school have typically earned a general liberal arts degree.

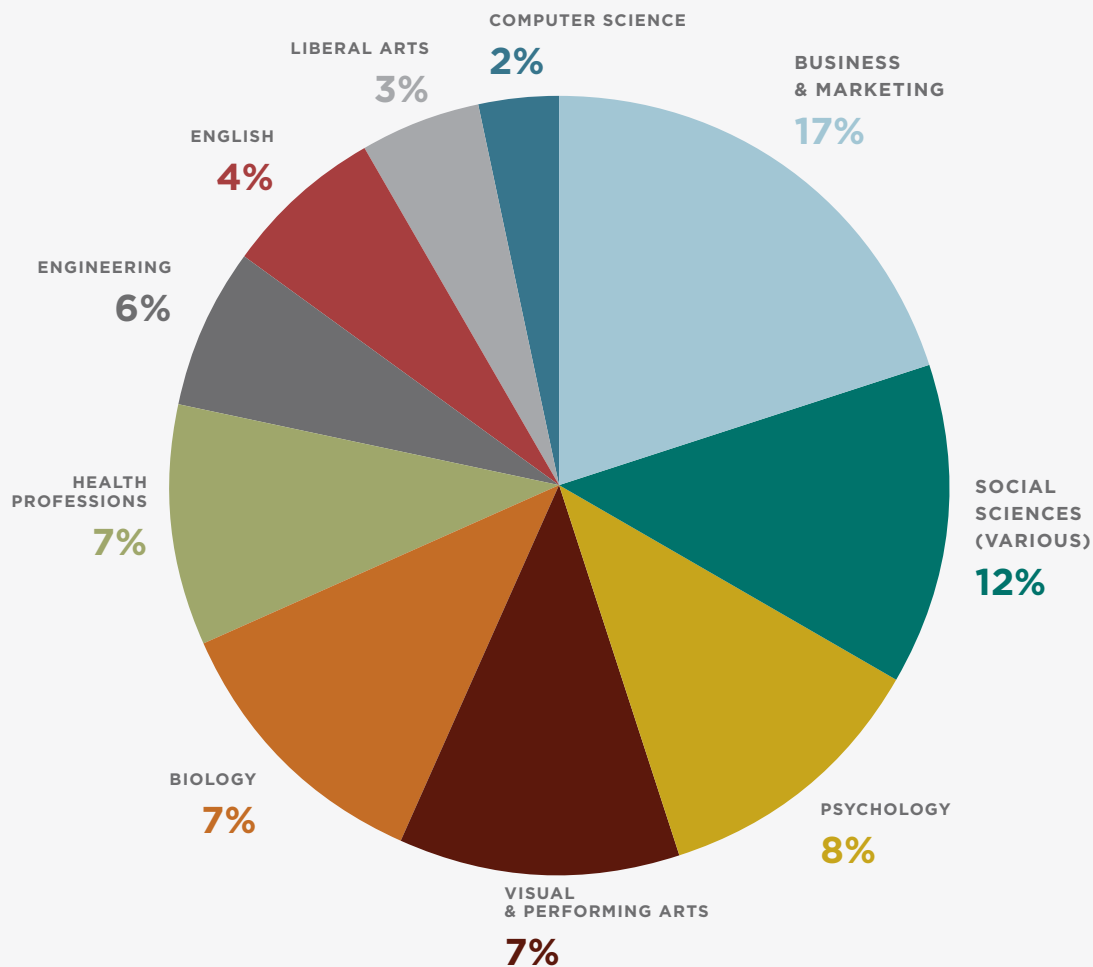
An emerging trend that does not yet appear in the top 10 is the rise of the criminal justice degree. Led by CSU and the for-profit institutions, the number of bachelor's degrees in that category more than doubled since 2004, ranking just outside the top 10 in 2013. While the category includes sub-majors like law enforcement investigation and interviewing, and fire services investigation, almost all students who graduate with a degree in criminal justice study the topic more generally, with coursework including introduction to criminal justice, ethics and professional responsibility, grant writing, and more. CSUs graduated just over 3,000 students in their criminal justice and safety studies program, while the remaining 1,500 criminal justice bachelor's degrees in 2013 come mostly from for-profit institutions, especially Westwood College and University of Phoenix. This major is often intended to prepare students for careers as police or probation officers, though there is a question of whether these theory-focused programs translate well to the hard skills required of these careers. Additionally, these programs may be oversaturating the field since, according to the California Employment Development Department, there are only 2,600 police officer or criminal investigator positions open annually.<sup>[8]</sup>

7 Note that health professions refers to the overall major while health services or health sciences is a more specific sub-major

8 State of California Employment Development Department, "Police and Sherriff Patrol Officers," <http://www.labormarketinfo.edd.ca.gov/cgi/databrowsing/occExplorerQSDetails.asp?searchCriteria=polic+officer&careerID=&menuChoice=occexplorer&geogArea=0601000000&soccode=333051&search=Explore+Occupation>. Retrieved October 8, 2015.

FIGURE 5

# Top Ten Bachelor's Degree Majors in 2013



RANK	PERCENT OF ALL BAs	CATEGORY	RANK IN 2004	TOP PROVIDERS
#1	17%	Business & Marketing	1 (20%) —	CSU, Nonprofits
#2	12%	Social Sciences (various)	2 (12%) —	UC, Nonprofits
#3	8%	Psychology	5 (7%) ↑	CSU, UC
#4	7%	Visual & Performing Arts	3 (7%) ↑	CSU, Nonprofits
#5	7%	Biology	6 (5%) ↑	UC, CSU
#6	7%	Health Professions	11 (3%) ↑	CSU, Nonprofits
#7	6%	Engineering	7 (5%) —	CSU, UC
#8	4%	Communication	10 (4%) ↑	CSU, Nonprofits
#9	4%	English	9 (4%) —	CSU, UC
#10	3%	Liberal Arts	4 (7%) ↓	CSU, Nonprofits
#11	2%	Computer Science	8 (5%) ↓	For-Profits, CSU

Below is an examination of biology and the health professions, as well as computer and information science, to provide greater insight into the relationship between top majors and their producers.

Example: Biology and health professions

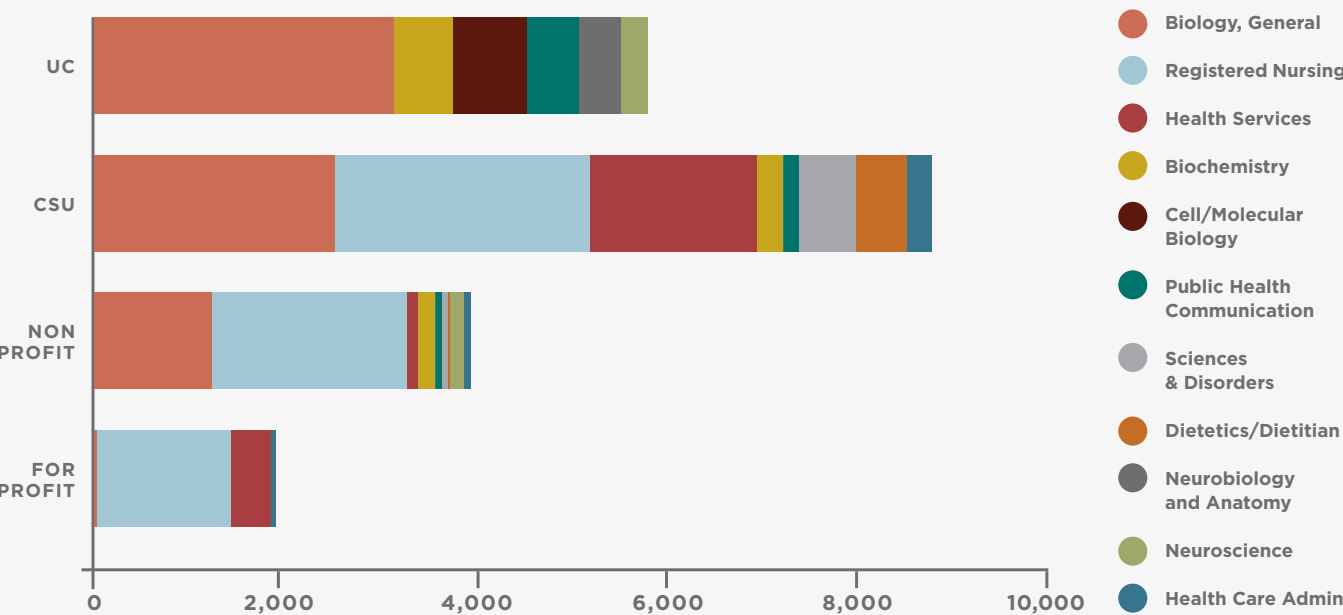
If you were to combine the biology and health professions categories, over the past decade they would have overtaken the majors in social sciences making it the second largest category after business. The producers of biology and health sciences degrees look very different by sub-major, as demonstrated by Figure 6; in fact, none of the top majors are represented by all producers. The CSUs account for more than 90 percent of degrees in communication sciences and disorders (think speech pathologists) and dietetics, while the UCs dominate degrees in the biology sub-majors of cellular and molecular biology, and neurobiology and anatomy. The UCs also account for more than half (53 percent) of all degrees in biochemistry and neuroscience, and a healthy portion of general biology degrees. Overall, biology degrees at

the UCs have increased steadily since the early 1990s. In fact, biology has become so prominent at UCSD (from 750 graduates in 2002-2003 to 1,200 in 2012-2013) that admission to the major was restricted. Had the major not filled up entirely, the growth in biology degrees would have been even more dramatic.

Though CSUs make up a vast majority of both general health services and health care administration degrees, the for-profits (mostly a few select institutions) have established a presence in that field since 2007. For example, Trident University in Orange County is responsible for virtually all (97 percent) of the for-profit degrees in general health services, and the University of Phoenix accounts for the majority (73 percent) of all health care administration degrees. This trend holds true for nursing degrees at for-profit institutions as well, with almost all of the roughly 1,500 nursing degrees (94 percent) coming from the University of Phoenix or Westwood College.

FIGURE 6  
Producers of Biology and Health Sciences Degrees, by Sub-major, 2013

BIOLOGY & HEALTH SCIENCES BY SECTOR





## Example: Computer and information sciences (CIS)

While biology and health professions degrees grew, one of the degrees that declined most over the same period was computer and information sciences (CIS). The decline in degrees in CIS and computer engineering<sup>[9]</sup> is obviously surprising given the surge in computer-related businesses, especially in California. In the 2003 to 2004 academic year, 6,700 California students graduated with bachelor's degrees in CIS while in 2012 to 2013, only 4,300 students graduated with the same degree. During that same period, bachelor's degrees in computer engineering declined by 25 percent. The decline in CIS and computer engineering bachelor's degrees overall could be due to the 150 coding academies that have sprung up over the last decade. Another possibility is that there was a perception shift, where students began to choose engineering degrees which were seen as more "hard science," over CIS ones, which has taken a turn for the technical. Bachelor's degrees in the overall

engineering major have risen from 6,900 to 10,000 since 2003, especially at CSUs, which saw the biggest loss in computer science degrees.

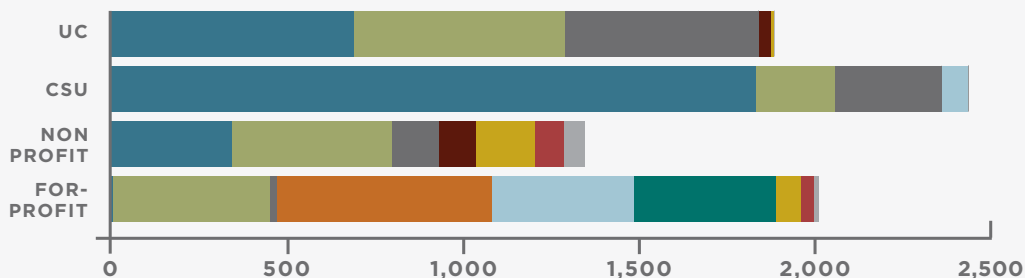
Figure 7 demonstrates the change in segments awarding CIS and computer engineering degrees over the last decade. Nonprofits have seen a 35 percent drop in this category of degrees while for-profits also have seen decreases in the overall number of CIS degrees. The most popular sub-major, the computer science degree itself, has also declined in the last decade overall. This sub-major declined most sharply at CSU, which now produces almost 50 percent fewer computer science degrees than it did at the start of that period. UC scaled back in all degrees awarded except for the computer science degree, of which it is now the top producer. In 2004 the for-profit institutions dominated three of the more niche majors within computer science —computer systems analysis, computer software and media applications, and computer systems networking and telecommunications. As of 2013, for-profits also issue the majority of degrees in computer programming, and computer information technology administration and management.

9 Note that the computer engineering sub-major is within the engineering major, not the computer and information science major. We chose to include computer engineering in this discussion given its compatibility to the computer and information sciences major.

FIGURE 7

## Example: Computer and Information Sciences

### COMPUTER AND INFORMATION SCIENCES MAJORS (2004)



### COMPUTER AND INFORMATION SCIENCES MAJORS (2013)

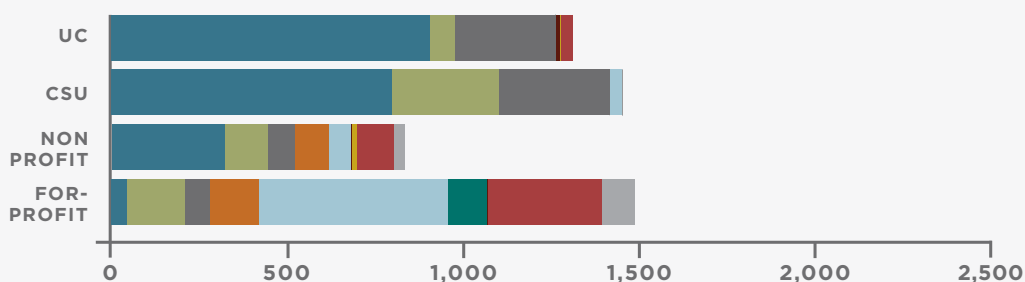
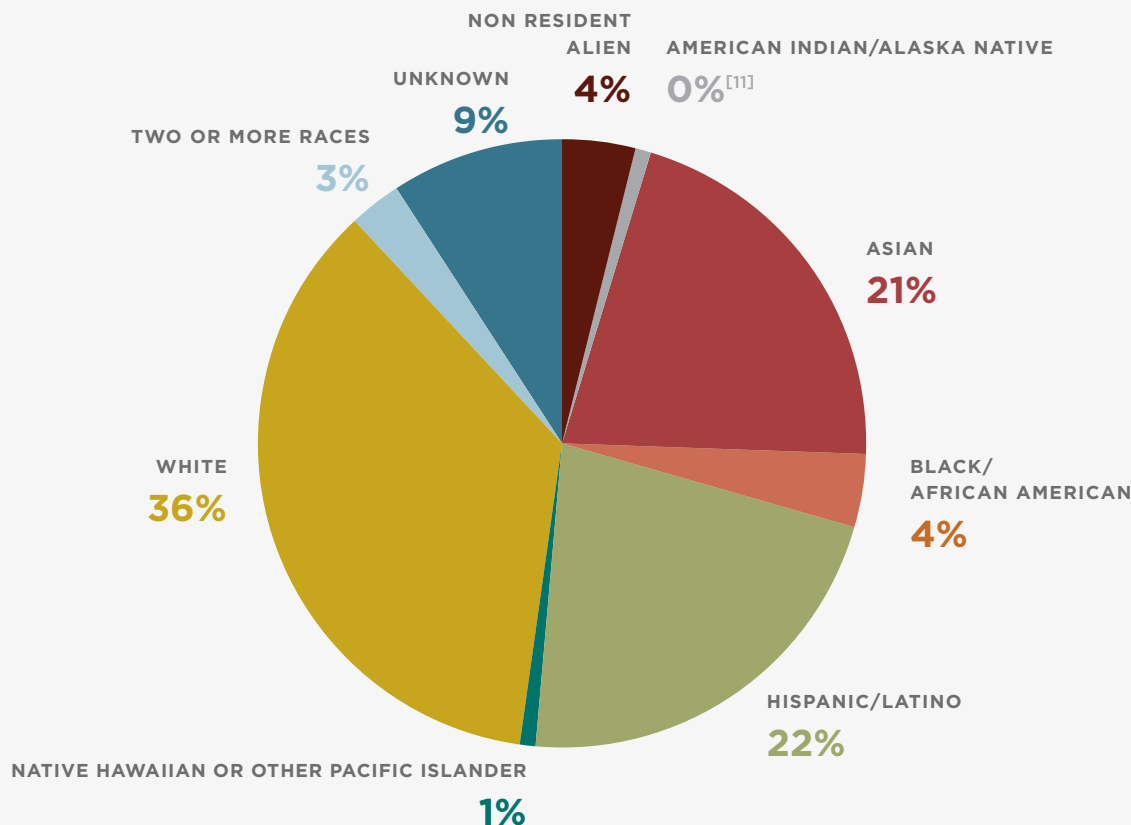


FIGURE 8

## Race/Ethnicity in California's BA Recipients, 2013

Integrated Postsecondary Education Data System



11 Recipients identifying as American Indian or Alaska Native make up less than 1% of the total.

## Background of Graduates

California is well-known as a “majority minority” state. According to 2013 U.S. Census data 58 percent of residents identify as non-white while 42 percent of California adults are White.<sup>[10]</sup> The state’s demographic figures become important as we consider racial disparities in educational access and success.

As Figure 8 shows, approximately one-third (36 percent) of bachelor’s degree recipients are White, while roughly one-fifth are Latino and Asian (22 percent and 21 percent, respectively), and only a small portion (four percent) are African American. Compared with

the overall adult population, Asians are slightly over represented amongst bachelor’s degree recipients, while Latinos are underrepresented. Overall, graduates may seem reasonably diverse for California, a “majority minority” state, though these figures do not reflect the disproportionate leakage of minority students along the education pipeline: there are significant numbers of students who fall out of the education system because they do not complete high school, begin college, or complete college.

## Racial/ethnic distribution by institution

The racial makeup of bachelor’s degree recipients differs significantly by institution, shown in Figure 9. At UC for example, 68 percent are White and Asian compared with

10 According to the 2013 U.S. Census, the distribution of non-whites in California includes 36 percent of the population identifying as Latino, 14 percent as Asian, 6 percent as Black, and 1 percent as Native Hawaiian and American Indian.

20 percent that are Black and Latino. At CSU, Latinos represent a larger share of the bachelor's degrees with 27 percent, yet Blacks only increase one percentage point (4 percent) compared to their representation at UC; Asian representation falls off considerably at CSU, at 16 percent. Whites make up almost half of all bachelor's recipients at private nonprofit institutions (47 percent), with Latinos coming in second (18 percent), and Asians in third (13 percent). Blacks make up five percent of all bachelor's degree recipients at private nonprofits. And among the small share of four-year for-profit institutions, while Latinos are proportionate relative to their tally

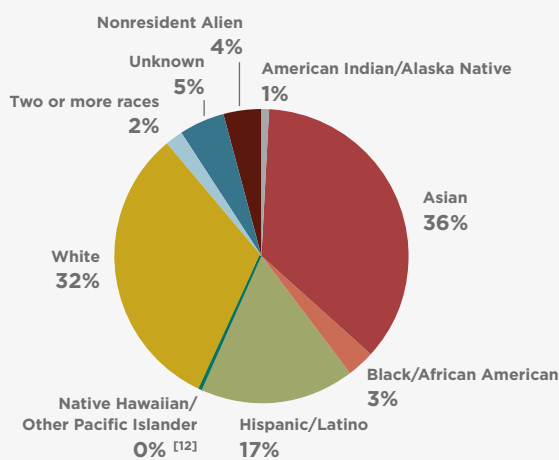
among all four-year graduates (24 percent), there are more than twice as many Blacks (9 percent) compared with their total across all institutions. Most notable in the for-profit numbers is the unusually high percentage (25 percent) of graduates whose race/ethnicity is designated as "unknown;" with increased reporting of these data, the distribution at for-profits could change considerably.

Given the small numbers in several categories, we will not look in more detail at the major patterns for Pacific Islanders, Native Americans, or those identifying as multi-racial. Nor will we further examine the "unknown" category.

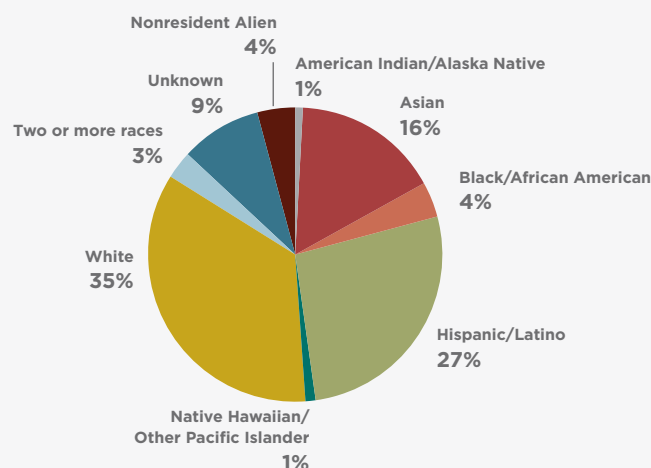
FIGURE 9

## Race/Ethnicity of California's Bachelor's Degree Recipients, 2013

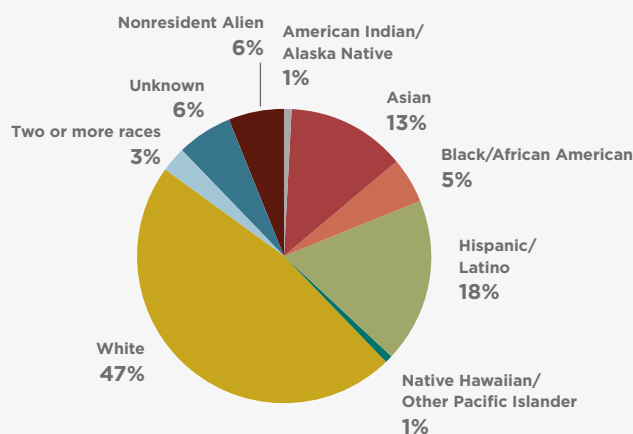
### UNIVERSITY OF CALIFORNIA, 2013



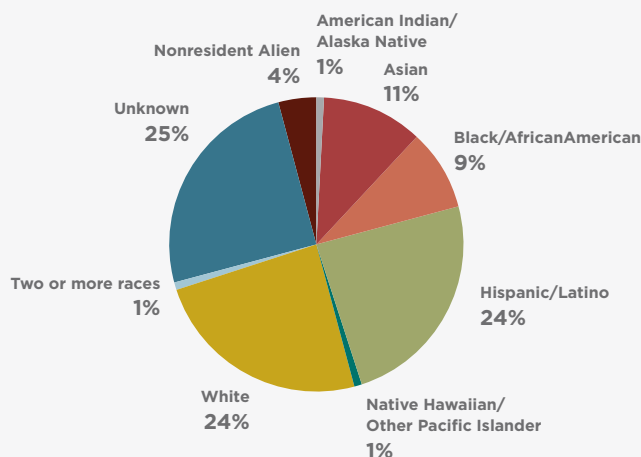
### CALIFORNIA STATE UNIVERSITY, 2013



### PRIVATE NONPROFITS, 2013



### PRIVATE FOR-PROFITS, 2013



12 Recipients identifying as Native Hawaiian or Other Pacific Islander make up less than 1% of the total.

Racial/ethnic distribution by major

Business and marketing is the top major irrespective of a graduate's race/ethnicity, as shown in Figure 10. There is also remarkable consistency across races/ethnicities in the number two discipline, the social sciences, with one exception: Asian students prefer biological and biomedical sciences to the social sciences. Generally speaking, most majors in the overall top 10 are also in the top 10 for each racial/ ethnic group. White students, who have the largest proportion of graduates, have the most influence on the overall ranking as demonstrated by how closely their ranking matches the overall one. Asian students are less likely than any other group to major in humanities subjects like English and liberal arts, while Black and Latino students are much less likely to major in engineering than other groups.

While computer science is ranked ninth for Asians and nonresident aliens, for Whites and Latinos it receives a ranking of 14 and 19, respectively. Race/ethnicity also

plays a factor in where students receive their degree in computer science; the top five schools where Asian students receive a computer science degree are all UCs, whereas the top schools for White students are almost entirely private institutions, both nonprofit and for-profit.<sup>13</sup> Finally, it is worth noting that Black and Latino students are far more likely to pursue majors related to law enforcement than other groups, with those majors ranking seventh and sixth, respectively. Sub-

13 The top five schools producing computer science majors among Asians are all UCs (UC San Diego, UC Irvine, UC Berkeley, UC Los Angeles, and UC Santa Cruz), followed by DeVry, UC Davis, Coleman University, Stanford University, and CSU Los Angeles. Note that the last 5 schools produced fewer than 50 degrees each among Asians majoring in computer science. The top 10 schools producing computer science degrees among Whites are UC Santa Cruz, Coleman University, Westwood College Los Angeles, DeVry University, CSU Chico, Stanford University, UC San Diego, UC Berkeley, Trident University, and CSU Northridge. Note that the last 5 schools produced fewer than 50 computer science degrees each among Whites.

FIGURE 10  
Top Majors Among Bachelor's Recipients Overall and by Race/Ethnicity, 2013

Majors	OVERALL RANK	AMERICAN INDIAN/ ALASKA NATIVE	ASIAN	BLACK/AFRICAN AMERICAN	HISPANIC/LATINO	NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER	WHITE	TWO OR MORE RACES	UNKNOWN	NONRESIDENT ALIEN
Business, Management, Marketing & Related Support Services	1	1	1	1	1	1	1	2	1	1
Social Sciences	2	2	3	2	2	4	2	1	2	2
Psychology	3	4	6	3	3	6	4	3	5	5
Visual & Performing Arts	4	3	7	5	4	7	3	4	3	3
Biological & Biomedical Sciences	5	6	2	8	9	5	6	7	6	6
Health Professions & Related Programs	6	5	4	4	5	2	5	5	4	10
Engineering	7	9	5	15	11	3	8	9	7	4
Communication, Journalism & Related Programs	8	8	8	6	8	9	7	6	9	7
English Language & Literature/Letters	9	10	12	9	10	12	9	8	10	15
Liberal Arts & Sciences, General Studies & Humanities	10	7	15	12	7	13	10	10	8	13
Homeland Security, Law Enforcement, Firefighting & Related Protective Service	11	13	18	7	6	9	17	14	11	27
Computer & Information Sciences & Support Services	12	17	9	11	19	8	14	15	12	9
Parks, Recreation, Leisure & Fitness Studies	13	12	14	16	15	11	11	11	13	17

# Baccalaureate Degrees and Certificates

## Overview

In most people's minds the word "college" means a four-year degree, one that might lead to one or more graduate or professional degrees. But there have long been other credentials available to adults, awarded after a set of courses that may take a few months to complete or up to two or three years.

The type and prevalence varies widely, from nursing administration, to culinary arts, to vehicle maintenance and repair technologies. Sometimes these programs result in an associate's degree, and in other cases, the student may earn a certificate. In this report, we refer to associate's degrees and certificates as "sub-baccalaureate credentials."

Recent work by the Center on Education and the Workforce at Georgetown University shows that, since 1967, the demand for workers with at least some college has increased almost threefold.<sup>[14]</sup> Sub-baccalaureate credentials help workers move from low-wage jobs into increasingly scarce middle-wage jobs, roughly half of which provide benefits such as health care insurance and retirement plans.<sup>[15]</sup> Sub-baccalaureate credentials are also a critically important component of the higher education landscape, providing Californians with options beyond traditional academia. They can be a good option for young adults just out of high school, those uninterested in four more years of school but eager to start a career, and for other adults seeking to upgrade their skills or to train for a different career. The large increases in sub-baccalaureate credentials awarded in California over the past decade, discussed in more detail below, further demonstrate their importance in the higher education landscape.

For the purposes of monitoring California's production of sub-baccalaureate credentials, we have ignored short-term programs, those that require less than the equivalent of a year of full-time enrollment. Research suggests that these short-term credentials are often avocational or job upgrades that do not result in a major improvement in employability or earnings. We also eliminated from our analysis associate's degrees that are likely only a step on the road to bachelor's degrees (e.g., Social Sciences, Biology and Biomedical Sciences, etc.).<sup>[16]</sup>

## Producers of degrees

In *The Road Ahead* we found that community colleges and for-profit institutions each produced about half of the technical sub-baccalaureate credentials in California, with a small sliver coming from nonprofit institutions. Data now available indicate that the industry was experiencing a major shift, driven by the recession, as illustrated in Figure 11. In just one year, from 2010 to 2011, there was a nearly 70 percent increase in the number of sub-baccalaureate credentials conferred by California's for-profit institutions; the majority of that growth was in certificates rather than associate's degrees. As a result the for-profit share of sub-baccalaureate credentials has now over taken that of community colleges. This may have long-term implications for the kinds of wages these workers might need to earn, since they will likely amass more educational debt than their peers at modestly-priced community colleges.<sup>[17]</sup>

14 Anthony Carnevale, and Stephen J. Rose, "The Economy Goes to College: The Hidden Promise of Higher Education in the Post-Industrial Service Economy," 2015, <https://cew.georgetown.edu/wp-content/uploads/EconomyGoesToCollege.pdf>. Retrieved October 8, 2015.

15 A. Carnevale, et al., "Good Jobs Are Back: College Graduates Are First In Line," 2015, [https://cew.georgetown.edu/wp-content/uploads/Good-Jobs\\_Full\\_Final.pdf](https://cew.georgetown.edu/wp-content/uploads/Good-Jobs_Full_Final.pdf). Retrieved October 8, 2015.

16 See Technical Appendix for more details.

17 The recent collapse of Corinthian College and decision by the U.S. Department of Education to provide debt relief to former students demonstrates how the high cost model of for-profits can result in significant debt and limited wage returns for graduates.

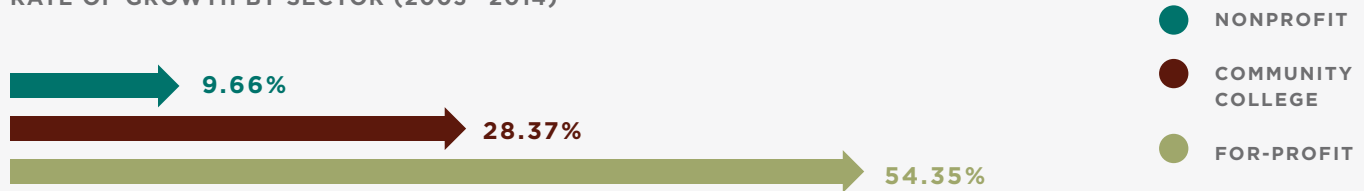
**In just one year, from 2010 to 2011, there was a nearly 70 percent increase in the number of sub-baccalaureate credentials conferred by California's for-profit institutions.**



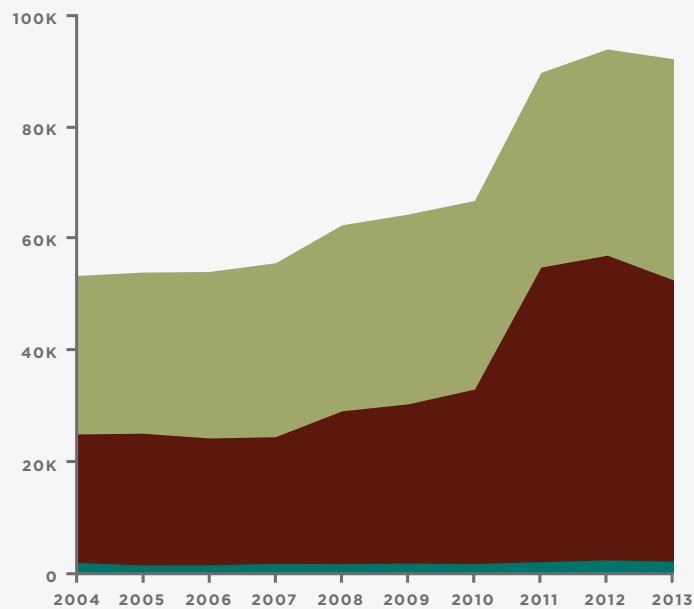
FIGURE 11

## Producers of Associates Degrees and Certificates Over a Decade

RATE OF GROWTH BY SECTOR (2003 - 2014)



NUMBER OF DEGREE GROWTH BY SECTOR (2003 - 2014)



	FOR-PROFIT	COMMUNITY	NON PROFIT
2004	22,999	28,387	1,927
2005	23,613	28,865	1,447
2006	22,717	29,818	1,490
2007	22,700	31,161	1,734
2008	27,365	33,328	1,697
2009	28,520	34,001	1,801
2010	31,248	33,798	1,714
2011	52,760	34,893	2,046
2012	54,579	36,940	2,370
2013	50,379	39,628	2,133

While the recession-fueled decline in employment and job security likely contributed to increased demand at for-profit colleges, another possible explanation is the simultaneous cuts in state funding at the community colleges. Those reductions led to cancellations of course offerings, which contributed to three straight years (2010 to 2012) of dropping enrollment. Interestingly, however, despite the enrollment cuts, the number of sub-baccalaureate credentials awarded by the community colleges has continued to increase by three to seven percent annually from 2004 through 2013, except for a short period of stagnation in 2010.

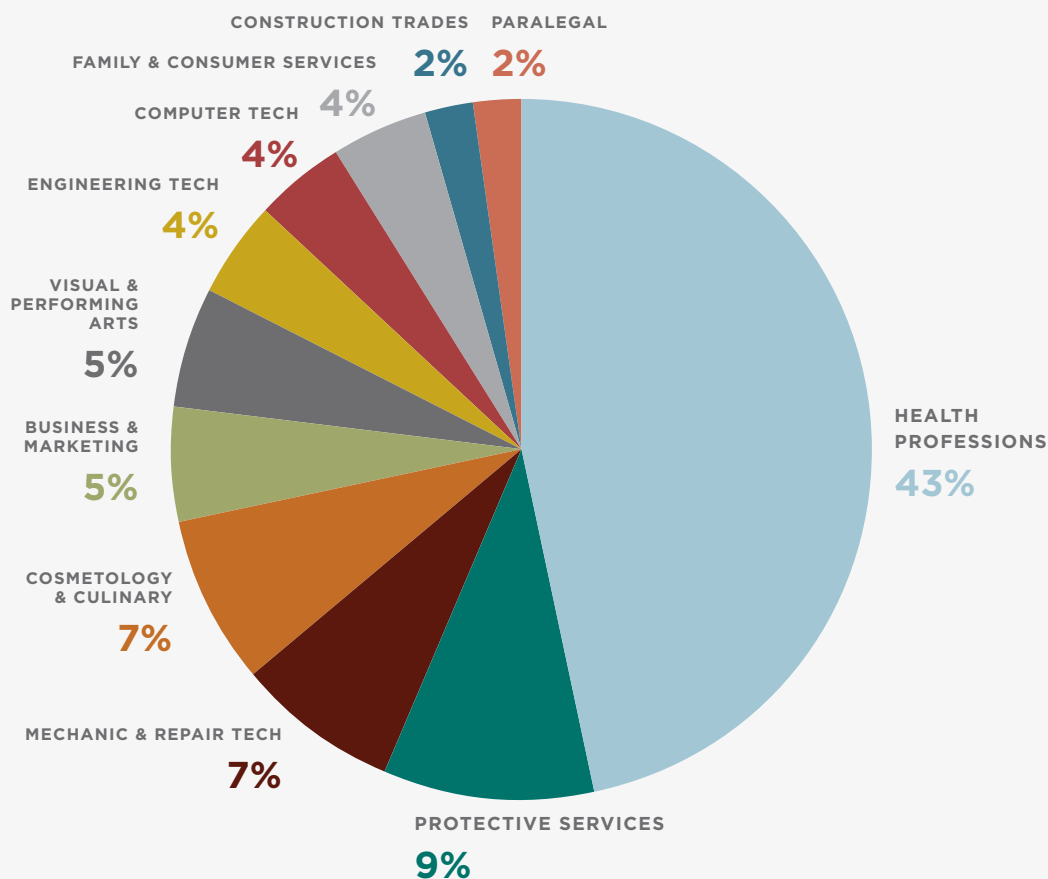
Missing from the data on sub-baccalaureate credentials are the various degrees and certificates offered by the extension or continuing education operations of UC and CSU. While many of these offerings are hobby-oriented,

or are primarily taken by people who already have bachelor's degrees, several offer certificate programs to high school graduates. Unfortunately, these UC and CSU programs do not report their outcomes to either the federal or state government, so their contribution to the sub-baccalaureate totals cannot be analyzed.

In 2013, California institutions awarded 92,100 vocational credentials, an increase of nearly 40,000 over the number in 2004. Notably, when looking at the top 10 sub-baccalaureate credentials conferred, Figure 12 shows for-profit institutions are the main producers of degrees in all but the tenth spot (paralegals, tied with construction trades). This marks a shift since 2003, when community colleges and for-profits each conferred 5 of the top 10 degrees.

FIGURE 12

## Top Ten Vocational Sub-baccalaureate Majors in 2013



RANK	PERCENT OF ALL AAs	CATEGORY	RANK IN 2004	TOP PROVIDERS
#1	43%	Health Professions	1 (32%) —	For-profit
#2	9%	Protective Services	6 (7%) ↑	For-profit
#3	7%	Mechanic & Repair Tech	7 (7%) ↑	For-profit
#4	7%	Cosmetology & Culinary	4 (8%) —	For-profit
#5	5%	Business & Marketing <sup>[18]</sup>	2 (9%) ↓	For-profit
#6	5%	Visual & Performing Arts	8 (7%) ↑	For-profit
#7	4%	Engineering Tech	5 (7%) ↓	For-profit
#8	4%	Computer Tech	3 (8%) ↓	For-profit
#9	4%	Family & Consumer Sciences	9 (4%) —	For-profit
#10	2%	Construction Trades	12 (1%) ↑	For-profit
#11	2%	Paralegal	10 (2%) —	Community

18 Note: Business and Marketing may be ranked artificially low because only certificates were counted for this major, assuming that the majority of associate's degrees in business were for transfer.

As was seen with bachelor's degrees, the largest increase in sub-baccalaureate credentials was in the health professions major, from 32 percent of all credentials in 2004, to 43 percent in 2013. The health professions category dwarfs the second most popular major, protective services, which accounts for only nine percent of all credentials. Due to the significance of the health professions degree, it is examined in greater detail on [page 23](#).

Programs in security and crime prevention also increased significantly, with growth at both community colleges and for-profit institutions. While community colleges offered degrees in police science, and fire prevention and safety technology, the most popular programs at for-profits were more general such as law enforcement administration and safety studies. While these programs may all sound similar, in many instances they are not. Programs at community colleges, like Gavilan College for example, have a 22-credit course called “basic police academy” that satisfies the California Commission on Peace Officer Standards and Training (POST) minimum requirements for entry-level peace officers. Peace officers can skip the police academy and gain lateral entry as a police officer if they work as a peace officer for two years.<sup>[19]</sup> As opposed to those “hard skills” learned at some community colleges, the for-profit

programs tend to be more theoretical with courses such as criminal justice communications.

Mechanic and repair technologies jumped from a ranking of seven to three over the last decade, largely due to significant increases of these programs at for-profits. The vehicle maintenance and repair technologies sub-major is the most popular at community colleges and for-profits, accounting for more than 83 percent of all mechanic technologies students. The 2,200 mechanic and repair technologies credentials conferred by community colleges were distributed broadly across 60 districts, while all 4,650 degrees from for-profits were concentrated among only six institutions.

Construction trades moved into the top 10 due to an enormous increase in for-profits, from just 4 credentials produced in 2004 to 1,200 in 2013. This is notable because construction programs are typically costly to offer, deviating from for-profits' tendency to offer degrees with low overhead. However, roughly 90 percent of all degrees in this major are within the field of electrical and power transmission installers, a less expensive program compared to roofing, carpentry or most other construction sub-majors. Only four for-profits offered the construction major, and the majority of credentials came from various branches of the now defunct Wyotech.

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19 Government Jobs, “Police Officer Qualifications – Sacramento California,” <http://agency.governmentjobs.com/saccity/default.cfm?action=viewclassspec&classSpecID=33389&agency=792&viewOnly=yey>. Retrieved October 8, 2015.

Example: Health professions

The large increases in health professions sub-baccalaureate credentials can be seen across all segments, as shown in Figure 13. However, the increase is most pronounced in for-profits, with a 250 percent jump from 2004 to 2013.

At the for-profits, the most popular health professions program was, by a wide margin, medical assisting,

followed by practical nursing, medical administration, and dental support services. Unlike the trend with bachelor’s degrees from for-profits, these sub-baccalaureate credentials did not come from only one or two institutions but from a broad array, including Heald College, Kaplan College, United Education Institute, San Joaquin Valley College, and Everest College.

FIGURE 13  
Growth in Sub-baccalaureate Health Professions Credentials Over a Decade

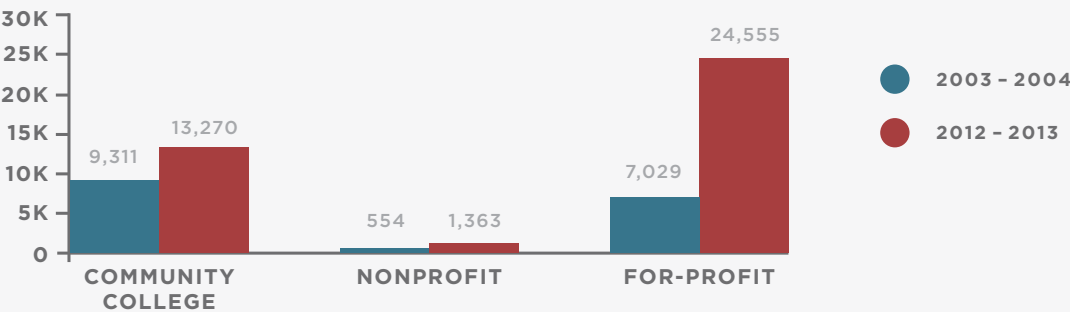
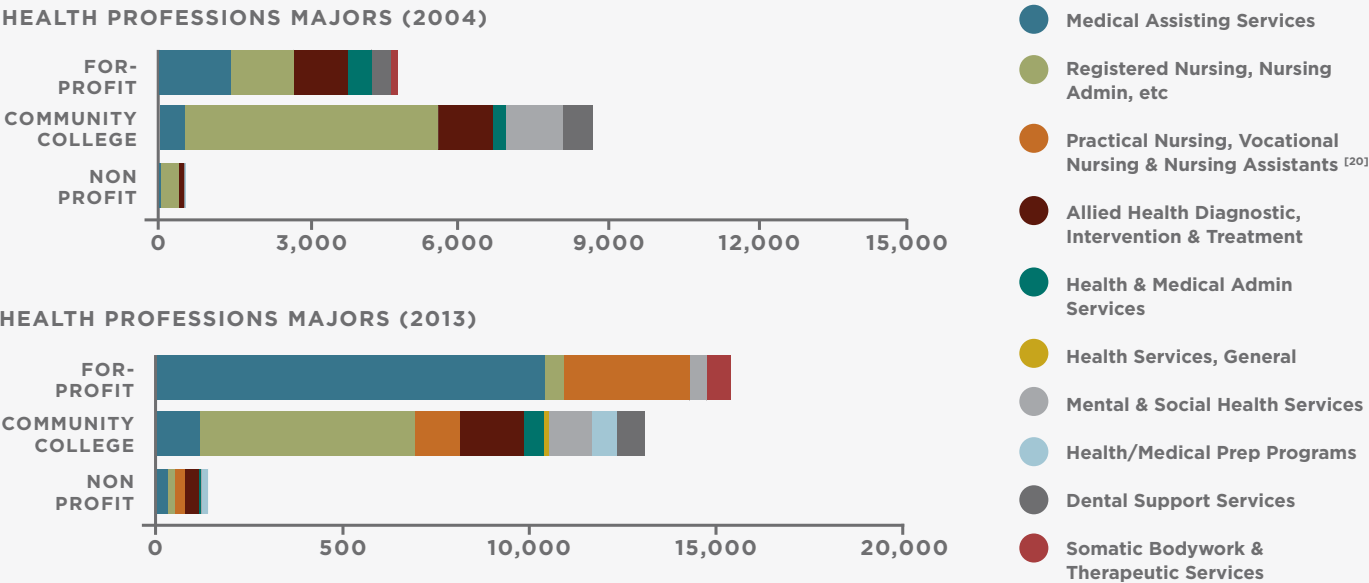


FIGURE 14  
Example: Producers of Health Professions Sub-Majors Over a Decade



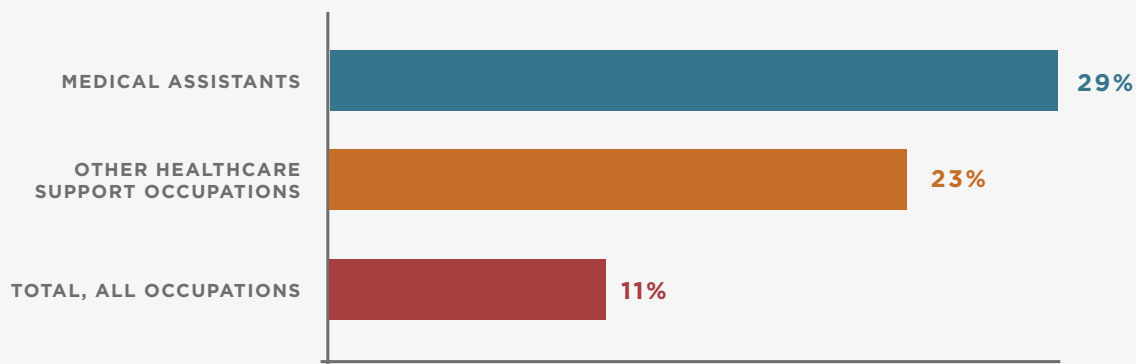
[20] Note: In the 2003 portion of Figure 14 "Producers of Health Professions Sub-Majors Over a Decade," all nursing degrees were categorized as "registered nursing," though unknown portions of that category were likely practical/vocational.

FIGURE 15

## Job Outlook for Medical Assistants, 2012

QUICK FACTS: MEDICAL ASSISTANTS	
2012 Median Pay	\$29,370 per year   \$14.12 per hour
Entry-Level Education	Postsecondary non-degree award
Number of Jobs, 2012	560,800
Job Outlook, 2012-22	29% (Much faster than average)
Employment Change, 2022-22	162,900

### MEDICAL ASSISTANTS (PERCENT CHANGE IN EMPLOYMENT, PROJECTED 2012 - 22)



Note: All occupations includes all occupations in the U.S. Source: Adapted from U.S. Bureau of Labor, Employment Projections program

Demand for medical assistants is expected to increase over the next several years, though their median wage, as demonstrated by Figure 15, is expected to be fairly low. At community colleges, just over half of all health professions majors (53 percent) studied to become registered and practical nurses at 44 percent and 9 percent, respectively. The remainder were split amongst allied health diagnostic, intervention, and treatment professions (i.e., MRI specialists, blood bank technicians, etc.), and various other medical assistant programs.

Since 2003, more specific reporting of sub-majors has revealed important information regarding the specialization of certain credentials across segments. A good example is the nursing degree which, in 2004,

made no distinction between registered nursing and practical/vocational nursing. Even though nursing was a popular major in 2004, there was no information regarding the types of nursing degrees that the various segments were producing. Data from 2013, however, demonstrate that community colleges produce the bulk of registered nurses and nursing administrators. For-profit institutions primarily produce nursing assistants and practical/vocational nurses, occupations with relatively fewer available jobs and a much lower median wage compared to other nursing positions, as demonstrated in Figure 16.

FIGURE 16

**U.S. Job Outlook for Registered Nurses v. Practical/Vocational Nurses, 2012**

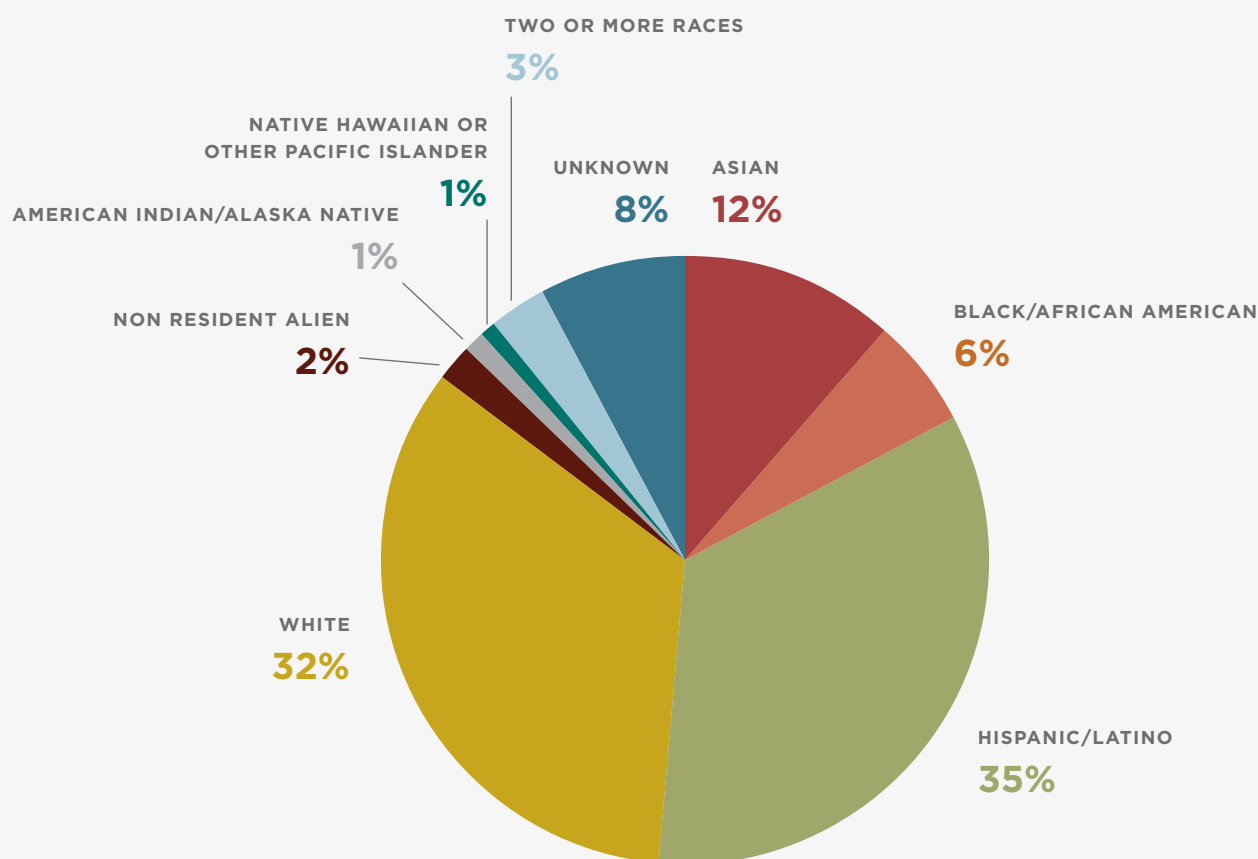
QUICK FACTS: REGISTERED NURSES	
2012 Median Pay	\$65,470 per year   \$31.48 per hour
Entry-Level Education	Associate's degree
Number of Jobs, 2012	2,711,500
Job Outlook, 2012-22	19% (Faster than average)
Employment Change, 2022-22	526,800
QUICK FACTS: LICENSED PRACTICAL AND LICENSED VOCATIONAL NURSES	
2012 Median Pay	\$41,540 per year   \$19.97 per hour
Entry-Level Education	Postsecondary non-degree award
Number of Jobs, 2012	738,400
Job Outlook, 2012-22	25% (Much faster than average)
Employment Change, 2022-22	182,900

Note: All occupations includes all occupations in the U.S. Source:  
Adapted from U.S. Bureau of Labor, Employment Projections program



FIGURE 17

## Race/Ethnicity of California's Sub-baccalaureate Credential Recipients, 2013



### Background of Graduates

Recipients of sub-baccalaureate credentials have a different demographic profile than those earning bachelor's degrees. In particular, there are many more Latino students, and fewer Asian students, receiving sub-baccalaureate credentials in comparison to bachelor's degrees. The representation of both of these groups among sub-baccalaureate degree recipients more closely reflects their composition in the general population. Figure 17 shows the distribution among sub-baccalaureate credentials, and for comparison, Figure 8 shows data for bachelor's degree recipients.

### Racial/ethnic distribution by institution

The racial/ethnic makeup of credential recipients differs significantly across the segments, as illustrated in Figure 18.

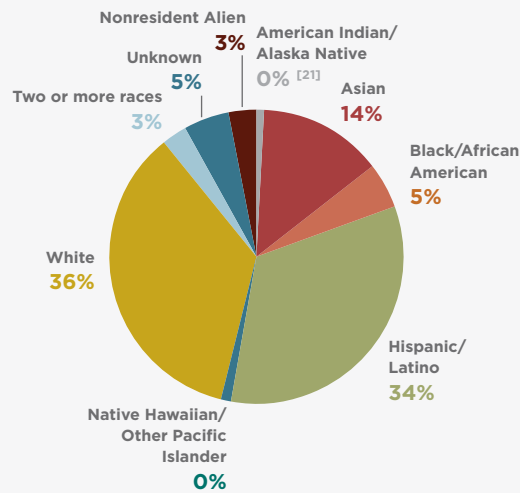
Most notably, Latinos are represented in numbers virtually equal to Whites at community colleges, but they have much greater representation than Whites at nonprofits and for-profits. Blacks are most likely to receive a credential at a nonprofit or for-profit rather than in public institutions, while the reverse is true for Asians. As previously mentioned regarding bachelor's degree data, the for-profits see a high rate of recipients with race/ethnicity "unknown."

**There are many more Latino students, and fewer Asian students, receiving sub-baccalaureate credentials in comparison to bachelor's degrees.**

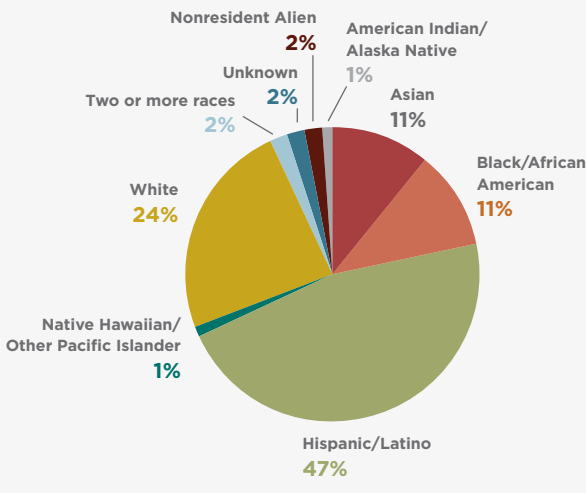
FIGURE 18

Race/Ethnicity of California’s Associate’s Degree and Certificate Recipients, 2013

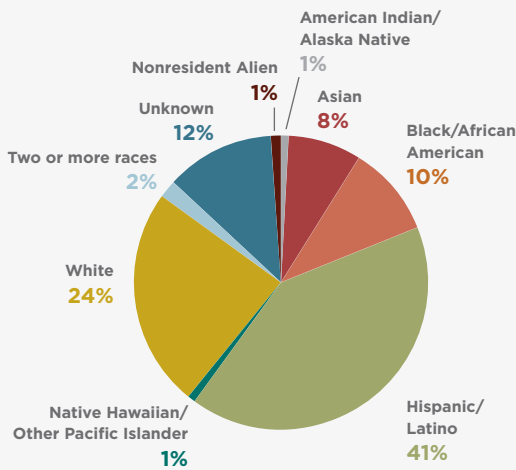
CALIFORNIA COMMUNITY COLLEGES, 2013



CALIFORNIA PRIVATE NONPROFITS, 2013



CALIFORNIA PRIVATE FOR-PROFITS, 2013



[21] Recipients identifying as American Indian or Alaska Native and Native Hawaiian or Other Pacific Islander make up less than 1 percent of the total.

## Racial/ethnic distribution by major

Among the top 10 sub-baccalaureate majors, there is consistency in the racial/ethnic distribution at the beginning and end of the list, with lots of flux in the middle-ranking majors, as presented in Figure 19. The health professions majors are dominant across all groups, and construction trades and paralegals are among the least popular for most groups. One interesting category is protective services, where groups show different preferences: Asian and nonresident alien students are much less likely to pursue these occupations, while it is a high-ranking major for Latinos, Blacks, and Whites.

FIGURE 19

### Top Majors Among Sub-Baccalaureate Credential Recipients Overall and by Race/Ethnicity, 2013

Majors	OVERALL RANK	ASIAN	BLACK/AFRICAN AMERICAN	HISPANIC/LATINO	WHITE	NONRESIDENT ALIEN	AMERICAN INDIAN/ALASKA NATIVE	NATIVE HAWAIIAN/OTHER PACIFIC ISLANDER	TWO OR MORE RACES	UNKNOWN
Health Professions	1	1	1	1	1	2	N/A	N/A	N/A	N/A
Protective Services	2	6	2	2	3	8	N/A	N/A	N/A	N/A
Mechanical & Repair Tech	3	2	4	3	4	7	N/A	N/A	N/A	N/A
Cosmetology & Culinary	4	4	3	4	6	6	N/A	N/A	N/A	N/A
Business & Marketing	5	8	7	8	10	4	N/A	N/A	N/A	N/A
Visual & Performing Arts	6	3	5	7	2	1	N/A	N/A	N/A	N/A
Engineering Tech	7	9	8	5	7	9	N/A	N/A	N/A	N/A
Computer Tech	8	5	6	10	5	5	N/A	N/A	N/A	N/A
Family & Consumer Sciences	9	7	9	6	8	3	N/A	N/A	N/A	N/A
Construction Trades	10	11	10	9	11	11	N/A	N/A	N/A	N/A
Paralegal	11	10	11	11	9	10	N/A	N/A	N/A	N/A

The numbers for American Indian/Alaska Native, Native Hawaiian/Pacific Islander, two or more races and unknown were too small for ranking analysis.

**Blacks are more likely to receive a credential at a two-year private nonprofit or for-profit than they are in any other while Asians are least likely to attain credentials from a two-year nonprofit or for-profit.**

## Policy Recommendations

**Our analysis of the looming degree attainment gap, and our examination of trends in both the majors and producers of degrees, suggest several policy recommendations. The objectives of our recommendations are three-fold.**

First, they are intended broadly to increase the number of students obtaining degrees. Second, these recommendations are meant to ensure that, as California produces more degrees, those degrees more closely align with the state's educational, workforce, and civic needs — both regionally and statewide. Third, our recommendations compel the state to pay special attention to students who are traditionally underrepresented but increasingly defining the landscape of our colleges and communities. In short, our recommendations seek to balance the demands of a broad, statewide public agenda for higher education with a desire to promote increased access and greater equity for students, without which the state's prospects for economic vitality and social cohesion will be diminished.

Reflecting the consensus among policy researchers, our recommendations for the state of California are anchored by four overarching priorities: to increase access to college, improve and accelerate pathways that promote degree completion, reform governance to improve college productivity, and make e wise and targeted state investments in higher education. In the coming months, California Competes will develop full policy briefs on the recommendations proposed below.

### **To increase access to college the state should:**

#### **1. DEVELOP A SYSTEM FOR REACHING OUT TO ADULT LEARNERS.**

The number of people now needed to close the attainment gap by 2025 requires California to expand its definition of a traditional student and more aggressively

recruit adult learners, particularly those with some college and partial credit, to complete college. We propose that California create a centralized mechanism, preferably through a higher education coordinating entity, to identify older adults interested in completing a degree or credential or upgrading their skills. This would necessitate developing a robust system for assessing prior learning, since research shows that adults with partial college credits are 2.5 times more likely to complete a degree.<sup>[22]</sup> It would also require that the state itself consider carefully how to provide for targeted enrollment growth to accommodate an increased number of degree seekers.

To maintain a commitment to equity, this system might include collaborations with other state agencies, such as Department of Veterans Affairs or the Division of Parole through the California Department of Corrections and Rehabilitation, to help target adults with the most unmet need for higher education. The recently developed community college [Growth Funding Formula](#) could be effectively utilized to conduct additional outreach to those with some college who need to complete a degree. California might also consider concomitant changes in financial aid policies — such as providing full tuition to financially needy adult students with 18 credits or fewer to complete their degrees — to facilitate more rapid degree attainment.

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[22] Postsecondary National Policy Institute, "Prior learning and competency-based education," July 1, 2013. <https://www.newamerica.org/postsecondary-national-policy-institute/prior-learning-and-competency-based-education/>. Retrieved November 13, 2015.



## To improve and accelerate pathways that promote degree completion the state should:

### 2. PILOT TEST THREE-YEAR BACHELOR'S DEGREES.

Largely in response to high college costs, there is an emerging literature on how to graduate college students in three years rather than four.<sup>[23]</sup> These proposals vary in nature, with some arguing that three-year degrees should be a new standard in higher education, and others advocating it as a more targeted approach for specific majors. Here in California, three-year degrees have been implemented by CSU Monterey Bay, in partnership with Hartnell Community College, to deliver a computer science degree. The program, which prioritizes enrollment among Latino students, won an [Award for Innovation in Higher Education](#) in 2015. A pilot test promoting three-year degrees would direct CSUs and UCs to design programs, potentially in partnership with their local two-year institutions, to identify majors and develop appropriate curricula. The state should provide financial support to help faculty and colleges revamp curricula and course scheduling practices, and couple that support with mentoring and professional development resources for those starting new programs. The state might also consider providing bonuses to those institutions that effectively graduate students in three years and meet a broader set of equity goals by graduating low-income and traditionally underrepresented students.

## To improve long-term higher education productivity, the state should:

### 3. CREATE A STATEWIDE HIGHER EDUCATION COORDINATING ENTITY.

Current events (such as [the debate regarding the UC tuition increase](#) and California's short-lived [innovation prize](#)) continue to make the case for a statewide coordinating entity—one that can articulate and uphold a broad public agenda for higher education, create a mechanism for ensuring that its segments are

accountable to that agenda and spur innovation to close the degree attainment gap. As discussed in California Competes' report "[Charting a Course](#)," there are any number of organizational structures that could be adopted to provide this kind of longer-term planning and oversight, while increasing the coordination between higher education systems and institutions. The main responsibility of that entity would be to view higher education through a cohesive statewide lens rather than a siloed, segmental perspective by:

- Projecting state needs for an education workforce;
- Identifying gaps between expected graduates and state needs;
- Developing cost-effective strategies for helping to close the gap and allocating higher education resources wisely, both within and amongst the educational segments; and
- Developing proposals for increased system and institutional accountability.

Essential to accomplishing any of these goals is creating a comprehensive, student-level data system (inclusive of P-12 and labor market data) to provide accurate information on student progress, institutional outcomes, and especially labor market information to better inform state investments in various academic programs. For example, California might consider increasing its investment in high-demand baccalaureate and sub-baccalaureate credentials in order to more directly link the needs of the state's economy to the academic majors pursued by students. A state coordinating agency would be the appropriate entity for making recommendations about which degrees might qualify and what investment mechanism (i.e., through institutional grants, tuition breaks, financial aid, or some blended model) might be most effective, as well as how any investment might align with achieving certain equity goals.

## To make wise and targeted investments in higher education the state should:

### 4. PROMOTE FULL-TIME ENROLLMENT, PARTICULARLY AT COMMUNITY COLLEGES AND CSUS.

Significant research has been conducted to show that students who enroll full time have greater retention and are more likely to persist and complete college than

[23] Robert Zemsky, *Making Reform Work: The Case for Transforming American Higher Education* (New Brunswick: Rutgers University Press, 2009)

those who attend part time.<sup>[24]</sup> Several states, including Illinois, Indiana, and Minnesota, have created programs that promote full-time enrollment for students. Policies such as flat-rate tuition for a minimum number of credits, while common in other states, are not consistently deployed in California. There are other strategies, such as “intrusive advising” or learning communities, that could be coupled with financial incentives and other supports to encourage degree completion. Incentives and supports could include aid to cover non-tuition related expenses (i.e., food, books, housing) to reduce the likelihood of students having to work part time, free and reliable transportation, incentive grants, and daycare for children and/or siblings. California should examine whether particular institutions or courses of study might lend themselves to such an approach.

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[24] Complete College America, “The Power of 15 Credits: Enrollment Intensity and Postsecondary Student Achievement,” April 2013, <http://www.completecollege.org/docs/CCA%20Intensity%20Brief-April3.pdf>. Retrieved November 13, 2015



## Conclusion

**Although the state has not gained ground in closing the degree attainment gap over the past three years, the imperative for action remains high.**

The promise of California's Master Plan was that college would be a benefit guaranteed to all Californians who sought to pursue it. If we don't mind the impending gap in degrees, we will be conscribing at least 2.4 million Californians to a future in which they will not contribute as fully or as meaningfully to their communities or to the state's varied regional economies. There is much work to be done, and the recommendations above provide a starting place. With some of these policies and practices in place, the state can make progress on building a stronger, more equitable higher education system that would be in place for generations to come.

**1-5 PAGE APPENDIX HERE.  
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# California Competes

Higher Education for a Strong Economy

## THE COUNCIL

California Competes is guided by a council of independent business and civic leaders to review the postsecondary education and training needs required for a vibrant future state economy and to identify financially pragmatic avenues for addressing those needs.

**Aida Alvarez**  
*Former Administrator,  
U.S. Small Business  
Administration*

**Bill Bogaard**  
*Former Mayor,  
Pasadena*

**Kim Belshé**  
*Executive Director,  
First Five LA*

**Bob Foster,**  
*Former Mayor,  
Long Beach*

**Elizabeth Hill,**  
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