PUBLIC POLICY INSTITUTE OF CALIFORNIA

Meeting California's Need for College Graduates

A Regional Perspective

Technical Appendices

CONTENTS

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Appendix A. Methods

Pipeline Model

The pipeline model shown in Figure 4 represents a synthetic cohort of 9th graders in public schools in California as they move through high school, into college (public or private, in California or another state), and complete a bachelor's degree. The primary assumption of the model is that current rates of high school completion, college enrollment, and college completion prevail throughout the cohort's high school and college years. Pipelines are developed separately for the state and each of our key regions. Four key transitions are identified and estimated in the model: ninth grade to high school graduation, high school graduation to college enrollment (including community colleges and four-year colleges), enrollment in four year colleges (either as freshmen or transfer students), and college enrollment to college completion (of a bachelor's degree). The first transition is based on cohort graduation rates provided by the California Department of Education for the 2014–15 graduating class. The second transition is based on enrollment rates of recent high school graduates in community colleges and four-year colleges. College enrollment rates are calculated separately by type of college. California State University, the University of California, and the California Community Colleges provided 2015 data on public high school of origin for incoming freshmen. Data on private and out-of-state college enrollment rates was calculated from 2014 IPEDS data for the statewide model, adjusted to reflect public high school graduates. IPEDS data do not include substate information on high school location. Therefore, estimates of regional enrollment rates to private and out-of-state colleges were derived by applying regional shares to the statewide flows, with regional shares based on flows of 2008 high school graduates by county (the most recently available data) developed by the now defunct California Postsecondary Education Commission. The third transition is derived from data on 2014–15 transfers from Community Colleges to UC, CSU, private colleges, and out-of-state colleges as provided by UC, CSU, and the community colleges. The final transition to college completion is based on six-year graduation rates of incoming freshmen and four-year graduation rates of transfer students. Rates are calculated separately for UC, CSU, private colleges in California, and out-of-state colleges.

Projections of Bachelor's Degrees

We develop three different but related projections from 2015 through 2030 of annual awards of bachelor's degrees from public universities (UC and CSU) for each of our three regions (Los Angeles County, the Inland Empire, and the San Joaquin Valley). These three series are the baseline projections, the need-based projections, and the capacity-based projections. Due to data limitations, our projections are limited to public universities. Information on substate region of origin of students attending and graduating from private colleges is not available. The baseline projections assume current patterns in college enrollment and completion will continue, and the workforce skills gap will not be closed. The need-based and capacity-based projections provide alternative scenarios that would close the skills gap. The need-based projection answers the question: how many additional people from each region would need to earn a bachelor's degree to close that region's share of the skills gap? The capacity-based projection answers the question: how many additional bachelor's degrees need to be produced by the region's universities to close that region's share of the statewide skills gap?

Each of our projections starts with PPIC's earlier statewide projections. See Johnson, Cuellar Mejia, and Bohn (2015) and Johnson (2016) for details of the statewide projections, including data and methods used to generate the statewide baseline projections and the statewide closing-the-gap projections. Our regional projections used for this report are developed by allocating the statewide projections (the baseline series and, separately, the closing-the-gap series) to the regions.

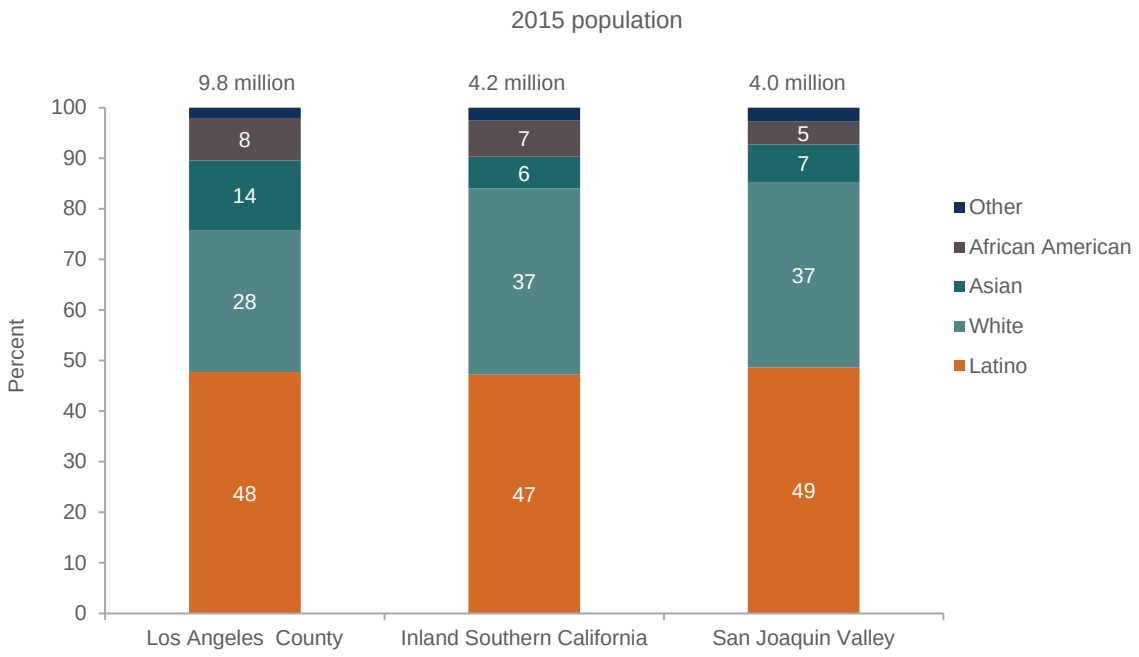
Our baseline projections of bachelor's degrees assume a business-as-usual approach. That is, current trends in college completion are expected to continue into the future leading to a statewide deficit of 1.1 million bachelor's degrees. To develop the regional baseline projections, we allocate the statewide baseline series to regions by assuming that each region will continue to produce the same share of statewide bachelor's degrees in the future as in the recent past. Specifically, we apply the recently historically observed regional share of statewide bachelor's degrees awarded by UC and CSU campuses in each region to our earlier statewide baseline projections for UC and CSU. We considered using a shift-share approach in which regional shares could increase or decrease during the projection period, but found that the share of statewide degrees awarded by public universities in the three regions had been relatively constant over the past 15 years.

Our need-based projections and our capacity-based projections provide alternative closing-the-gap scenarios. The need-based projections are driven by regional population growth of young adults and of high school graduates. Specifically, the need-based scenario averages projected regional share of the state population of young adults 20–34 years of age along with the projected regional share of statewide high school graduates and applies that average to the statewide closing-the-gap projection. The projections of young adults and high school graduates are from the California Department of Finance (DOF). The DOF projections of young adults extend past our projection horizon of 2030, but the high school projections only extend to 2025. We extend the Department of Finance projections of high school graduates to 2030 by assuming the same ratio of high school graduates to 18-year-olds in 2025–2030 as in the preceding years. An important adjustment is made for base year differences between degrees awarded in the region and the need-based measure. In both the Inland Empire and the San Joaquin Valley, current (base year) regional shares of statewide populations (of young adults and high school graduates) are much higher than regional shares of degrees awarded statewide. This difference is maintained throughout the projection period, an implicit assumption that the regions will continue to be relatively underserved by UC and CSU but that future population-based demand for higher education will be accommodated within the region.

The capacity-based projection uses the same method as the baseline projection, but instead of applying the regional projected share of bachelor's degrees to the statewide baseline series, the regional share is instead applied to the statewide closing-the-gap series. We experimented with shift-share approaches that allocated the regional share based on recent trends over the past 5 years, over the past 10 years, and over the past 15 years, but because regional shares of statewide degrees awarded have been relatively constant, those series were not substantially different from the final capacity-based series that holds regional shares constant at recently observed levels.

Appendix B. Regional Demographic Indicators

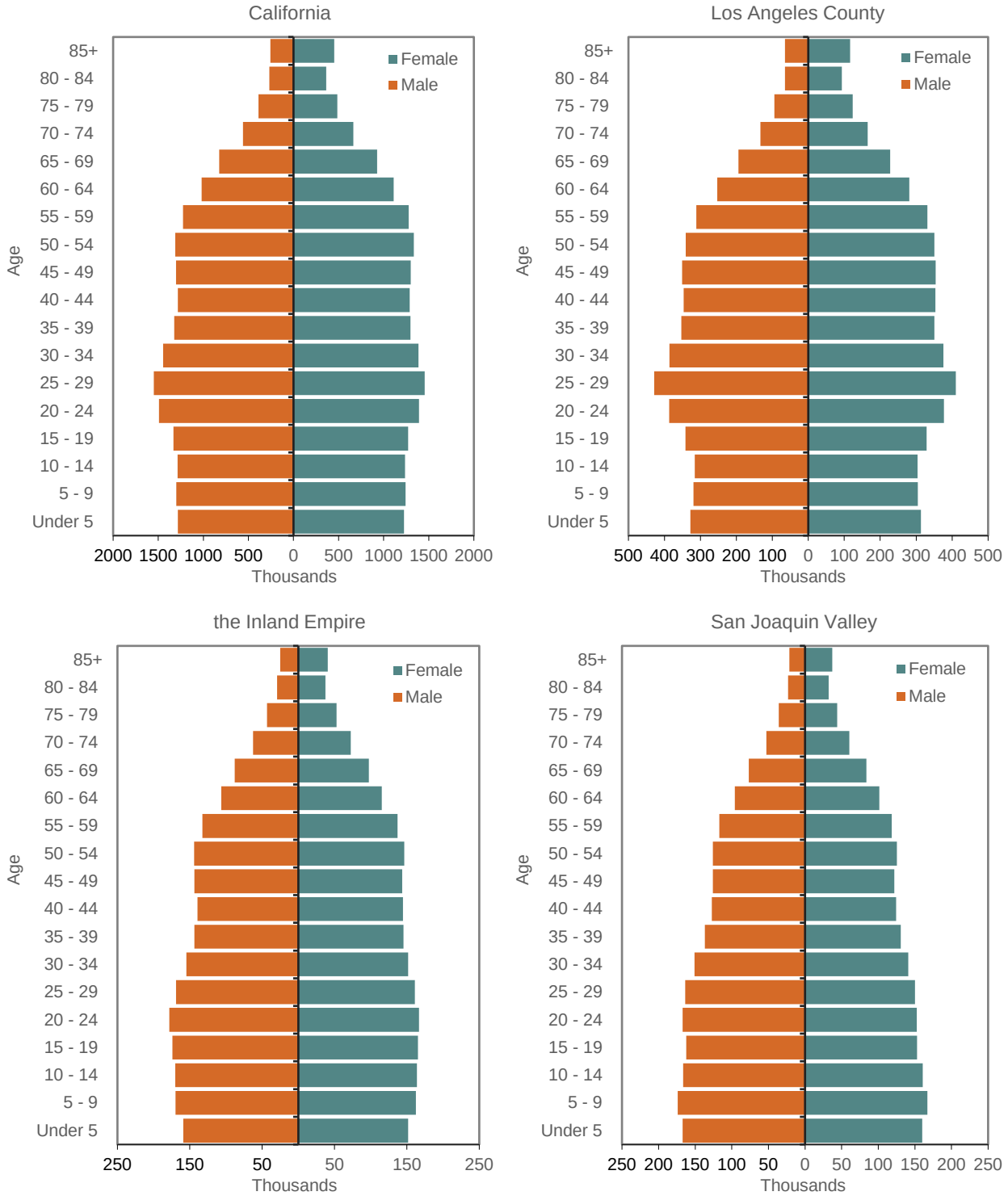
FIGURE B1
Racial/ethnic distribution of the population



SOURCE: US Census Bureau, 2015 American Community Survey one-year estimates.

FIGURE B2

Age distribution of the population

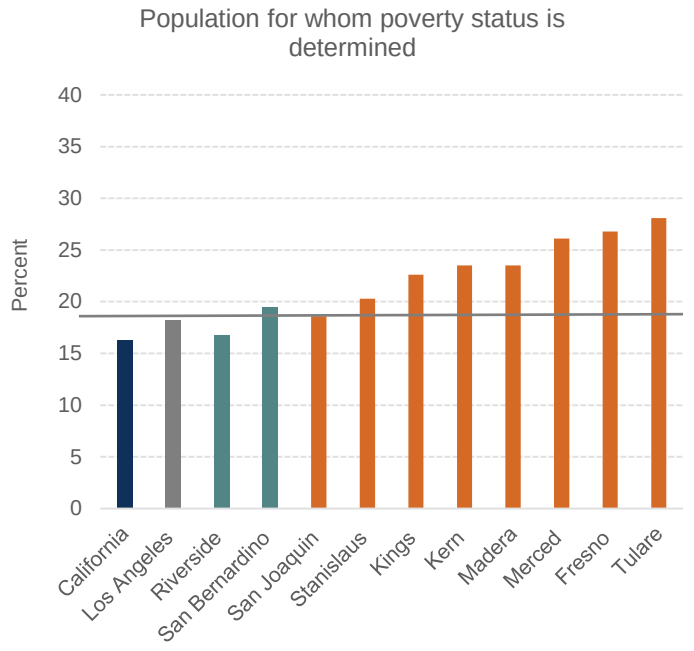


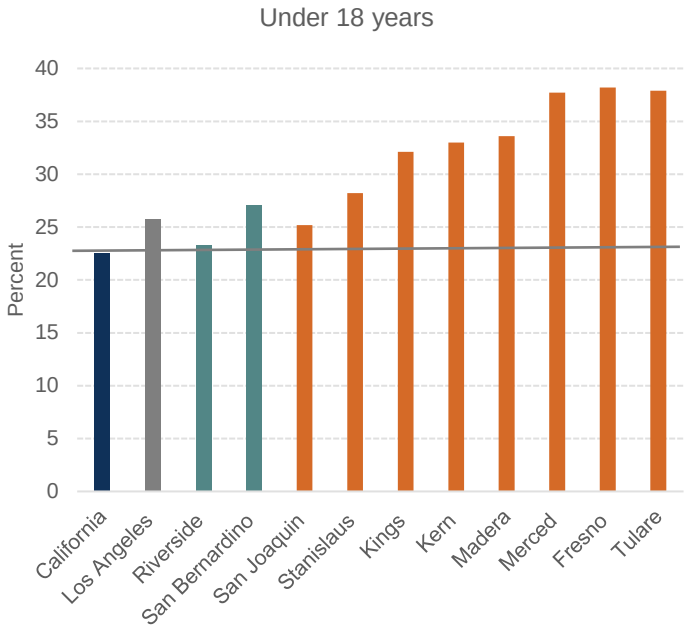
SOURCE: US Census Bureau, Population Division. Annual Estimates of the Resident Population for Selected Age Groups by Sex: April 1, 2010 to July 1, 2015

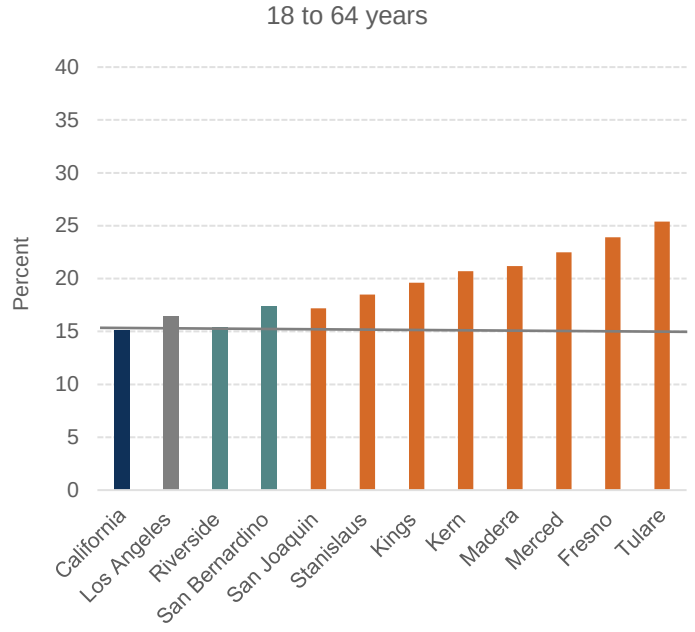
SOURCE: US Census Bureau, 2011–2015 American Community Survey five-year estimates.

Regional Economic Indicators

FIGURE B3
Poverty rates







SOURCE: US Census Bureau, 2011–2015 American Community Survey five-year estimates.

FIGURE B4
Employment growth

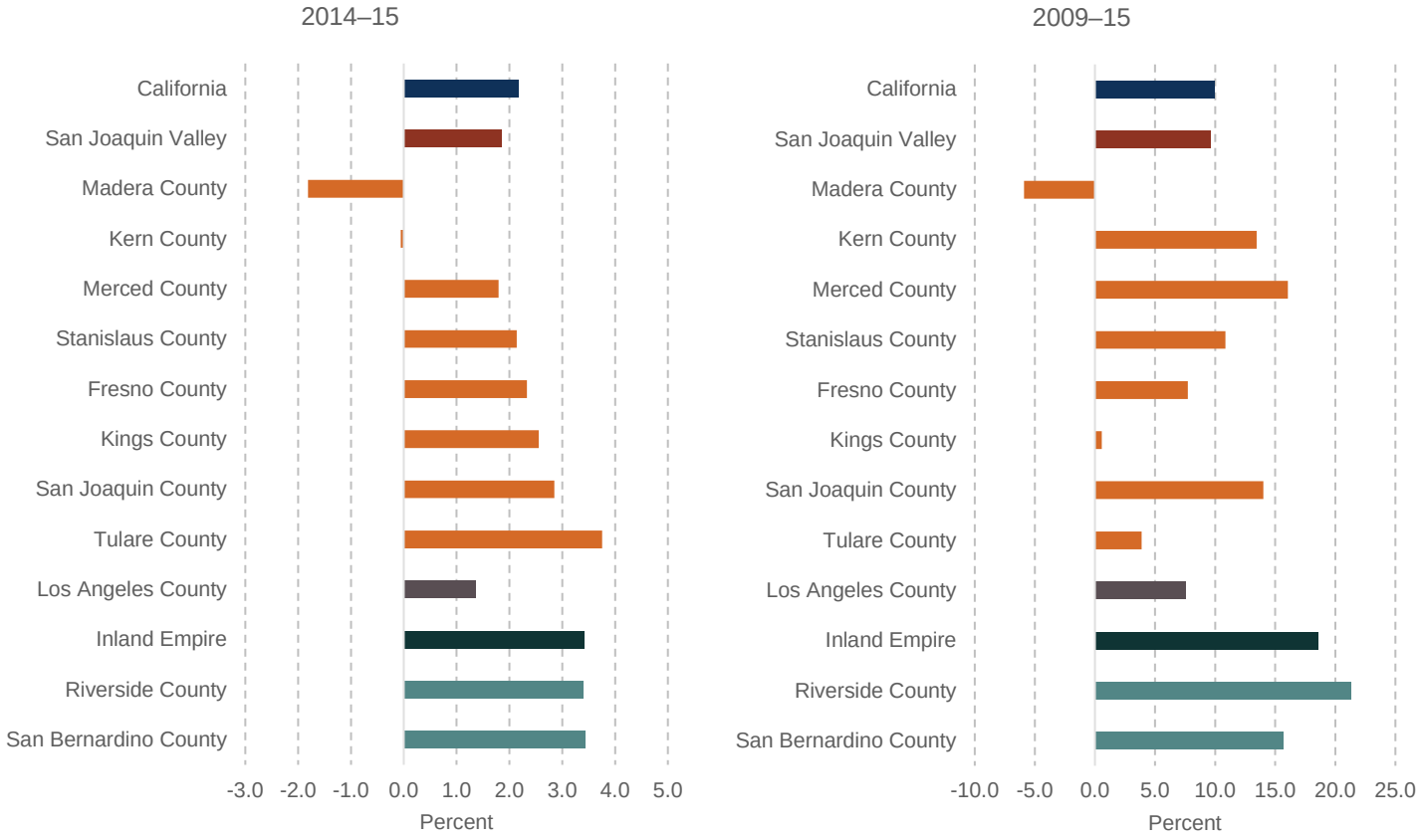
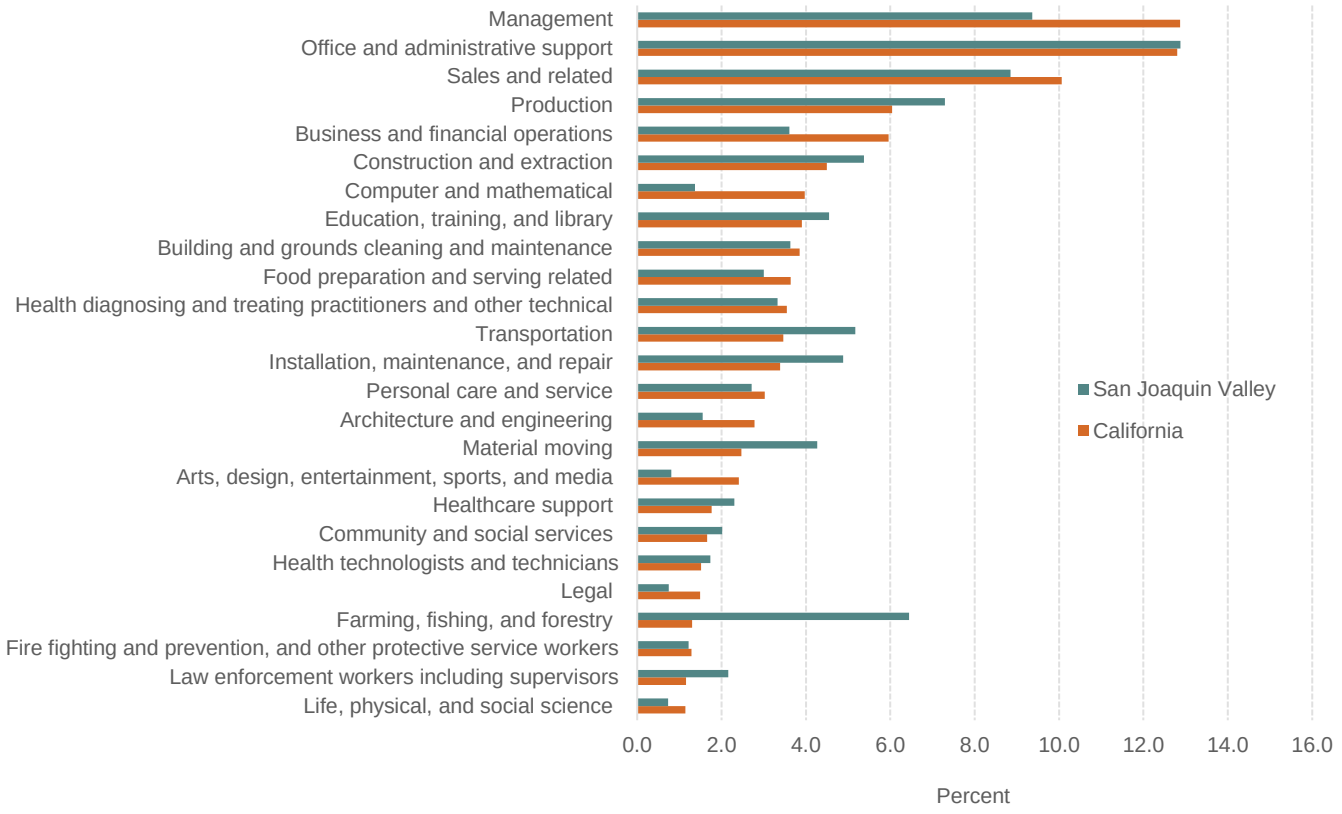
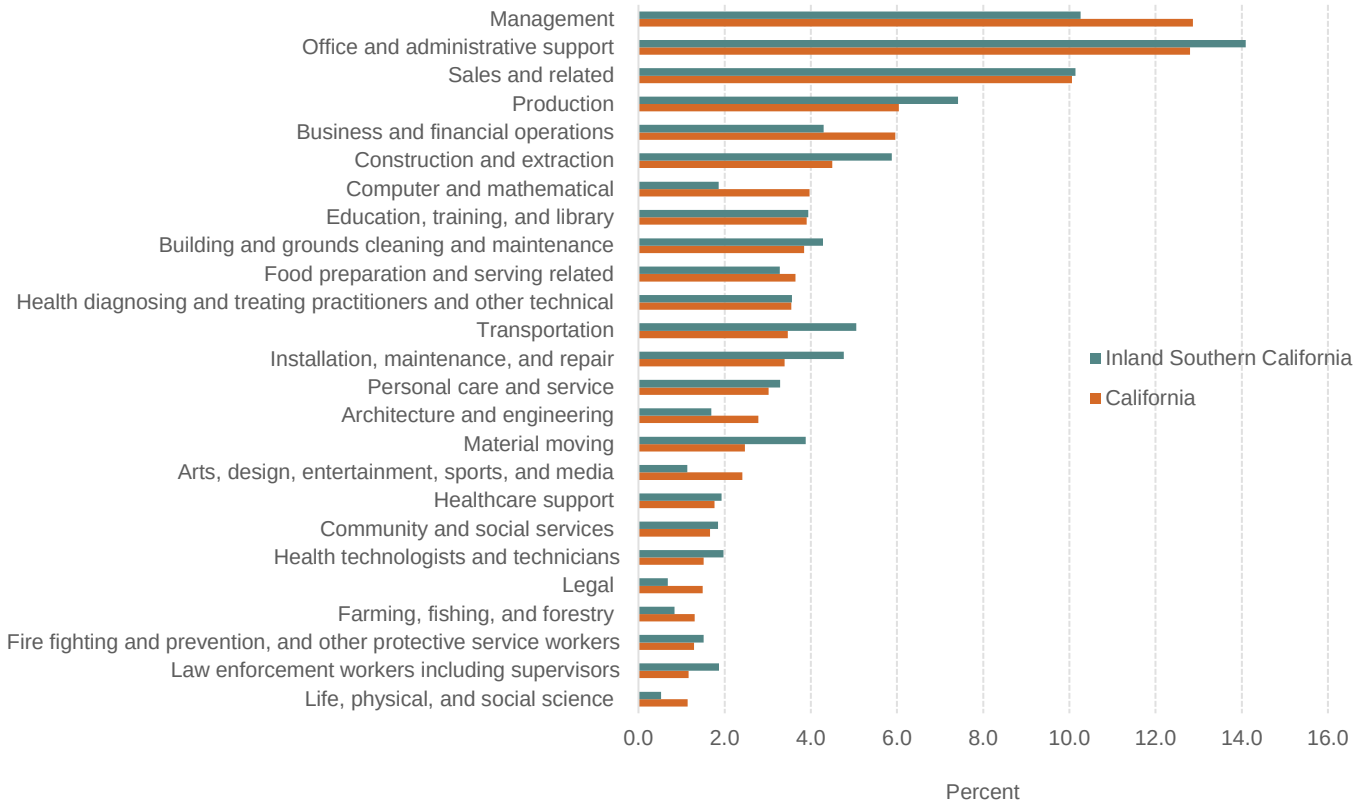
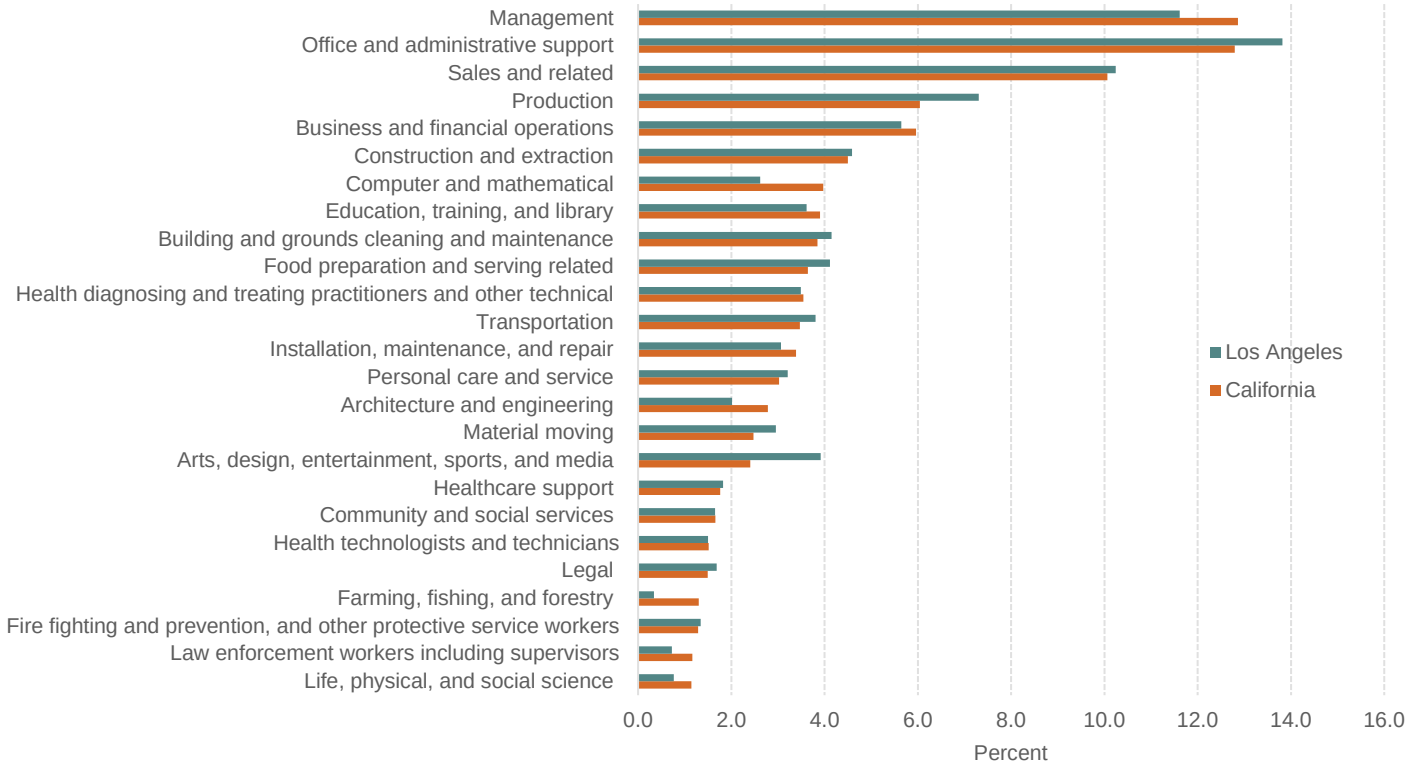


FIGURE B5

Share of full-time, year-round civilian employed population 16 years and over by occupation



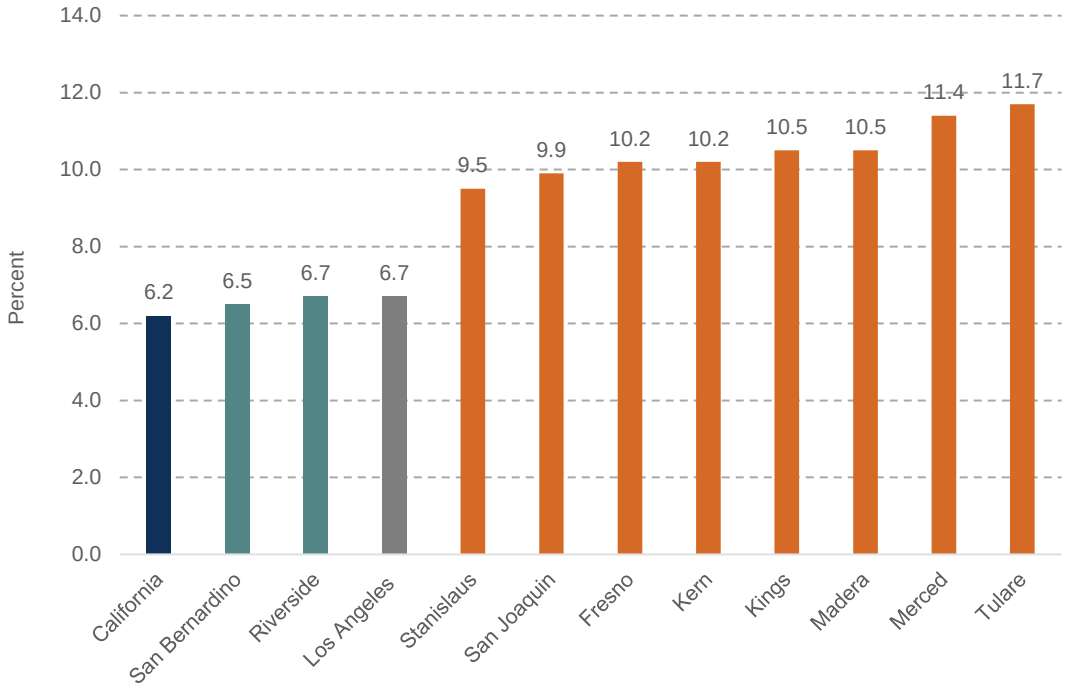




SOURCE: US Census Bureau, 2011–2015 American Community Survey five-year estimates.

FIGURE B6

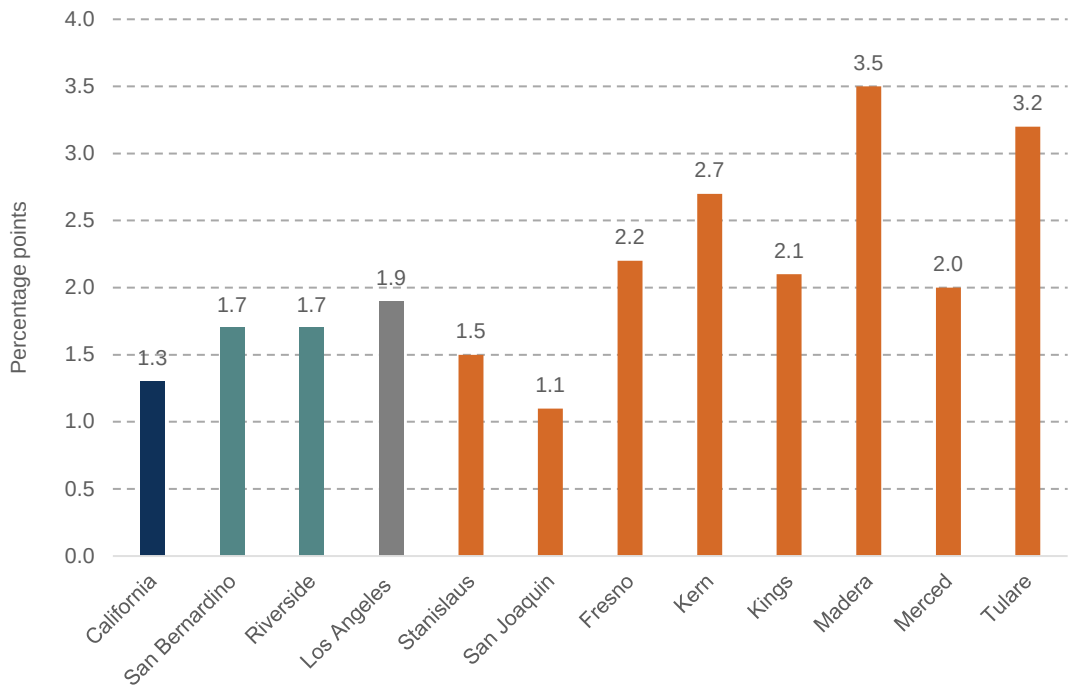
Unemployment rates, 2015



SOURCE: Employment Development Department, Labor Market Information.

FIGURE B7

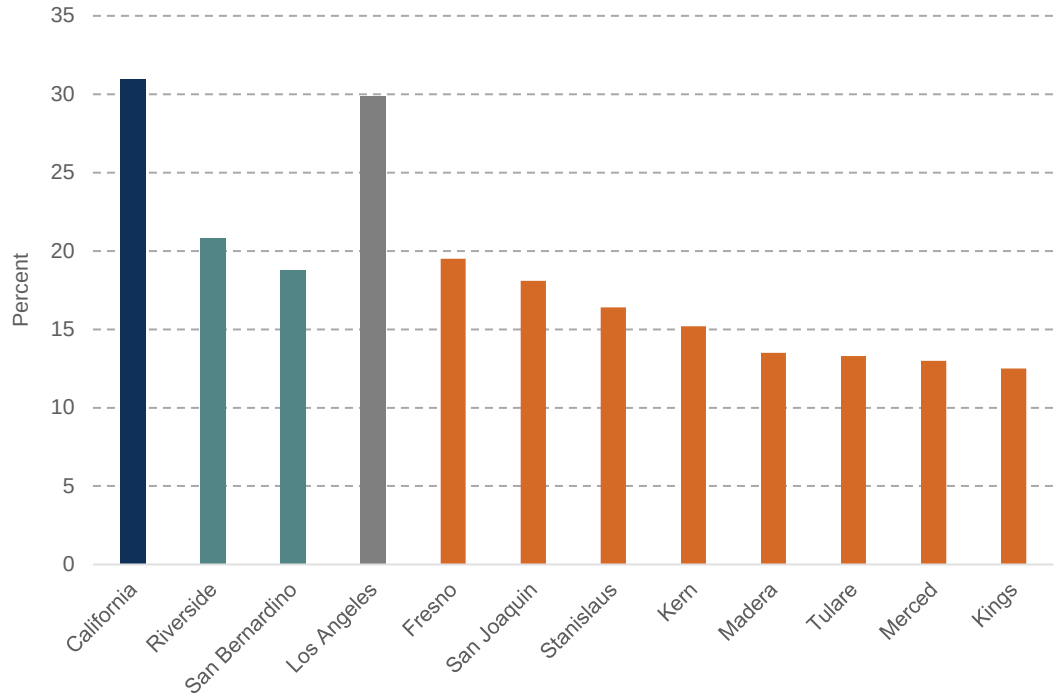
Change in unemployment rates between 2006 and 2015



SOURCE: Employment Development Department, Labor Market Information.

FIGURE B8

Share of population 25 and older with at least a bachelor's degree

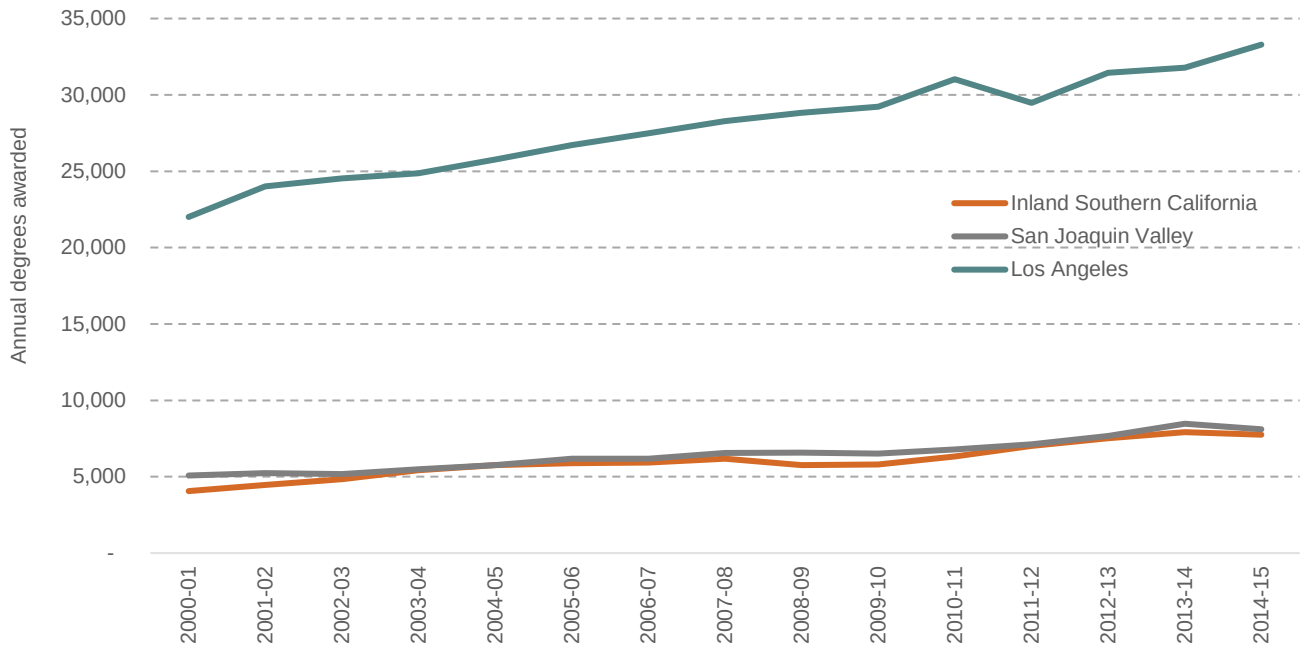


SOURCE: US Census Bureau, 2010–2014 American Community Survey five-year estimates.

Bachelor's Degree Production: Underlying Indicators

FIGURE B9

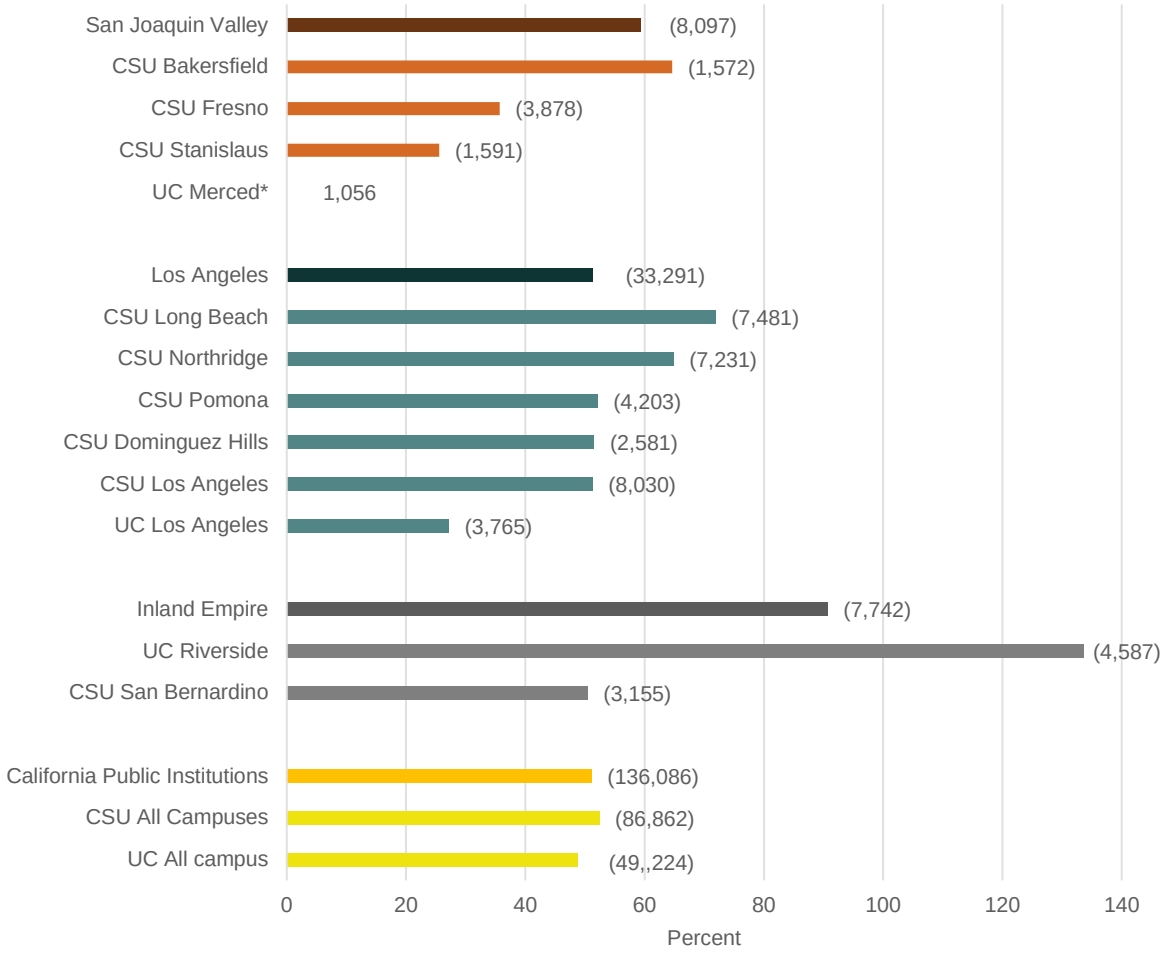
Number of bachelor's degrees awarded by public colleges



SOURCE: University of California - Information Center and California State University – Analytic Studies.

FIGURE B10

Percent growth in the number of bachelor's degree awarded by public colleges, 2000–01 to 2014–15

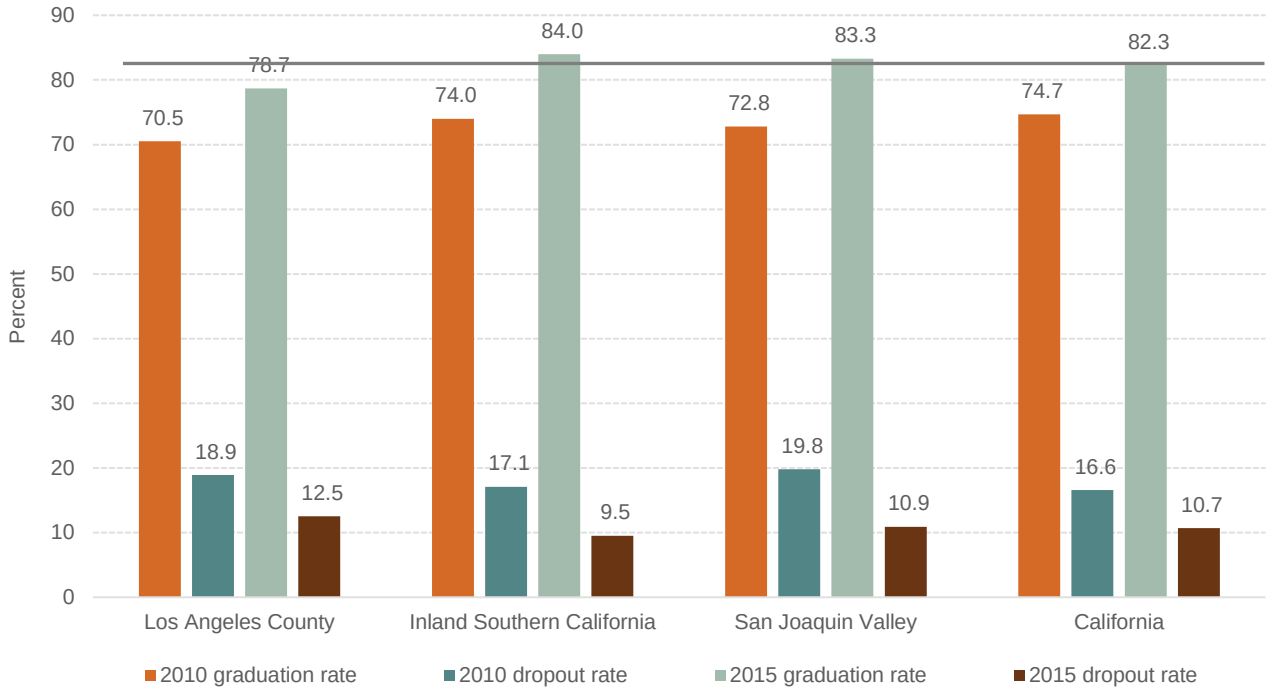


SOURCE: University of California - Information Center and California State University – Analytic Studies.

NOTE: Number of degrees awarded in 2014–15 in parenthesis.

FIGURE B11

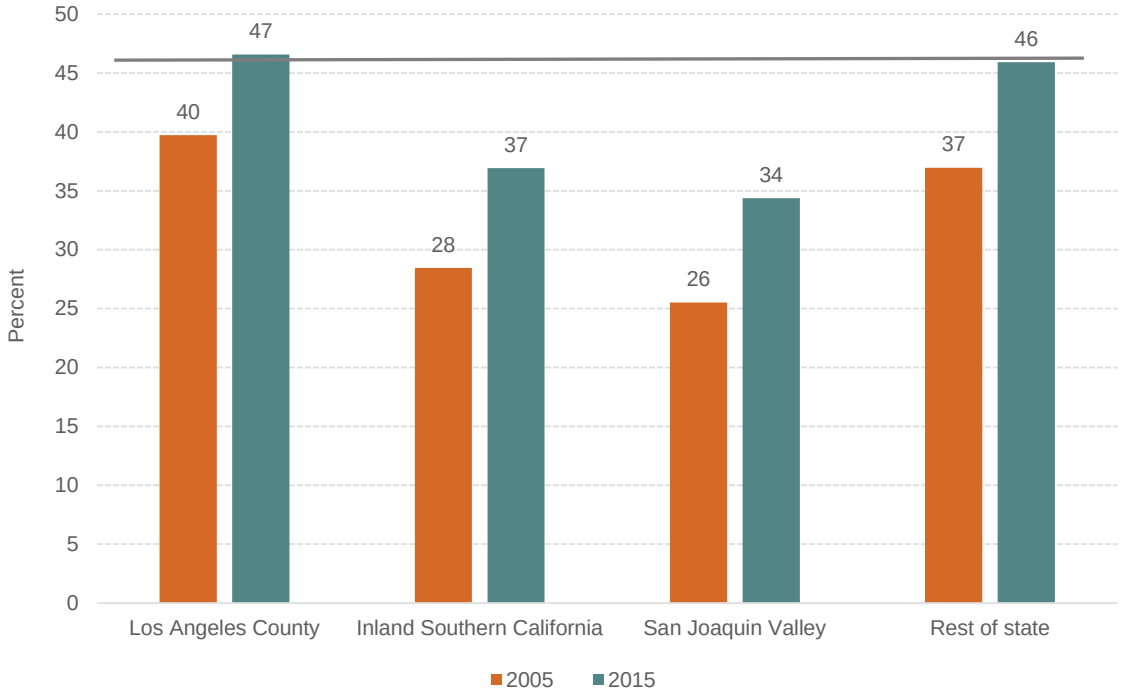
Cohort high school graduation and dropout rates, 2010 and 2015



SOURCE: California Department of Education.

FIGURE B12

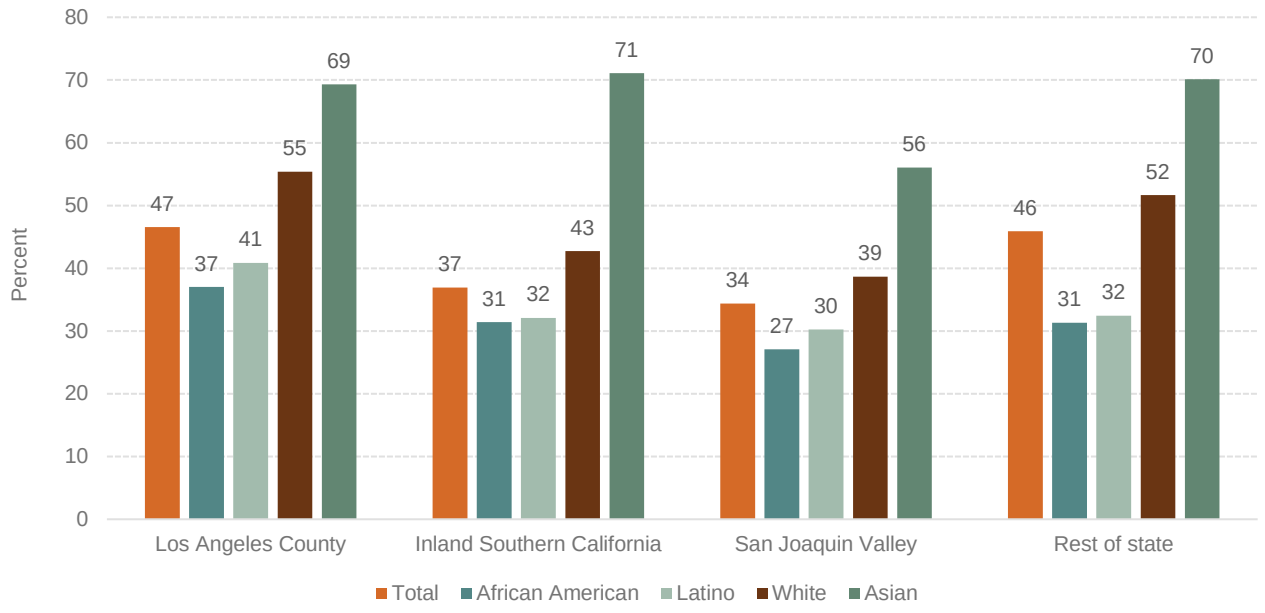
Percent of high school graduates with UC and CSU required courses, 2005 and 2015



SOURCE: California Department of Education.

FIGURE B13

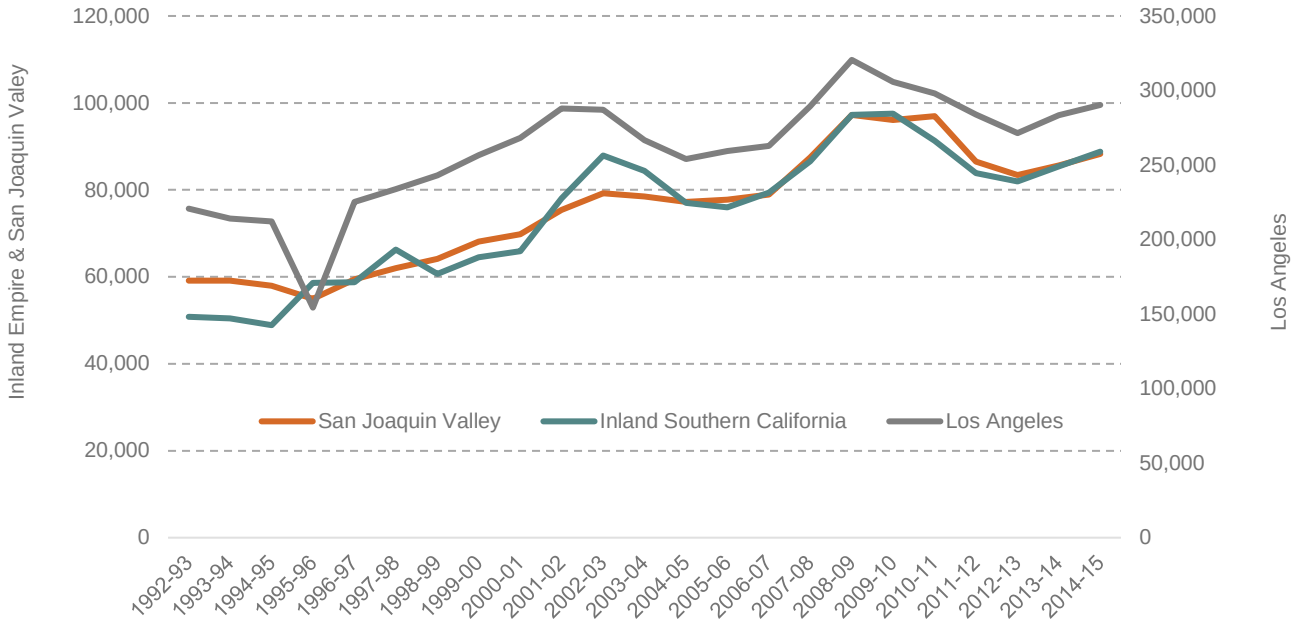
Percent of high school graduates with UC and CSU required courses by race/ethnicity, 2015



SOURCE: California Department of Education.

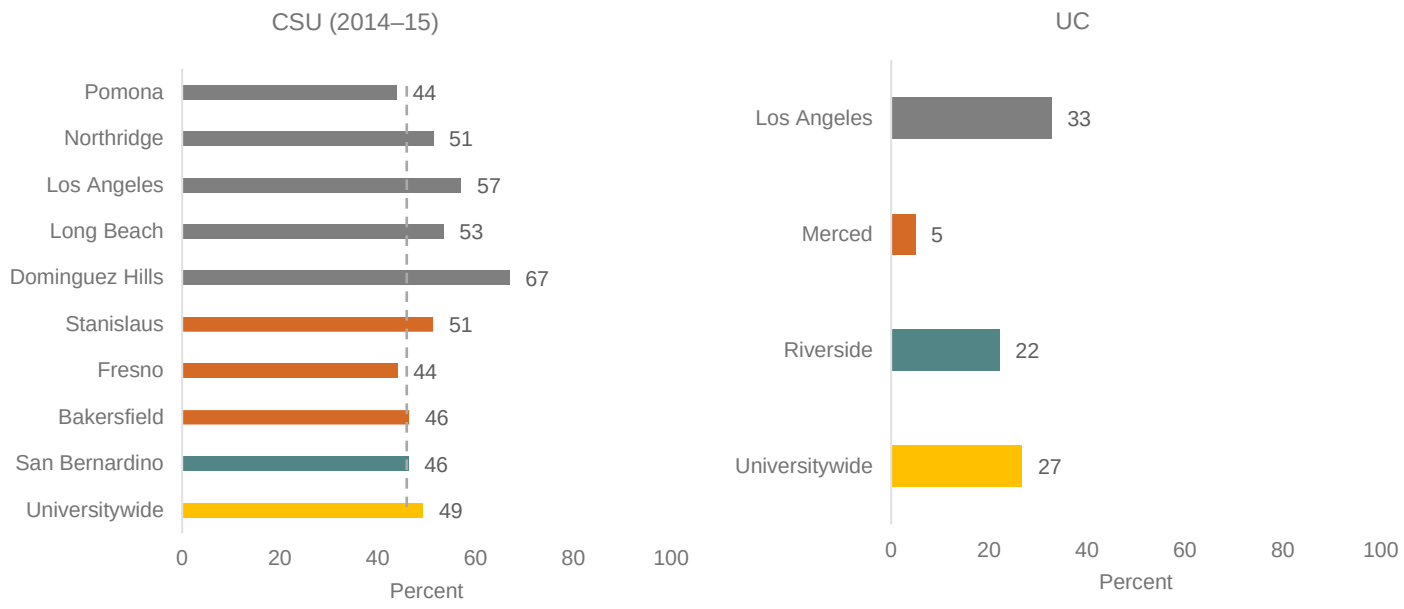
FIGURE B14

Number of full time equivalent credit students enrolled in California Community Colleges



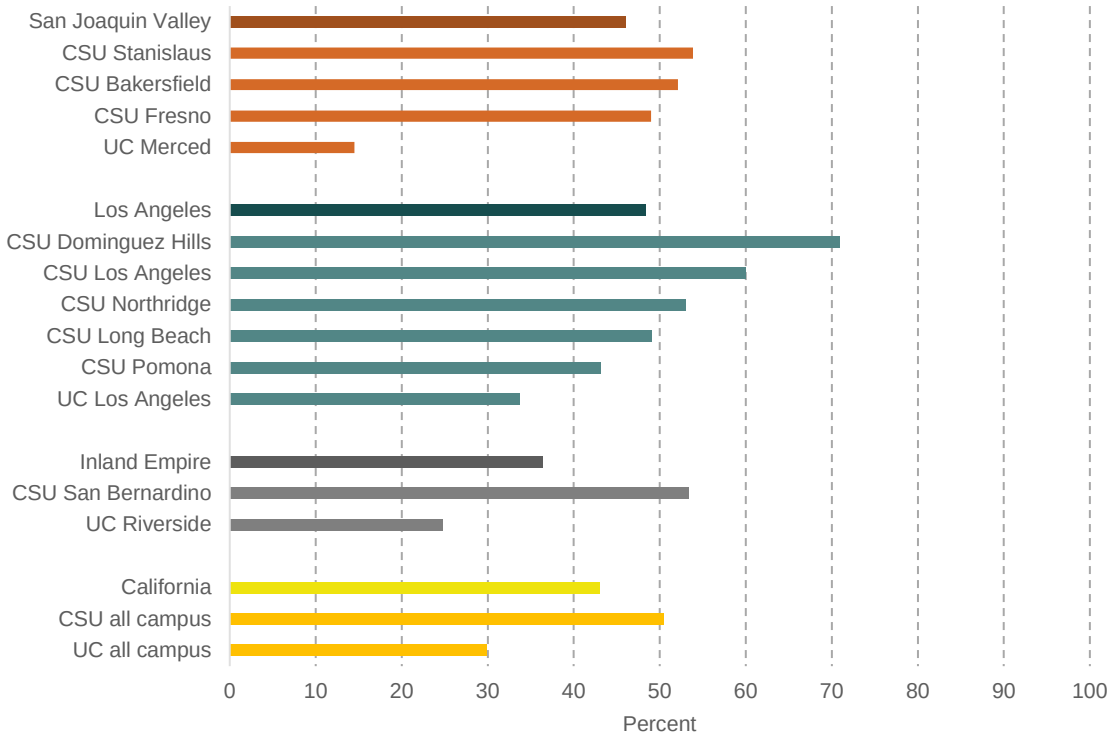
SOURCE: California Community Colleges Chancellor's Office – Data Mart.

FIGURE B15
CCC transfers as a share of new enrollment



SOURCE: University of California - Information Center and California State University – Analytic Studies.

FIGURE B16
Share of bachelor's degree awarded to CCC transfers



SOURCE: University of California - Information Center and California State University – Analytic Studies.

FIGURE B17

CSU graduation rates for freshman and for transfers – the Inland Empire

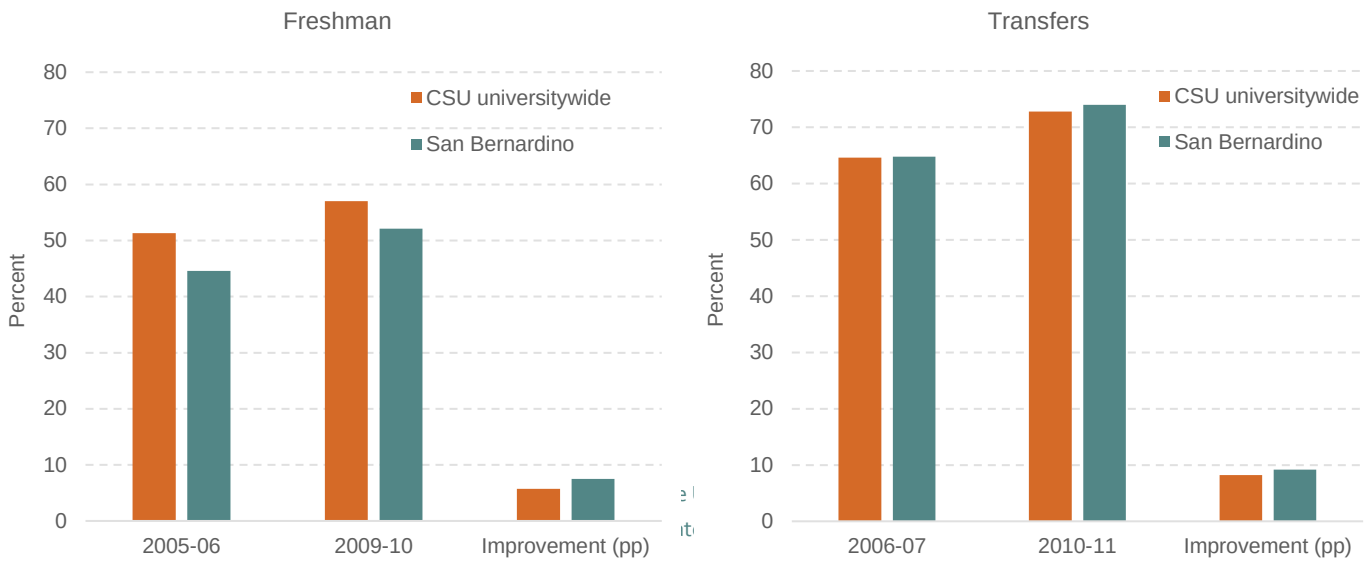


FIGURE B18

CSU graduation rates for freshman and for transfers – San Joaquin Valley

SOURCE: University of California - Information Center and California State University – Analytic Studies.

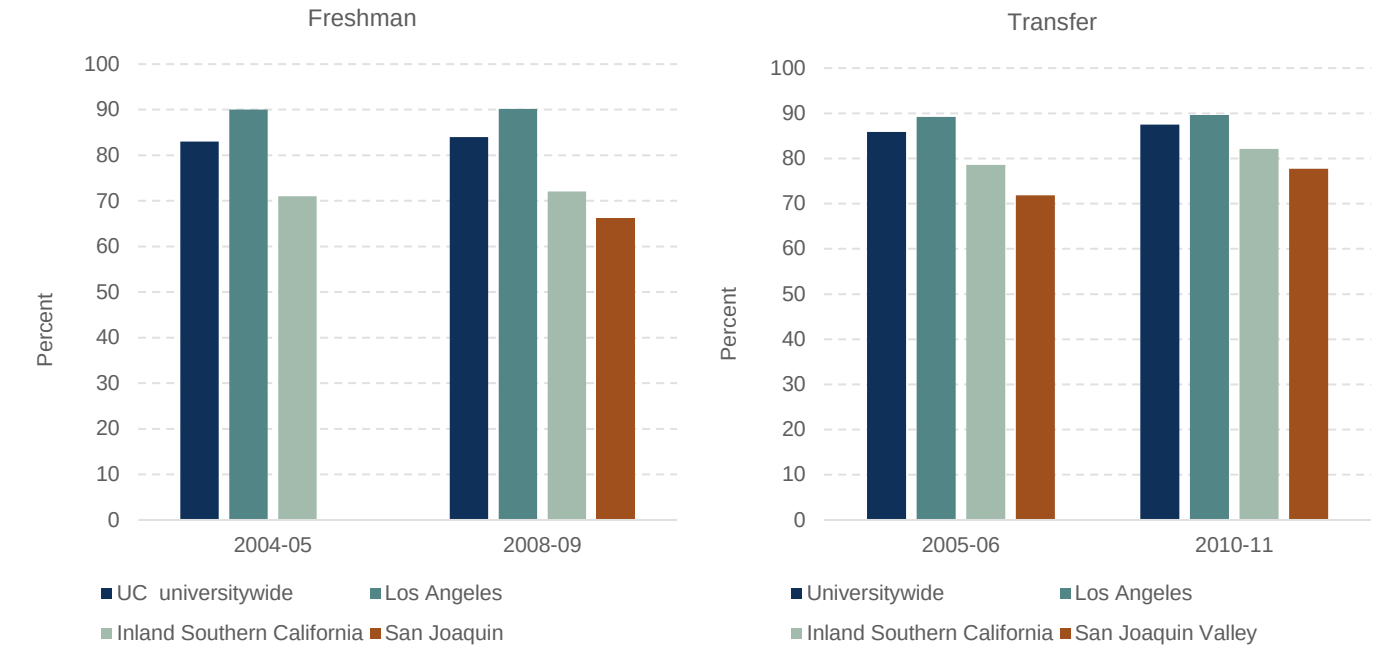
NOTE: Six-year graduation rates for freshman and four-year graduation rates for transfers.

FIGURE B19

CSU graduation rates for freshman and for transfers – Los Angeles

FIGURE B20

UC graduation rates for freshman and for transfers



SOURCE: University of California - Information Center and California State University – Analytic Studies.

NOTE: Six-year graduation rates for freshman and four-year graduation rates for transfers.

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