



GETTING DOWN — TO FACTS II —

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Teacher Supply Falls Short of Demand in High-Need Fields, Locations

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About: The Getting Down to Facts project seeks to create a common evidence base for understanding the current state of California school systems and lay the foundation for substantive conversations about what education policies should be sustained and what might be improved to ensure increased opportunity and success for all students in California in the decades ahead. *Getting Down to Facts II* follows approximately a decade after the first Getting Down to Facts effort in 2007. This research brief is one of 19 that summarize 36 research studies that cover four main areas related to state education policy: student success, governance, personnel, and funding.

This brief summarizes two *Getting Down to Facts II* technical reports on teacher supply and demand in California:

Teacher Shortages in California: Evidence About Current Status, Sources, and Potential Solutions
Linda Darling-Hammond, Leib Sutcher, and Desiree Carver-Thomas, September 2018.

Teacher Staffing Challenges in California: Exploring the Factors that Influence Teacher Staffing and Distribution

Dan Goldhaber, Katharine O. Strunk, Nate Brown, Andrea Chambers, Natsumi Naito, and Malcolm Wolff, September 2018.

These and all GDTFII studies can be found at www.gettingdowntofacts.com.

Introduction

California is experiencing one of its most severe teacher shortages¹ in two decades. Budget cuts and layoffs resulting from the recession contributed to a steep decline in the number of teachers in California, falling from a high of 310,362 teachers in the 2007-08 school year to 283,836 four years later. Recent efforts, including [Proposition 30](#) and the [Local Control Funding Formula](#), which, respectively, raised taxes for public education and transformed the state's school finance method, have helped to regrow California's teacher workforce. However, with sharp decreases in the supply of new teachers, there are still not enough qualified teachers across subject areas in many schools and districts to meet California's staffing needs.

This ongoing teacher shortage threatens recent education initiatives in the state—new standards, curriculum, instruction, and assessments—that aim to better prepare all students for college and careers.

These two reports examine California's teacher shortage, particularly how it affects the state's highest-needs students; explore the root economic and policy reasons behind it; and discuss strategies for balancing the supply and demand of qualified teachers.

¹ In this brief, the term “teacher shortage” means that California schools are having greater difficulty filling classroom positions with people certified to teach in certain grades and subject areas, which can affect the qualifications and quantity of teachers hired.

KEY FINDINGS

- California has experienced a pronounced reduction in the number of credentialed teacher candidates.
- Difficulty in staffing classrooms is both widespread and more severe in certain subject areas, such as mathematics, science, special education, and bilingual education, and in schools with larger percentages of high-needs students.
- Several factors appear to be driving the shortage:
 - New demand for teachers as districts seek to return to pre-recession course offerings and class sizes;
 - Declining enrollment in teacher preparation programs; and
 - Teacher attrition.
- Schools are addressing the shortfall with a dramatic increase in hiring of teachers who lack standard credentials and have less formal training.
- Data limitations make it impossible to fully assess the impact of unequal teacher distribution in California.

Summary of Key Findings

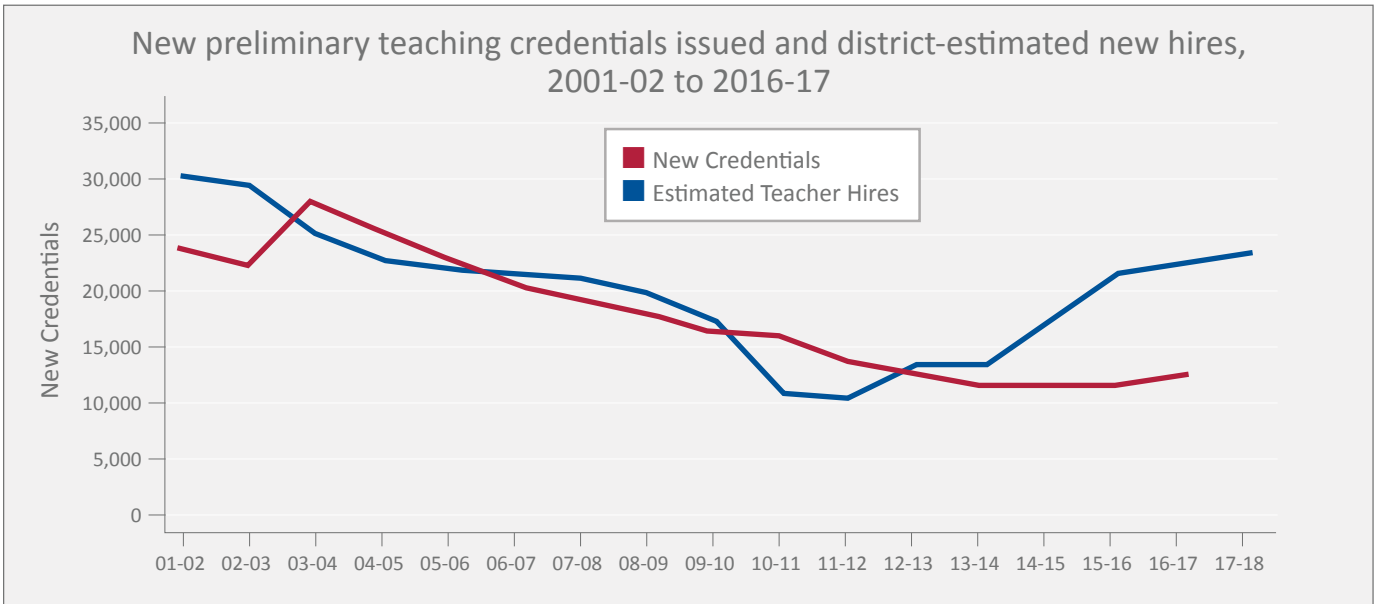
California has experienced a pronounced reduction in the number of credentialed teacher candidates

California's supply of new, credentialed teachers plummeted by nearly 70% in the decade from 2001-02 to 2011-12, as the state's education budgets shrank (see Figure 1 on the following page). When spending cuts further deepened in the four years after the recession began in December 2007, there were widespread teacher layoffs and the total teaching workforce decreased by about 9%.

New measures and policies, including Proposition 30 and the Local Control Funding Formula, are helping to turn district finances around. As of the 2016-17 school year, K-12 public schools had added 22,000 additional teachers and the demand for teachers increasingly surpassed the readily available supply from 2013 until the present (see Figure 2 on the following page).

However, many districts are now scrambling to hire qualified teachers. Nearly three-quarters of districts reported that they could not fill all their openings, according to a fall 2016 survey of 211 school districts. Of those, 80% said shortages had worsened since the 2013-14 school year (see Figure 2 on the following page). A 2018 survey of district human resources directors—conducted for the *Getting Down to Facts II* project by the California School Boards Association—had nearly identical findings.

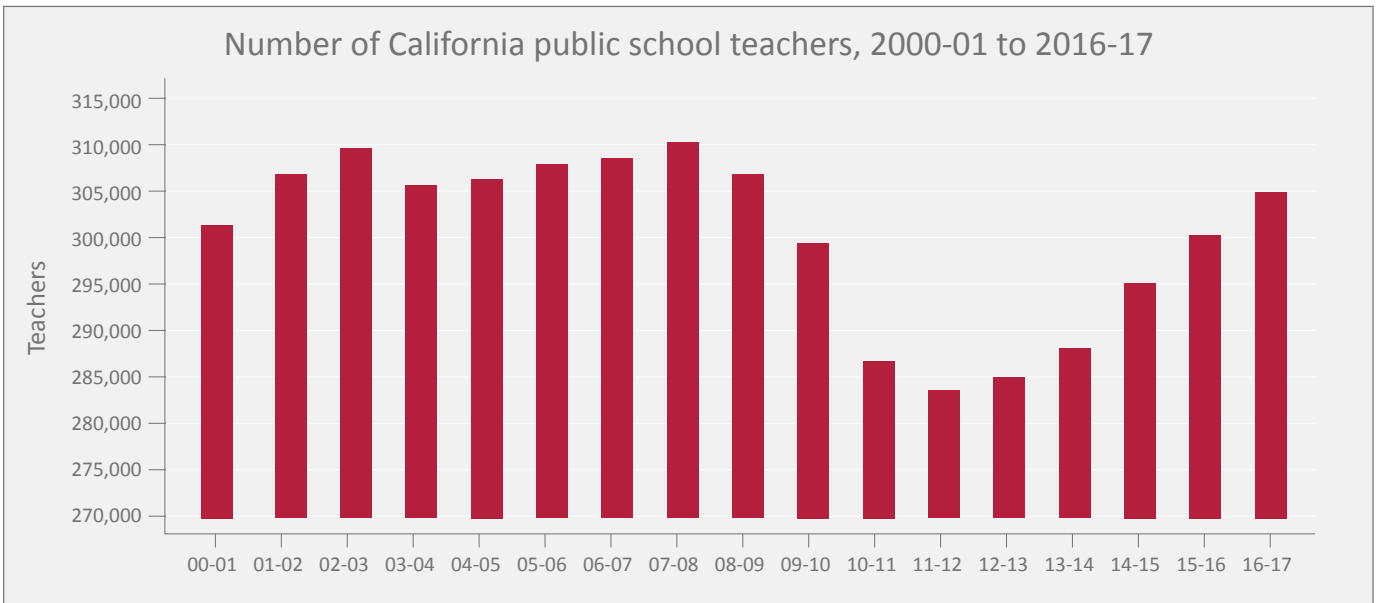
Figure 1: Teacher Demand Continues to Grow



Data: California Commission on Teacher Credentialing, 2002–2015. *Teacher Supply in California: A Report to the Legislature*. Data available at <http://www.ctc.ca.gov/reports/all-reports.html>. District estimated hires come from the California Department of Education 2002–2018. Data available on DataQuest at <http://data1.cde.ca.gov/dataquest/>.

Note: New credentials are preliminary credentials issued to newly prepared teachers. The 2016-17 data are preliminary.

Figure 2: After the Recession, a Steady Growth in the Teacher Workforce



Data: California Department of Education 2000–2016. Data available on DataQuest at <http://data1.cde.ca.gov/dataquest/>.

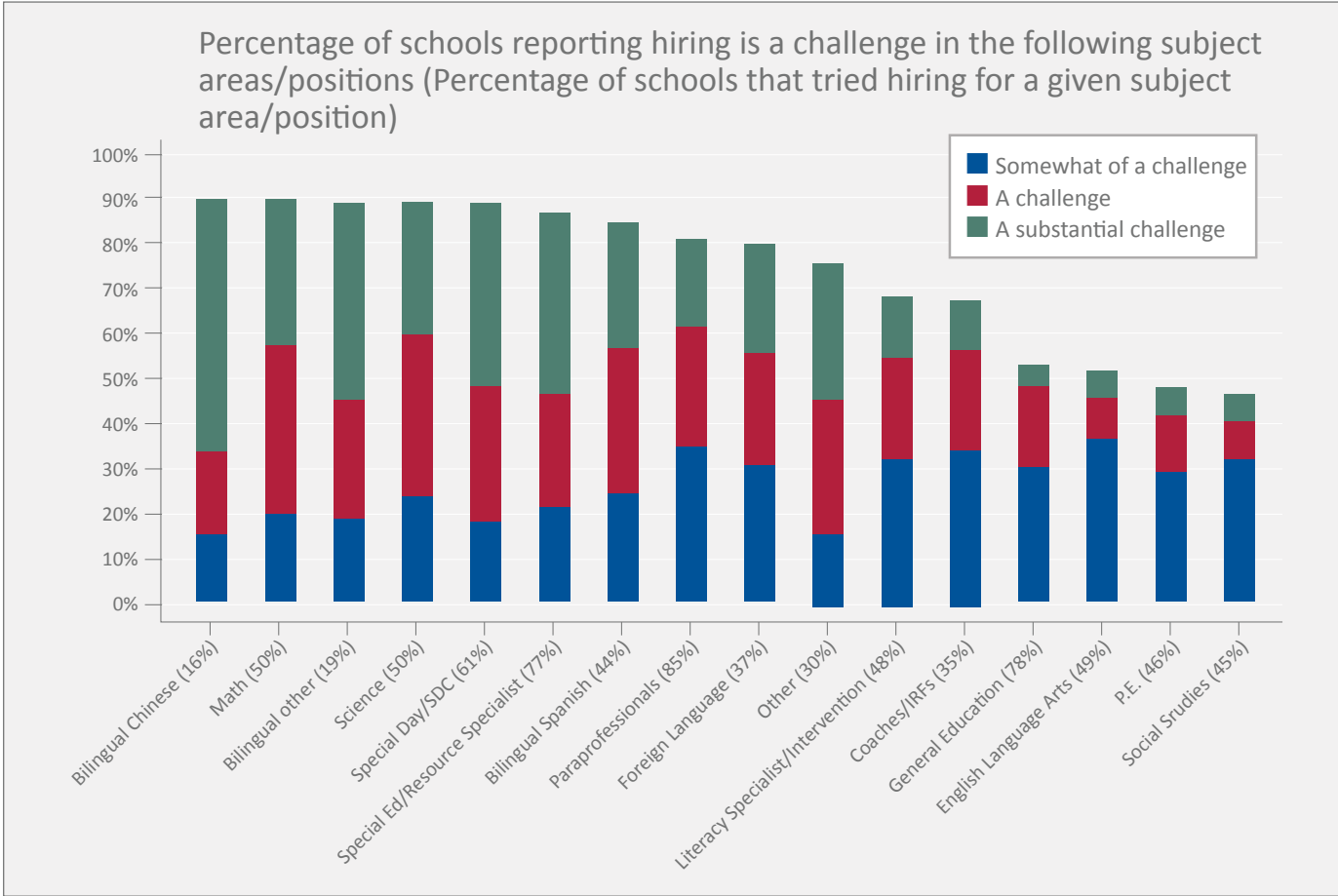
Difficulty in staffing classrooms is both widespread and more pronounced in certain subject areas and in schools with larger percentages of high-needs students

Despite the growing demand for teachers, supply has not improved significantly and the shortages are not evenly distributed across subjects and schools. About 75% of districts report shortages—but they are most severe in rural and high-poverty urban areas; subject areas including special education, mathematics, science, and bilingual education; and schools serving concentrations of students of color, English learners, and low-income students. In math, for example, there are half as many fully prepared teacher candidates with preliminary credentials entering the workforce today as there were six years ago. The drop in science teachers is 40%.

One way to gauge the size of shortages is by counting the number of teachers hired who are not fully certified, as laws prohibit their hiring when certified individuals are available. The largest number of emergency hires are in special education where two out of three teachers hired in 2016-17 were not fully certified. Large numbers of underprepared teachers were also hired in mathematics and science. Together, these three fields account for half the state’s overall shortage.

Bilingual education is beginning to exhibit similar shortages as districts respond to Proposition 58, which allows districts to reinstate bilingual education programs once banned under Proposition 227. Nearly a third of schools looking for bilingual Spanish teachers and half of those seeking bilingual Chinese teachers said they were having “substantial challenges.”

Figure 3: Hiring Difficulties by Position

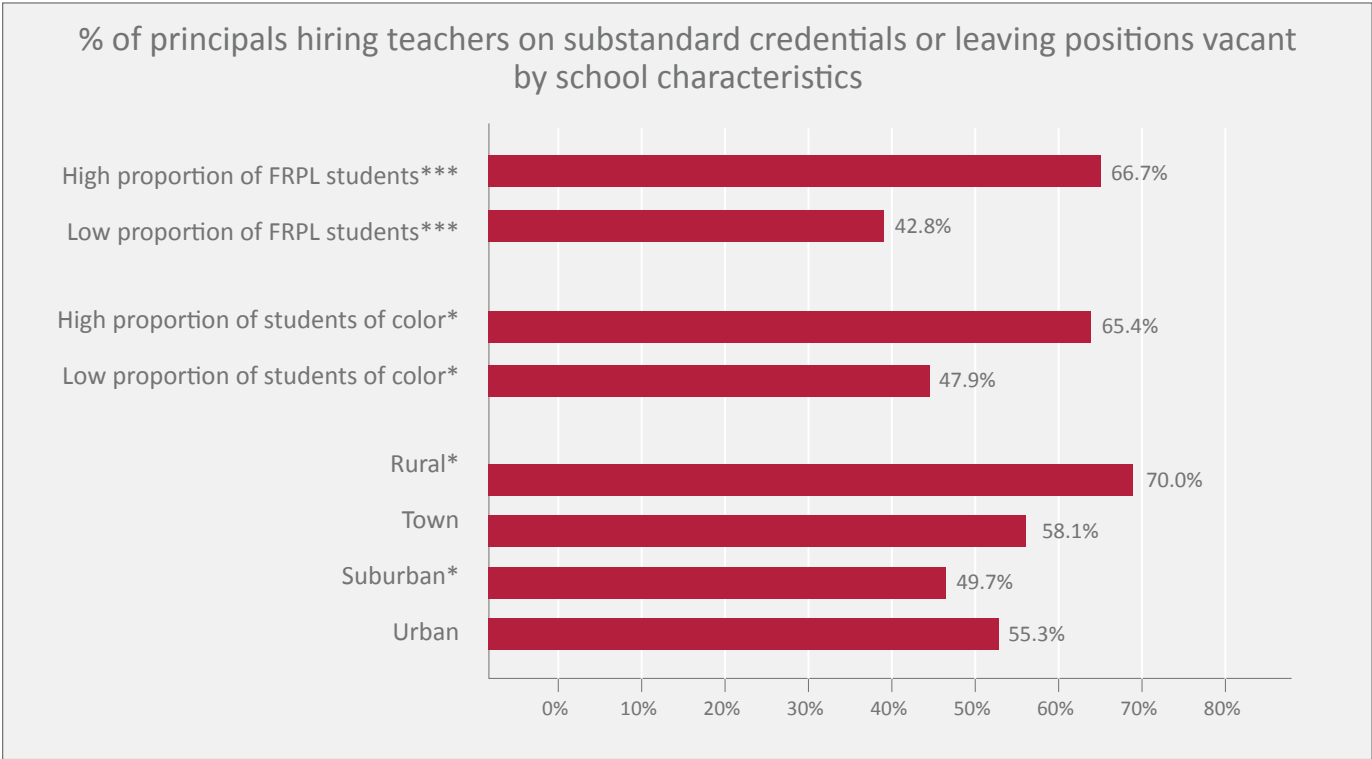


Data: Learning Policy Institute’s analysis of the *Getting Down to Facts II* project’s 2017-18 Principal Survey conducted by RAND.

Overall, about 90% of schools seeking to hire in these areas reported hiring challenges, according to a 2017-18 survey of principals conducted for the *Getting Down to Facts II* project by the RAND Corporation (see Figure 3 on the previous page).

School and student characteristics are leading factors in the shortage. Schools serving higher percentages of low-income students and students of color are shouldering a disproportionate share of the burden (see Figure 4).

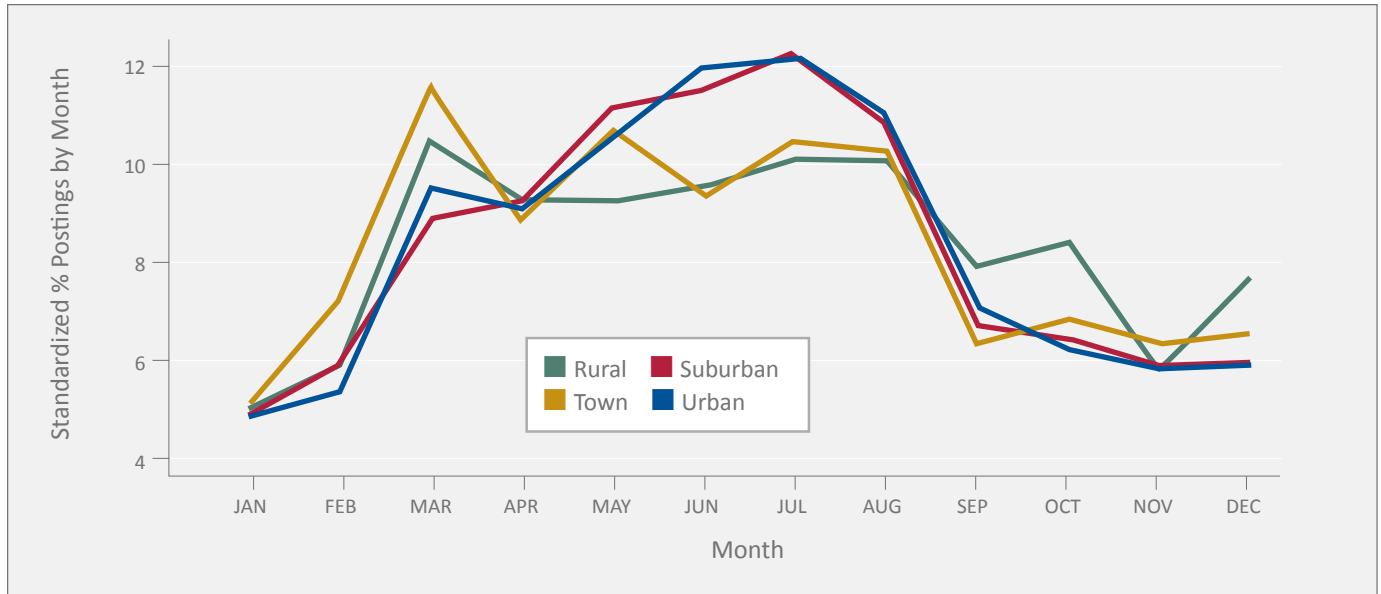
Figure 4: Shortages Disproportionately Affect Schools Serving Historically Disadvantaged Students



Data: Learning Policy Institute’s analysis of the *Getting Down to Facts II* project’s 2017-18 Principal Survey conducted by RAND.
 Notes: FRPL stands for free and reduced-price lunch. Statistical differences denoted by: *** p<0.01, ** p<0.05, * p<0.1. Low proportion represents schools in the bottom quartile and high proportion represents schools in the top quartile.

Location matters, too. Rural principals are most likely to report shortages, followed by small town and urban principals. Rural and small districts may not have as many teacher vacancies as suburban and urban districts (though rural districts have a greater proportion of teacher openings per 1,000 students), but it takes them a longer time to fill those jobs, sometimes requiring them to begin the school year with substitutes or uncredentialed teachers (see Figure 5). These districts are less likely to have nearby schools of education, which reduces their supply, and they may not pay competitive salaries and benefits.

Figure 5: Postings Throughout the Year by Urbanicity



Notes: Total number of job postings equal 87,862. Job postings are standardized by school district and year. Results are based on all years of available data (e.g., 2014-15, 2015-16, 2016-2017). All districts total 495 (38 rural, 89 town, 246 suburban, and 122 urban). Urbanicity categories are assigned based on the mode category observed across all years of the data.

Schools are addressing the shortfall with a dramatic increase in hiring of uncertified teachers

When vacancies go unfilled, schools are left with the choice of increasing class sizes, eliminating some programs, or turning to an assortment of emergency-type credentials. Most turn to emergency-type credentials (see box on the following page).

FULL AND EMERGENCY CREDENTIALS, PERMITS, AND WAIVERS

Fully prepared teachers/Teachers with full credentials

Preliminary credentials are awarded to individuals who have successfully completed a teacher preparation program and the state assessments required for a license, including demonstration of subject-matter competency and teaching skills. These credentials are valid for five years.

Clear credentials are awarded to preliminary credential holders after they have successfully completed an induction program. These credentials are renewable every five years.

Underprepared teachers/Teachers with substandard credentials and permits

Provisional Intern Permits (PIPs), Short-Term Staff Permits (STSPs), and Waivers are used to fill “immediate and acute” staffing needs. These emergency-style, one-year permits allow individuals who have not completed teacher preparation programs nor demonstrated subject-matter competence to teach a particular grade or course for a maximum of one year.

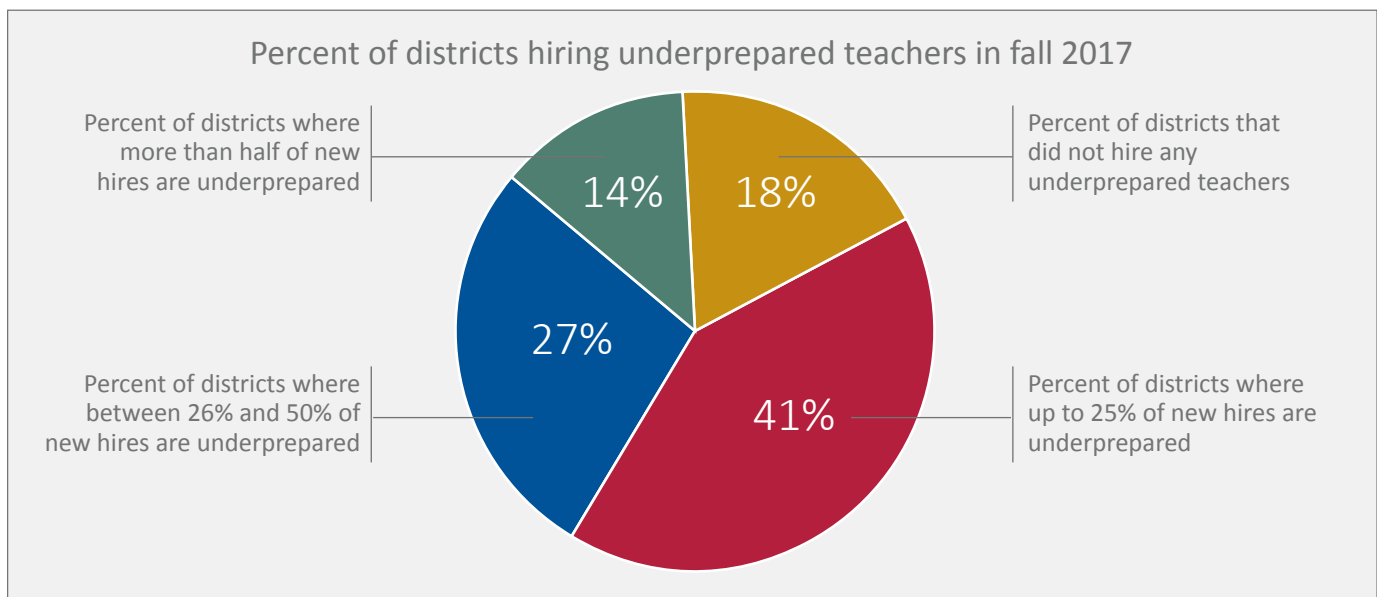
Limited Assignment Teaching Permits allow credentialed teachers to teach outside of their subject area to fill a “staffing vacancy or need.”

Intern credentials are awarded to teachers in training who have demonstrated subject-matter competency but who have not completed a teacher preparation program or met the performance assessment requirements for a license. Interns take courses and receive mentoring while teaching.

In 2016-17, the state issued 12,345 provisional, limited assignment, waivers, and intern credentials: a 260% increase over four years. These comprised roughly half of all credentials issued that year. More than 80% of districts hired underprepared teachers in the 2017-18 school year, and in half of these districts at least 25% of new hires were underprepared (see Figure 6 on the following page). In a few rural districts, 100% of new hires were not fully credentialed.

Just as with the shortage itself, the most vulnerable students also bear the brunt of this trend. Students attending predominantly low-income schools are twice as likely as peers in higher wealth schools to have an underprepared teacher; students of color have three times the rate.

Figure 6: Districts Continue to Hire Underprepared Teachers



Data: Sutcher, L., Carver-Thomas, D., and Darling-Hammond, L. (2018). *Understaffed and Underprepared: California Districts Report Ongoing Teacher Shortages*. Palo Alto, CA: Learning Policy Institute.

Signs point to a slight uptick in credentialed teachers. In 2016-17, California issued more than 12,000 new preliminary credentials, an increase of about 12% over previous levels. However, this is not nearly enough to meet the current demand, and the increases were not in the highest-need fields.

Schools are also responding to the shortage by recruiting from other states and other countries. Between 2012-13 and 2015-16, out-of-state credentials increased by about 7% to more than 3,900 teachers, accounting for about a quarter of all new credentials. However, state licensing requirements can discourage out-of-state teachers who, regardless of how long they've been teaching, may need to take a basic skills test, pass a subject-matter exam, or complete additional coursework to earn an authorization to teach English learners.

Several factors appear to be driving the shortage

- **New demand for teachers as districts seek to return to prerecession course offerings and class sizes**
Teacher hiring increased steeply between 2012-13 and 2014-15, as districts sought to return to prerecession class sizes and programs, but has since plateaued to an average of 29,300 new teachers a year. Districts, however, anticipate continuing challenges ahead as they recruit in the hard-to-fill subject areas.

- **A rapid decline in enrollment in teacher preparation programs**

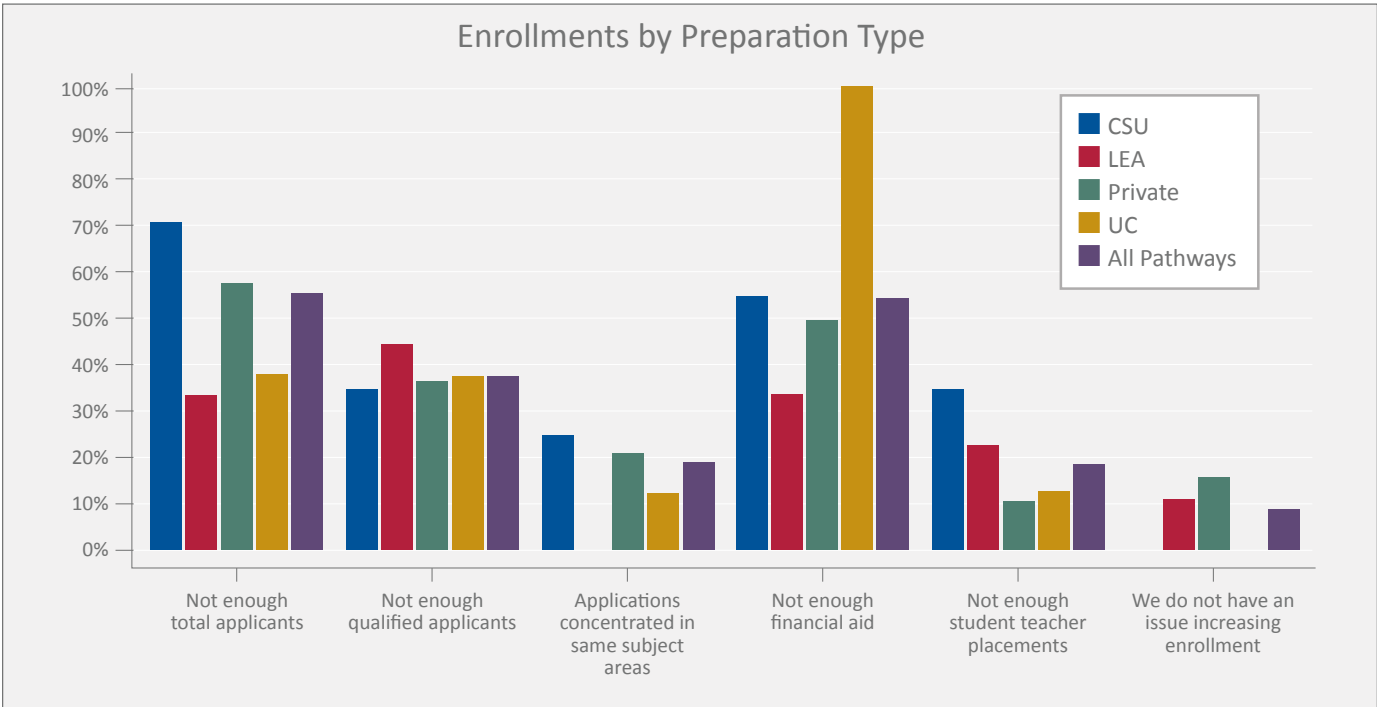
Further compounding the problem is a dramatic downturn in teacher preparation program enrollments. There has been a small uptick in enrollments; however, it is not enough to offset the 70% decline that occurred during the past decade.

Moreover, there is concern that the upward trend may not continue as the state university system, which prepares nearly 60% of California’s new teachers, does not have the same capacity as it did before the recession, at least not in every program. Some programs shrank due to budget cuts, and the state university system is not allocating increases in slots as rapidly as needed to fill demand.

Both public and private teacher preparation programs cite an inadequate number of applicants as a leading reason for the ongoing enrollment problem, along with a lack of financial aid, according to a survey by the Learning Policy Institute and California Commission on Teacher Credentialing (see Figure 7). The universities also report that many of the applicants for math, science, and special education are not qualified, given the state’s extensive requirements that include basic skills and subject-matter tests (especially difficult to pass in math and science) typically taken before preparation begins.

The challenge is not as simple as asking whether we are producing *enough* teachers, but rather, whether we are producing enough of the *right types* of teachers and if these teachers are finding their way into the classrooms that need them.

Figure 7: Obstacles to Increasing Teacher Preparation Enrollments by Preparation Type



Data: California Commission on Teacher Credentialing, which was analyzed by the Learning Policy Institute.

- **Teacher attrition**

Teacher turnover currently accounts for about 88% of the annual demand for new teachers. Put another way, nearly nine of 10 hires each year are needed to replace teachers who left. Retirement is just a small piece of this loss. Most attrition is caused by teachers changing districts or leaving the profession. In California, about 8.5% of teachers appear to be leaving the profession (or the state) each year, and another 8% leave their current school to move to another.

Principals surveyed for the *Getting Down to Facts II* project reported that teachers in the shortage areas of special education, mathematics, science, bilingual education, and world languages are most difficult to retain.

The highest turnover rates are in districts serving high-poverty students, students of color, and English learners.

The main reasons teachers report leaving, according to the 2013 federal Schools and Staffing Survey, are dissatisfaction with testing and accountability pressures, followed by a lack of administrative support; frustration with the teaching career, including lack of opportunities for advancement; and poor working conditions.

Data limitations make it impossible to fully assess the impact of unequal teacher distribution in California

Any statewide assessment of how equitably teachers are distributed across students, schools, and districts requires individual student- and teacher-level data. Without it, researchers have no way to fully understand and measure the performance and effectiveness of teachers in different schools based on their experience levels, certifications, and education levels.

Although the *Getting Down to Facts II* team worked diligently to access such data, they were unable to do so. Due to legal restrictions, the California Department of Education (CDE) could not provide researchers with student-teacher linkages. The CDE did approve a request for data that link teachers to schools, but even though the research team requested these data more than a year before publication, the CDE was unable to provide the data in time for this report.

The California Commission on Teaching Credentialing (CTC) did not approve a request to receive data on teacher credentials.

California boasts unique data that is unavailable in other states in the form of detailed CBAs, which were collected by the research team, and data on teacher vacancies, collected and provided by Edjoin, an online national education job listing service. However, the lack of individual-level panel data of the sort available in many other states reduces the amount researchers and decisionmakers can learn in California about issues critical to education policy.

Conclusion

In recent years, Californians and state lawmakers have enacted several initiatives to increase education spending overall, and have targeted nearly \$200 million of those new funds to address challenges with teacher supply. Of the \$78 billion in increases in the 2018 education budget, \$100 million is directed at addressing the shortage of special education teachers through teacher residencies and local district initiatives, and \$25 million is appropriated to address shortages of math, science, and bilingual education teachers through teacher residencies. The state has also designated \$45 million to help classified staff become certified to teach, \$10 million to start new undergraduate programs for teacher education, and \$5 million to launch a Center for Teaching Careers.

But enduring solutions to the annual difficulty California districts face in hiring teachers—especially in special education, math, science, and bilingual classes—require addressing the root causes of the shortfall.

Research, including a review of prior studies and a survey of district leaders by the Learning Policy Institute in 2017, identified some evidence-based incentives:

- Using **economic incentives**, such as higher salaries, loan repayment, hiring or retention bonuses, to target high-need teachers.
- **Loan forgiveness programs and service scholarships** can recruit and retain high-quality teachers into the fields and schools where they are most needed.
- **Teacher residencies**—which offer one-year intensive apprenticeships modeled on medical residencies—have consistently shown higher retention rates, attract more diverse candidates, and target high-need subjects and locations.
- Other **Grow Your Own** programs to recruit, train, and support paraprofessionals, after-school program staff, and other local community members to become teachers in their own communities.
- **Support and mentoring for novice teachers** such as seminars, coaching and mentoring, reduced workloads, collaborative planning time, extra classroom assistance, and a variety of other activities.
- **Easing requirements** for highly qualified out-of-state teachers to come to California.

There are tens of thousands of students in California classrooms today with teachers who are underprepared. Most of those students are already underserved by the state's education system. State and district policies could help reverse the need for schools to turn to underprepared teachers by investing in programs to rapidly rebuild the supply of qualified teachers where they are most needed, while creating incentives for experienced, effective teachers to re-enter and remain in the classroom.

DATA SOURCES

- California Commission on Teacher Credentialing.
- California Department of Education.
- California School Boards Association human resource director survey, 2018.
- District Collective Bargaining Agreements.
- Edjoin.
- Learning Policy Institute district survey, 2017.
- RAND Survey of the American School Leader Panel, conducted for Stanford University, 2017.

Lead author biographies

Linda Darling-Hammond, Ed.D., is president and CEO of the Learning Policy Institute. She is also the Charles E. Ducommun Professor of Education Emeritus at Stanford University, where she founded the Stanford Center for Opportunity Policy in Education and redesigned the Stanford Teacher Education Program.

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Katharine O. Strunk, Ph.D., is a professor and the Erickson Distinguished Chair in the Department of Educational Administration at Michigan State University, where she is codirector of the Education Policy Innovation Collaborative (EPIC).

Leib Sutchter has been a research associate at the Learning Policy Institute, where he is a member of the Educator Quality Team. He is currently enrolled in UCLA's Teacher Education Program and continues to consult for the Institute.