
California Higher Education Graduate Capacity Assessment

*Analysis prepared by McKinsey & Company
and commissioned by College Futures Foundation*

OCTOBER 2019

The graduate projections are predicated on 4 methodological choices and 2 key beliefs about higher education in California

Methodological choices

- 1 Demand and capacity projections are expressed in **headcounts, which can be converted to FTE** using ratios of part-time to full-time students particular to each system
- 2 This capacity assessment **focuses on graduate demand from in-state and out-of-state students**
- 3 Capacity projections **are based on historical enrollment patterns for new students** and do not rely on the utilization formula for available physical facilities
- 4 Labor market supply and demand for employees **is based on historical patterns for graduates with relevant degrees as well as new job openings** compounded arithmetically

Key beliefs

- 1 **Students who earned a Bachelor's degree in California will aspire to join a graduate program in the state** due to significantly higher tuition out-of-state
- 2 **Share of undergraduate graduates enrolling in graduate programs increases modestly during a recession** following the same patterns observed during the 2008 recession

Graduate programs are classified in 3 categories

IPEDS classification

Programs

IPEDS description

Example degrees

Masters

An award that requires the successful completion of a program of study of at least the full-time equivalent of 1 but not more than 2 academic years of work beyond the bachelor's degree

- Typically divided into MBAs and other master's degrees (incl. Master's in Education)

Doctorates

The highest award a student can earn for graduate study. Can be professional practice, research/scholarship based, or other types

- Professional: JD, MD, Pharmacy, Veterinary
- Research: Ed.D., D.M.A., D.B.A., D.S., PhDs

Post-baccalaureate certificate

An award that requires completion of an organized program of study beyond the bachelor's. It is designed for persons who have completed a baccalaureate degree, but do not meet the requirements of a master's degree

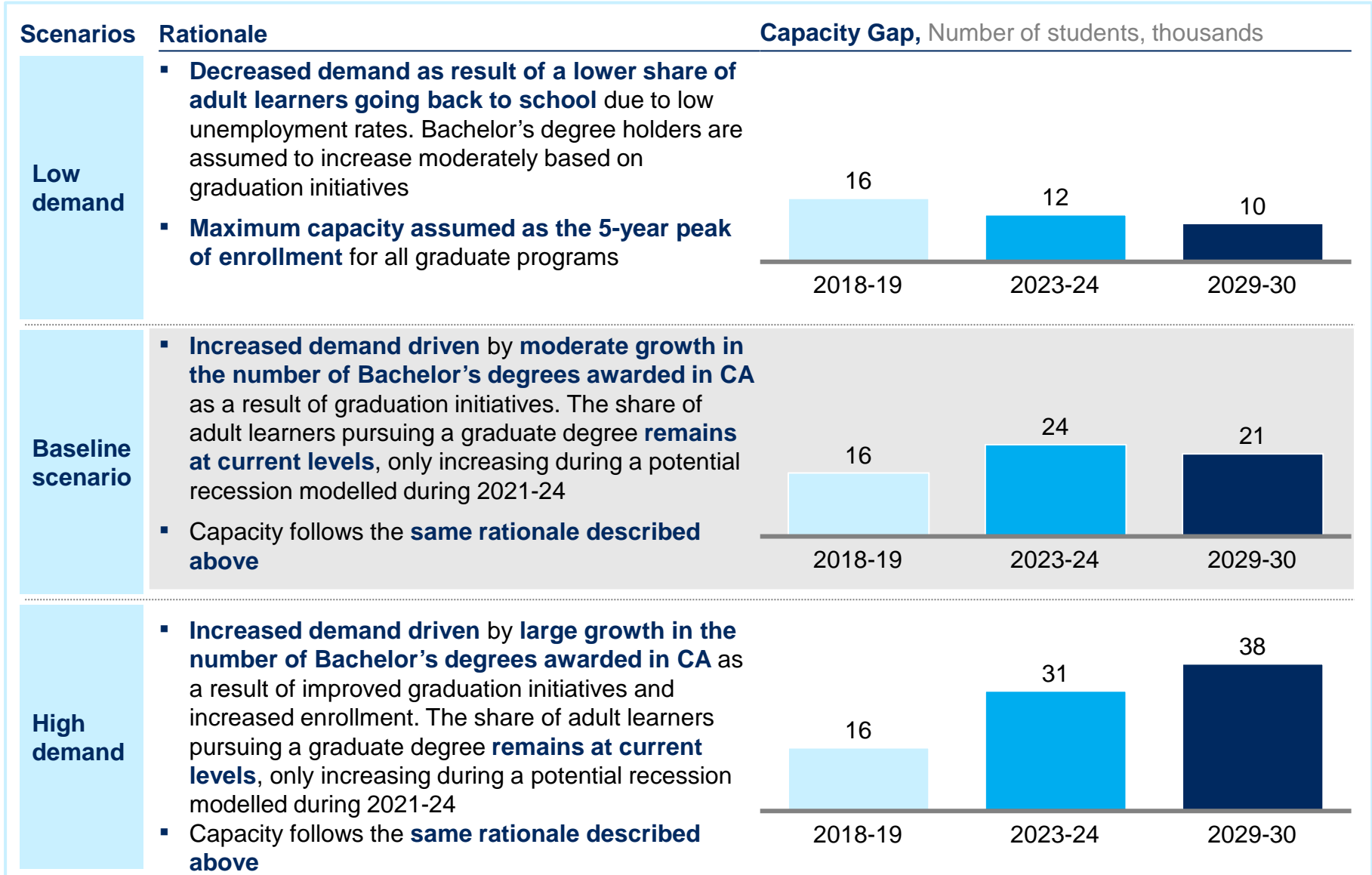
- Certificate in accounting, CPA prep, programming, journalism, etc.
- Sometimes called "postbac"
- Teacher preparation certificates are considered undergraduate and not included

Executive summary

- **At the state level, higher education institutions are projected to have a capacity gap of ~21k seats for graduate programs by 2030, which represents 21% of current capacity. There is already a gap of ~16K seats**
 - Although there is a gap at the state level for graduate programs, **California institutions have enough capacity to address demand coming from students who earned a Bachelor's degree in California**
- **Growing demand for graduate programs is driven by a projected increase in the number of Bachelor's degree holders** in California due to graduation initiatives implemented by UC and CSU
 - The **share of adult learners going back to school for master's and post-bachelor's certificates is expected to remain constant based on recent trends** and will only increase during a potential recession. **Doctorates as a share of Bachelor's degree holders are expected to continue to decrease** even during a recession
- **Annual capacity for graduate programs is assumed to remain at ~101K seats, as there are no known initiatives to increase seats.** Half of the capacity is projected to come from private nonprofit institutions

Higher education institutions are projected to have a gap of ~21k graduate seats by 2030, which represents 20% of current capacity

■ Focus for this document



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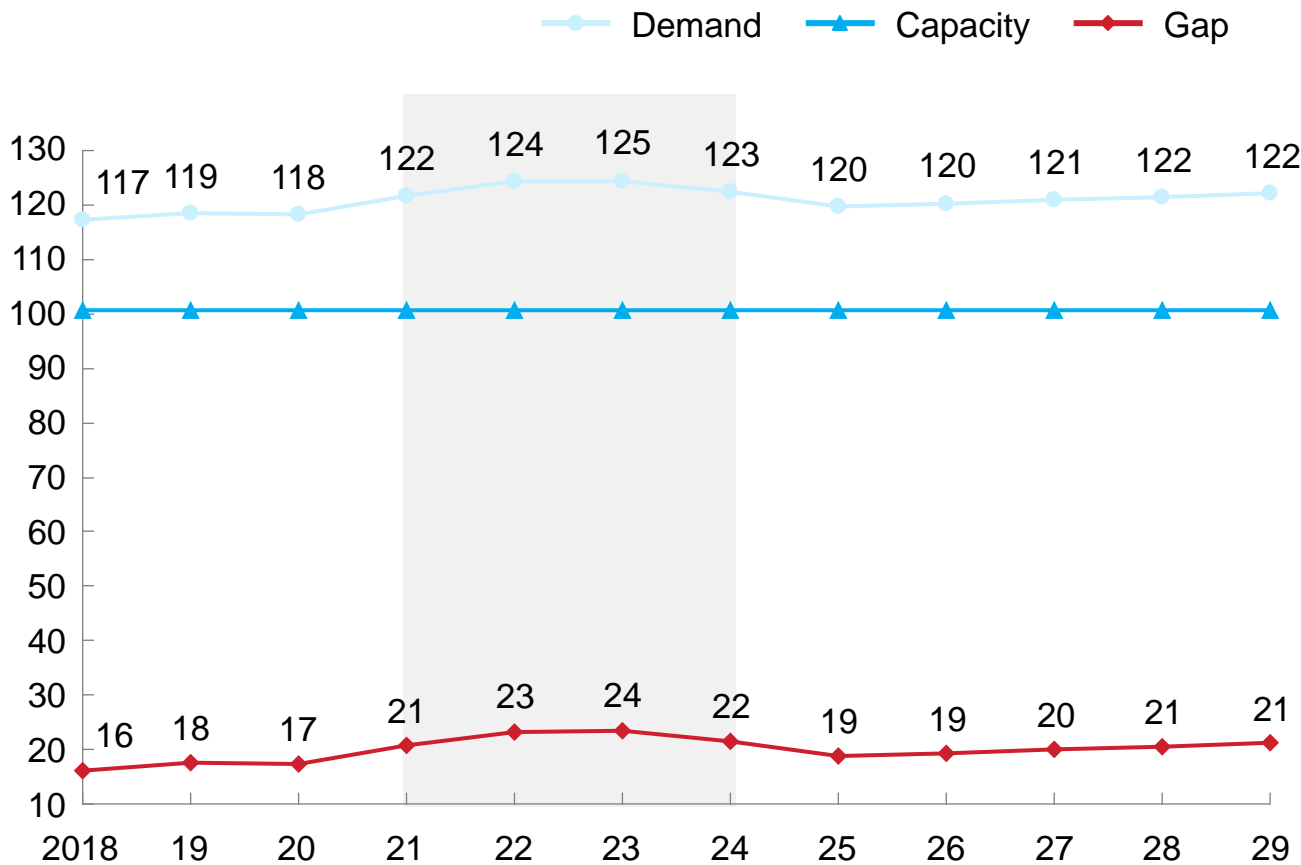
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There is already a capacity gap for graduate programs of ~16k and it is expected to increase to 21k seats by 2030

Baseline projections for graduate programs

Number of students, thousands

Projected recession

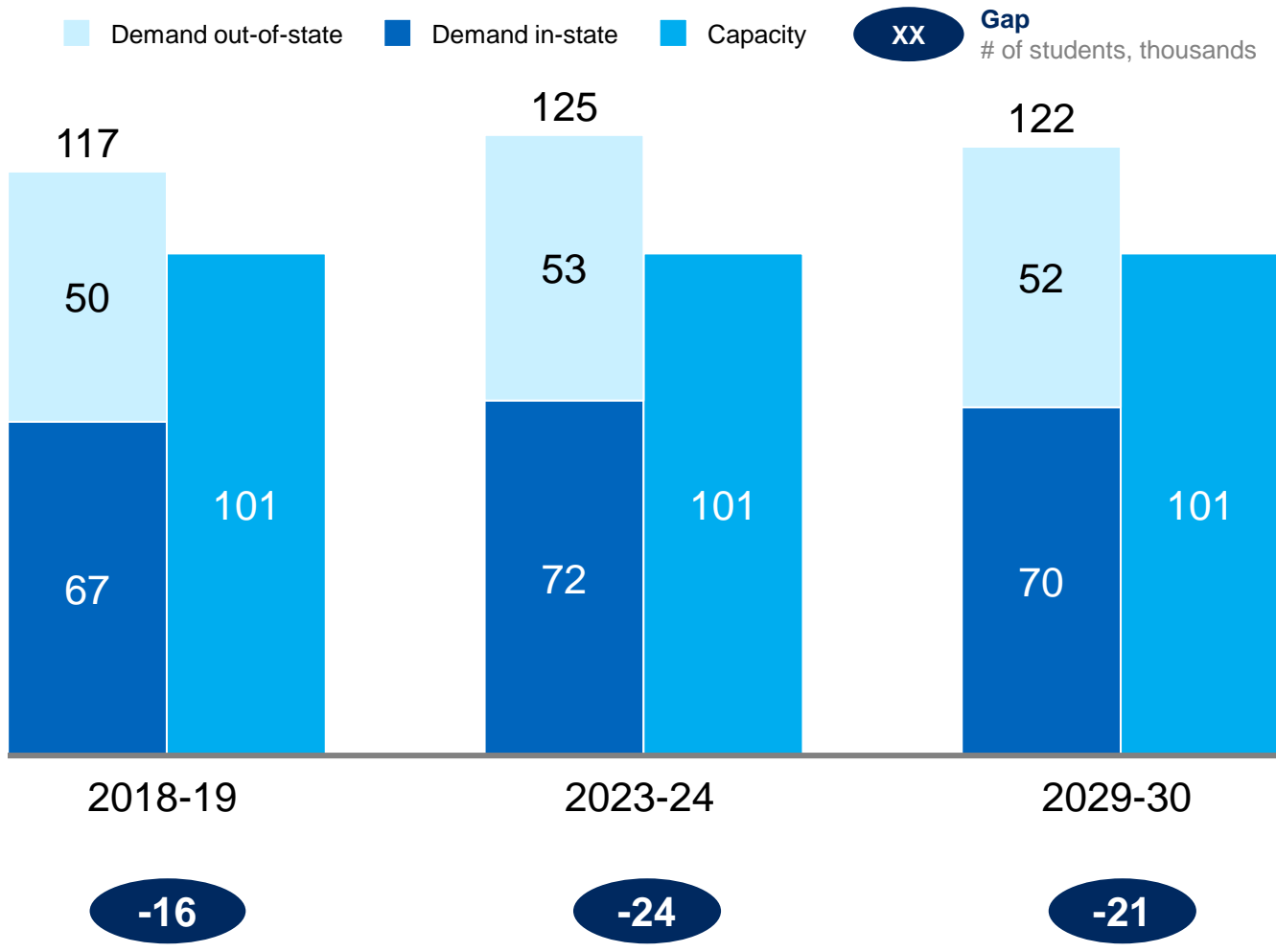


- Capacity remains constant at current levels as there are **no known initiatives to increase seats**
- During a **potential recession, the capacity gap could go up to ~24k in 2023**
- Without any significant changes to capacity, **institutions will only be able to address ~83% of graduate demand by 2030**

Although there is a capacity gap for graduate programs, institutions have enough capacity to address the maximum demand from California students

Baseline projections for graduate programs

Number of students, thousands



■ In-state demand is calculated as the share of California Bachelor's degree holders returning to school to pursue a Master's, Doctorate, or certificate degree

Contents

Graduate demand

Graduate capacity

There are 4 assumptions that drive projections for demand for graduate programs in CA

Details to follow

Assumption	Low demand	Baseline	High demand
Number of Bachelor's degree holders	Increases by 10% in public institutions due to graduation initiatives (based on CSU projections). For private institutions, undergrad graduates continue to grow with 5-year CAGR for the next 5 years and then plateau following trend from HS graduates	Increases by 10% in public institutions due to graduation initiatives (based on CSU projections). For private institutions, undergrad graduates continue to grow with 5-year CAGR for the next 5 years and then plateau following trend from HS graduates	Increases by 30% in public institutions due to graduation and higher enrollment initiatives (based on CSU projections). For private institutions, undergrad graduates continue to grow with 5-year CAGR for the next 5 years and then plateau
Share of Bachelor's degree holders pursuing a graduate degree	Decreases from current levels of 35% to 32% over the next 12 years. Current levels are based on findings from the <i>Urban Institute Report</i> ¹ and adjusted based on recent trends for graduate degrees awarded	Increases from current levels of 35% to 37% during a potential recession between 2021-2024. Recession shares are based on the <i>Urban Institute Report</i> ¹ for the 2008 recession ²	Increases from current levels of 35% to 37% during a potential recession between 2021-2024. Recession shares are based on the <i>Urban Institute Report</i> ¹ for the 2008 recession ²
CA students pursuing certificates out-of-state	Remains constant at 10% , assuming students who earned a Bachelor's degree in California will aspire to join a graduate program in the state due to significantly higher tuition out-of-state (aligned with undergraduate patterns)	Remains constant at 10% assuming students who earned a Bachelor's degree in California will aspire to join a graduate program in the state due to significantly higher tuition out-of-state (aligned with undergraduate patterns)	Remains constant at 10% assuming students who earned a Bachelor's degree in California will aspire to join a graduate program in the state due to significantly higher tuition out-of-state (aligned with undergraduate patterns)
Share of out-of-state students pursuing degrees in CA	Remains constant at 43% calculated as the weighted average of the share of out-of-state students pursuing a graduate program in CA across systems	Remains constant at 43% calculated as the weighted average of the share of out-of-state students pursuing a graduate program in CA across systems	Remains constant at 43% calculated as the weighted average of the share of out-of-state students pursuing a graduate program in CA across systems

¹ Who goes to graduate school and who succeeds? - https://www.urban.org/sites/default/files/publication/86981/who_goes_to_graduate_school_and_who_succeeds_1.pdf

² Except for certificates where current trends show a lower level of certificate attainment as a percentage of Bachelor's degree holders

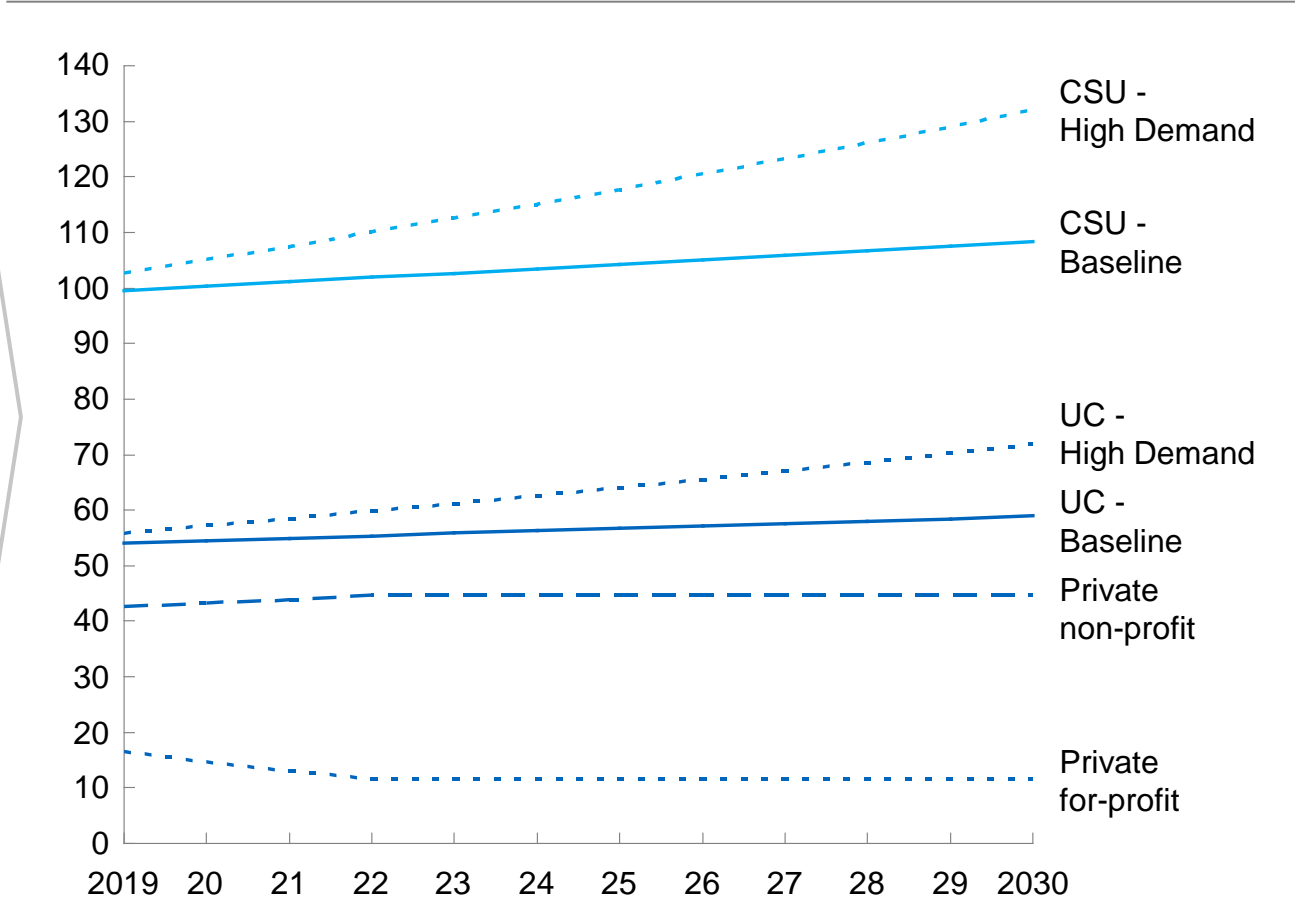
The baseline and high demand scenarios are heavily influenced by the success of current graduation initiatives

Model assumptions

- **Baseline scenario assumes CSU projections¹ where graduation initiatives drive a 10% increase in the number of undergrad graduates. UC students are projected with the same growth**
- **High demand scenario assumes graduation initiatives along with higher enrollment will result in a 30% increase in the number of undergrad graduates**
- **Private nonprofit institutions are projected to grow based on 5-year CAGR for the next 5 years and then plateau following same trend as high school graduates**

Projection for bachelor's degree holders

Number of students, thousands



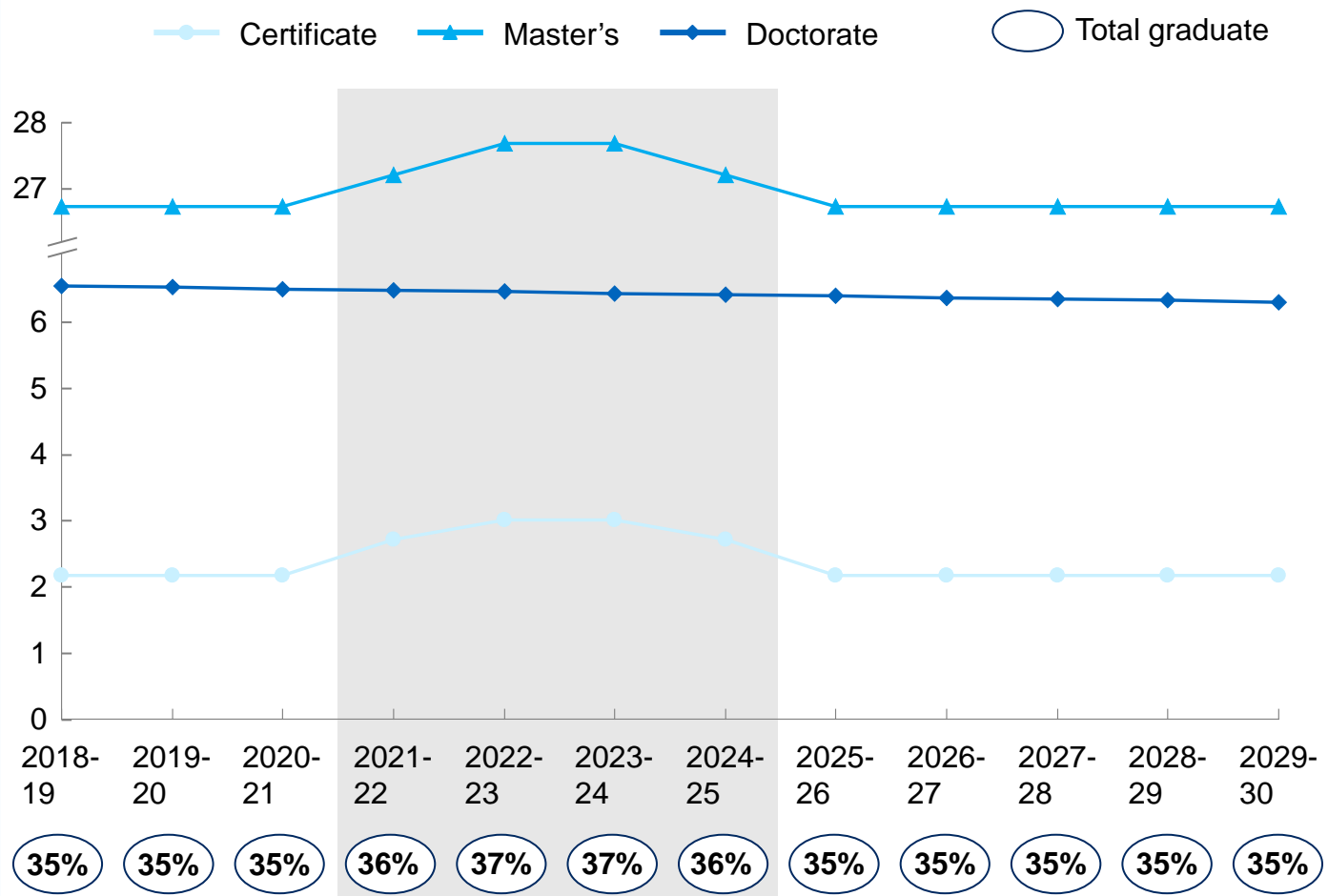
1 CSU Report on Greater Statewide Degree Attainment by 2030

SOURCE: CALSTATE projections, IPEDS, UC Datacenter, interviews

The share of Bachelor's degree holders pursuing a Master's and certificate programs is expected to increase during a recession

■ Recession

Projected share of Bachelor's degree holders joining a graduate program
Percentage



- Our methodology leverages the **share of Bachelor's degree holders pursuing graduate programs reported by the *Urban Institute Study*¹** for the 2007-08 cohort joining graduate programs between 2008-12
- Given that this report includes the 2008 recession, **the share of students returning to school was adjusted based** on recent trends for graduate degrees awarded
- In particular, **the share of students attaining a Master's or a certificate degree increased during the 2008 recession** while the share pursuing a doctorate decreased

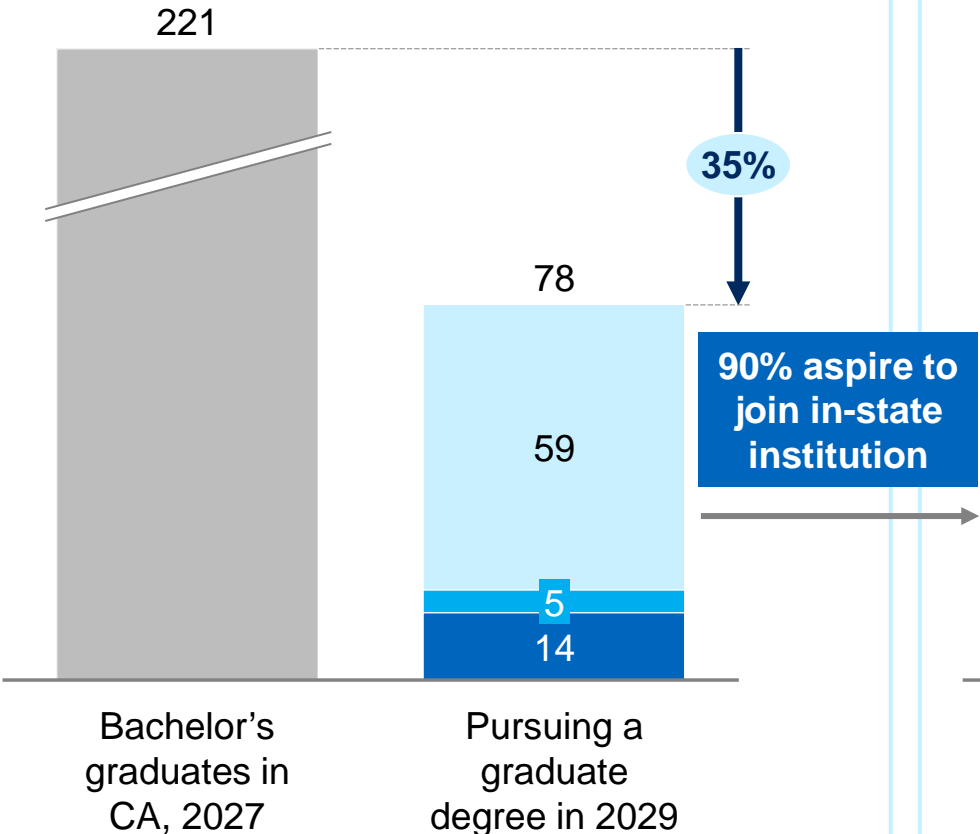
¹ Except for certificates where current trends show a lower level of certificate attainment as a percentage of Bachelor's degree holders

Our methodology leverages the number of undergraduate graduates in California to project overall graduate demand

- Master's
- Certificates
- Doctorates

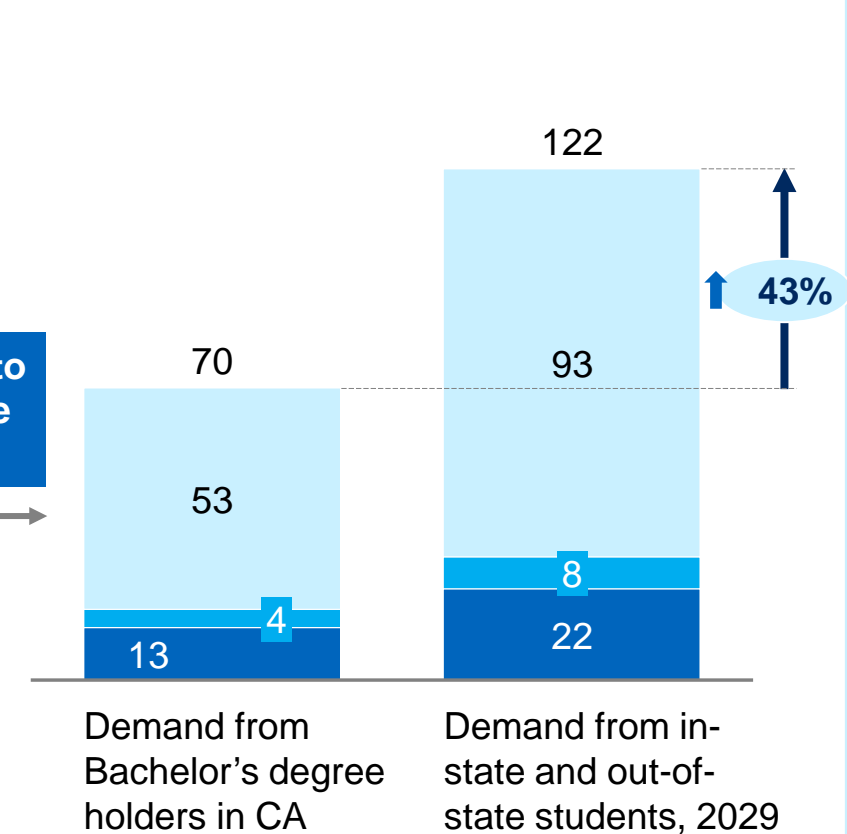
~35% of CA Bachelor's degree holders pursue a graduate degree 2 years after graduating

Number of students, thousands



~43% of students matriculating in CA graduate programs come from out-of-state

Number of students, thousands

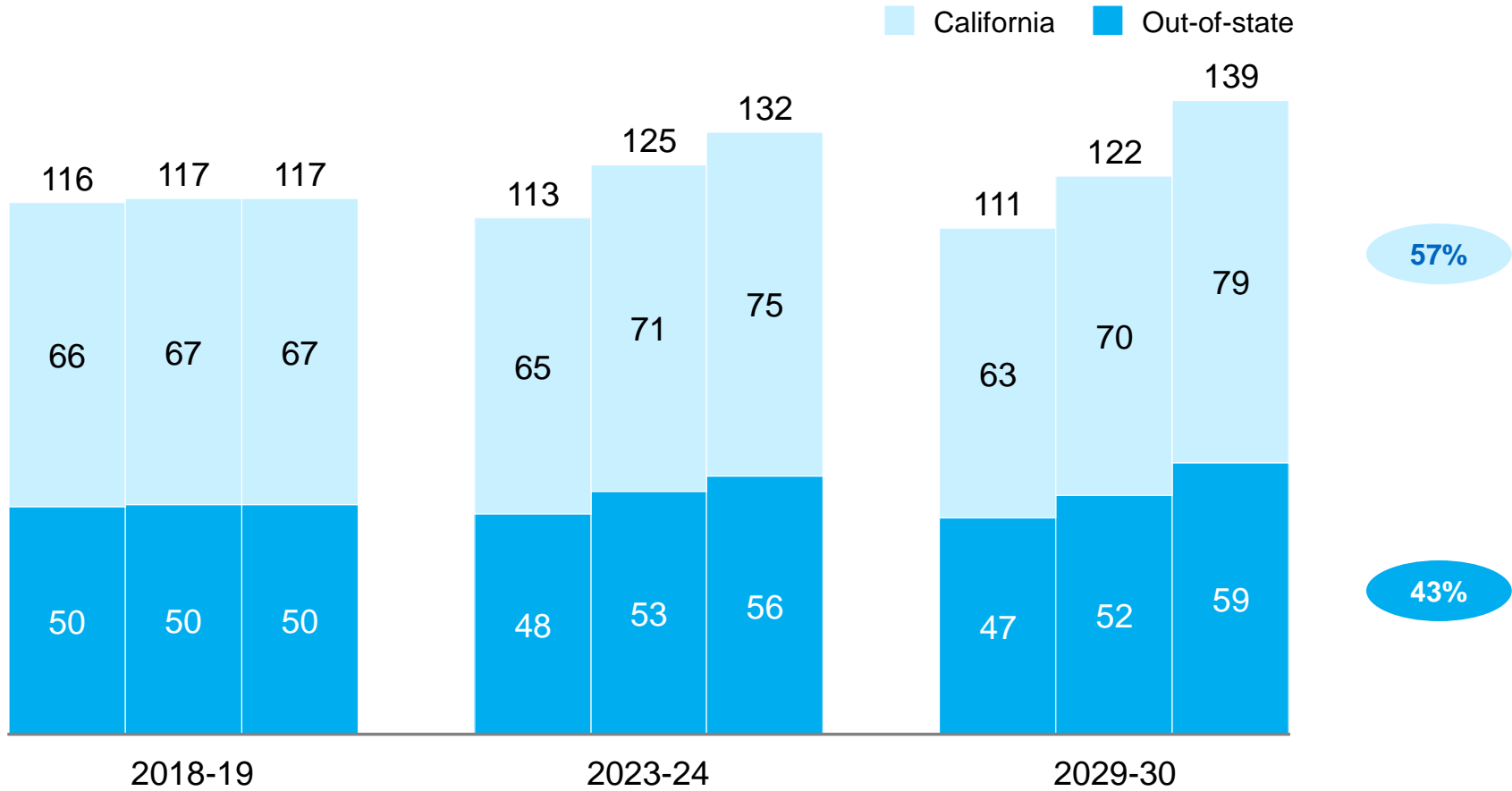


Demand for graduate programs is projected to be 111-139k by 2030

Annual demand for graduate programs in CA through 2030 for low, baseline, and high scenarios

Number of students, thousands

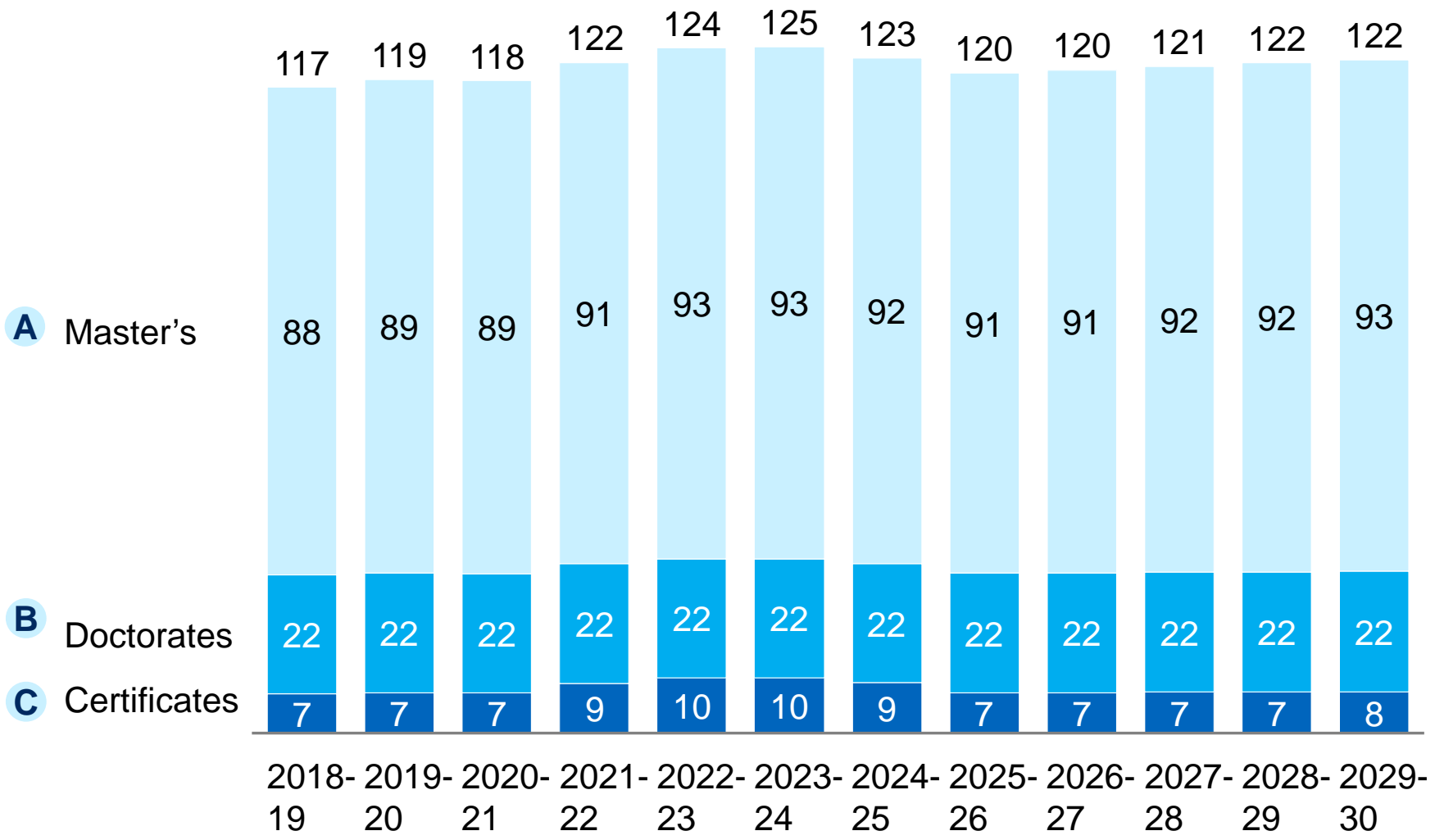
Share by residence, %



~76% of future graduate demand will be for Master's programs

Baseline demand for graduate seats through 2030

Number of students, thousands



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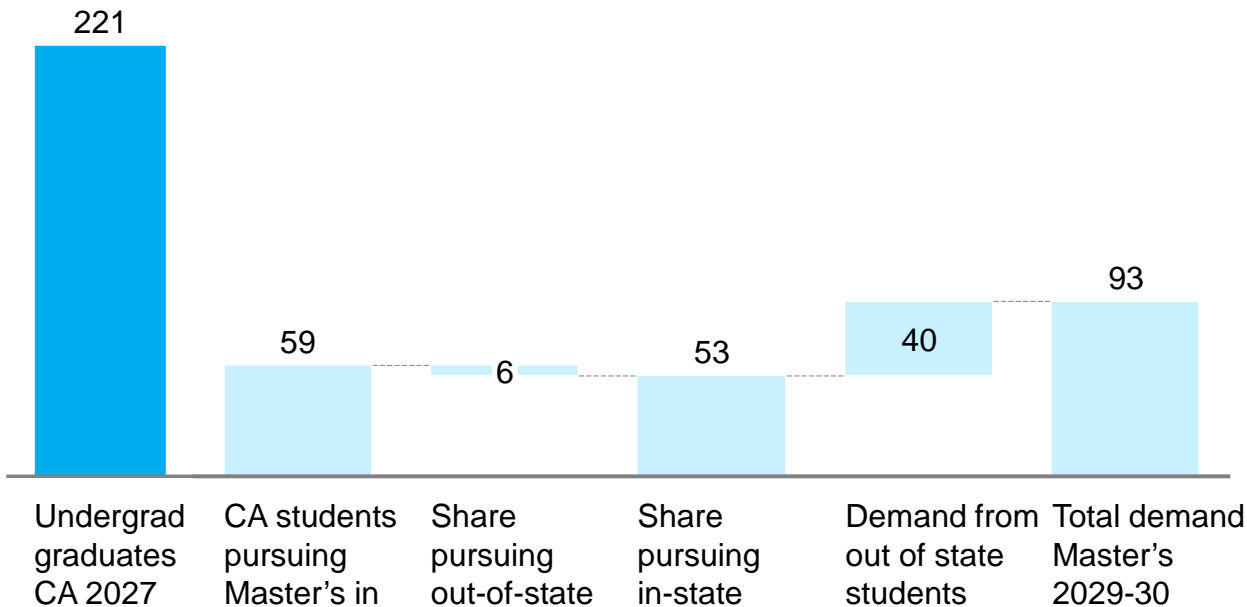
A We followed a bottom-up approach to calculate total demand for Master's degrees in California in 2030

Model assumptions

- Students who earned a Bachelor's degree in California will aspire to join a graduate program in the state due to significantly higher tuition out-of-state (aligned with undergraduate patterns)
- On average, students pursue a Master's 2-3 years after graduating from a Bachelor's degree

Total demand for Master's degrees in CA in 2030 (Bottom-up approach)

Number of students, thousands



Assumptions

- 27% as a share of undergrads
- 10% prefer to join out-of-state
- 90% prefer to join in-state
- 43% based on historical enrollment¹

Sources

- Urban Institute Report
- IPEDS (undergrad data)
- IPEDS (undergrad data)
- CSU, UC data centers

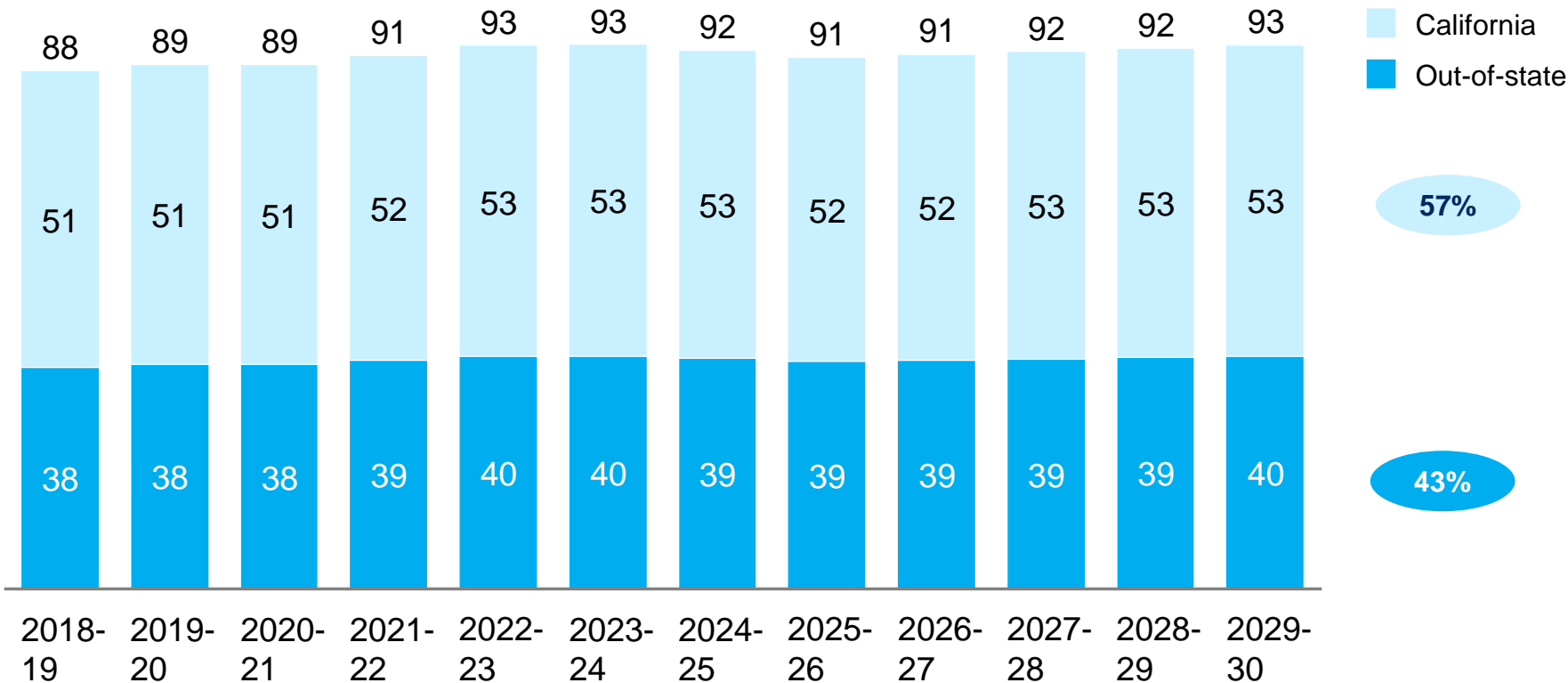
¹ Share of out-of-state students for private institutions is calculated based on out-of-state student share of undergraduate enrollment at private institutions multiplied by the proportional increase in out-of-state student share of public graduate programs versus out-of-state student share of public undergraduate programs

A Demand for Master's degrees is projected to increase by 5k by 2030

Annual demand for Master's programs in CA through 2030

Number of students, thousands

Share by residence, %



57%

43%

▪ Demand growth for Master's programs will come from an increase in the number of degree holders as a result of ongoing graduation initiatives implemented by UC and CSU. The share of adult learners pursuing a Master's is expected to increase moderately during a recession period

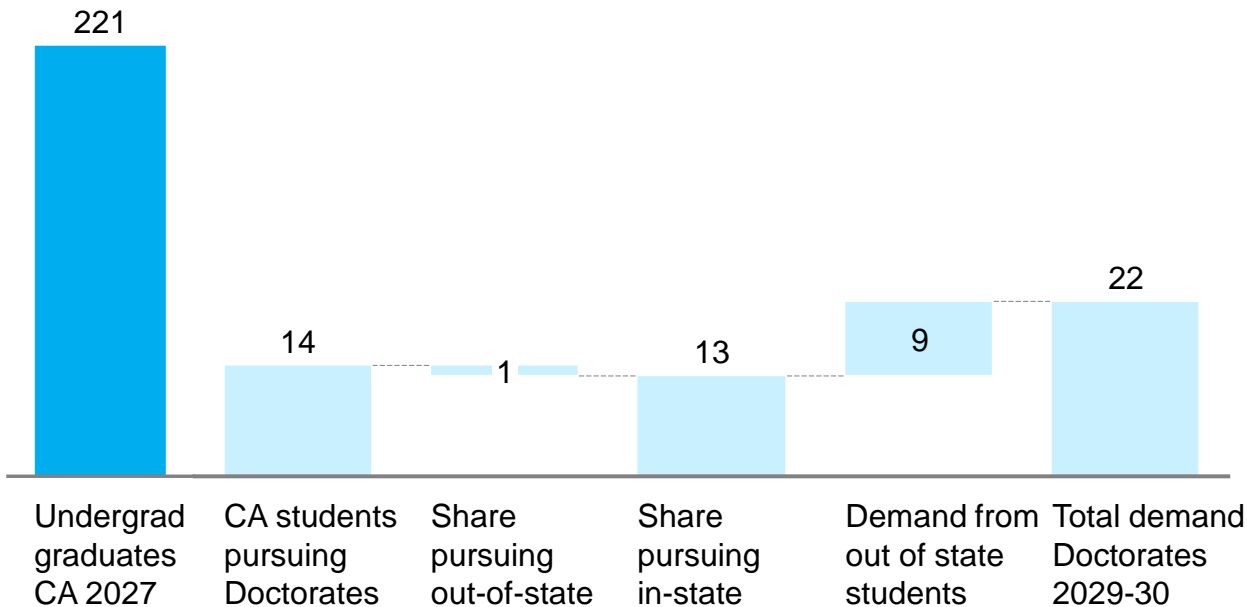
B We followed a bottom-up approach to calculate total demand for Doctorate degrees in California in 2030

Model assumptions

- Students who earned a Bachelor's degree in California will aspire to join a graduate program in the state due to significantly higher tuition out-of-state (aligned with undergraduate patterns)
- On average, students pursue a Master's 2-3 years after graduating from a Bachelor's degree

Total demand for Doctorate degrees in CA in 2030 (Bottom-up)

Number of students, thousands



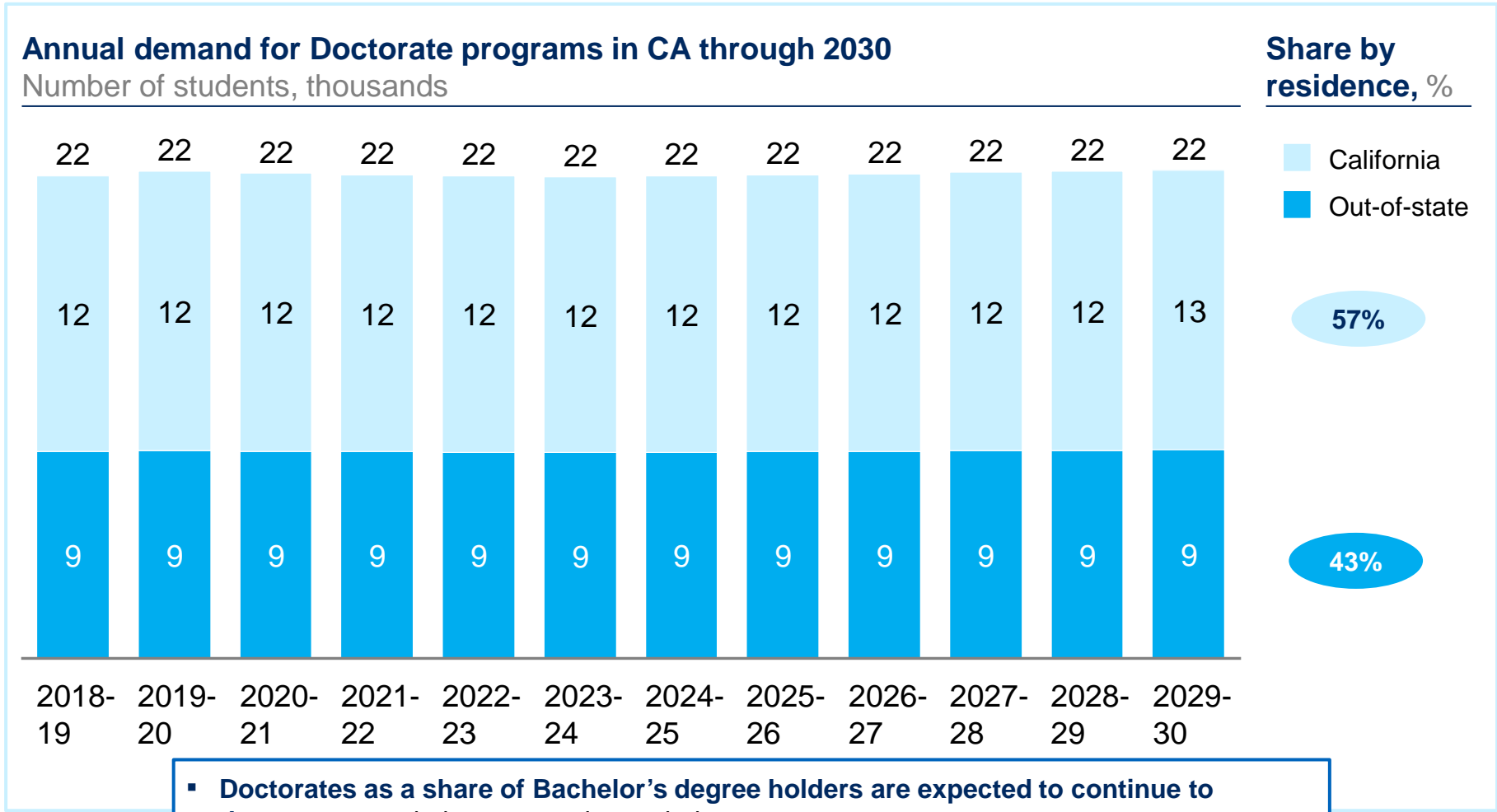
Assumptions

- 6% as a share of undergrads
- 10% prefer to join out-of-state
- 90% prefer to join in-state
- 43% based on historical enrollment

Sources

- Urban Institute report
- IPEDS (undergrad data)
- IPEDS (undergrad data)
- CSU, UC data centers

B The demand for Doctorate programs is projected to be stagnant through 2030



- **Doctorates as a share of Bachelor’s degree holders are expected to continue to decrease** even during a recession period
- **Moderate growth for doctorates will come only from an increase in the number of degree holders** as a result of ongoing graduation initiatives implemented by UC and CSU

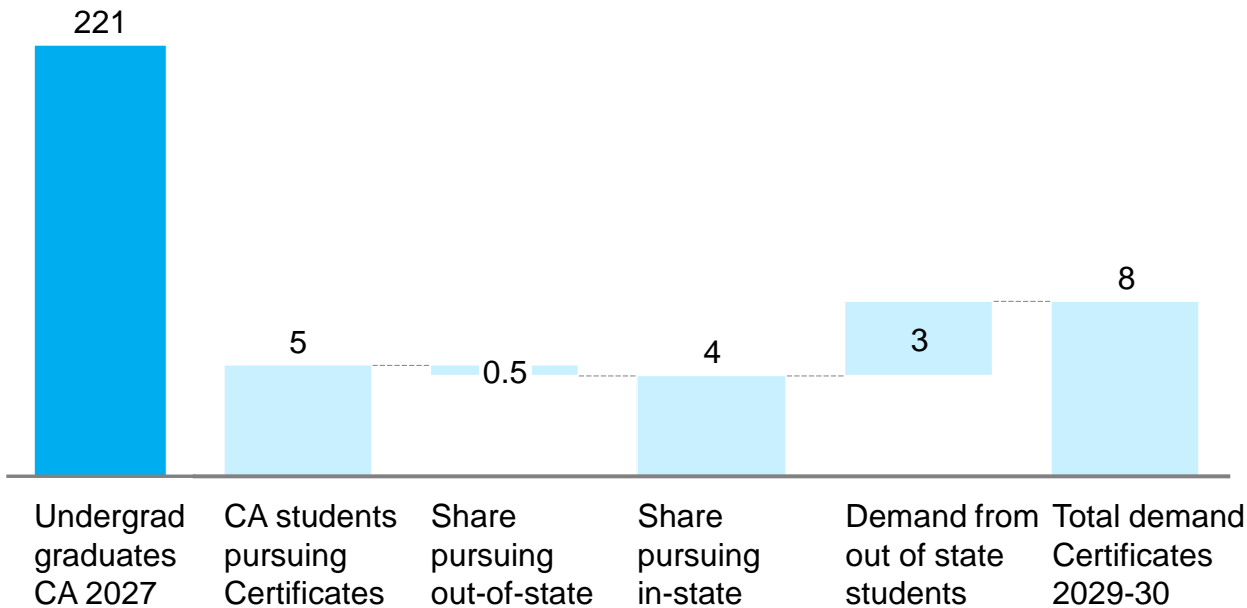
C We followed a bottom-up approach to calculate total demand for certificates in California in 2030

Model assumptions

- Students who earned a Bachelor's degree in California will aspire to join a graduate program in the state due to significantly higher tuition out-of-state (aligned with undergraduate patterns)
- On average, students pursue a certificate 2-3 years after graduating from a Bachelor's degree

Total demand for Certificates in CA in 2030 (Bottom-up)

Number of students, thousands



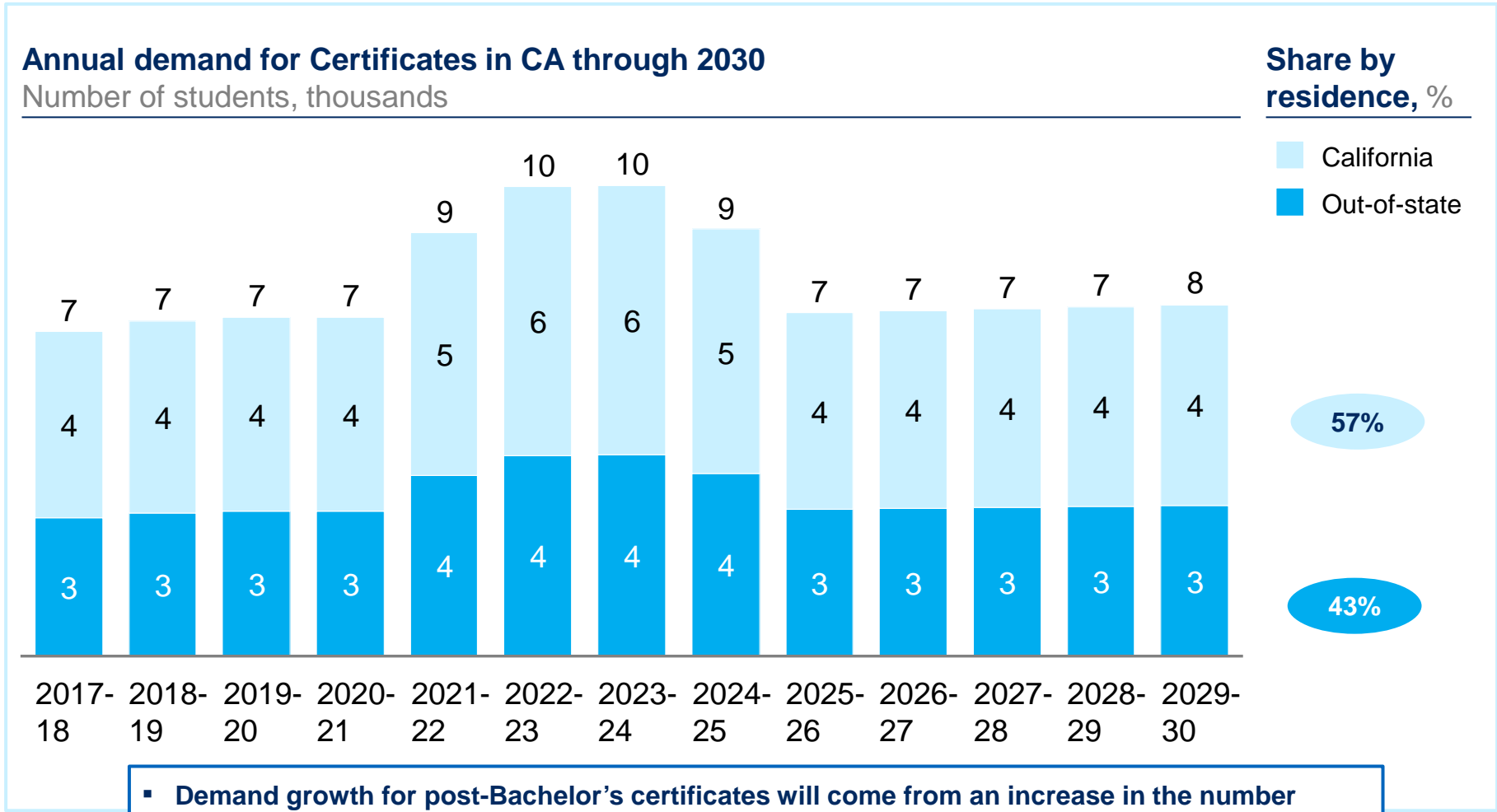
Assump-tions

- **2%** as a share of undergrads
- **10%** prefer to join out-of-state
- **90%** prefer to join out-of-state
- **43%** based on historical enrollment

Sources

- Urban Institute report
- IPEDs (undergrad data)
- IPEDS (undergrad data)
- CSU, UC data centers

C The demand for Certificates is projected to increase by ~500 seats, with a notable increase during a recession



▪ Demand growth for post-Bachelor’s certificates will come from an increase in the number degree holders as a result of on-going graduation initiatives implemented by UC and CSU. Additionally, during a modelled recession period the share of adult learners pursuing a certificate is expected to increase significantly based on the rates observed during the 2008-recession

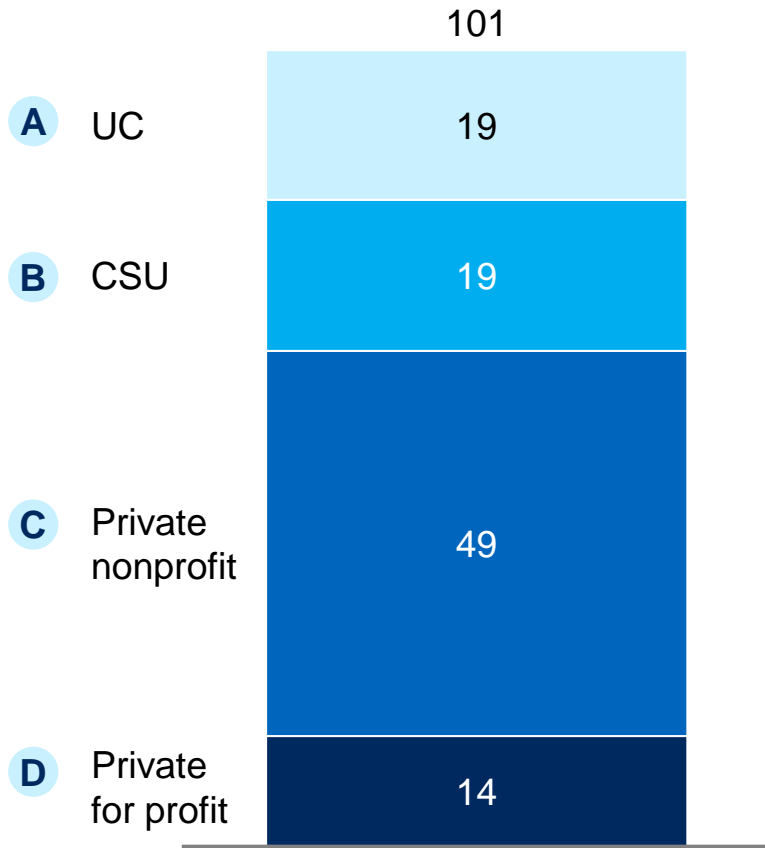
Graduate demand

Graduate capacity

Half of the capacity for graduate programs is projected to come from private nonprofit institutions

Baseline capacity for graduate programs in 2029-30

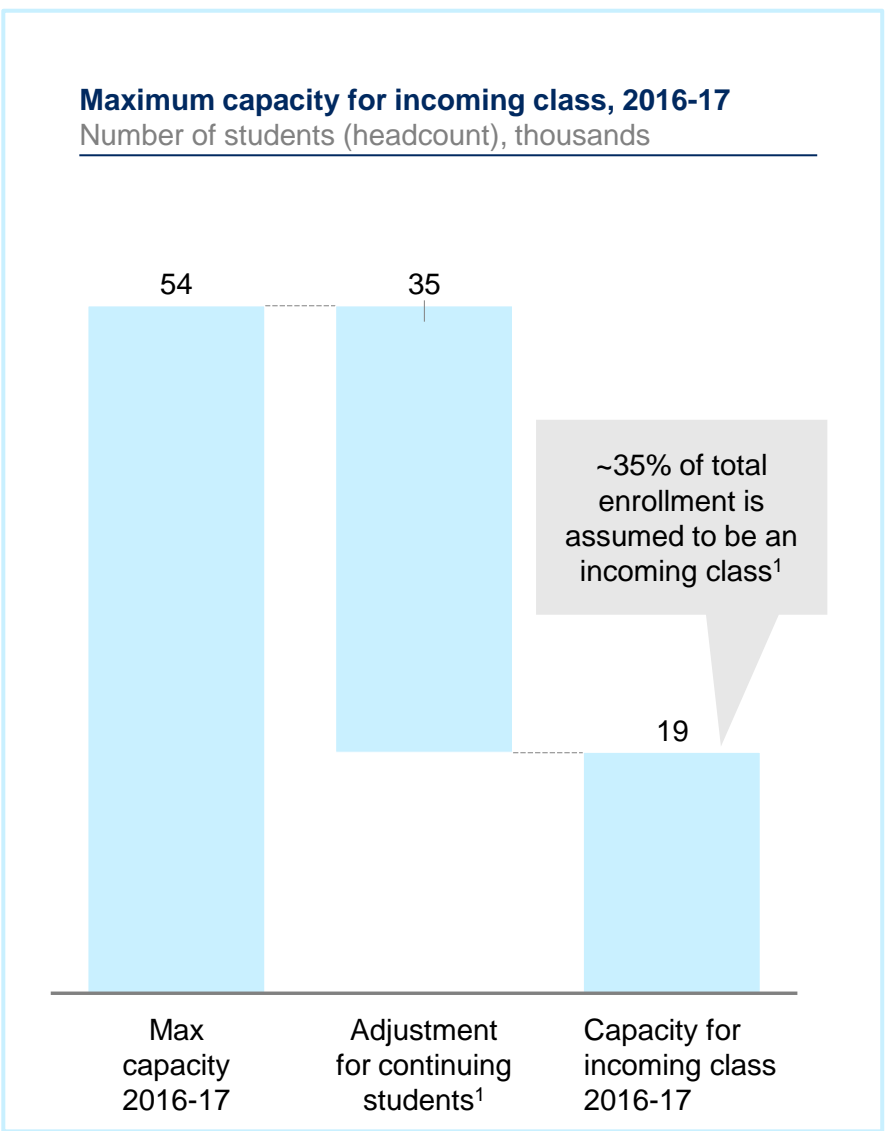
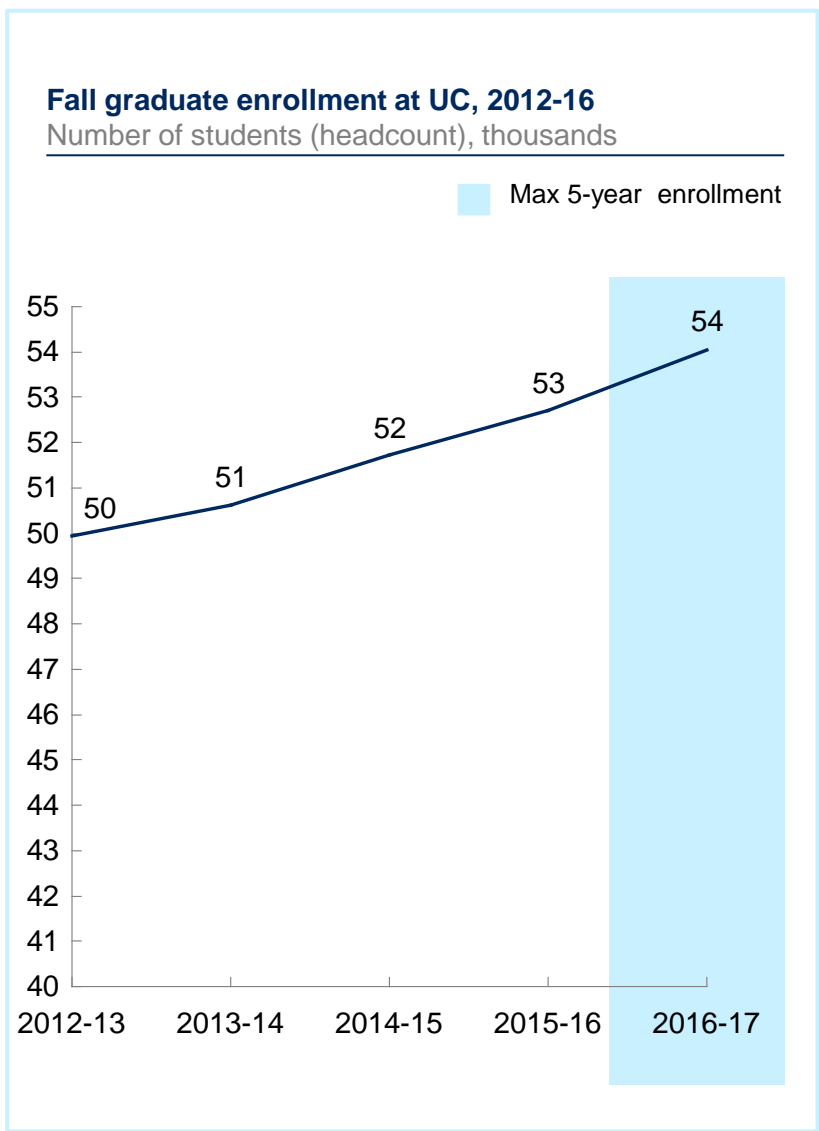
Number of students, thousands



Methodology:

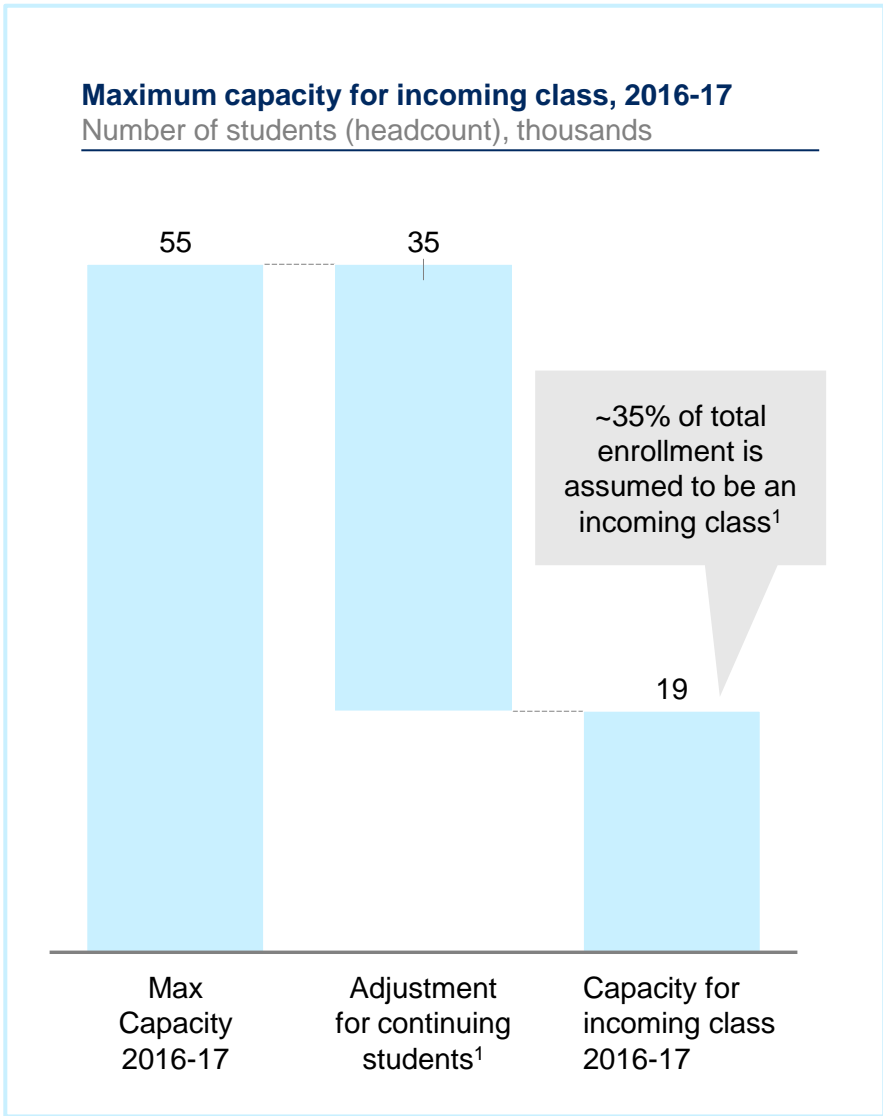
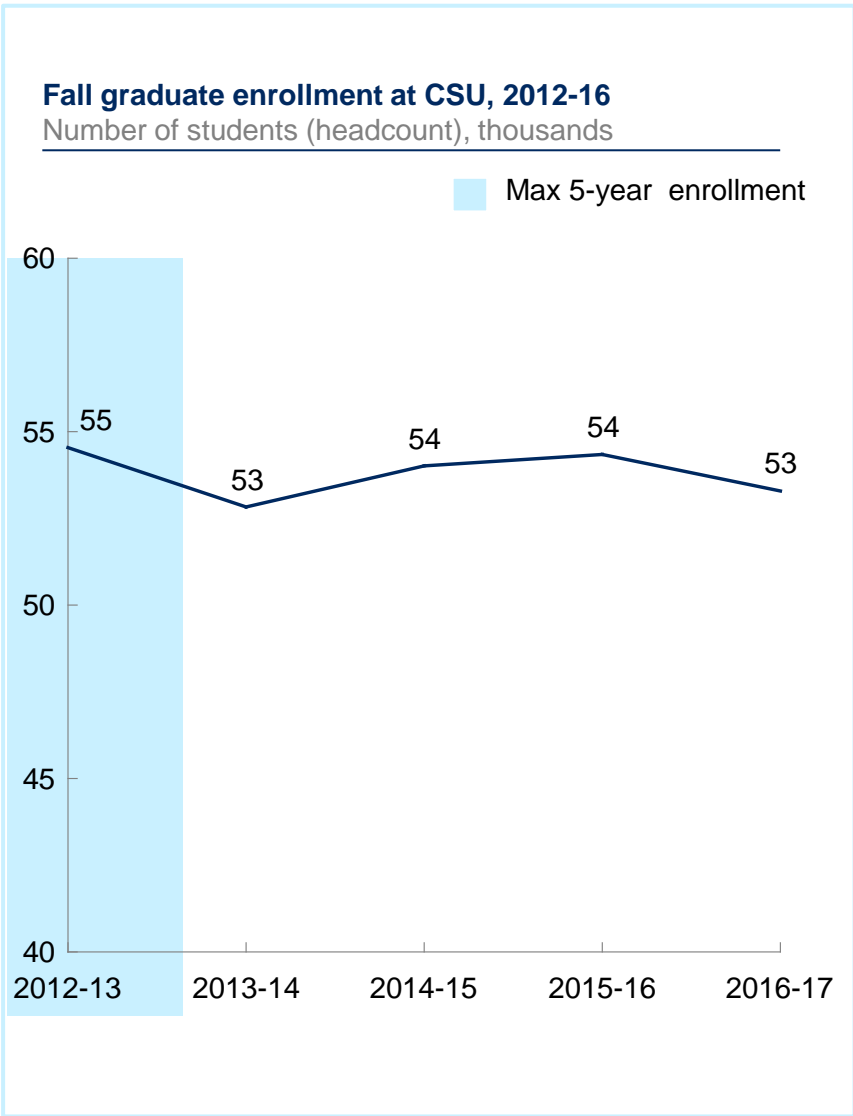
- **Baseline capacity assumes current maximum capacity** and no additional seats added through 2030
- Current maximum capacity is calculated as the **peak of enrollment in the past 5-years**
- There are no known initiatives to increase capacity for graduate programs

A The peak of enrollment for UC took place in 2016-17 with ~54k students of which ~19k are assumed to be the incoming class



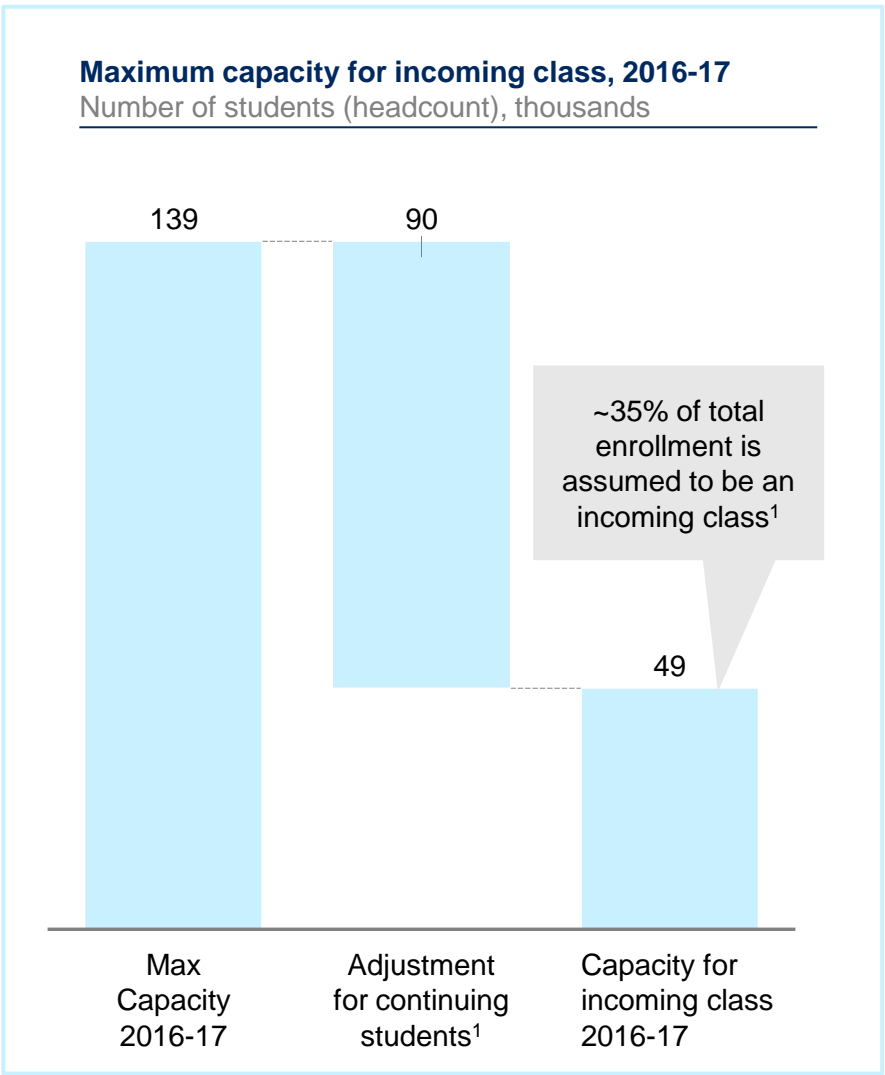
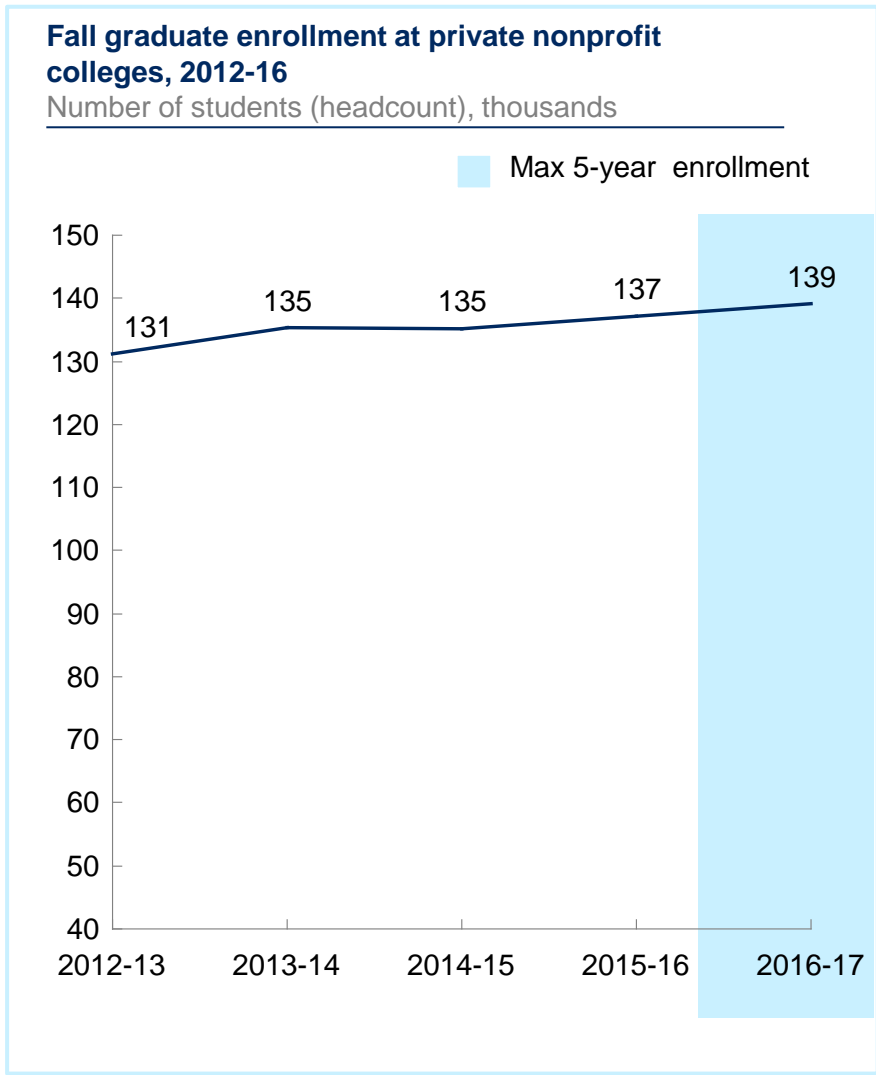
¹ Based on figures reported by CSU
SOURCE: IPEDS

B The peak of enrollment for CSU took place in 2012-13 with ~55k students of which ~19k are assumed to be the incoming class



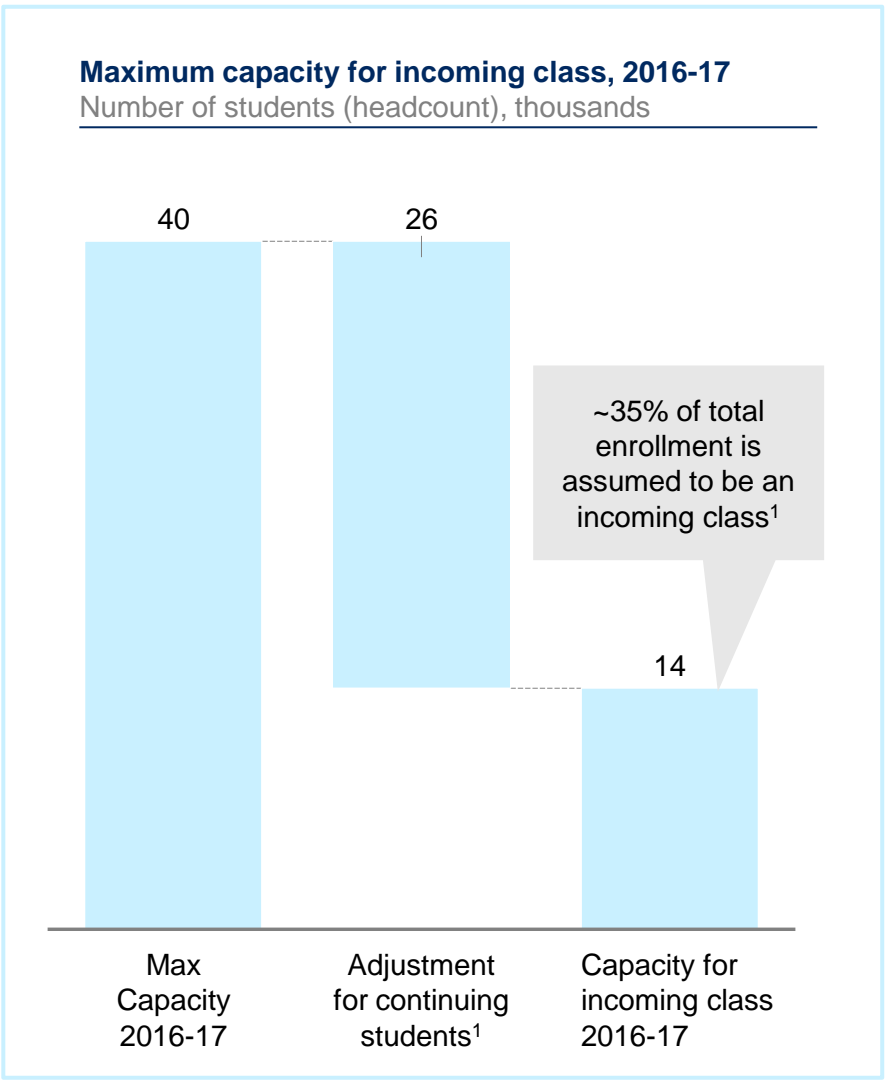
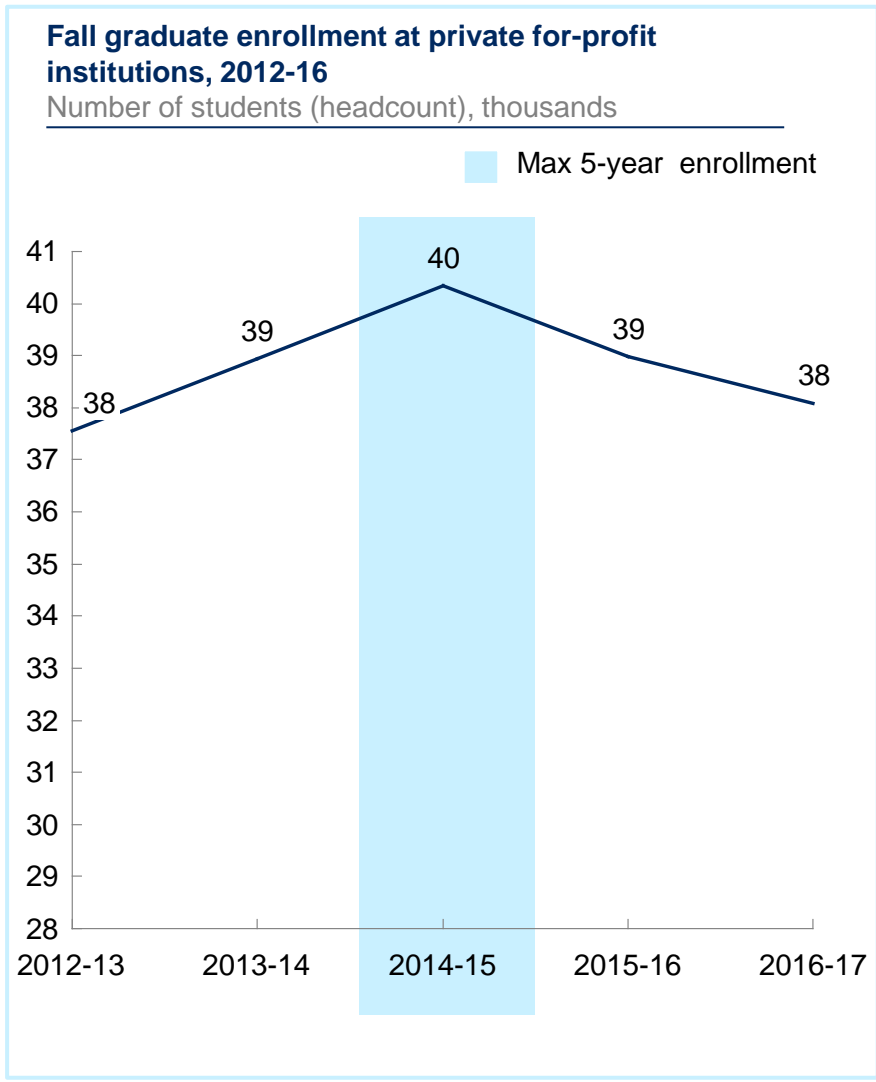
1 Based on figures reported by CSU
SOURCE: IPEDS

C Peak enrollment for nonprofit institutions took place in 2016-17 with ~139k students of which ~49k are assumed to be the incoming class



¹ Based on figures reported by CSU
SOURCE: IPEDS

D Peak enrollment for for-profit institutions took place in 2014-15 with ~40k students of which ~14k are assumed to be the incoming class



¹ Based on figures reported by CSU