



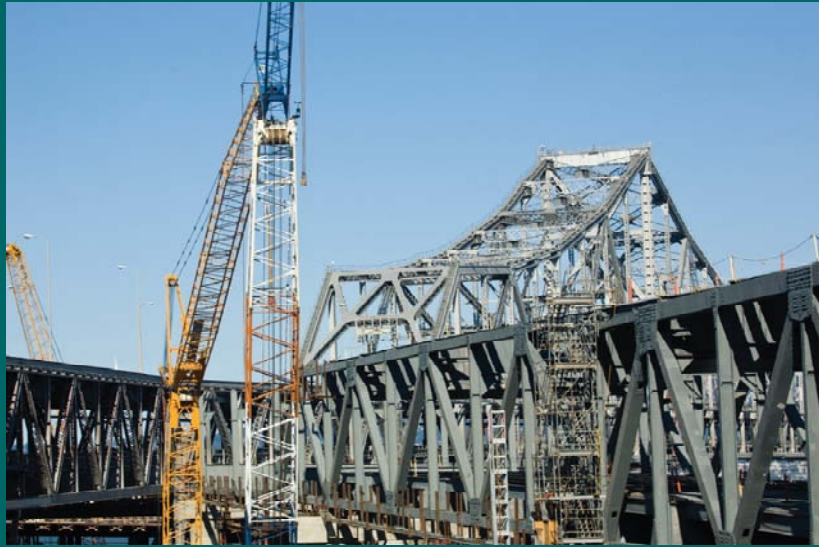
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# Technical Difficulties: Meeting California's Workforce Needs in Science, Technology, Engineering, and Math (STEM) Fields



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2009 Regional Briefing Series  
Campaign for College Opportunity  
Silicon Valley Leadership Group  
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## Overview

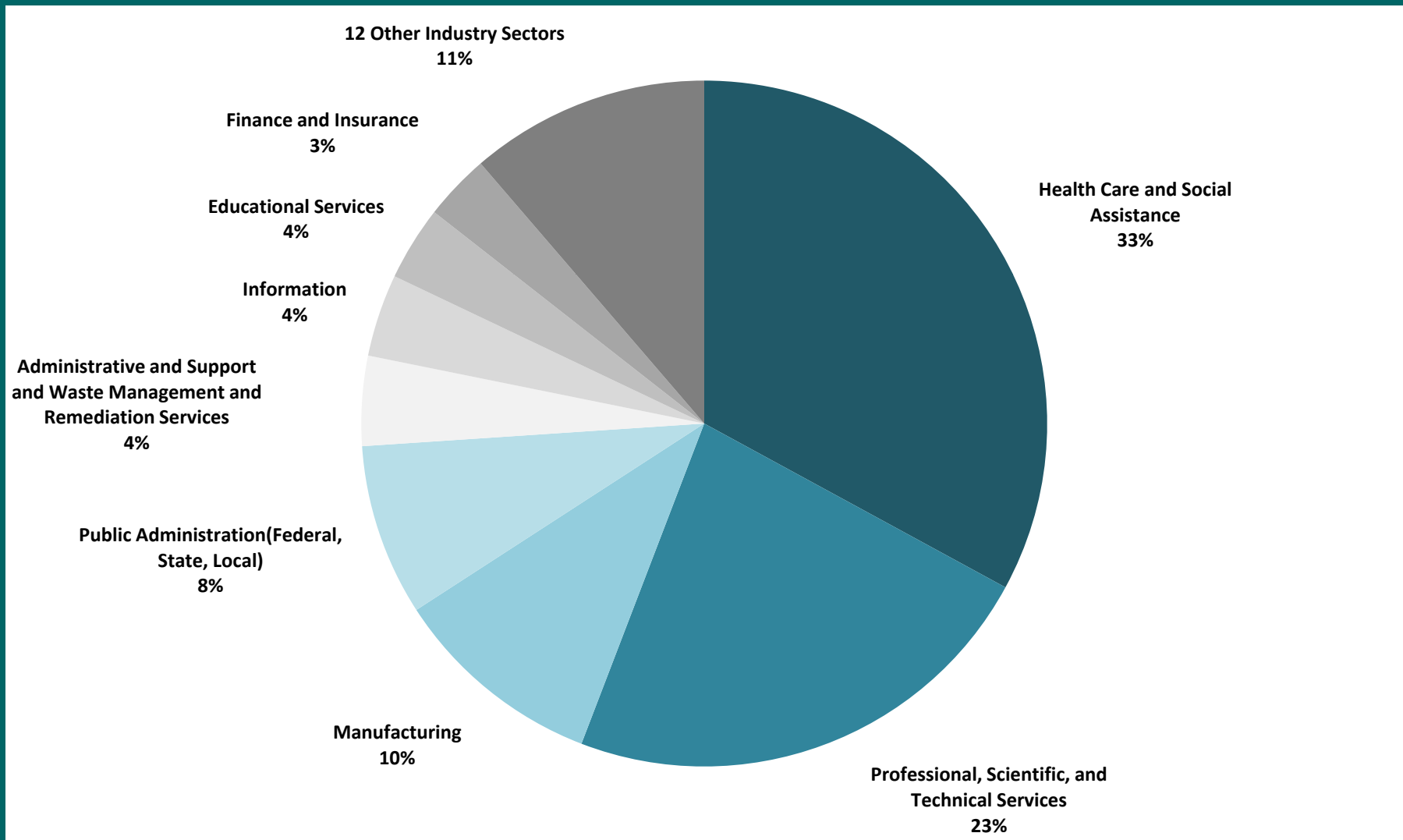
- STEM employment is vital to CA
- Growing shortage of college-educated STEM workers
- Causes of STEM shortage
  - Growing demand
  - Constricting supply
- Recommendations for CA higher education



## Documenting the Problem

- Short 1 million college-educated workers by 2025 (PPIC)
- Half of 123 STEM occupations have projected shortages
- For those, need 90% annual increase in degrees/certificates
- Postsecondary education is vital to shortfall areas:
  - 37% of occupations: associate degree minimum qual.
  - 35% of occupations: bachelor's degree minimum qual.
- CA is 9<sup>th</sup> of 10 “new economy” states in producing bachelor's in science and engineering
- CA has fewer health care workers per capita than US avg.

# Largest Annual STEM Job Shortfalls: Health Care, Social Assistance; Professional, Scientific, Technical



## Causes of Shortfall: Demand Side

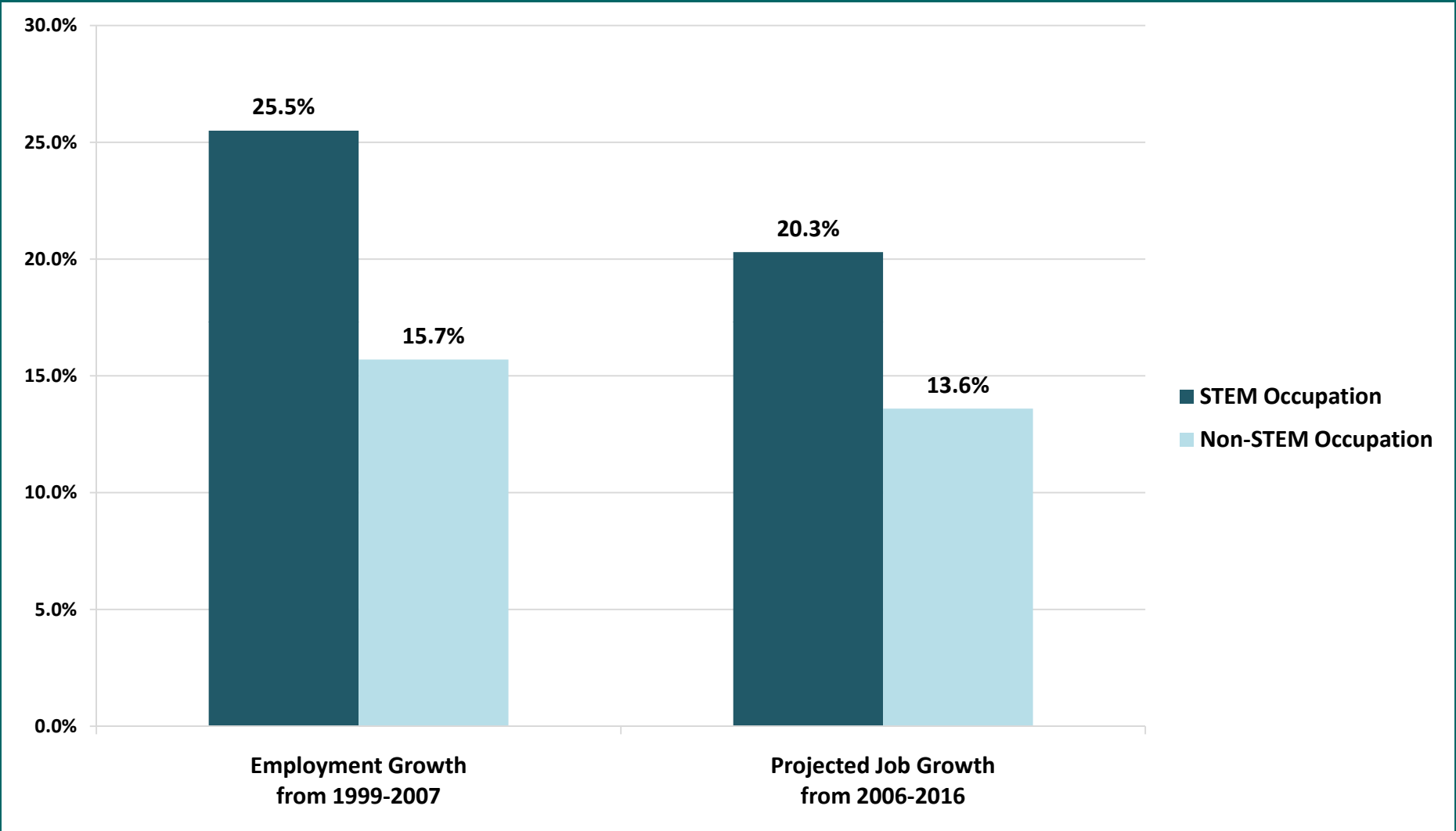
- STEM employment growing faster than non-STEM
- Aging population requires more healthcare workers



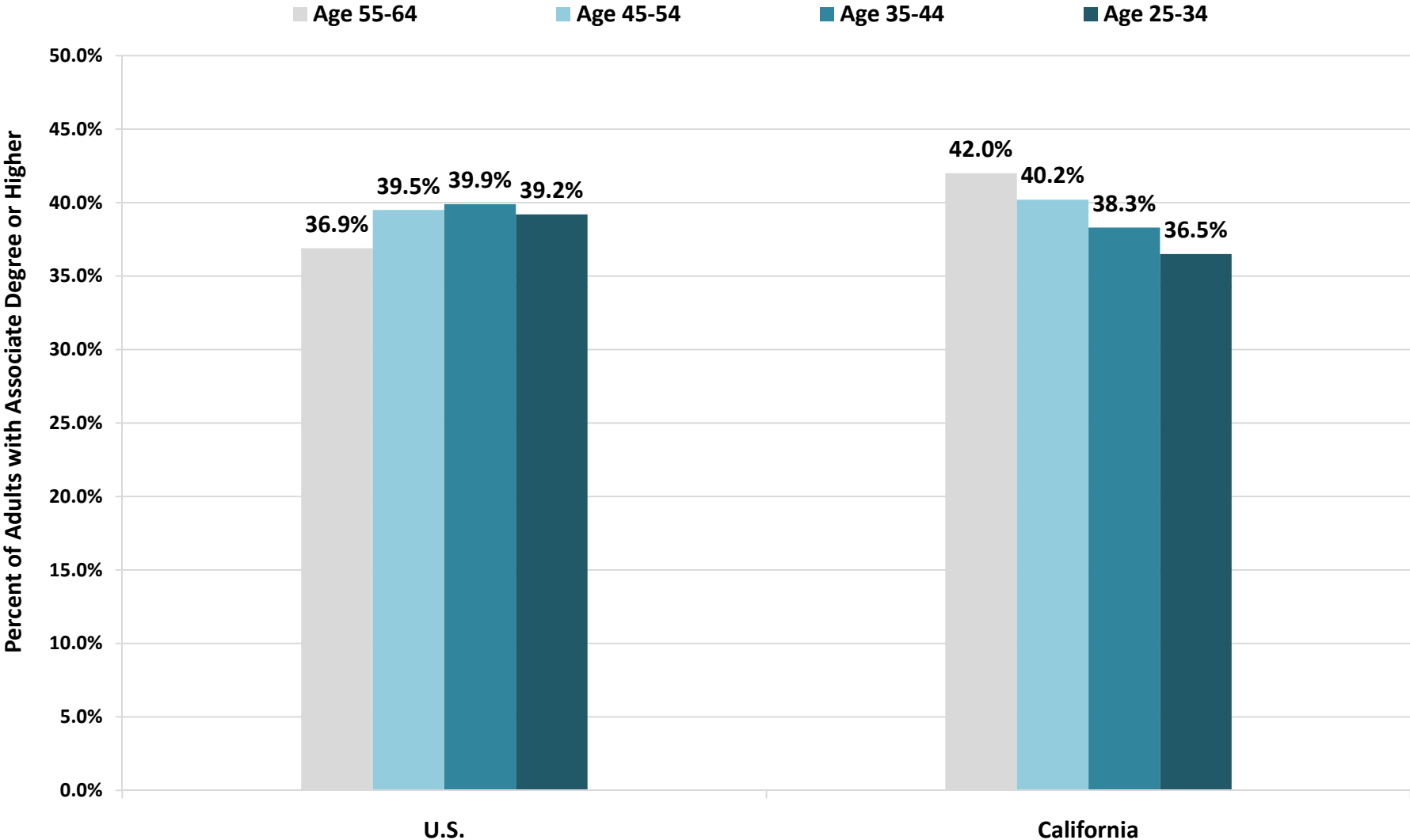
- Retirees have higher levels of education



# Growth in STEM Employment Greater than Non-STEM



# Educational Attainment is Lower for Younger Workers





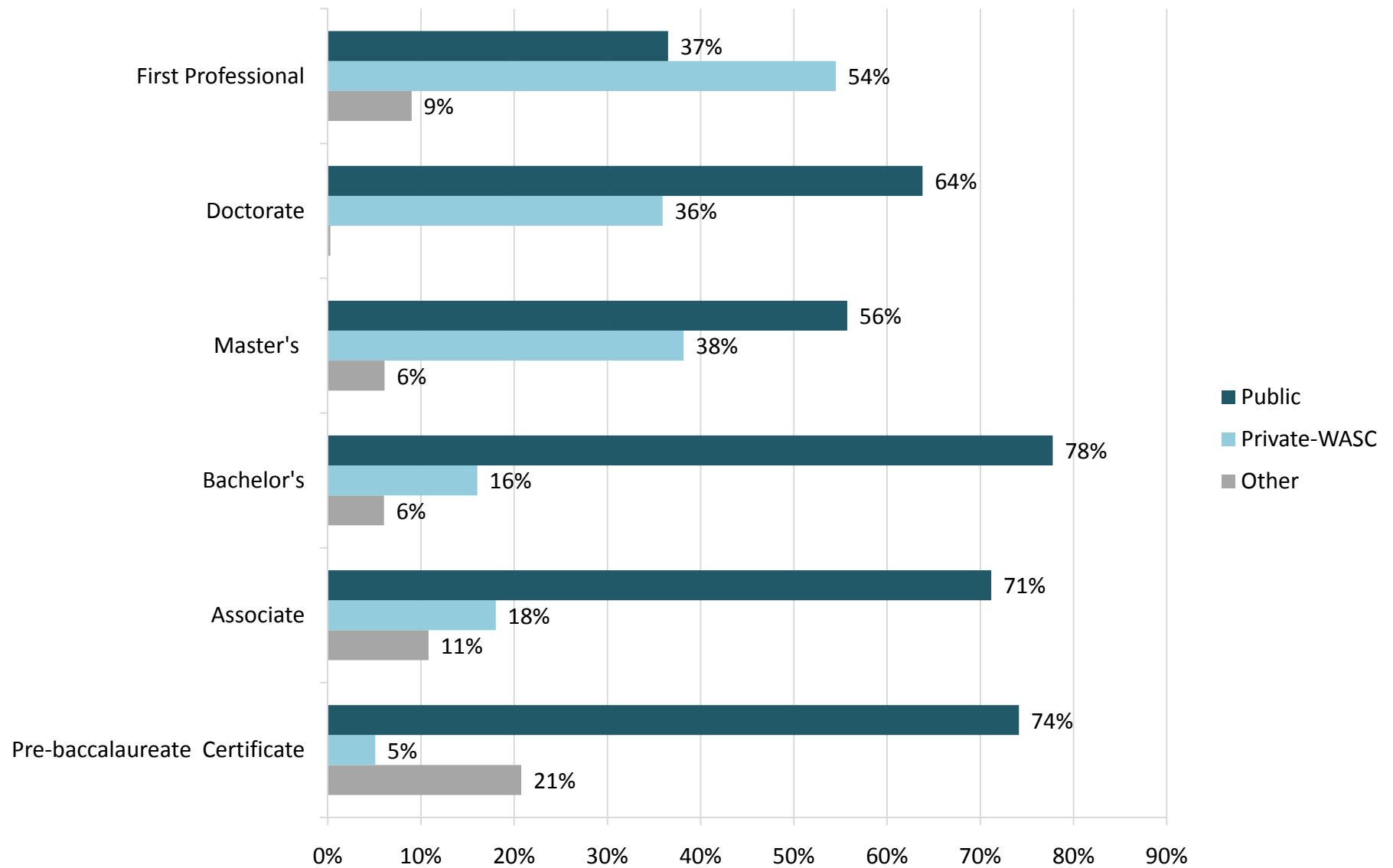
## Causes of Shortfall: Supply Side



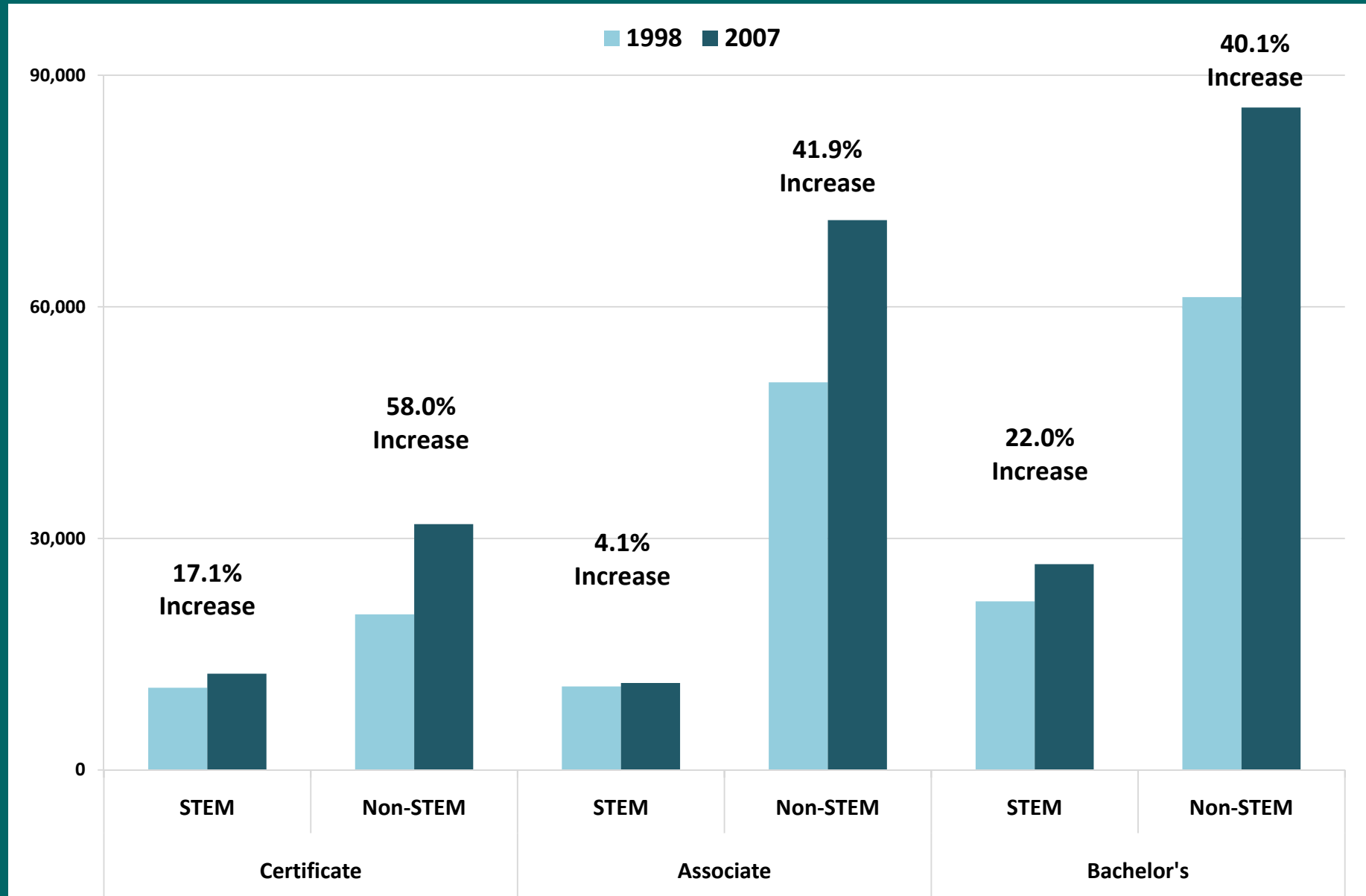
- Public higher education is crucial
- Too few STEM degrees produced
- Race/ethnicity and gender disparities worsen shortfall
- Competition from other states and nations is rising
- State budget cuts may especially hurt STEM (high cost)



# The Public Sector Awards Most STEM Degrees



# Increase in Degrees/Certificates Greater for Non-STEM Fields

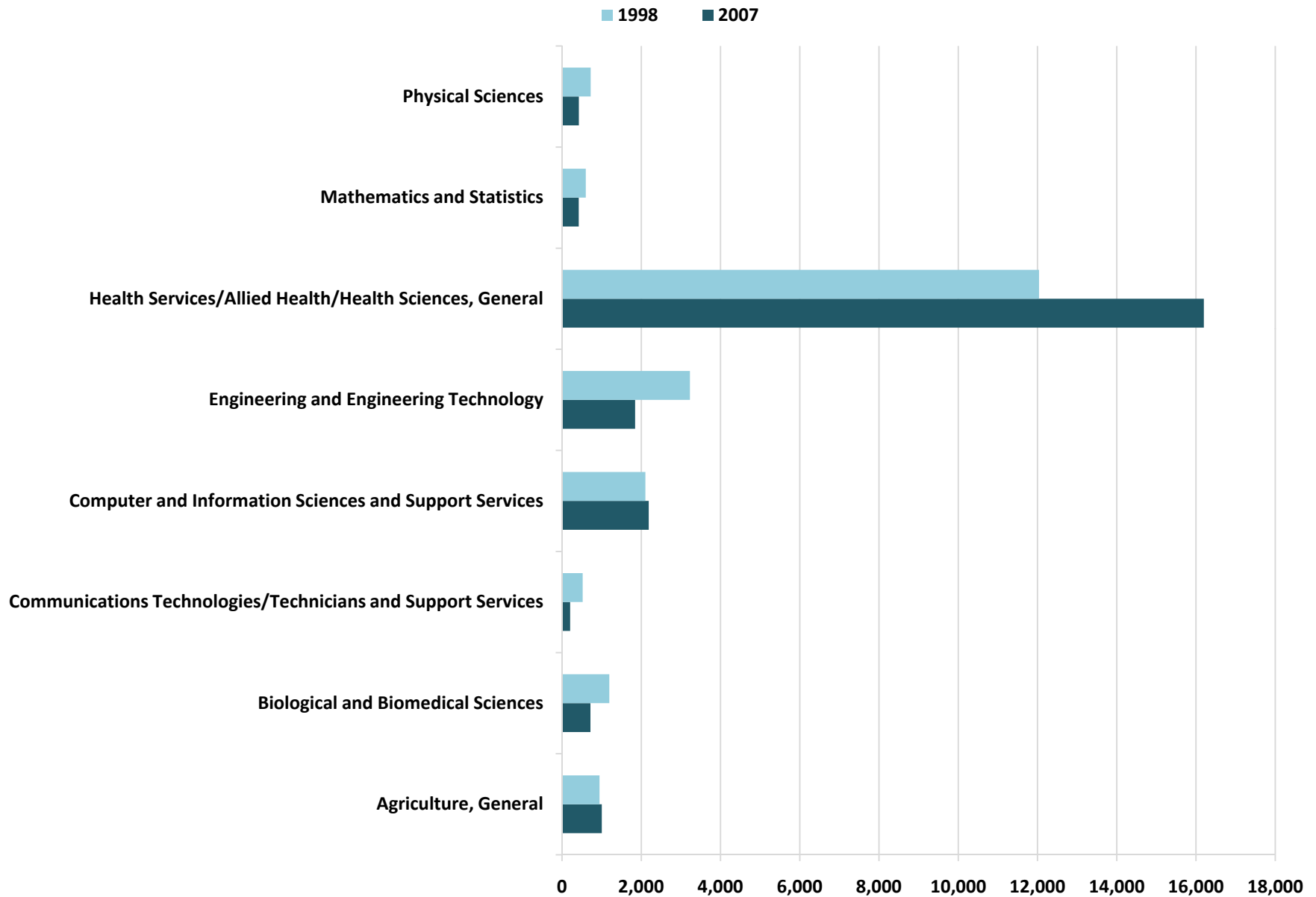


## STEM Degree Production 1998-2007: Even Increases Not Showing Strong Pattern

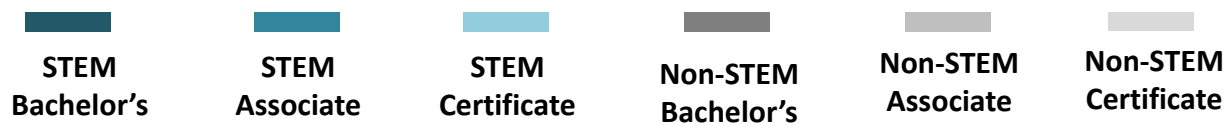
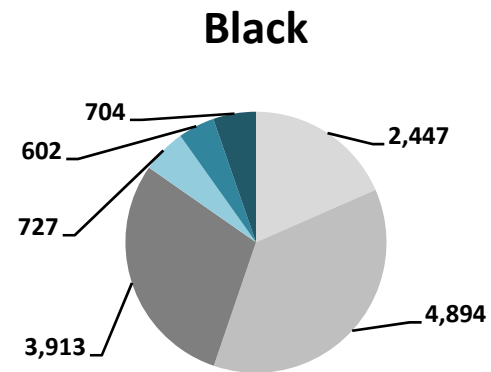
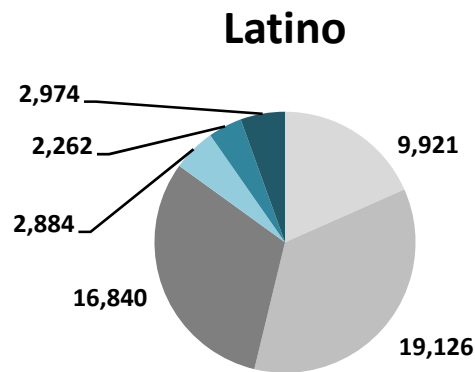
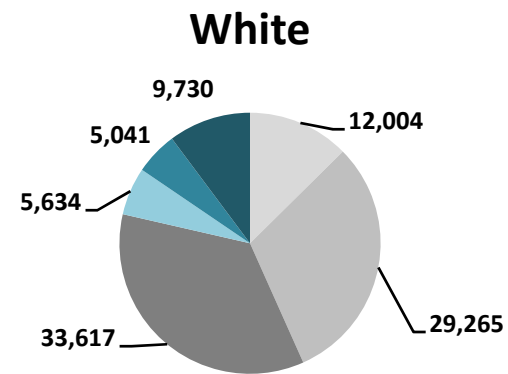
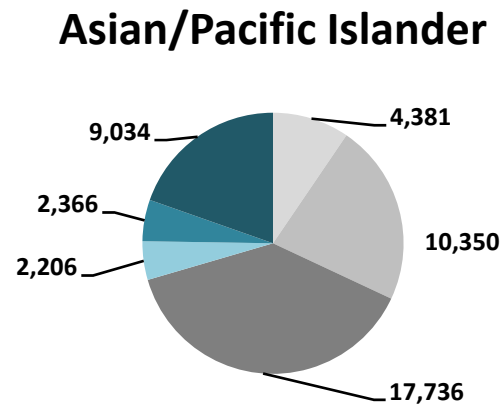
Largest increase in bachelors degree:

- Engineering
- Health (mixed growth/decline)
- Biological sciences (mixed growth/decline)
- Computer and info. sciences (annual declines since 2003)

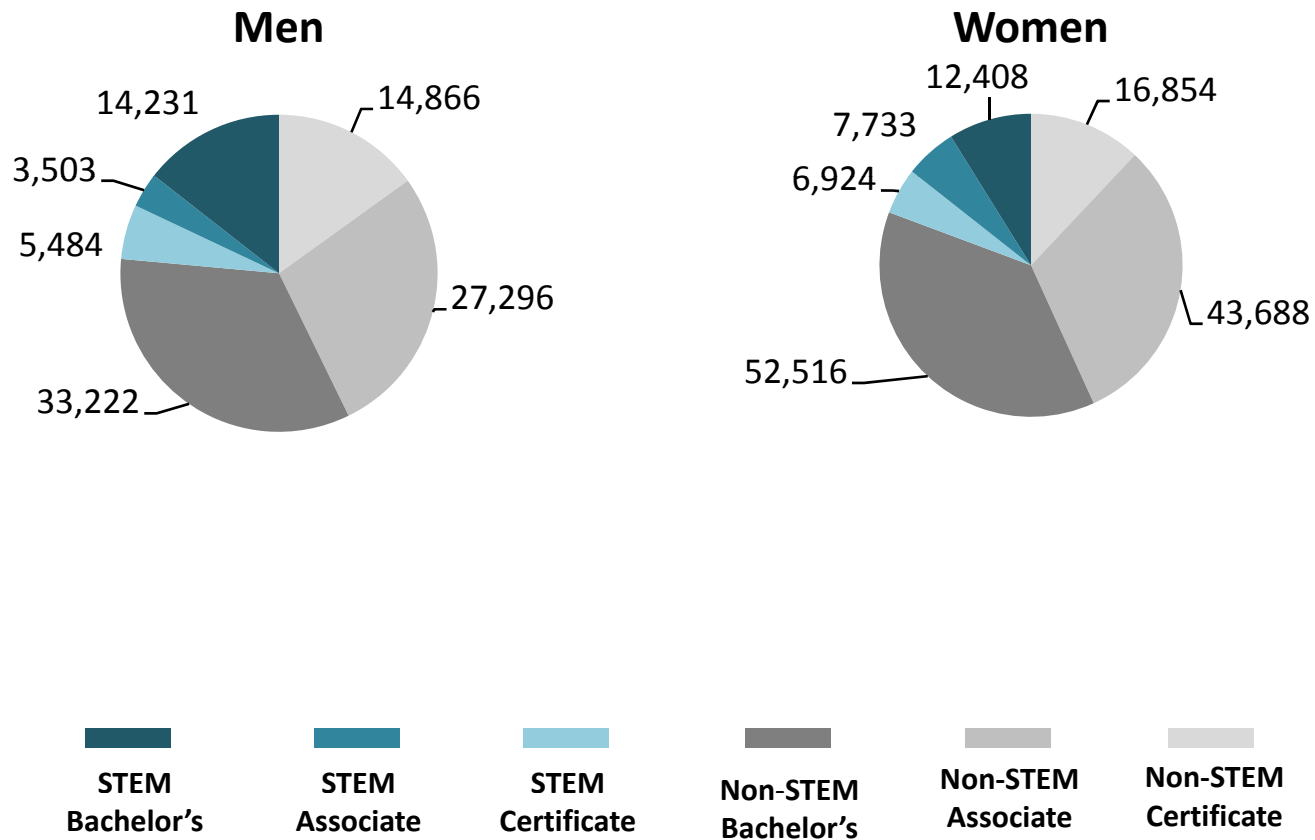
# Certificates and Associate Degrees: Health Dominates



# Smaller Share of Blacks and Latinos Earn STEM Bachelor's Degrees



# Smaller Share of Women Earn STEM Bachelor's Degrees





## Recommendations - general

- State leaders should develop a “public agenda”
  - Acknowledge seriousness of problem
  - Set goals for higher education
  - Adopt plans/policies for meeting goals
- Strategic investment within budget constraints
  - Protect core investments in higher education
  - Target funding to best meet workforce needs





## Recommendations - specific



- Improve K-12 preparation in math and science
- Improve career pathways and information about them
- Create financial incentives for students and institutions
- Increase STEM achievement in under-represented groups
- Better coordinate STEM programs with industry
- Maximize STEM employment among STEM degree-holders