

# Understanding and Expanding the STEM Workforce

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# What is STEM?

- STEM *jobs* are identified from a list of occupation codes, including computer, math, engineering, physical & life sciences jobs. (Data from the Current Population Survey, 1994–2010.)
- STEM *educational fields* are identified from a detailed list of undergraduate majors. (Data from the American Community Survey for 2009)

# Example: STEM occupations

## Computer and Math

- Computer programmers
- Computer software engineers
- Network and computer systems administrators
- Mathematicians
- Statisticians

## Physical and Life Sciences

- Agricultural and food scientists
- Astronomers and physicists
- Medical scientists
- Environmental scientists and geoscientists
- Geological and petroleum technicians

## Engineering and surveying

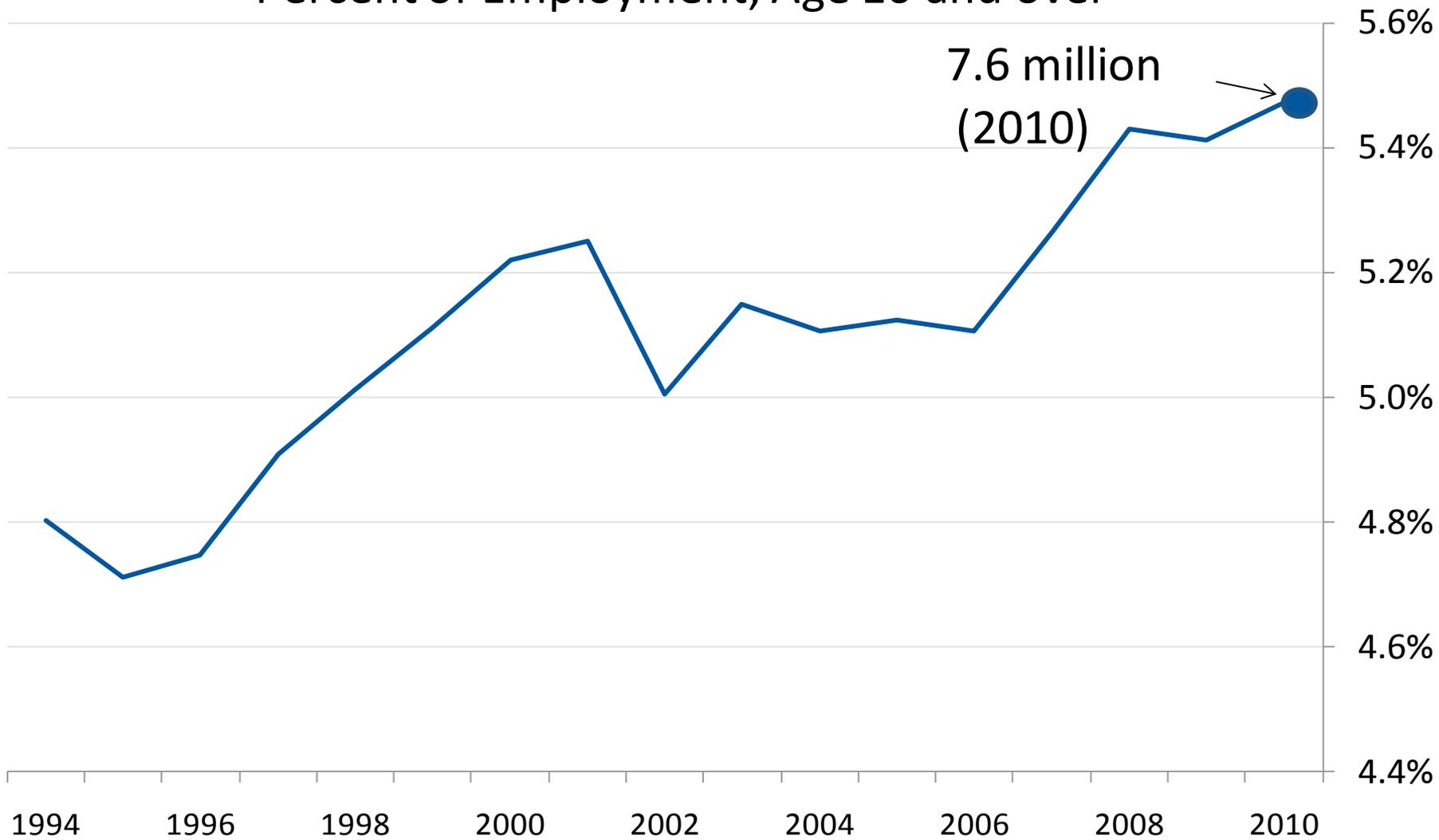
- Chemical engineers
- Biomedical engineers
- Mechanical engineers
- Engineering technicians
- Surveying and mapping technicians

## Managers

- Computer and information systems managers
- Engineering managers
- Natural sciences managers

# Workers in STEM Occupations

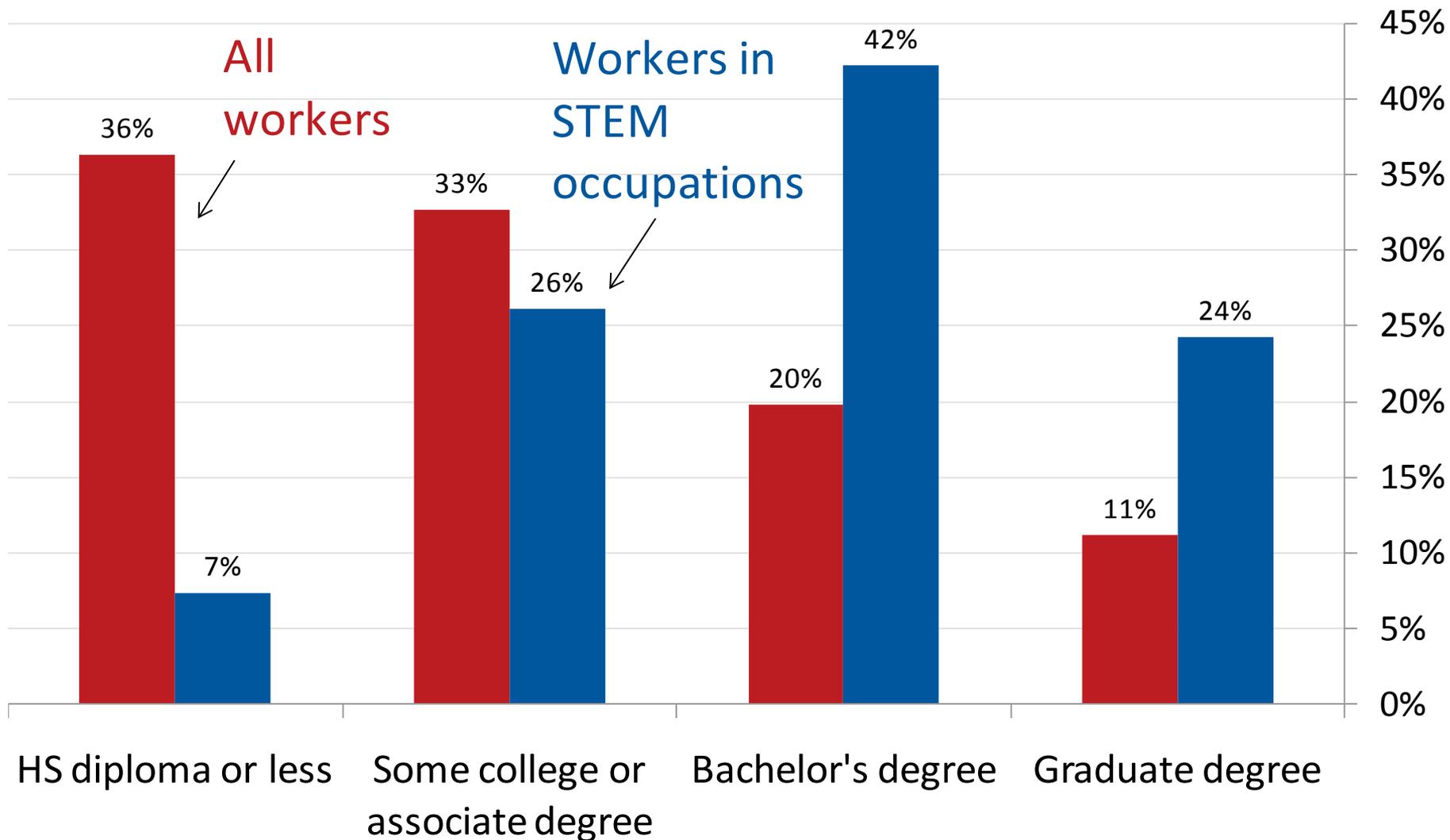
Percent of Employment, Age 16 and over



Source: Current Population Survey public use microdata files, Jan 1994 - Dec 2010.

# Educational Attainment of Workers, 2009

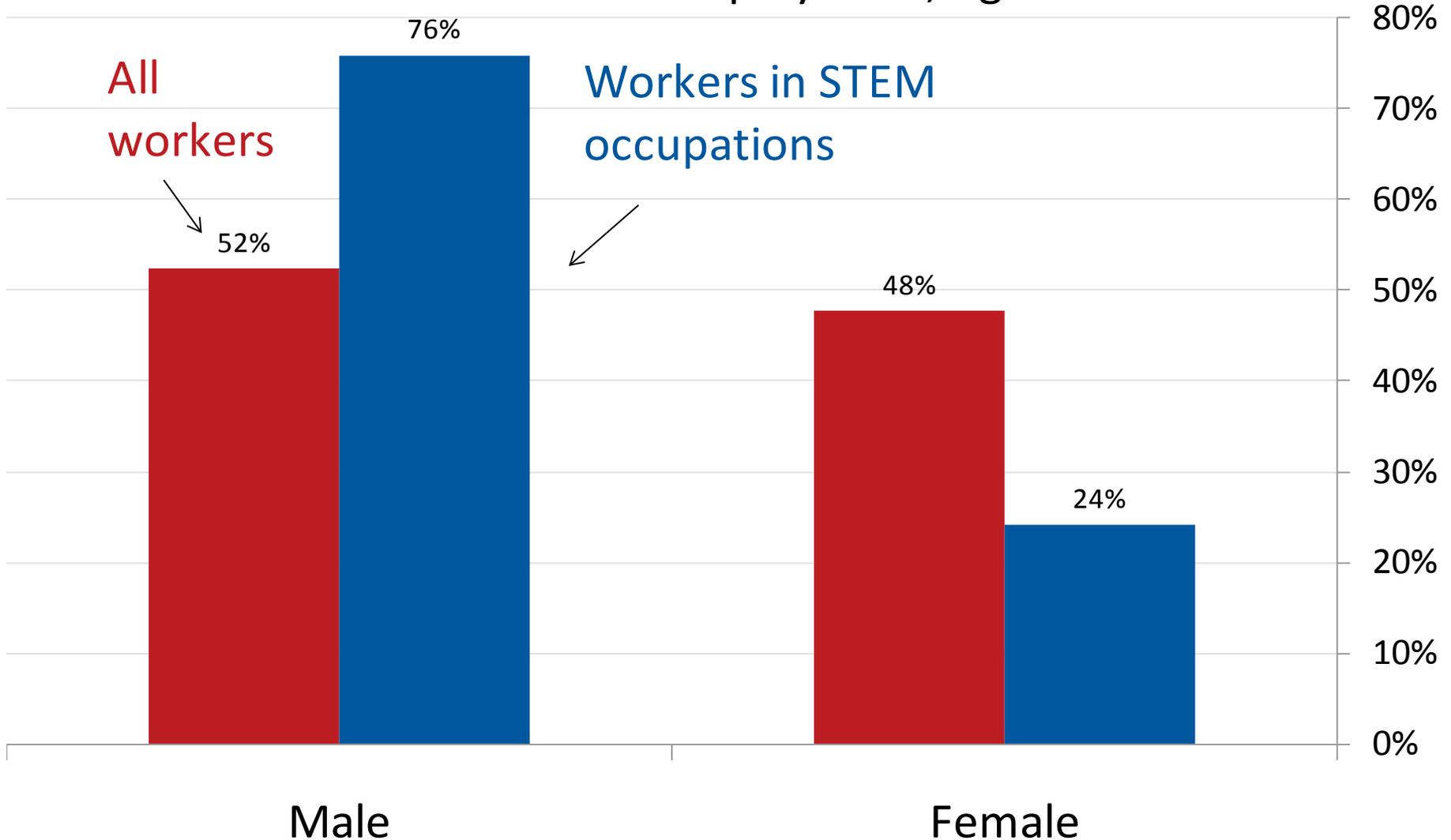
Percent of Total and STEM Employment, Age 16 and over



Source: American Community Survey 2009 public use microdata file

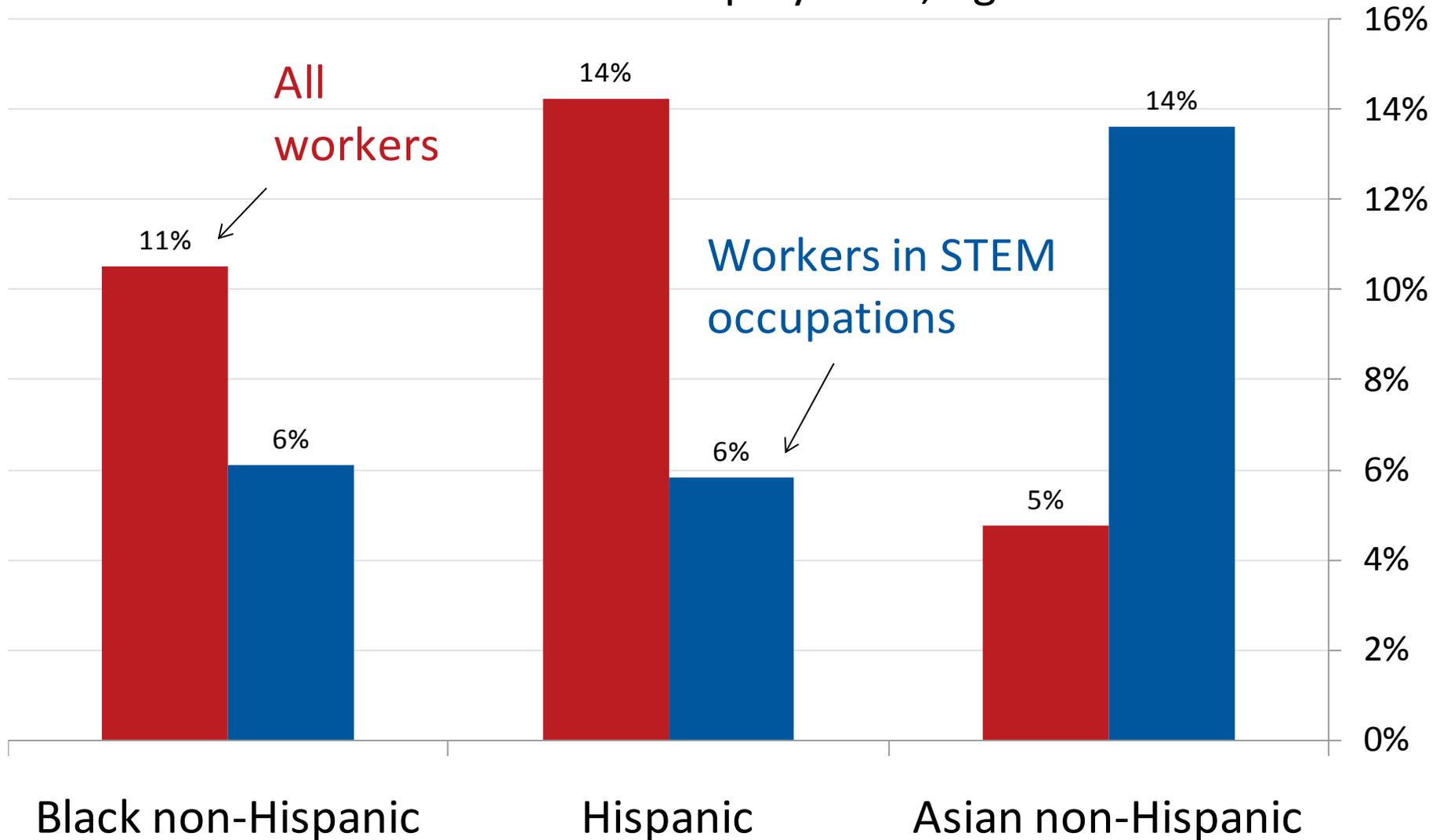
# Male and Female Workers, 2009

Percent of Total and STEM Employment, Age 16 and over



# Black, Hispanic and Asian Workers, 2009

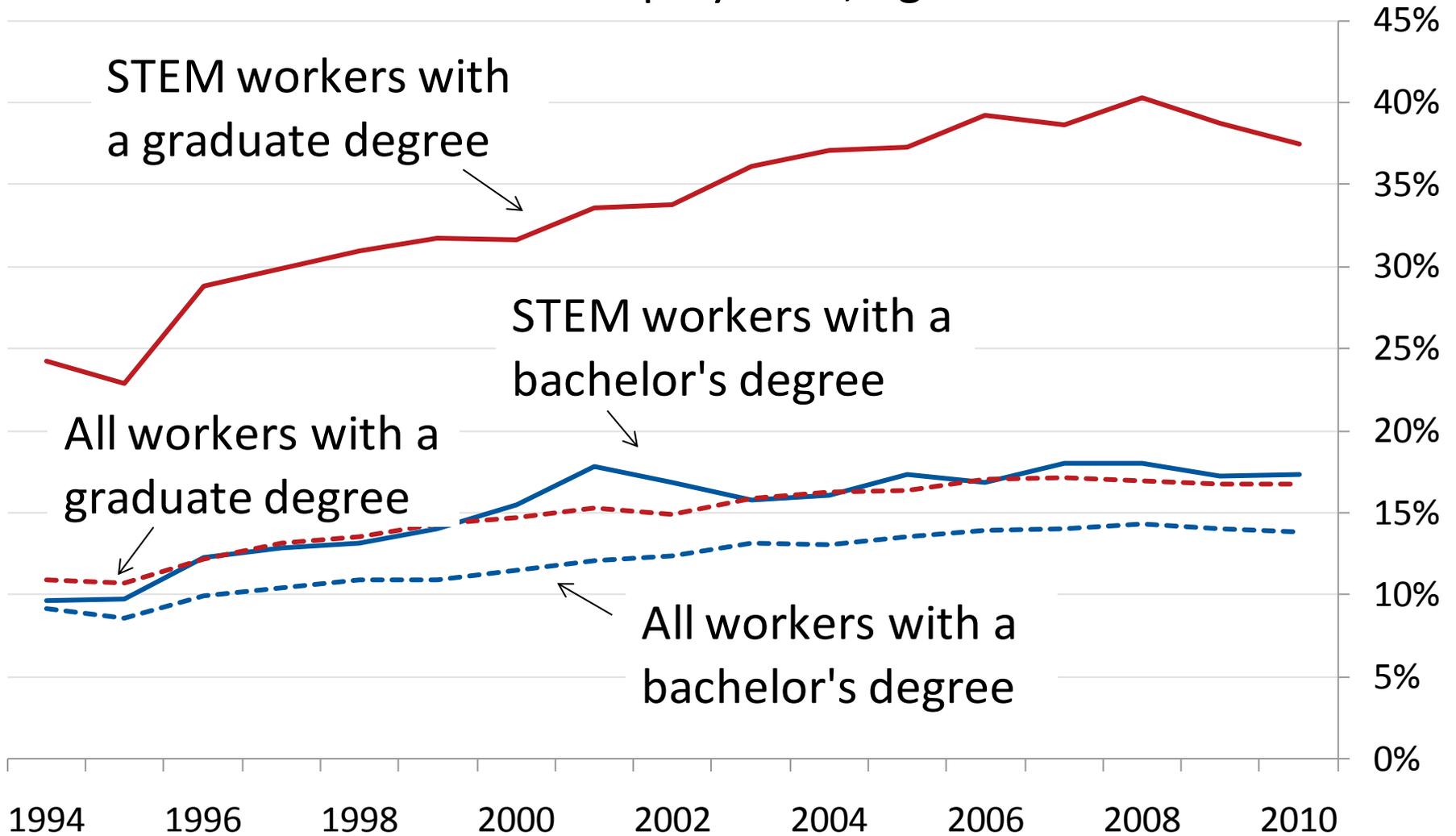
Percent of Total and STEM Employment, Age 16 and over



Source: American Community Survey 2009 public use microdata file

# Foreign-born Workers

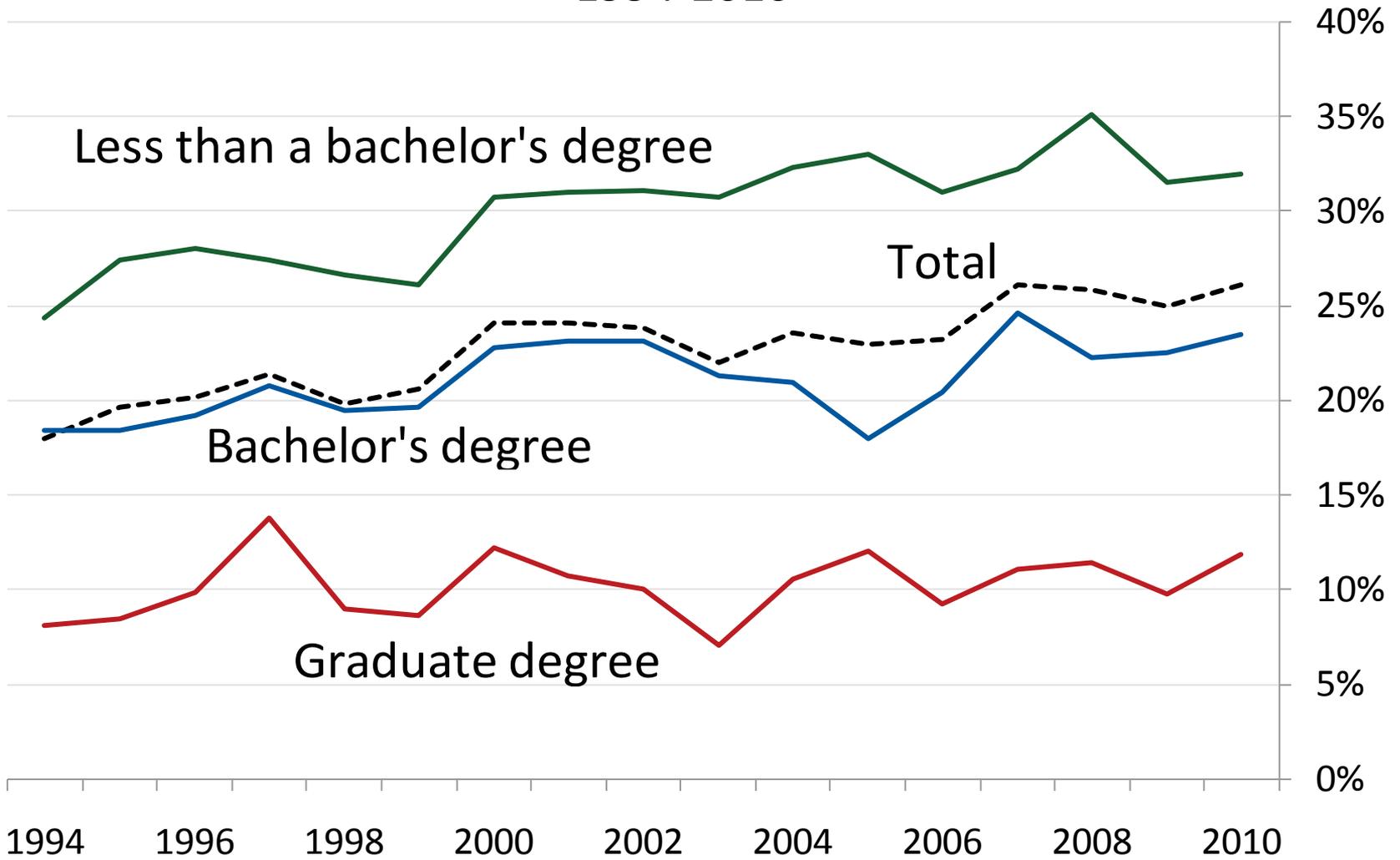
Percent of Relevant Employment, Age 25 and over



Source: Current Population Survey public use microdata files, Jan 1994 - Dec 2010.

# Regression-based Hourly Earnings Premiums for STEM Workers

1994-2010



Source: ESA calculations using CPS public use microdata files of annual merged outgoing rotation groups from the National Bureau of Economic research. Note: Private wage and salary workers aged 25 and over.

# Key Issues

- STEM jobs are growing and are important to some of our highest-innovation industry sectors.
- STEM jobs are good jobs for workers at all educational levels.
- There is a paradox that some workers who seem to benefit the most by STEM jobs are disproportionately not entering STEM training.
- The U.S. has benefited from its ability to pull foreign-born workers with STEM training into the U.S. and into U.S. citizenship.

# Current Policy Efforts

- President's FY12 budget proposes \$206m in STEM training programs, focused on teacher training.
- *Educate to Innovate* campaign designed to improve U.S. students participation and performance in STEM fields. Particularly focused on women and underrepresented groups.
- *Race to the Top Fund* (\$4.3b), designed to reward states with high K-12 achievement, gives extra preferences to states with STEM-focused efforts.



# For more information: *[www.esa.gov/reports](http://www.esa.gov/reports)*

- *STEM: Good Jobs Now and For the Future* (July 2011)
- *Women in STEM: A Gender Gap to Innovation* (August 2011)
- *Education Supports Racial and Ethnic Equality in STEM* (September 2011) \* Released today \*