

A decorative header image featuring a light gray background with a white circuit board pattern, including various lines, dots, and circular components.

After You Graduate

Lecture notes by Miguel A. Ortega-Vazquez,
Martin Afromowitz, Blake Hannaford, and
Karl F. Böhringer

Today's Topics

- The STEM Labor Workforce
- Economic Cycles
- Graduate School vs. Job

The STEM Labor Force

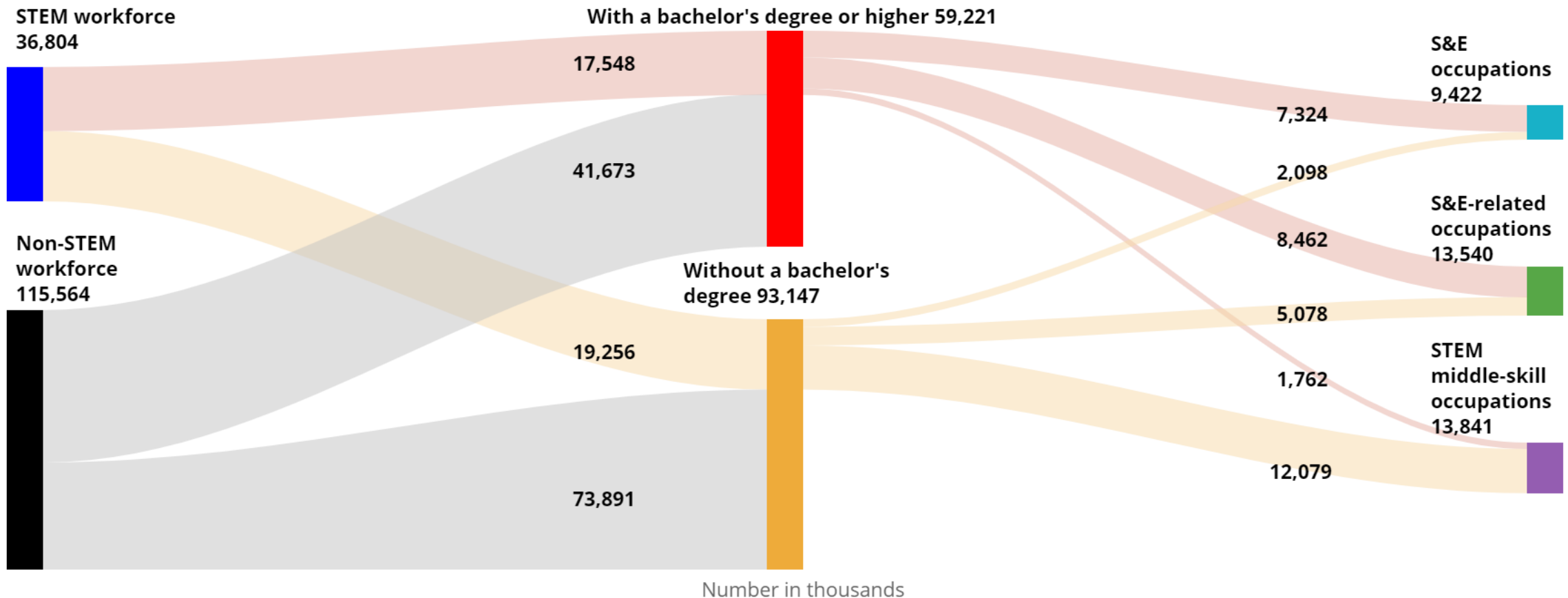
A recent study by the US National Science Foundation (NSF) on the science, technology, engineering, and mathematics (STEM) workforce.

Some key points:

- Currently, 36.8 million work in STEM
- Median earnings for STEM occupations was ~\$19,100/year higher than for non-STEM occupations among full-time workers
- Between 2011 and 2021, STEM occupations increased from 22% to 24%
- Between 2019 and 2021 (COVID), employment rates for STEM workers decreased less (88% -> 86%) than for non-STEM workers (83% -> 79%)

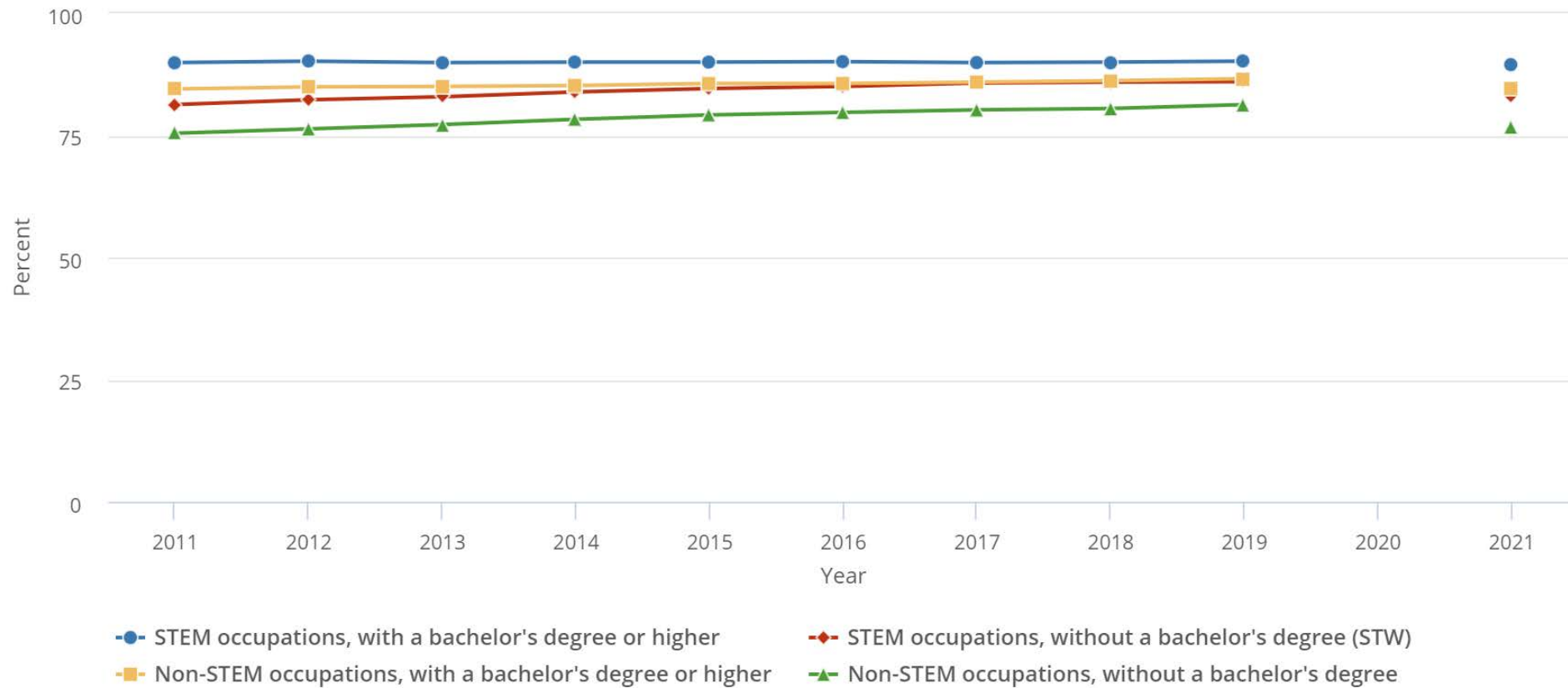
Source: NSF (nces.nsf.gov/pubs/nsb20245/executive-summary)

The STEM Labor Force



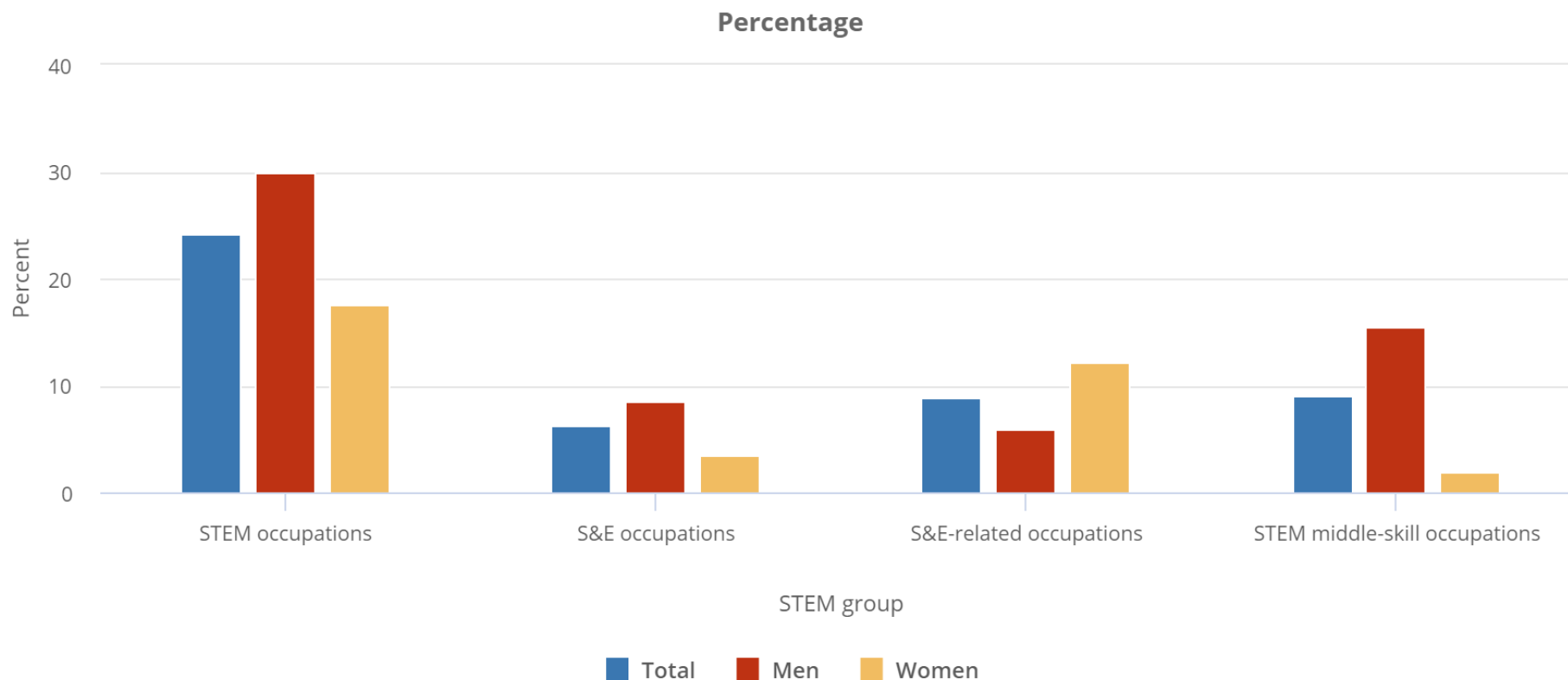
Source: NSF (nces.nsf.gov/pubs/nsb20245/data#figure-block)

Employment Rates



Source: NSF (nces.nsf.gov/pubs/nsb20245/data#figure-block)

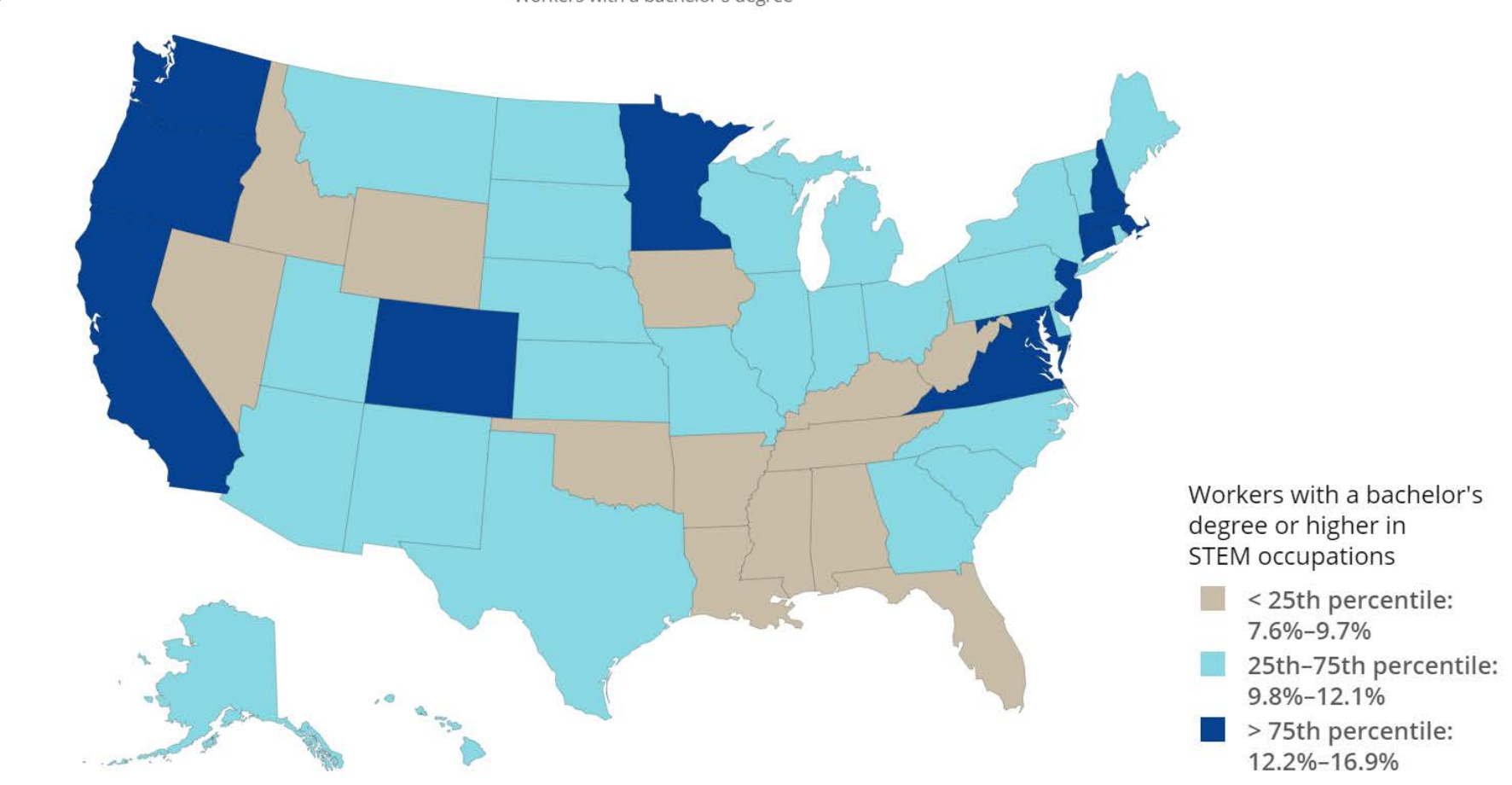
STEM Workers, by Sex and Occupation Group



Source: NSF (nces.nsf.gov/pubs/nsb20245/data#figure-block)

Prevalence of STEM Workers

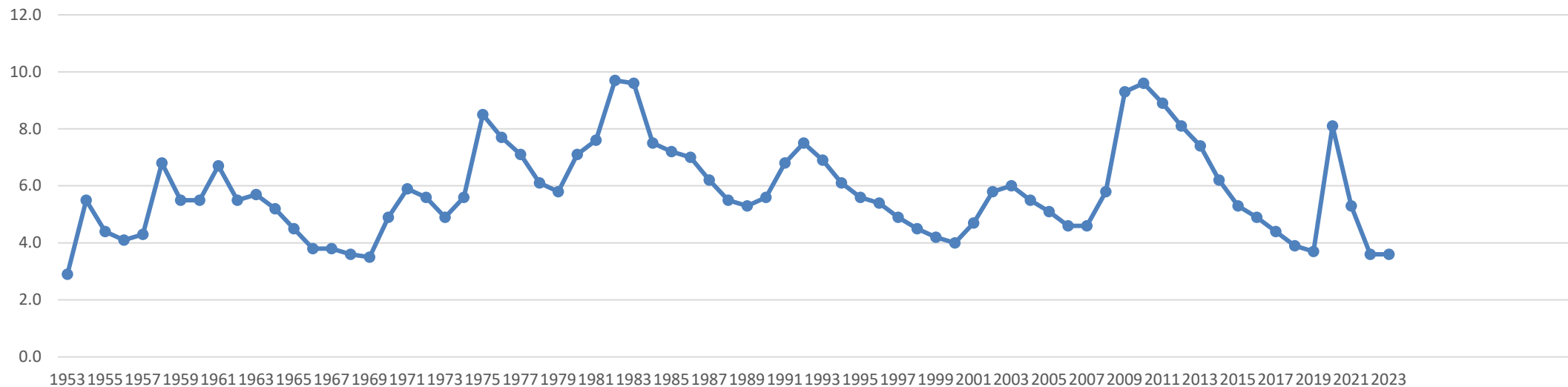
Workers with a bachelor's degree



Source: NSF (nces.nsf.gov/pubs/nsb20245/data#figure-block)

Economic Cycles

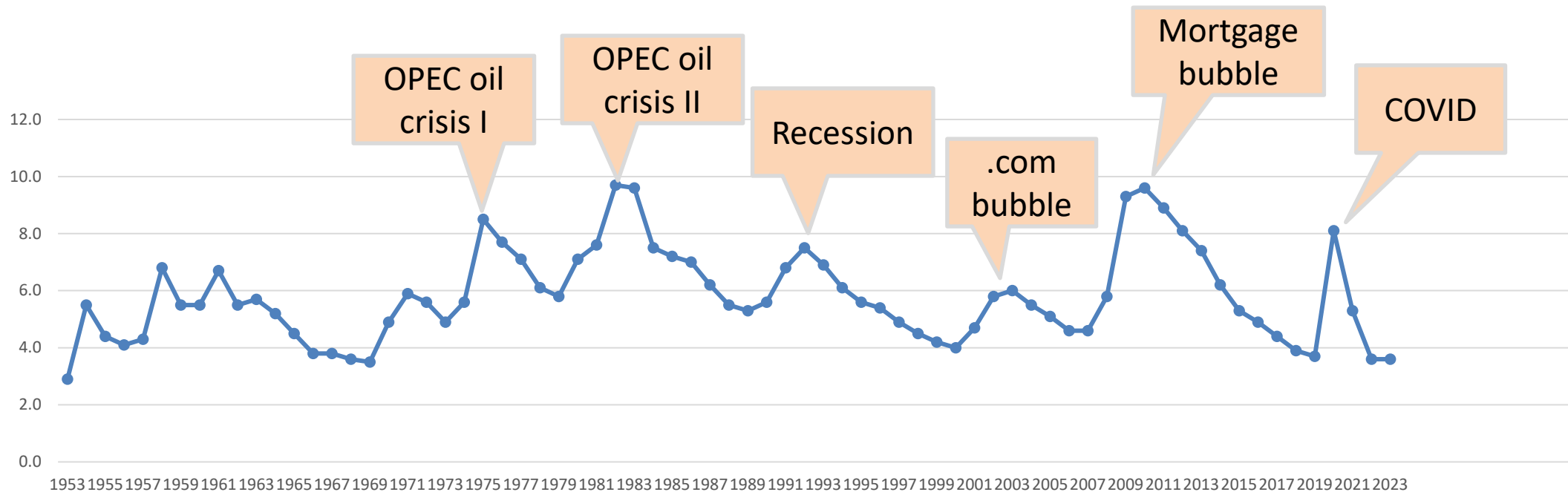
US unemployment rate 1953-2023 – general population
(B.S. degree holder rate is about ½ these numbers)



Source: U.S. Bureau of Labor Statistics (www.bls.gov/cps/tables.htm)

Economic Cycles

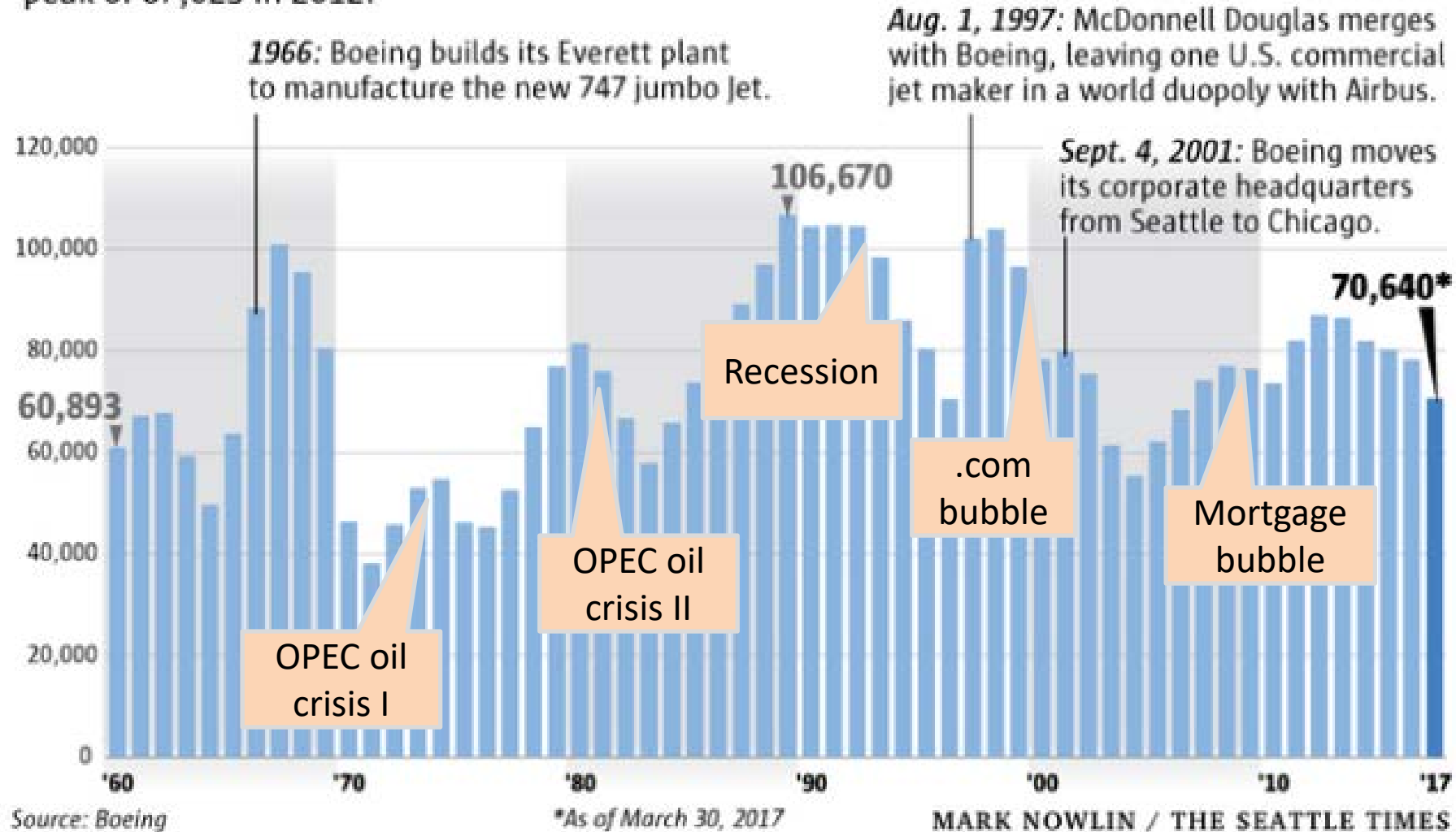
US unemployment rate 1953-2023 – general population
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Source: U.S. Bureau of Labor Statistics (www.bls.gov/cps/tables.htm)

Boeing employment in Washington state

Boeing employment in Washington state is down nearly 16,400 jobs since its most recent peak of 87,023 in 2012.



Economic Cycles

Seattle Times
(2-Feb-2024)
“Number of Boeing
workers in WA jumped
11% last year”

The cycles of Boeing employment in Washington over the last 25 years

Soon after the merger with McDonnell Douglas in 1997, Boeing started a cycle of mass layoffs. Hiring began again in 2004 after the launch of the 787, reaching another peak in 2012. After years of decline, hiring increased in 2018. The COVID pandemic caused a further decline in 2020, but Boeing employment here has recovered slowly since.

Boeing employment in Washington (1998-2023)

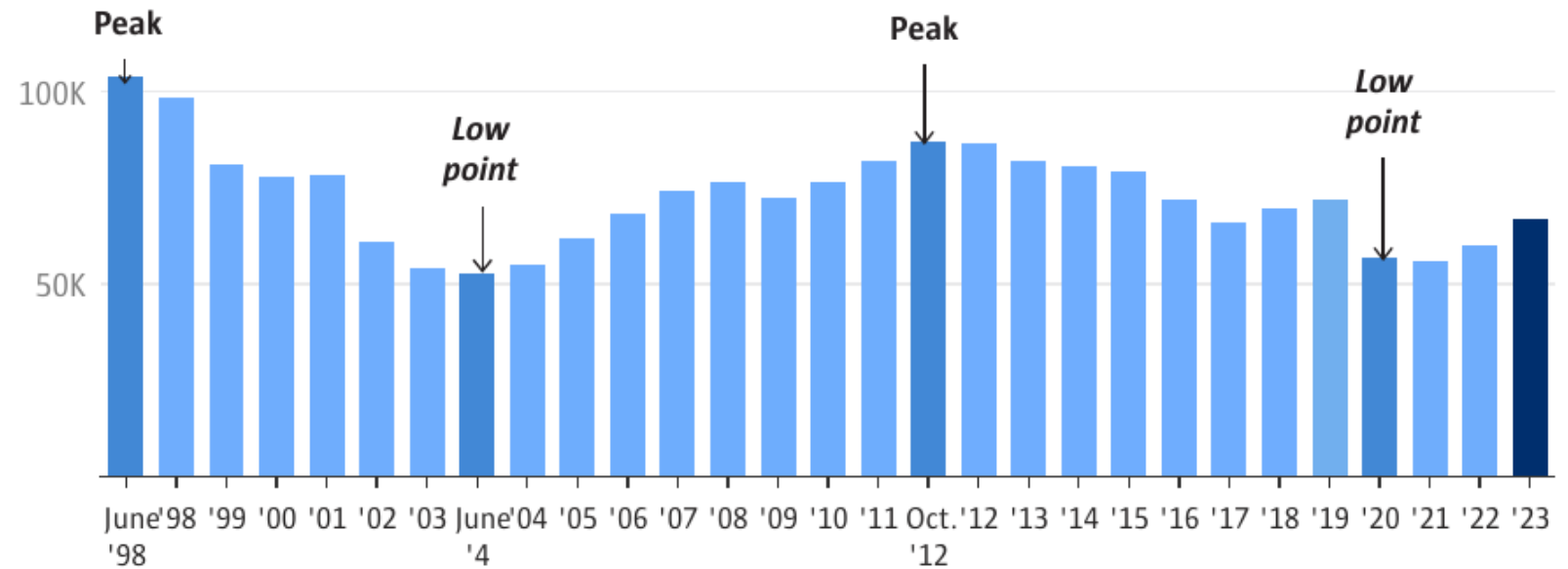
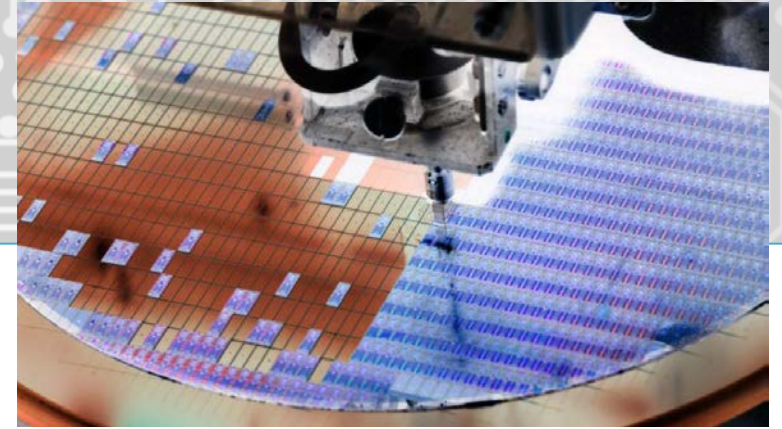


Chart: Reporting by DOMINIC GATES, chart by MARK NOWLIN / THE SEATTLE TIMES • Source: Boeing

CHIPS and Science Act



U.S. Department of Commerce:

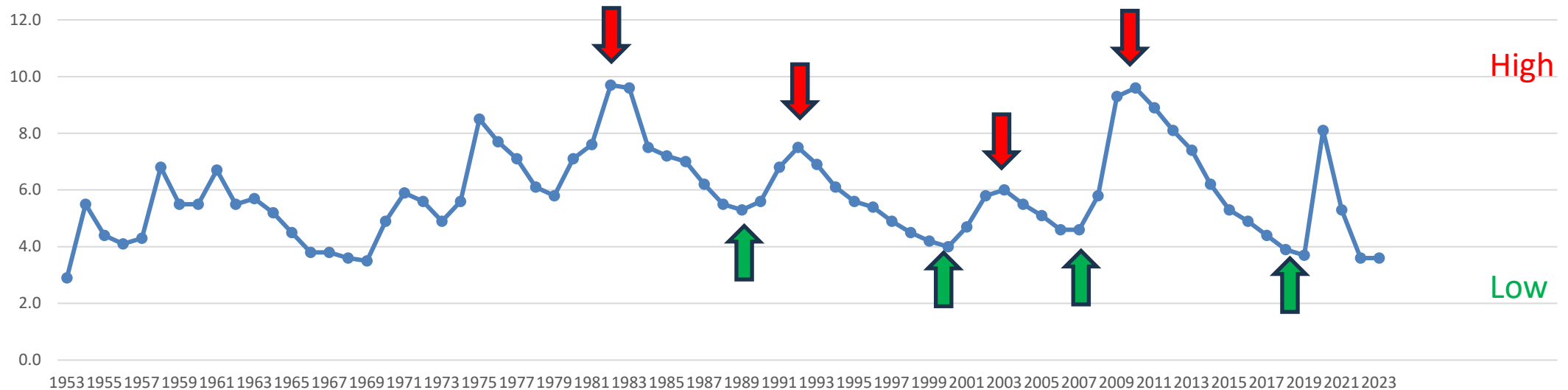
“Two years ago today, President Biden signed the historic and bipartisan [CHIPS and Science Act](#) into law investing nearly **\$53 billion** in funding to bring semiconductor supply chains back to the U.S, create jobs, support American innovation, and protect our national security.

“To date, the Commerce Department has announced over \$30 billion in proposed CHIPS private sector investments spanning 23 projects in 15 states. These projects include 16 new semiconductor manufacturing facilities and are expected to **create over 115,000 manufacturing and construction jobs** across the country. Commerce is on track to allocate all remaining funds with CHIPS grantees by the end of 2024.

...”

ECE Graduate School Applications

US unemployment rate 1953-2023 – general population
(B.S. degree holder rate is about ½ these numbers)



Source: U.S. Bureau of Labor Statistics (www.bls.gov/cps/tables.htm)

Should I Go to Grad School or Get a Job?

- **Good reasons** to continue directly to grad school:
 - You're **100% sure** you want to be an ECE researcher, ECE teacher, or both
 - The economy is bad and the best job you can find is to mow your neighbor's lawn
 - You have a specific career goal:
 - ECE + Law
 - ECE + Business
 - ECE + Art
- **Bad reasons** to continue directly to grad school:
 - “School is my comfort zone”
 - “My parents want me to get at least a MS”

