



# Workforce Development and the Role of Human Capital

Kartik Athreya  
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*The views and opinions expressed are those of the presenter. They do not represent an official position of the Federal Reserve Bank of Richmond or the Federal Reserve System.*

# Introduction

# Background

- Federal Reserve has a monetary policy mandate to promote maximum employment.
- This mandate and the labor market's slow recovery from the recession has motivated the Richmond Fed to study long-run strategies to improve labor market outcomes for individuals.
- What can be done to:
  - 1) improve nation's skills and *average* earnings?
  - 2) workers' *adaptability* to changing labor market conditions?
- That is, what can be done to *develop the workforce*?

# Workforce Development (WD)

- Has many dimensions
  - The “coordination side”:
    - Regional, state, or local efforts to coordinate schools, firms, and workers
  - The “adult workforce” side:
    - Retraining and assisting with job search and matching
  - The “human capital” side:
    - Focus is on individual-level decisions to invest in skills
- Today, focus on the role of human capital in WD

# The *Human Capital Lens*

- A way of thinking about the data, especially on the life experiences of people when it comes to their income and education
- People are not just consumers: they're little *factories* too
  - And factories plan, and augment their capabilities

Used to be controversial, now all of us talk about “investing in ourselves”



# The Human Capital “Lens”: Implications

- The future matters:
  - Discrimination can be self-fulfilling
  - Small differences in relative strengths can lead to big differences in outcomes
  - WD: age matters for the benefits from training



# Predictions of Human Capital view:

- Most schooling happens early in life
- Earnings grow more steeply when young, slowly when old
- Higher income means fewer, more skilled, kids

All borne out in data.



# My Goal and a Punchline

- Want to tell you about some aspects of human capital that have bearing for the populations that WD efforts aim to assist.
- As we'll see, a central implication is that adult WD is fighting a heroic battle “at the back end”, when research suggests that it could really use help “at the front end.”
- Let's focus on Human Capital as primarily formal education...

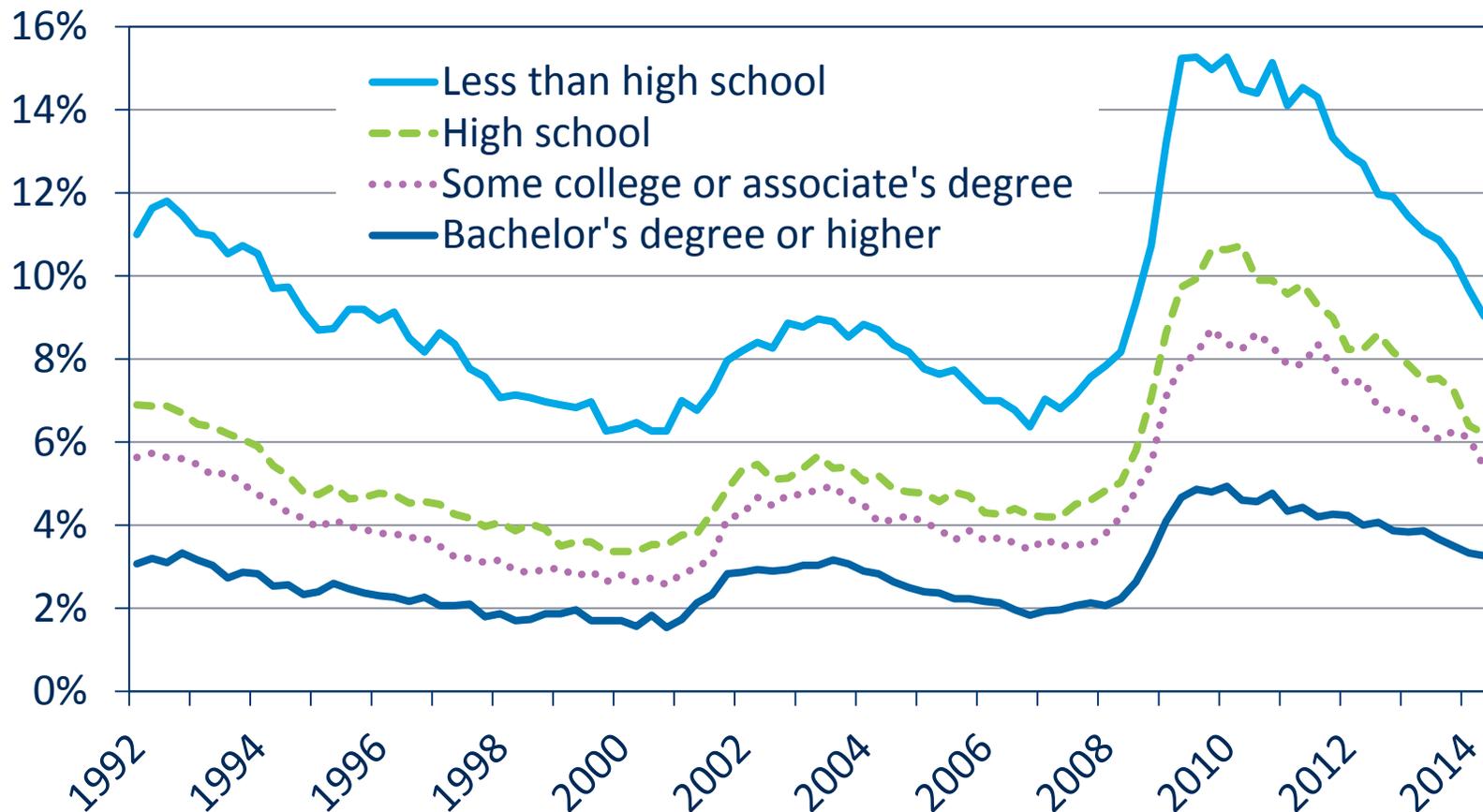
# Overview

- College completion typically leads to positive labor market experience.
  - Three caveats
    - Not everyone who enrolls in college completes.
    - College may not be the best path for all students.
    - We may be seeing a leveling-off in the college attainment rate.
- Preparedness and good information are important for choosing the right path and succeeding.
- *Challenges faced by adult workforce efforts may be mitigated by targeting people when young.*

# Educational Attainment and Outcomes

# College completion has long inoculated against unemployment.

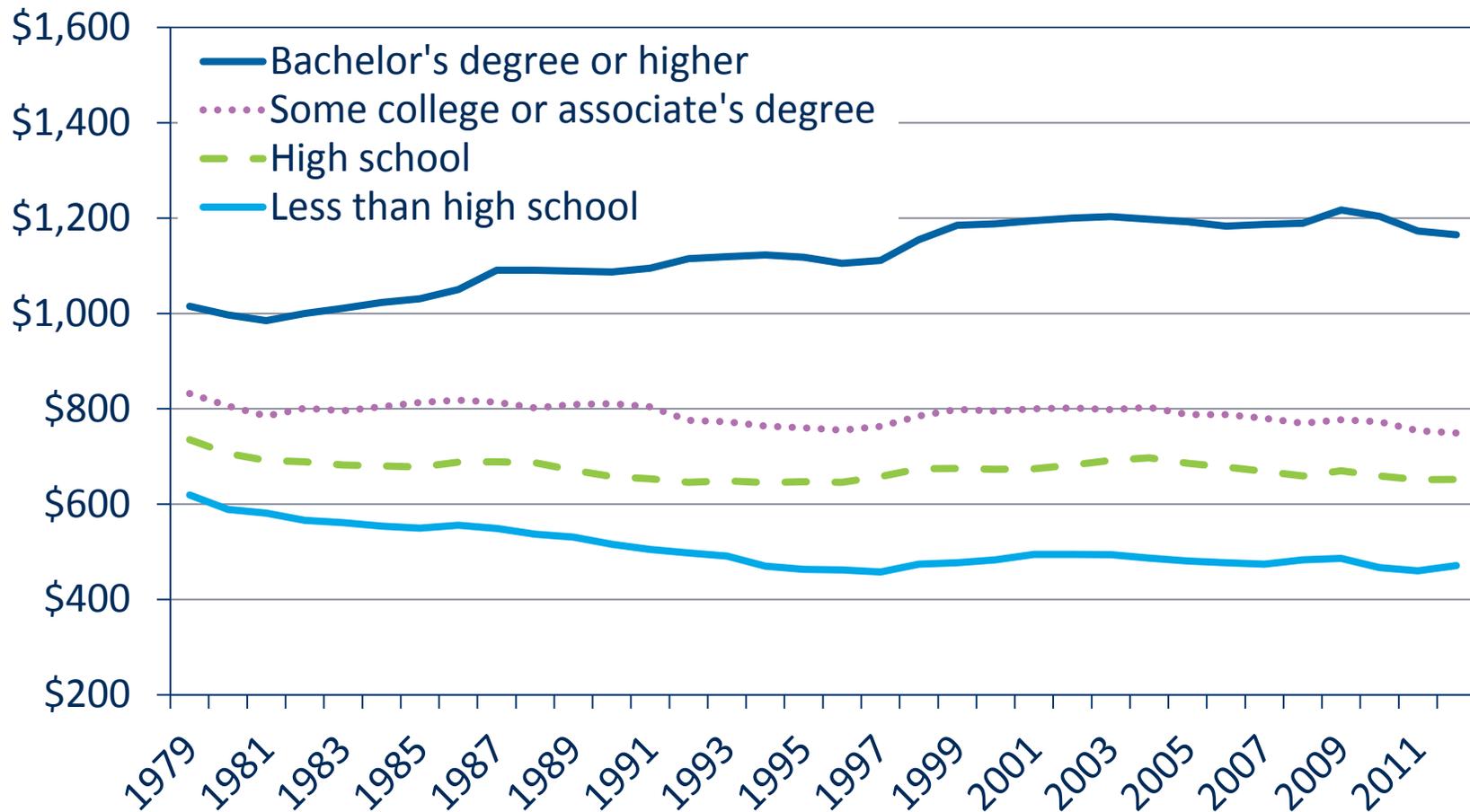
Unemployment rate, workers 25 years and over



Source: Bureau of Labor Statistics

# And higher ed. has long delivered earnings payoffs, which have steadily increased over time.

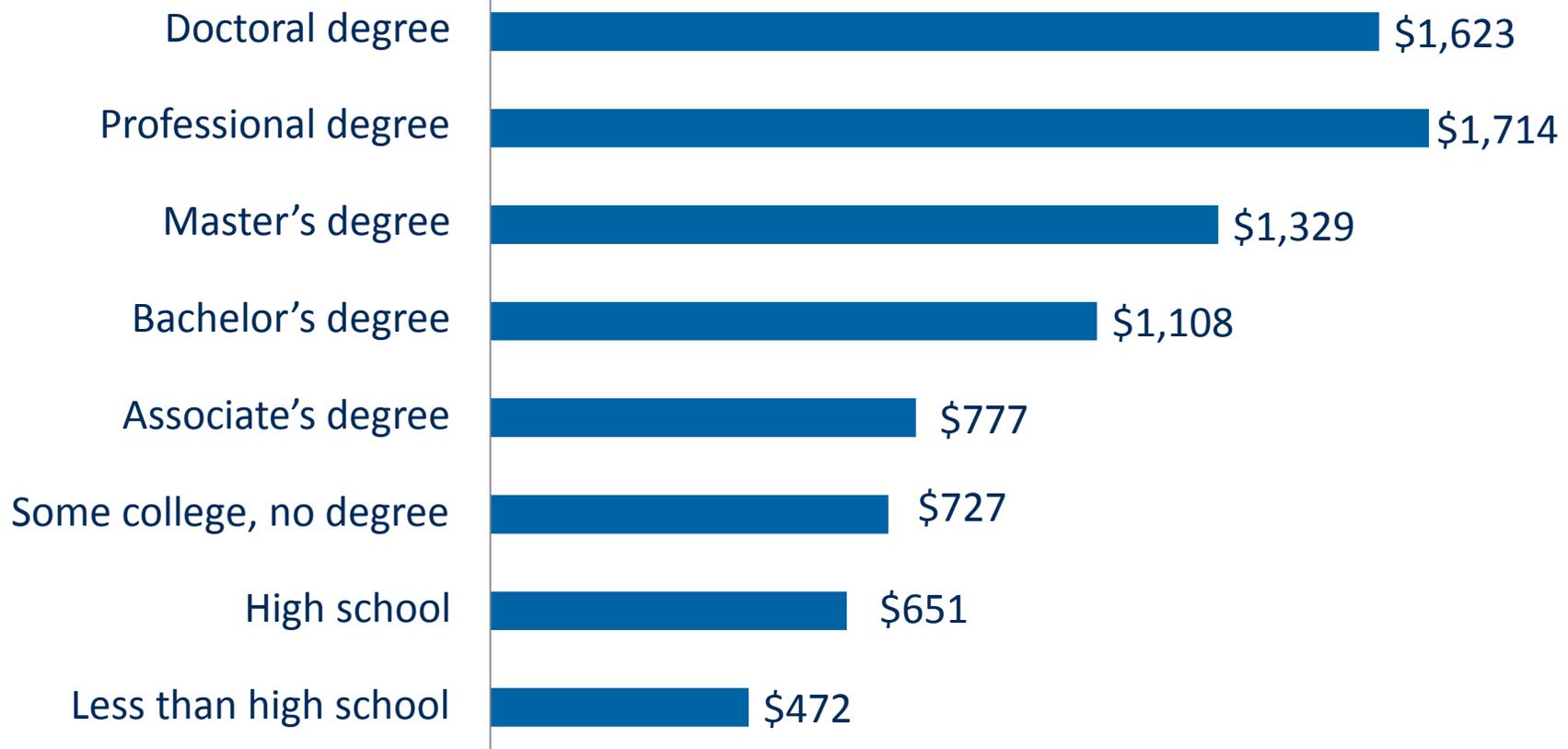
Median weekly earnings, workers 25 years and over (2012 constant dollars)



Source: Bureau of Labor Statistics

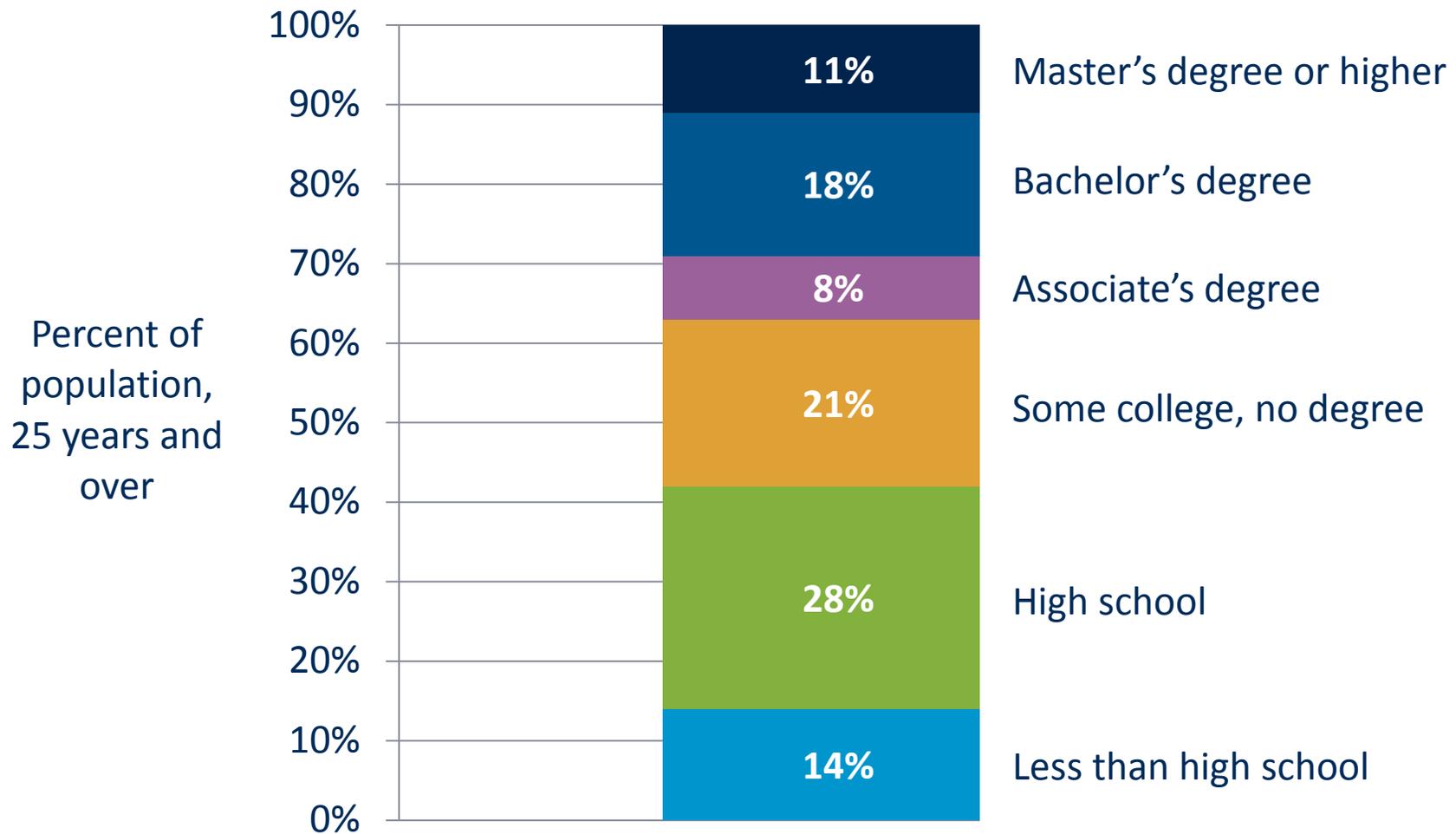
# Finer Recent Breakdown of Earnings

Median weekly earnings in 2013  
for workers 25 years and over



Source: Bureau of Labor Statistics

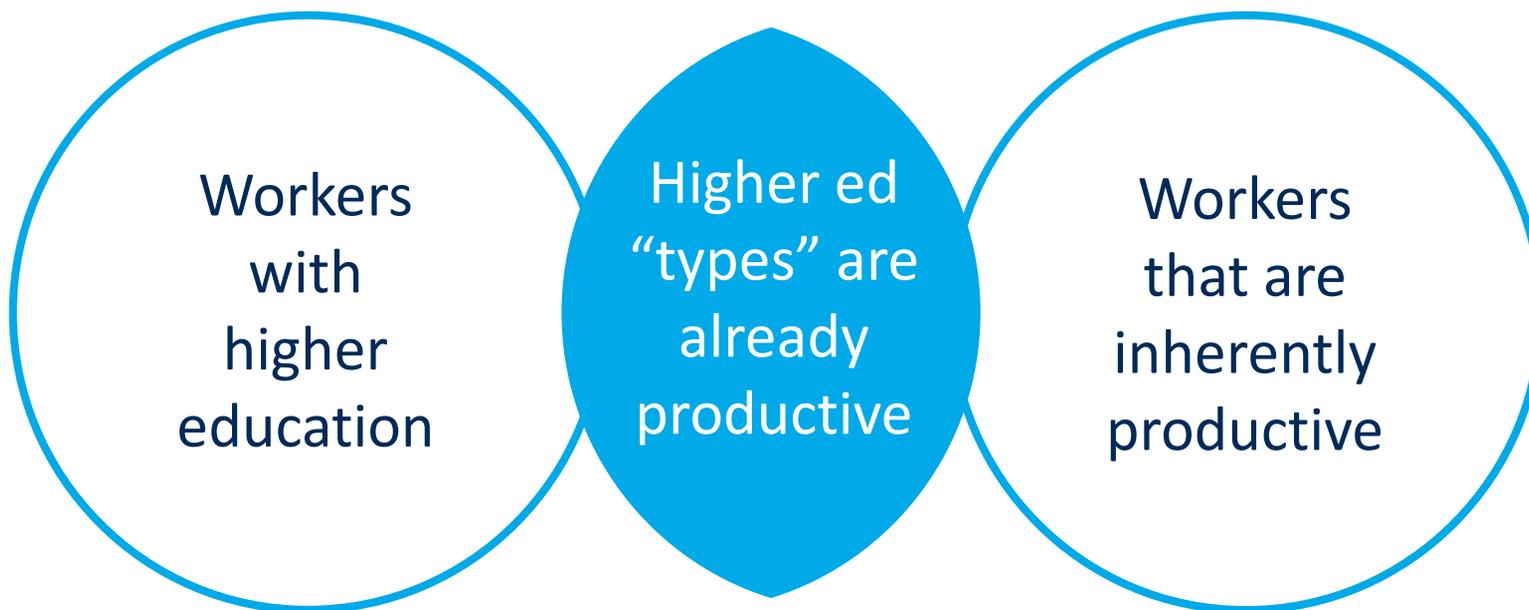
# Educational Attainment of U.S. Population



Source: U.S. Census Bureau 2012 ACS 5-year est.

# Returns to higher ed. look good, BUT... potential biases in the data

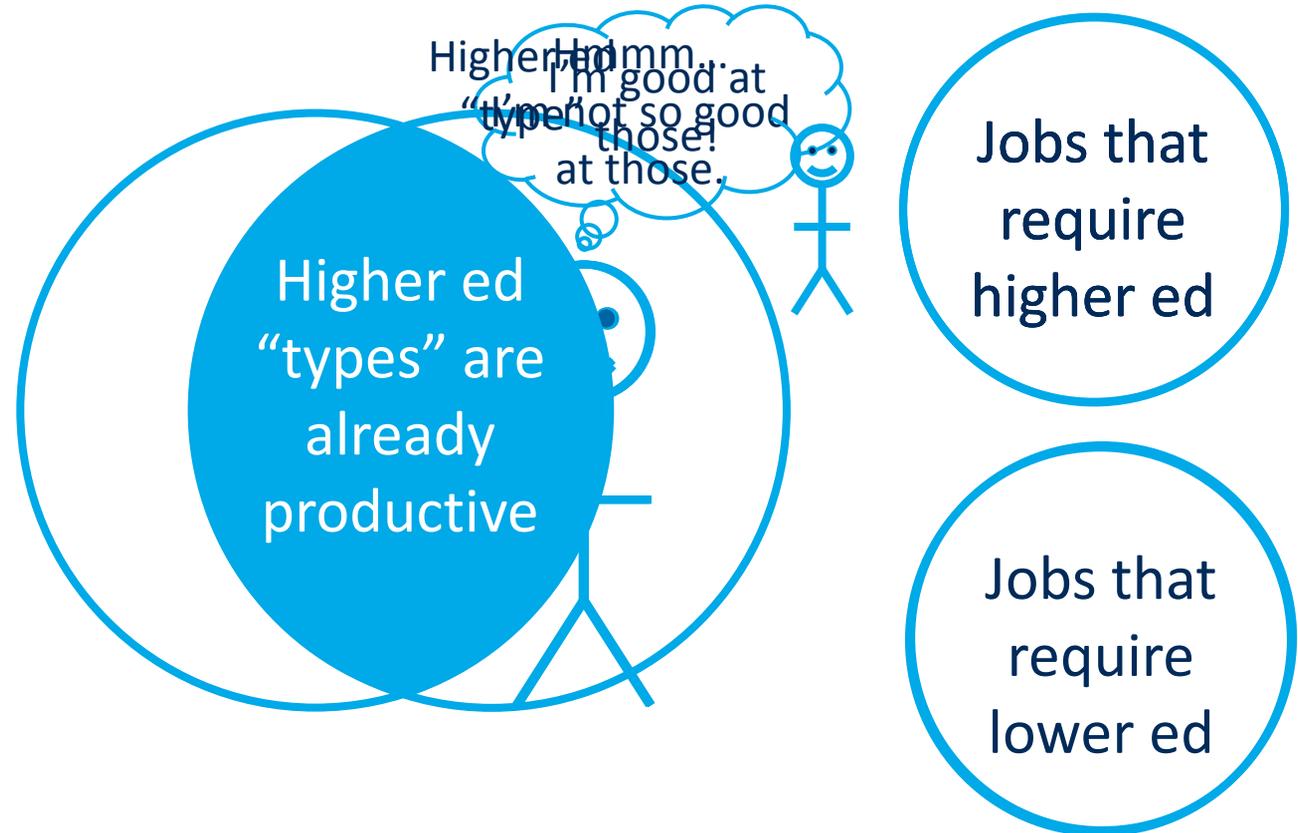
“Ability bias”



# Returns to higher ed. look good, BUT... potential biases in the data

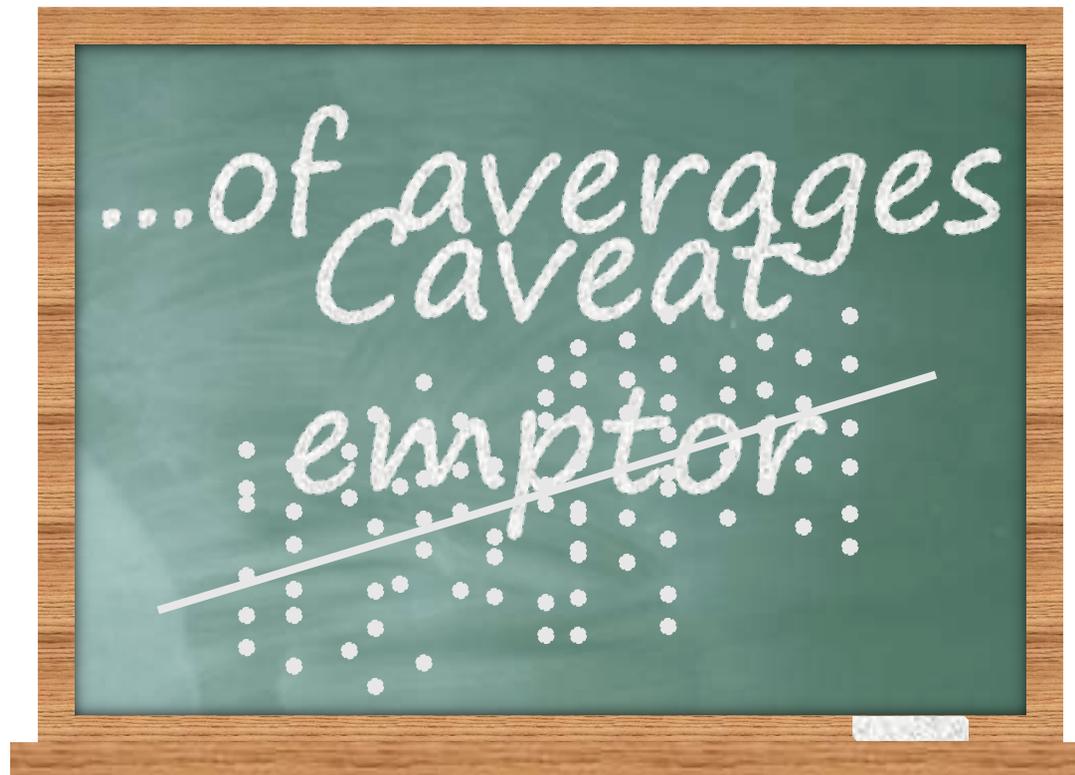
“Ability bias”

“Selection bias”



After controlling for biases, returns still look good, BUT...

Two important caveats to keep in mind... #1



After controlling for biases, returns still look good, BUT...

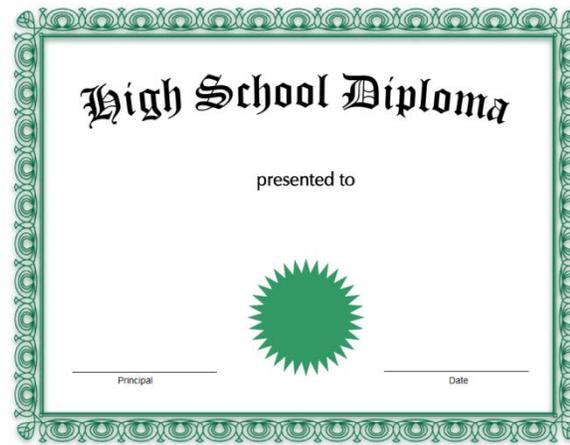
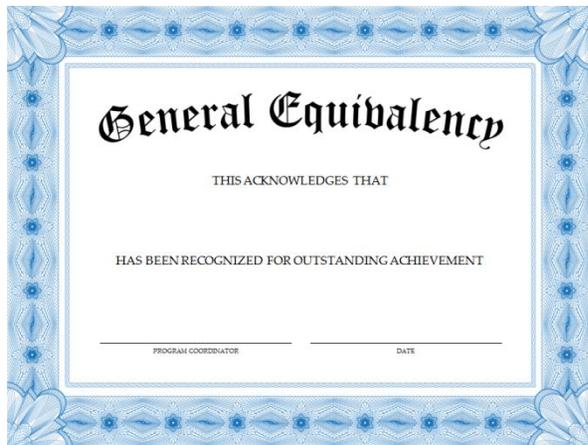
Two important caveats to keep in mind... #2



You've got to finish.

# The Importance of Completion

## High school completion is first order



# Send All to College? Not Yet. Completion Rates Low.

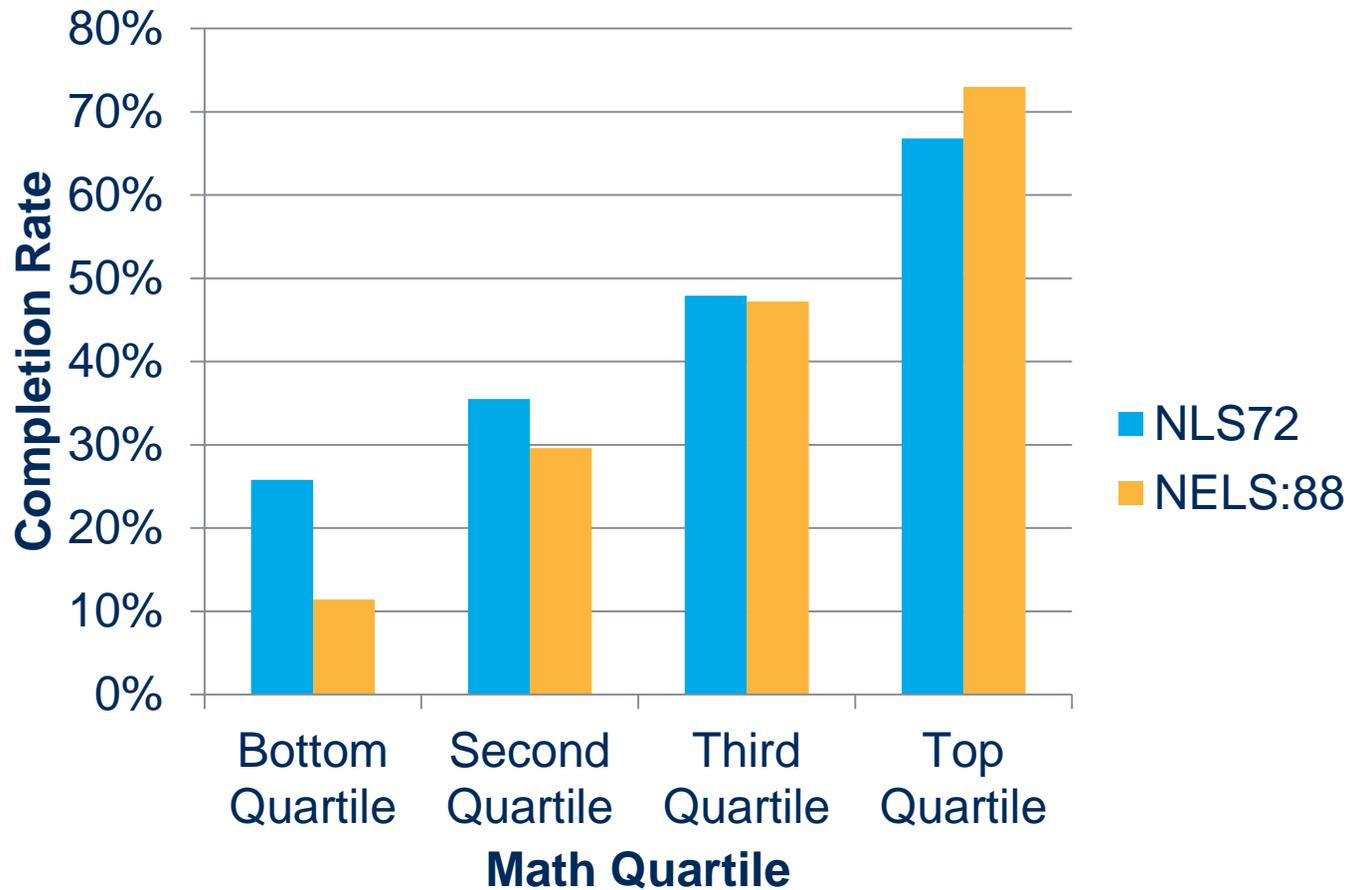
Many who enroll do not complete **any** degree within 6 years of completing high school.

Expected Attainment	Realized	No Degree	Student Loan Debt (No Degree)
Certificate	32%	52%	\$11,160
Associate's degree	22%	62%	\$10,758
Bachelor's degree	52%	38%	\$14,457

Data reflect survey results from 2004-2009.

Source: Avery, Christopher, and Sarah Turner. "Student Loans: Do College Students Borrow Too Much — Or Not Enough?" *Journal of Economic Perspectives*, Winter 2012, vol. 26, no. 1, pp. 165-192

# Collegiate Completion by Precollegiate Achievement



Source: Bound, Lovenheim and Turner (2010)

# Need College Prep, Not Just College Enrollment

- This means, first of all, ensuring high school completion.
- And then ensuring that students are well-prepared
  - Students appear to both:
    - overstate their own preparedness and ...
    - ...understate its importance—relative to study effort—in college completion (Stinebrickner and Stinebrickner, 2012).

# The Importance of Preparedness

## Three dimensions of preparedness



Academic  
ability



Work  
habits



Knowing  
options



# Prepping for Completion and the Workforce

- **Early Childhood** experiences seem to matter a lot for hard and soft skills.
- **MS/HS** appear to be a good time for exploring options and further building soft skills.
- **Schools and Community college** can help students assess preparedness and explore other postsecondary options.



# Are Community Colleges the Solution?

- Inexpensive

Average Tuition and Fees	Average Total Price of Attendance	Total Aid		Total Grants		Student Loans	
		Percent Receiving	Average Amount	Percent Receiving	Average Amount	Percent Receiving	Average Amount
\$1,047	\$6,100	46.8	\$3,200	39.8	\$2,200	12.1	\$3,600

- Option to transfer to 4-year college

- Students' reason for enrolling

Transfer to 4-year college	Associate's Degree	Certificate	Job Skills	Personal Interest	Transfer to Another College
36.5	42.8	17.0	41.6	46.0	15.3

- May offer students flexibility to experiment and learn about their own ability, which is critical to completion.



# Not if the focus is only on vocational training

- Virtually all discussion of vocational education emphasizes its potential advantages in easing entry into the labor market by youth(Ryan, 2001).
- The life-cycle impact of vocational education might be quite different from that observed at entry into the labor market (Hanushek, Woessmann, and Zhang, 2011).



# Vocational training and Jobs of Tomorrow

- Vocational education appears to make entry into the labor market easier.
- However, the specialized nature of these skills make them not easily adaptable to new technologies.
- Rapid technological change may thus pose challenges later in life for workers who are trained narrowly in certain skills.



# Technology, and the Jobs of the Future

# Fear of Technology

“The rise in unemployment has raised some new alarms around an old scare word: automation. How much has the rapid spread of technological change contributed to the current high of 5,400,000 out of work? ... While no one has yet sorted out the jobs lost because of the overall drop in business from those lost through automation and other technological changes, many a labor expert tends to put much of the blame on automation. ... Dr. Russell Ackoff, a Case Institute expert on business problems, feels that automation is reaching into so many fields so fast that it has become "the nation's second most important problem." (First: peace.) The number of jobs lost to more efficient machines is only part of the problem. What worries many job experts more is that automation may prevent the economy from creating enough new jobs. ... Throughout industry, the trend has been to bigger production with a smaller work force. ... Many of the losses in factory jobs have been countered by an increase in the service industries or in office jobs. But automation is beginning to move in and eliminate office jobs too. ... In the past, new industries hired far more people than those they put out of business. But this is not true of many of today's new industries. ... Today's new industries have comparatively few jobs for the unskilled or semiskilled, just the class of workers whose jobs are being eliminated by automation.”

- Time Magazine
- February 24<sup>th</sup>
- ...**1961.**

# Fear of Technology, con't.

National Council on Technology, Automation, and Economic Progress :

"We recommend compensatory education for those from disadvantaged environments, improvements in the general quality of education, universal high school education and opportunity for 14 years of free public education, elimination of financial obstacles to higher education, lifetime opportunities for education, training, and retraining ..."

"We recommend the creation of a *national computerized job-man matching system* which would provide more adequate information on employment opportunities and available workers on a local, regional, and national scale. In addition to speeding job search, such a service would provide better information for vocational choice ..."

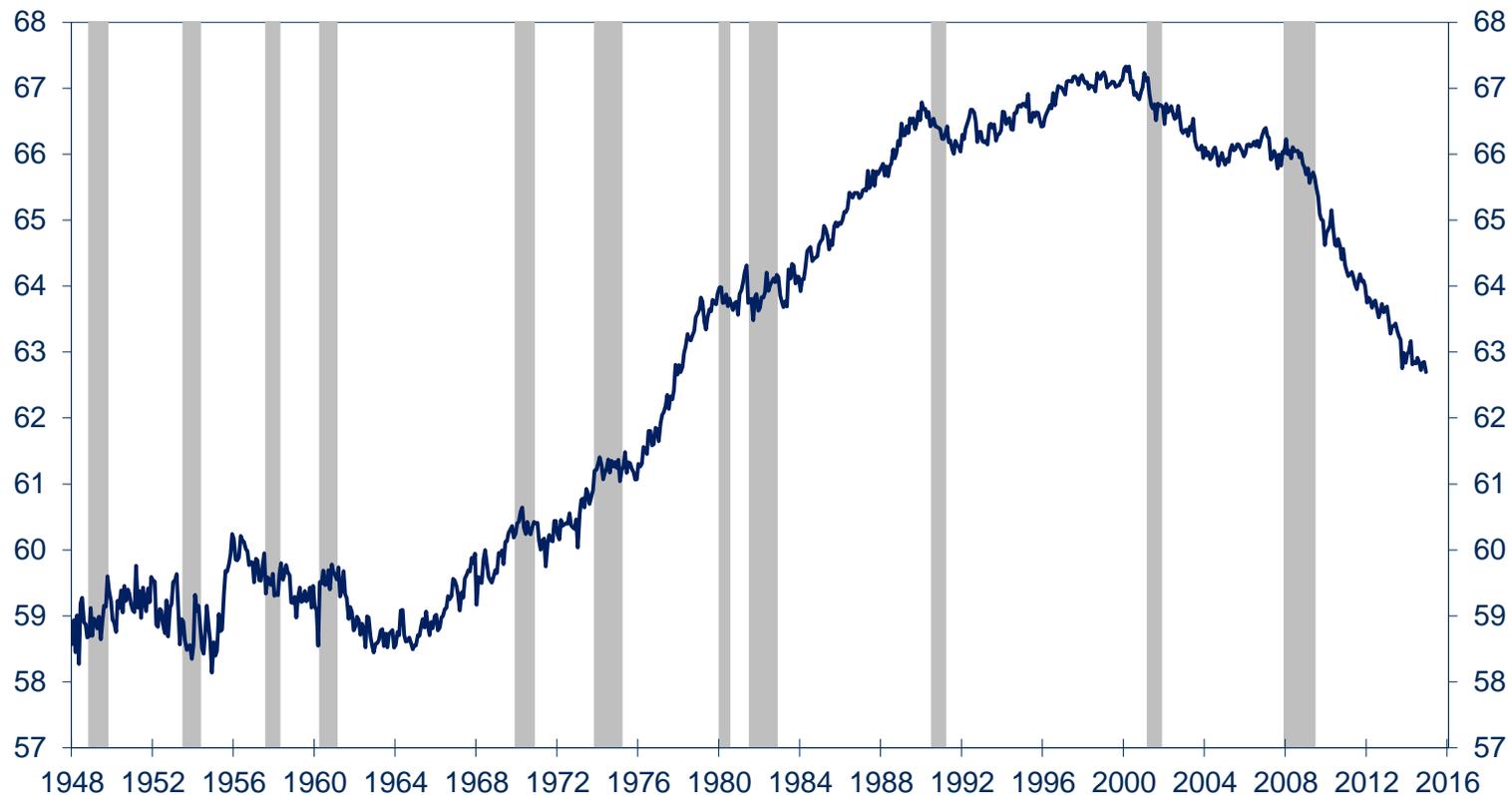
"We recommend that present experimentation with relocation assistance to workers and their families stranded in declining areas be developed into a permanent program."

"We recommend ... regional technical institutes to serve as centers for disseminating scientific and technical knowledge relevant to the region's development ..."



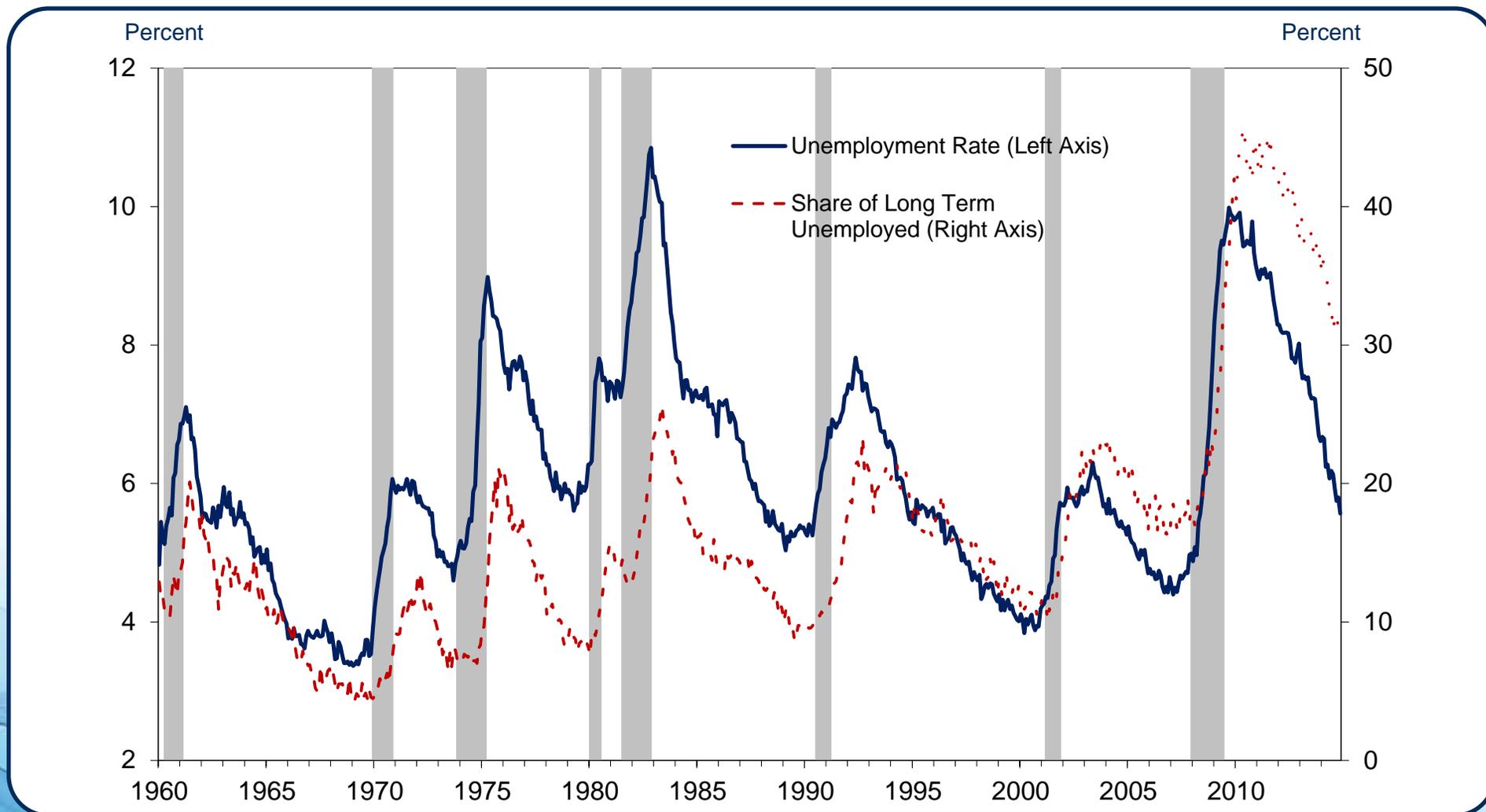
# So Will the Robots Take Our Jobs? Maybe, but hasn't happened yet...

Despite a long history of mechanization (electrification, steam engine, computers), the labor force participation rate today is higher than it was in the 1940s.



Source: Bureau of Labor Statistics/Haver Analytics

# Unemployment Rates Show No Long-Term Trend



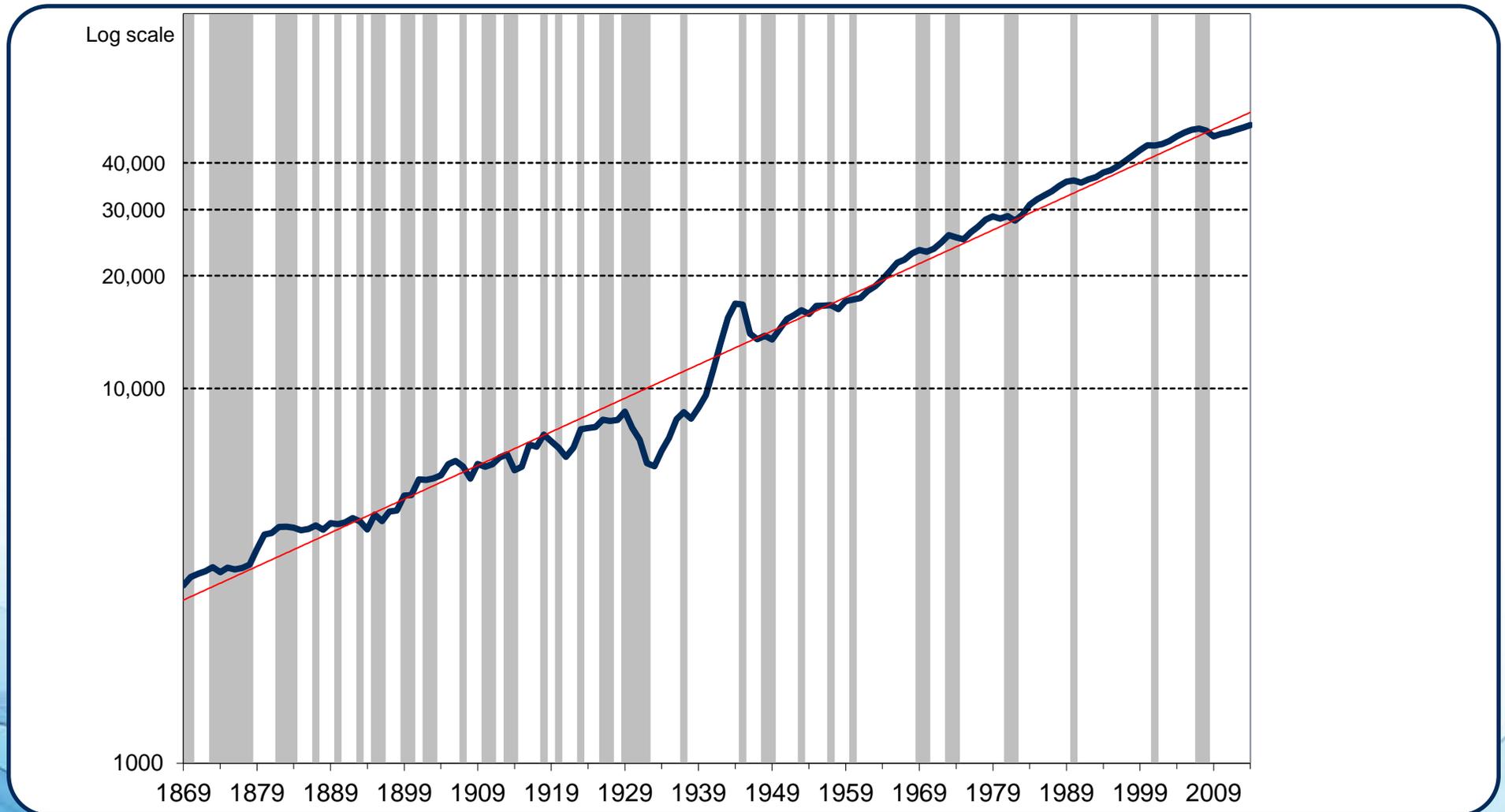
Source: Bureau of Labor Statistics/Haver Analytics

# Technological Progress is the (Sole) Engine of Prosperity

- In the most widely accepted model of economic growth:
  - Investment and work effort have only temporary effects
  - Long-run growth comes solely from better methods of production
  - Can't muscle your way to permanent growth, only via innovation!
  - Much innovation embedded in new machines...robots among them.

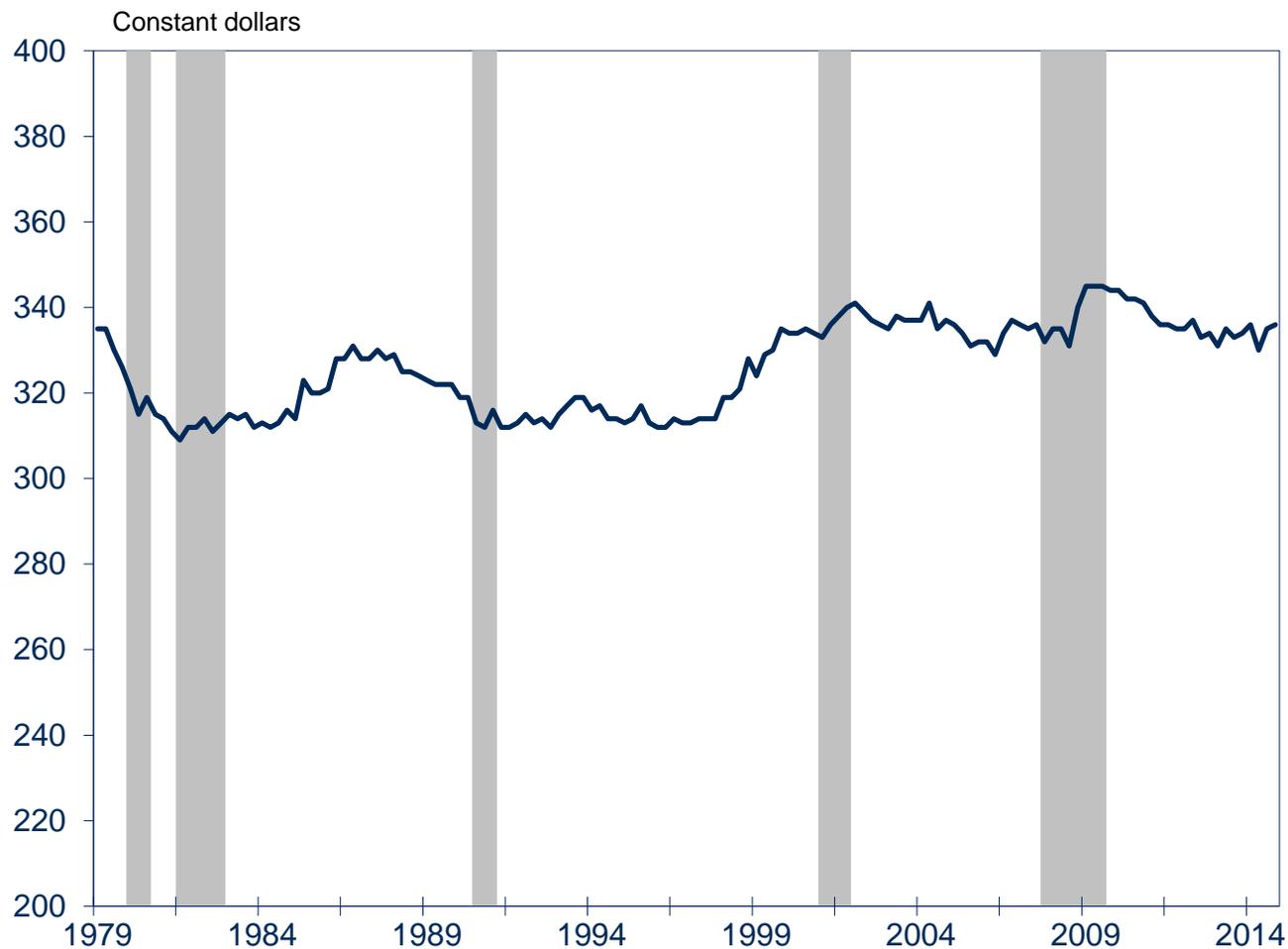


# Real Per-Capita GDP



Source: Census Bureau/Haver Analytics

# Median Usual Weekly Earnings



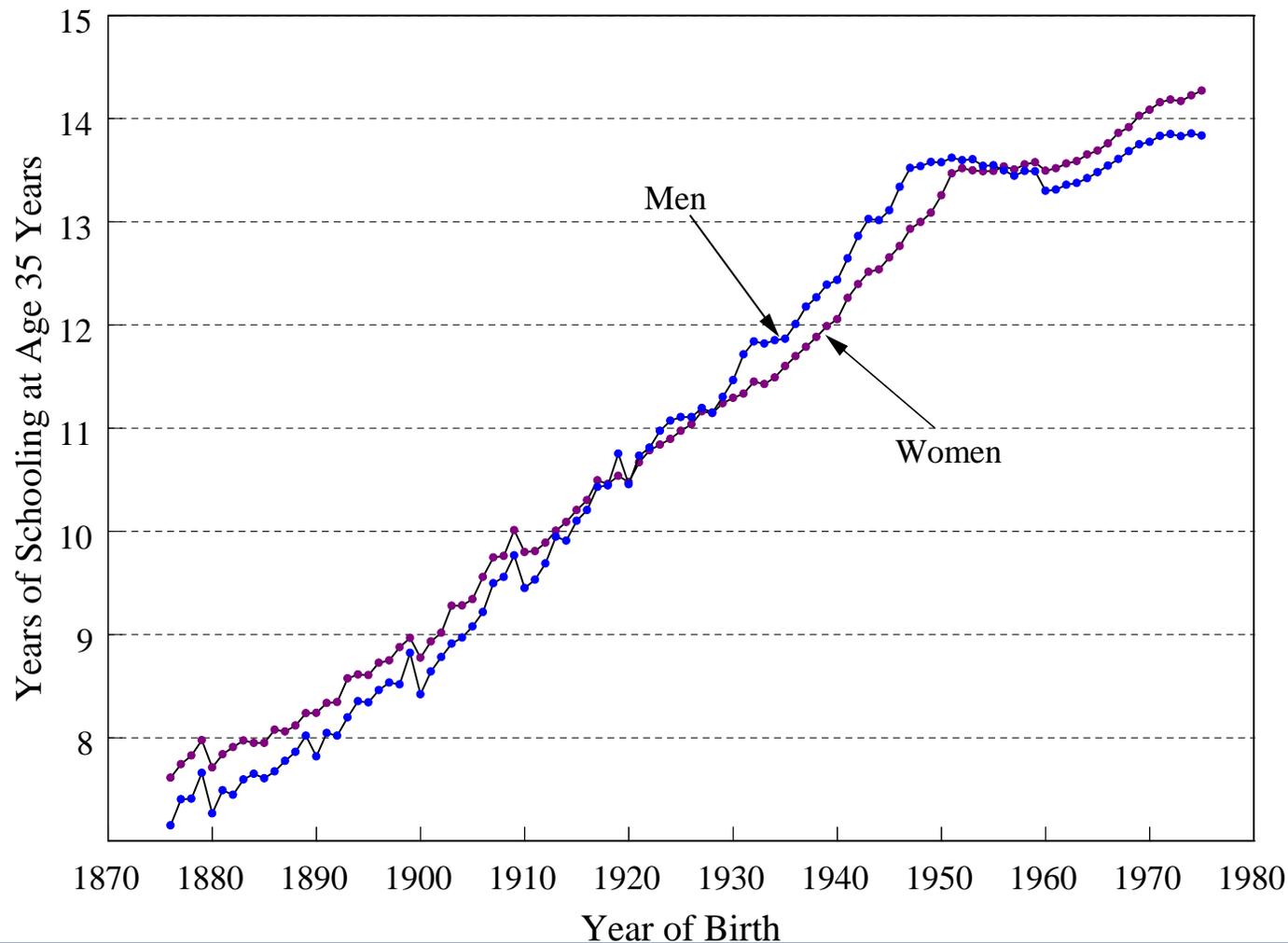
Source: Bureau of Labor Statistics



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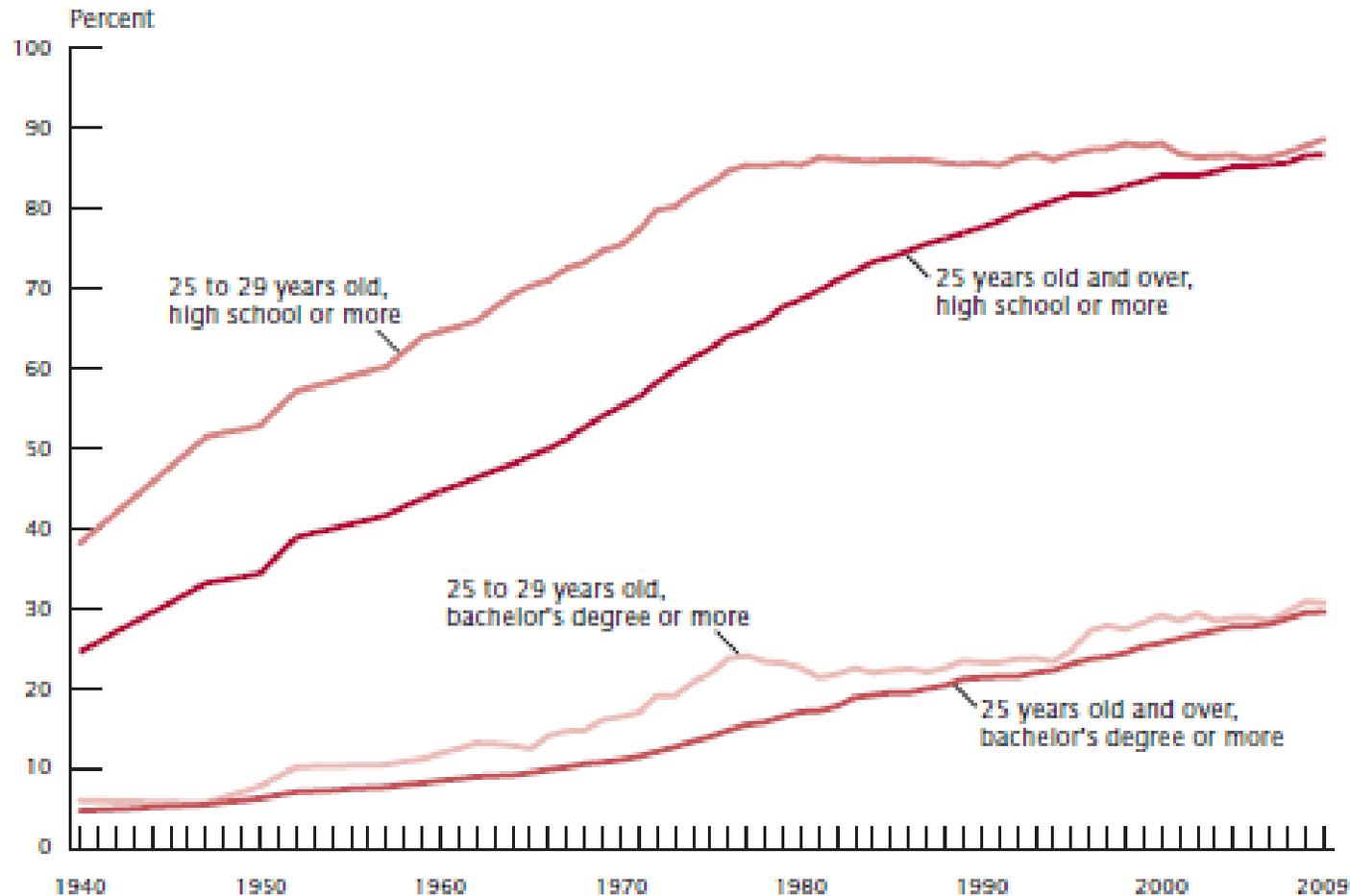
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But for the first time since the 1970s, the supply response to skill-biased technological change is weak.



Source: Goldin and Katz (2009)

# Key (The?) Issue for WD: Are We Hitting a Barrier?



Source: Current Population Survey

# Adult Workforce Considerations

- Adult population that needs workforce training is usually highly “selected.”
- Numerous risks during working life
  - Unemployment
  - Displacement (rare for long-tenured workers but very scarring when it does happen)
  - Occupational
- Individuals’ resilience tends to increase with their level of broad-based human capital investment.
  - Half of the dispersion in earnings is attributable to learning experience prior to labor market entry.
- Yet we don’t know whether people are fully aware of the long-term consequences of their early human capital decisions.



Conclusion

# Key Lessons

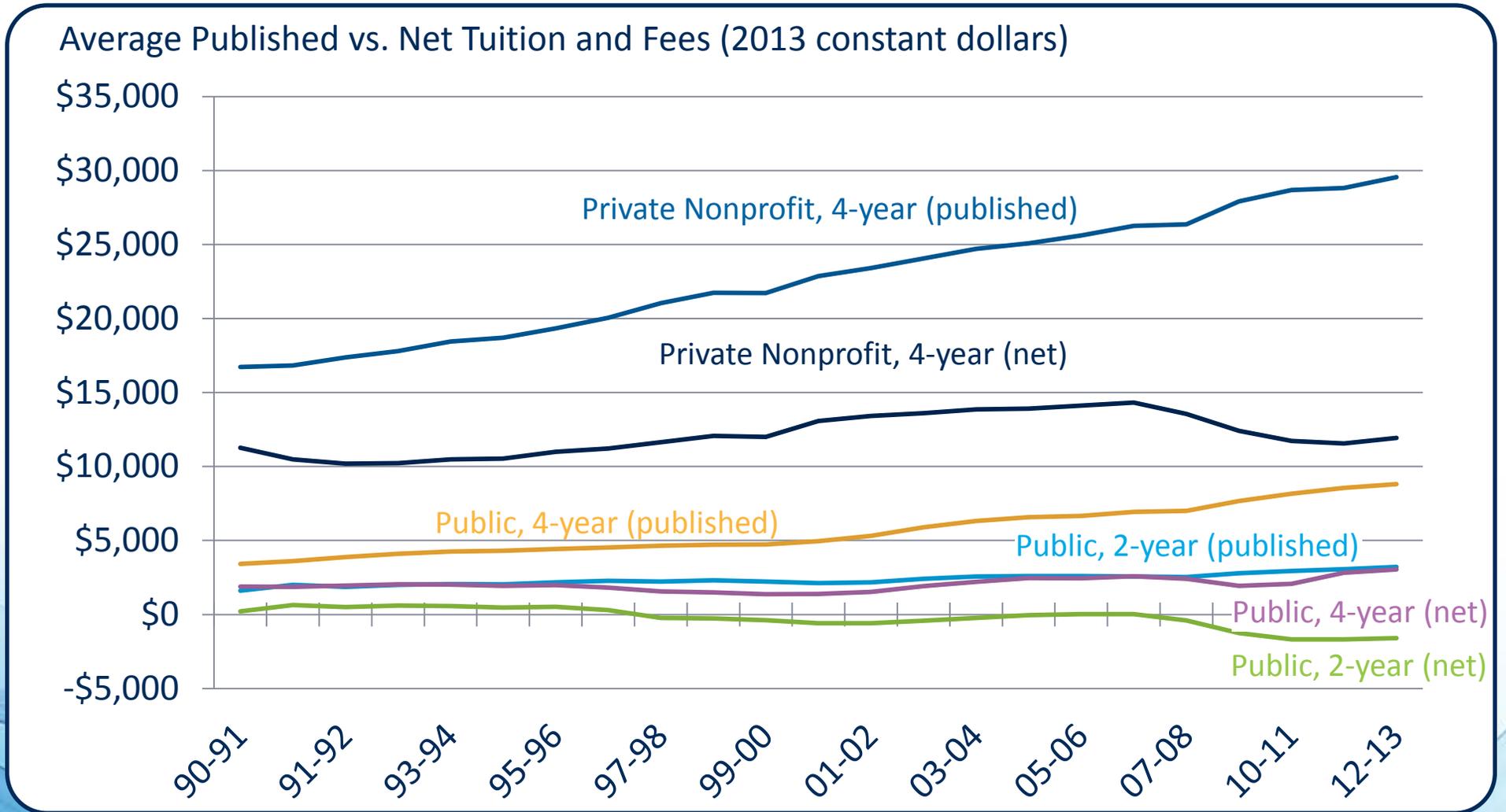
- **Completion** is important at every stage.
- **Preparedness** (including having good information) can help students choose the best path for themselves and ultimately complete that path.
- Workforce development efforts **targeting younger populations** can have high payoffs in the long run.
- Success of **adult workforce partly depends on early-life** decisions and outcomes.
- **Technology** has long been a friend of workers.



# Questions?



# Higher Education Costs over Time



Source: The College Board, Annual Survey of Colleges; Trends in Student Aid 2013