

# LABOR MARKET POLARIZATION

ECONOMIC SUMMIT  
THE CHALLENGE: KEEPING UP  
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# What is Labor Market Polarization?



# Inequality is increasing as income concentrates at the top of the distribution

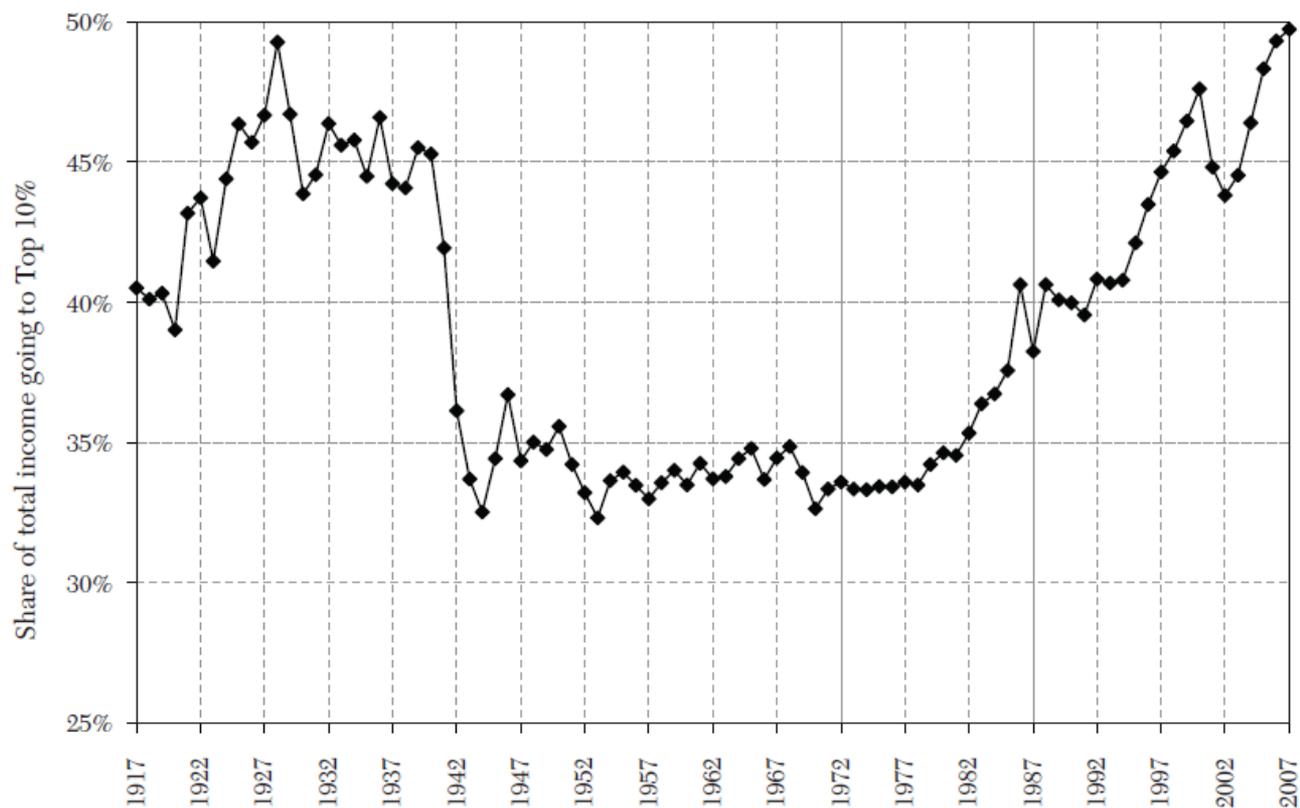
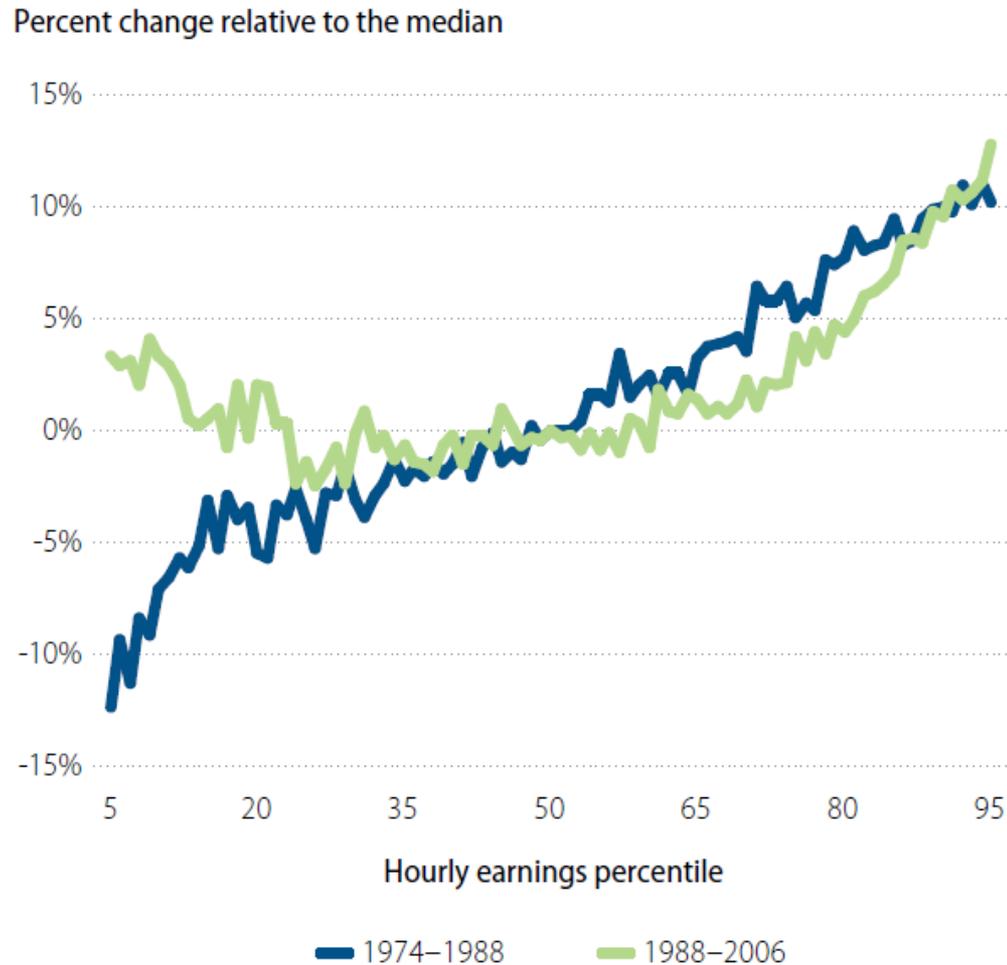


Figure 1. The Top Decile Income Share in the United States, 1917–2007.

Notes: Income is defined as market income including realized capital gains (excludes government transfers). In 2007, top decile includes all families with annual income above \$109,600.

Source: Piketty and Saez (2003), series updated to 2007.

# ...but actually, wages are polarizing



Source: Autor (2010)

# The Disappearance of Middle Class Jobs



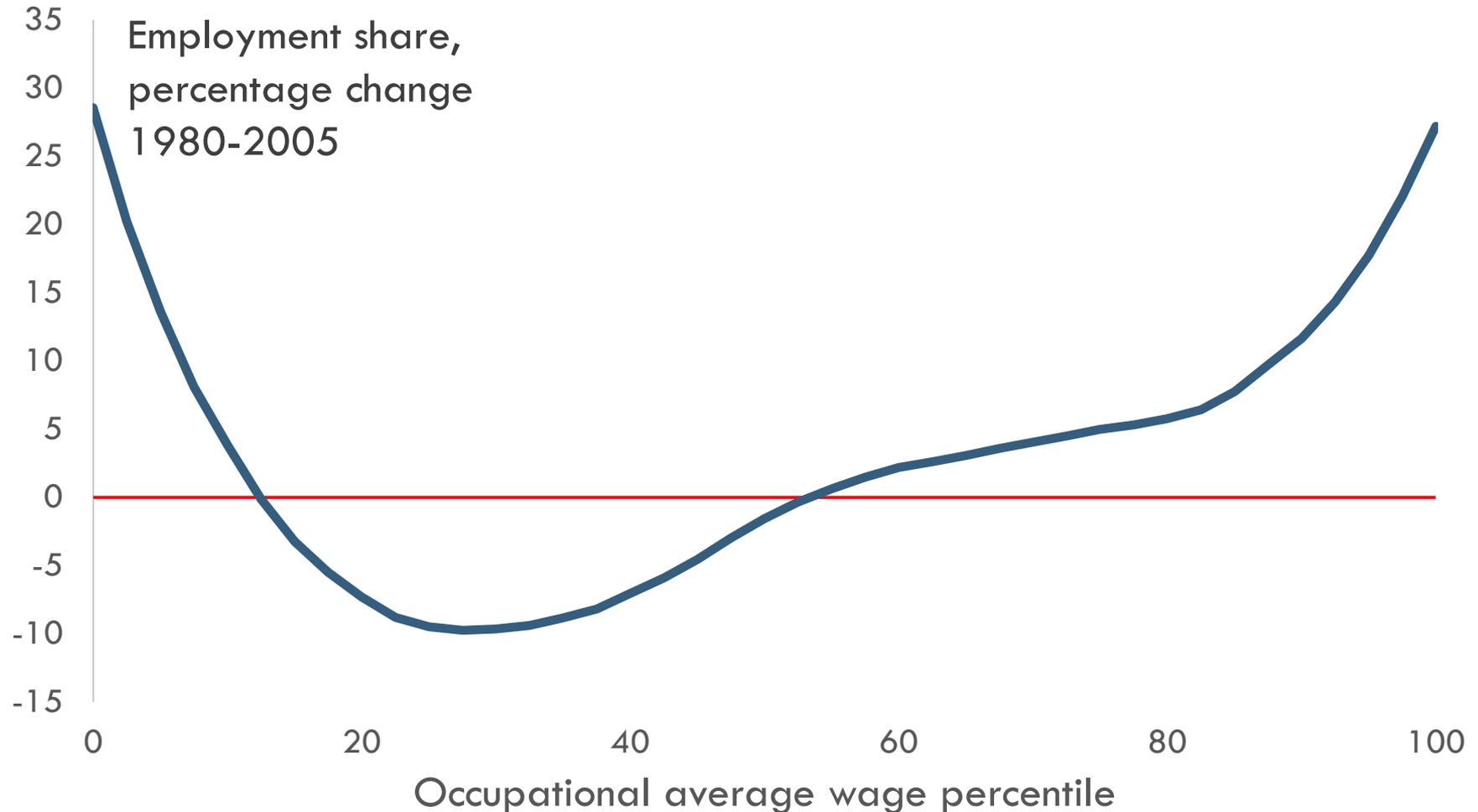
Source: Autor and Dorn (2013)

# The Disappearance of Middle Class Jobs



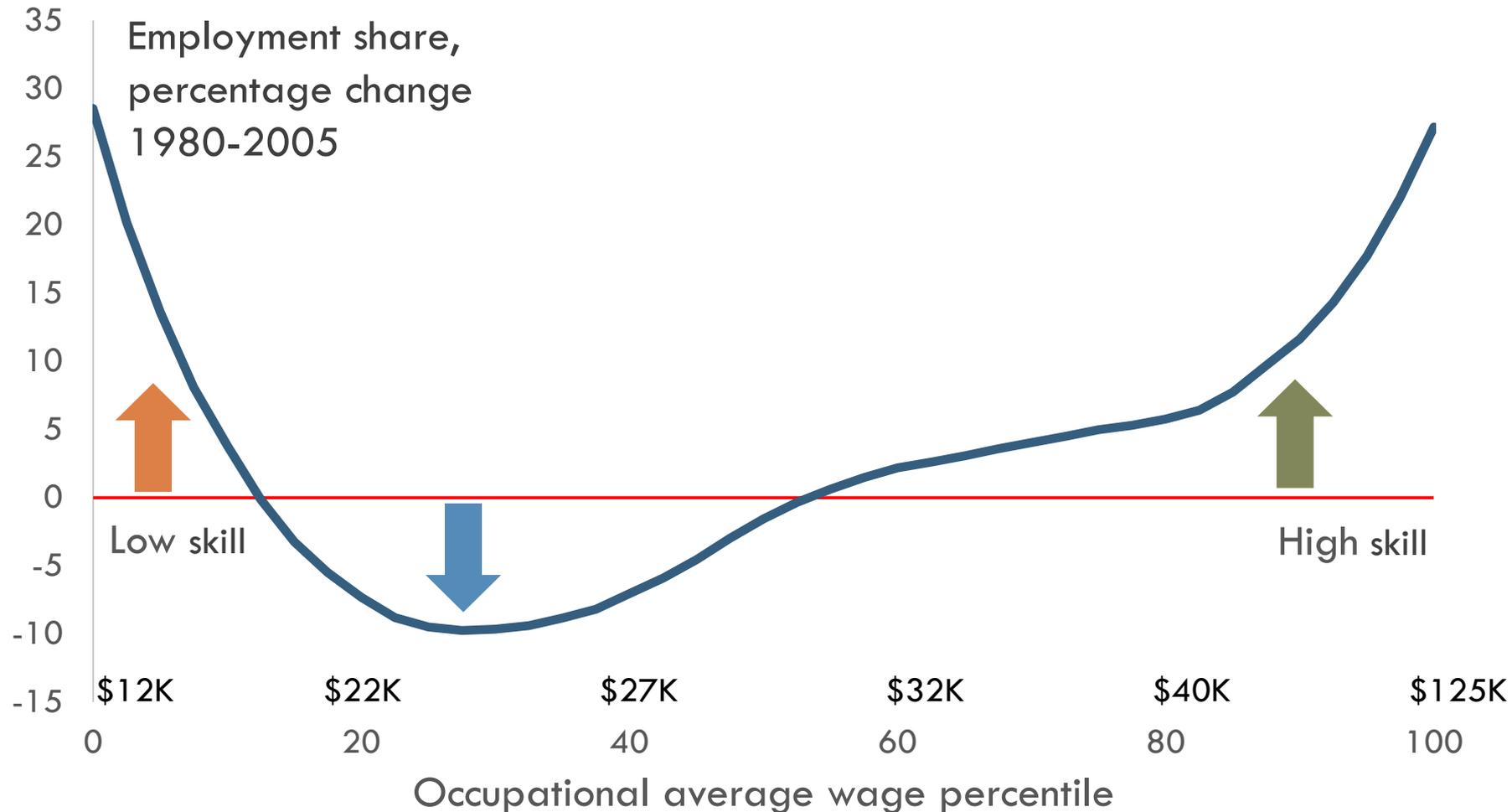
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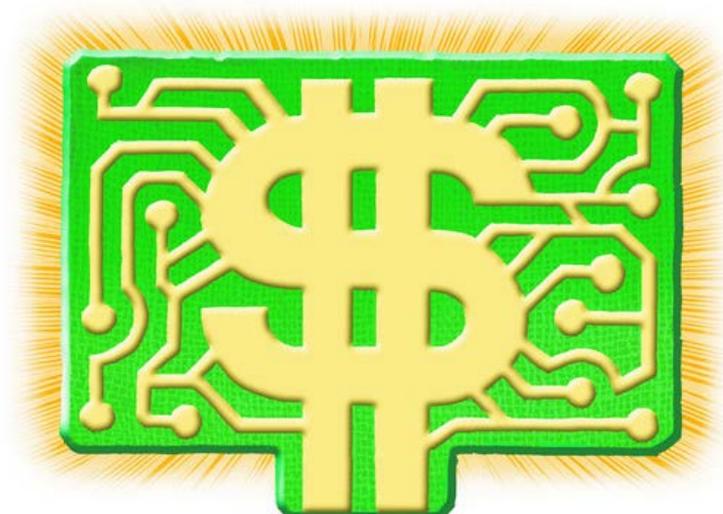
Source: Autor and Dorn (2013)

# What are the causes?

- Declining unionization
  - ▣ Unions mostly in manufacturing and public sector
- Eroding real value of federal minimum wage
  - ▣ But declined in the 1980s and then stabilized
- Globalization/offshoring
- Technological change
- Slowdown in educational attainment

# Causes: The Role of Technological Change

- “Skill-Biased Technological Change”
  - ▣ New technology is a complement for high-skilled workers and a substitute for middle-skilled workers
- Cost of technology such as microprocessors has plummeted



# Which jobs have been automated already?

Routine

Non-routine

Blue collar  
(manual)

Production  
Crafts  
Operative  
Repair

Food service  
Personal care  
Protective service

White collar  
(cognitive)

Clerical  
Administrative  
Sales

Professional  
Technical  
Managerial

**low-skill**

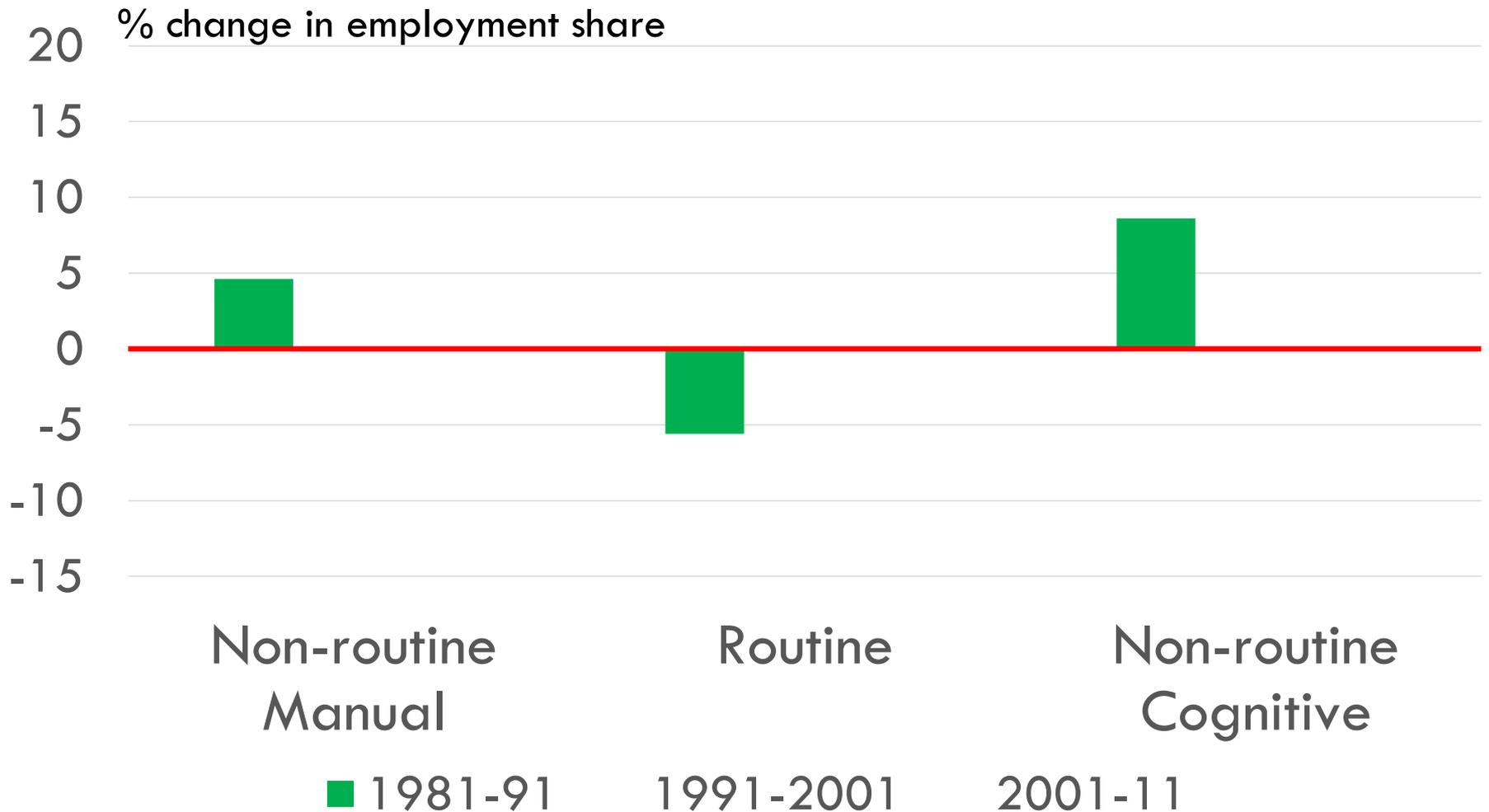
**middle-skill**

**high-skill**

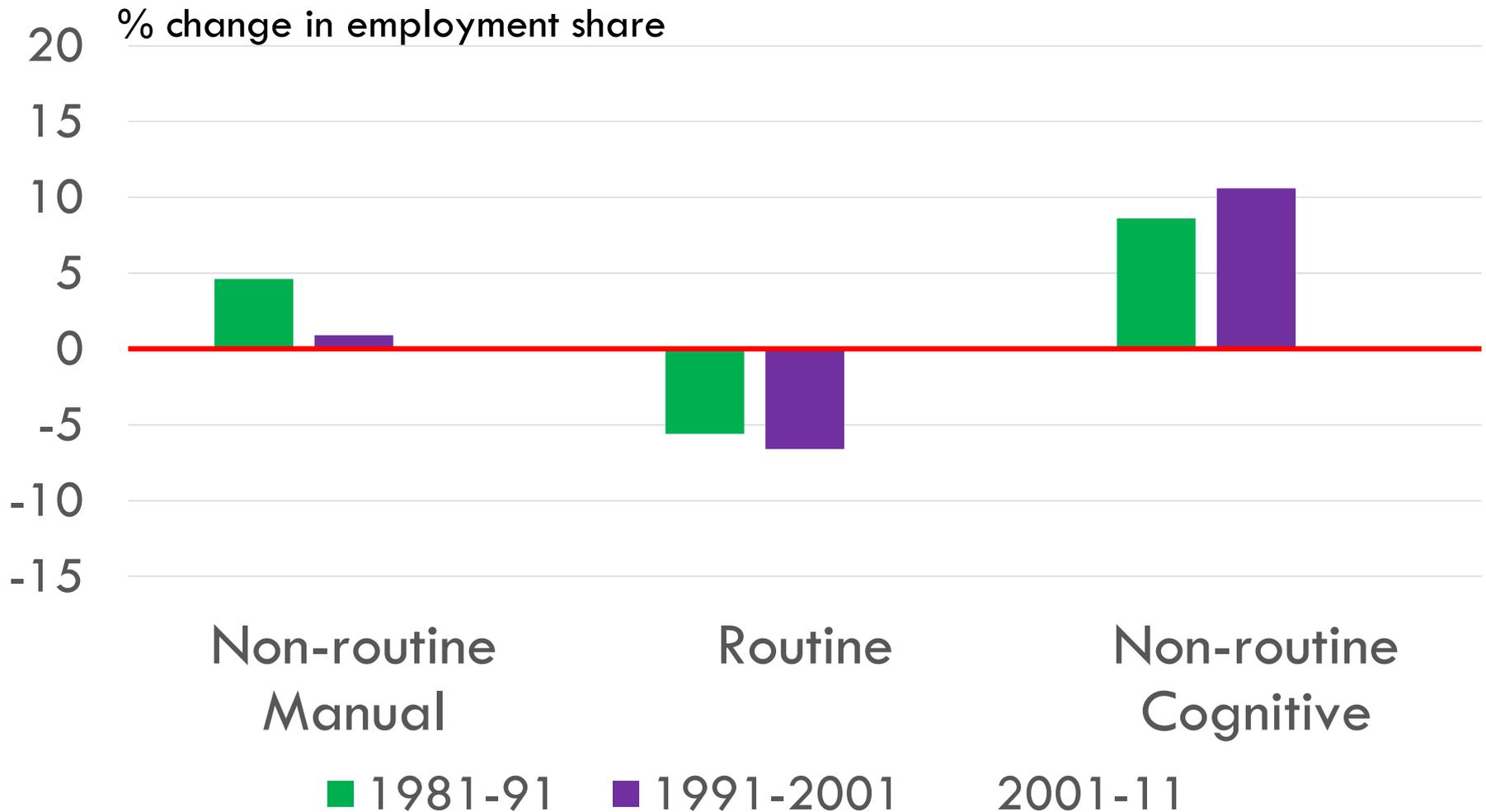
# Which jobs have been automated already?

- High-skill jobs: complementary to technology
  - ▣ Abstract tasks: problem solving, intuition, persuasion
  - ▣ College education
- **Middle-skill jobs: substitute for technology**
  - ▣ **Routine tasks: follow precise, well-understood procedures, can be carried out by computer**
  - ▣ **High-school +**
- Low-skill jobs: blue-collar non-routine
  - ▣ Manual tasks: situational adaptability, visual/language recognition, in-person interaction
  - ▣ Tasks that computers cannot as yet perform
  - ▣ High school or less

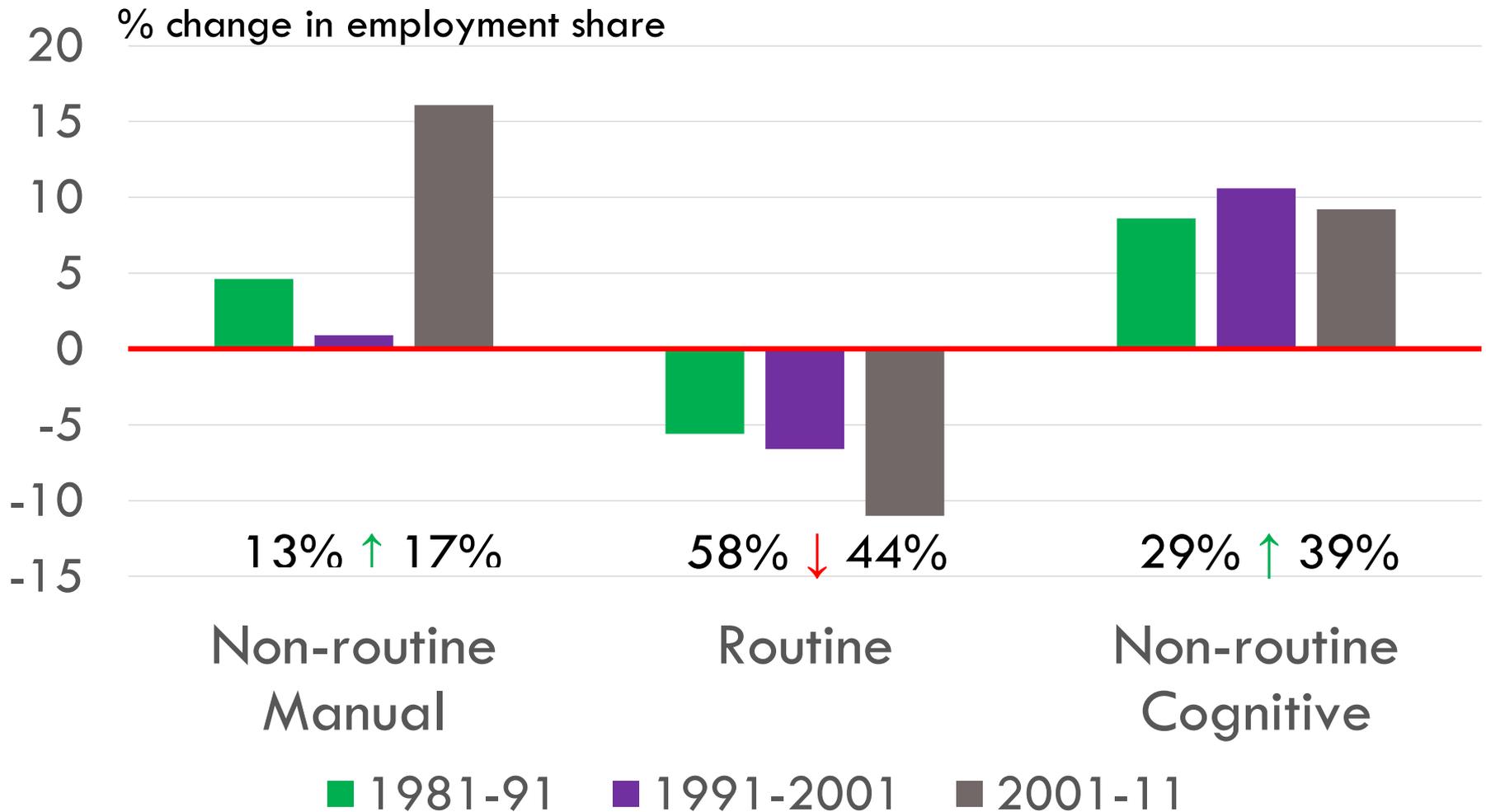
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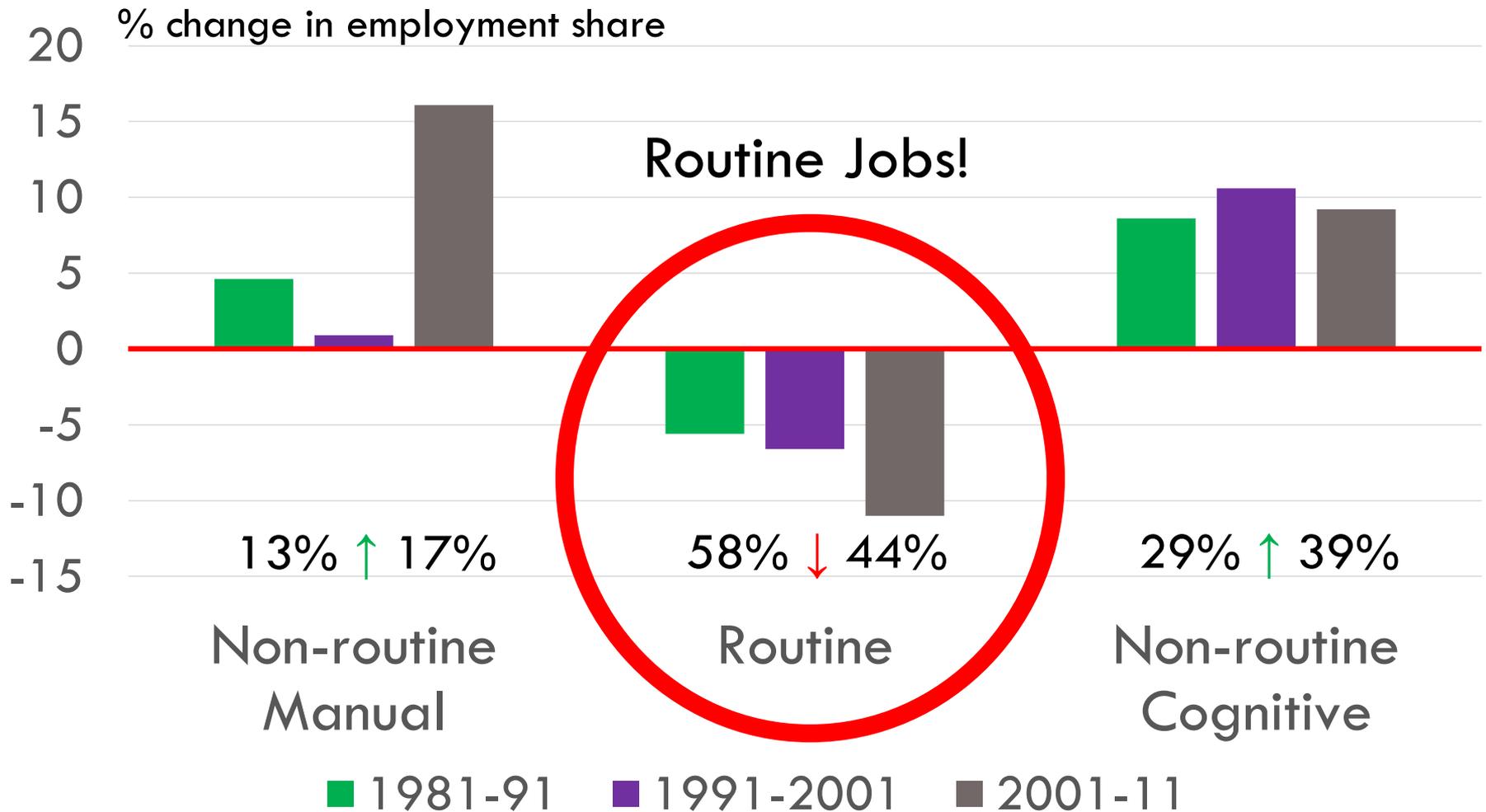
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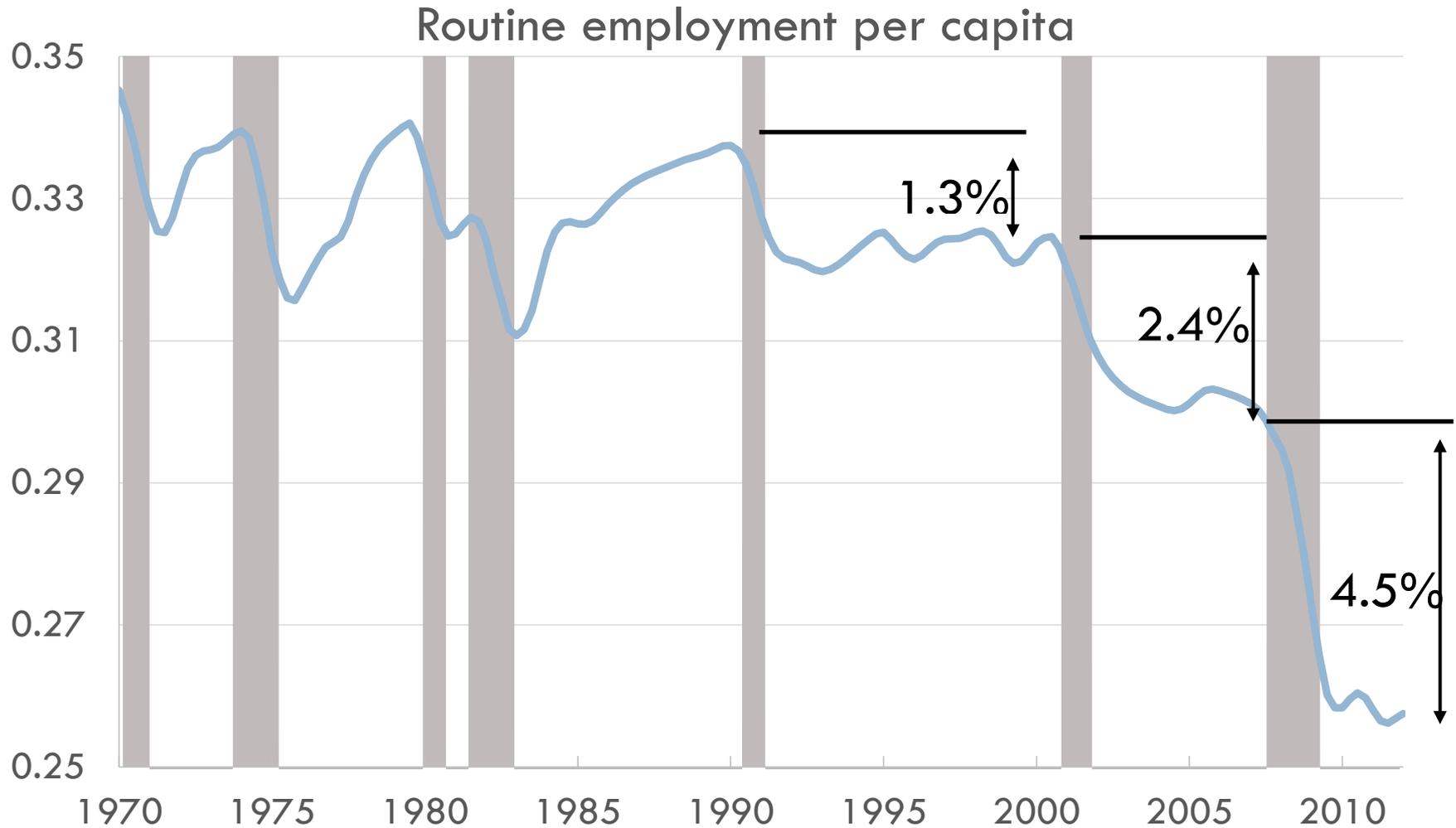
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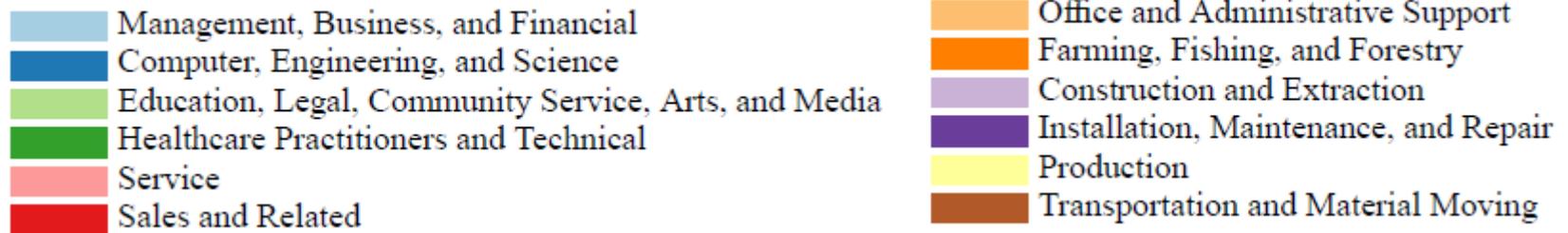
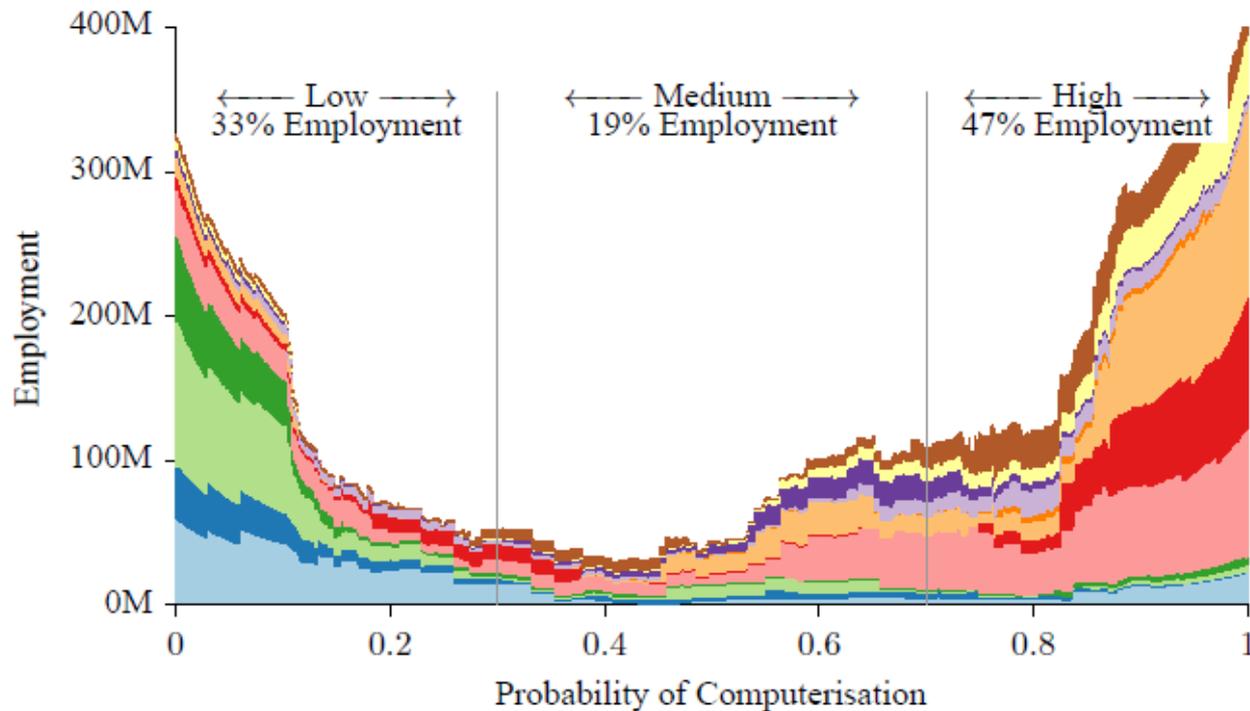


# When were the jobs lost?



Source: Jaimovich and Siu (2012)

# Which jobs are most at risk?



Source: Frey and Osborne (2013)

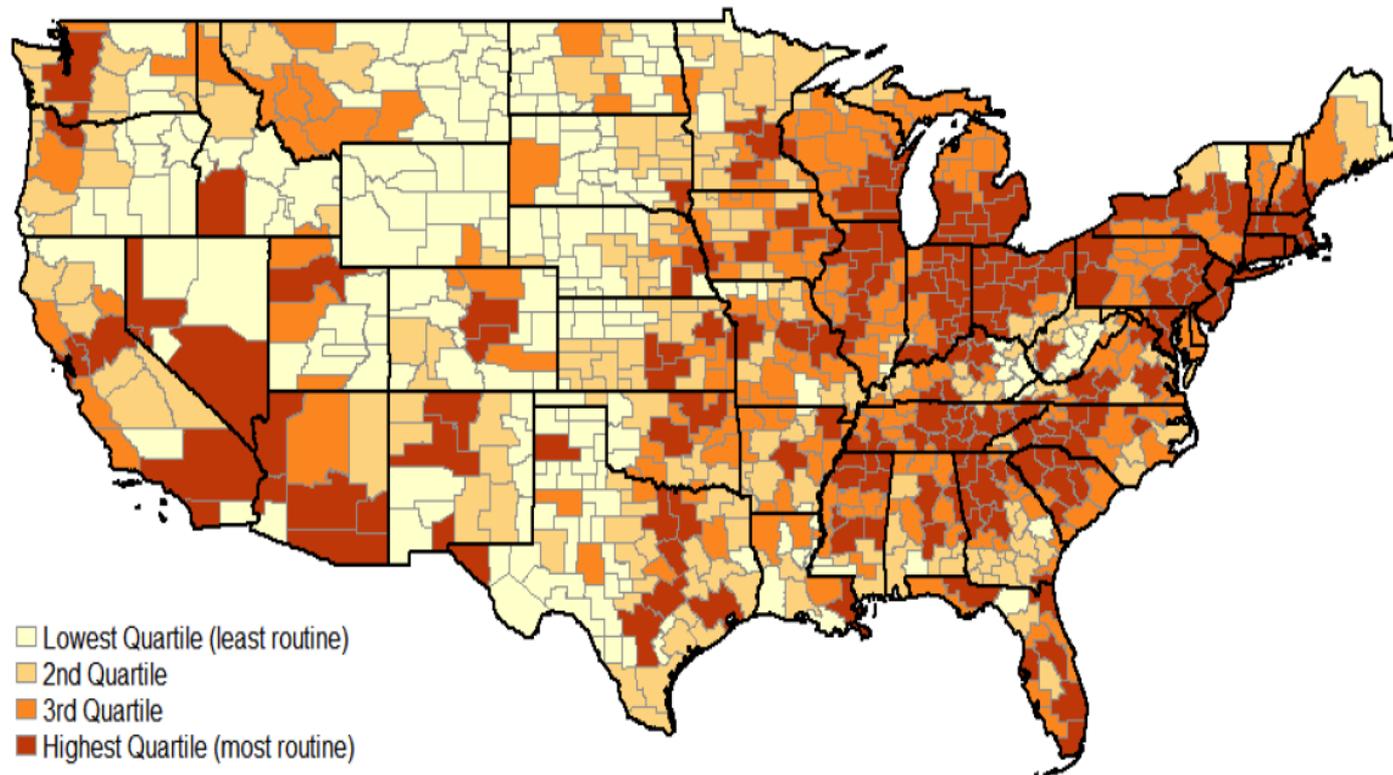
# Which jobs are most at risk?

Occupation	Probability	Occupation	Probability
Recreational Therapists	0.0028	Economists	0.43
Oral Surgeons	0.0036	Personal Financial Advisors	0.58
Computer Systems Analysts	0.0065	Social Science Research Assistants	0.65
Secondary School Teachers	0.0078	Janitors and Cleaners	0.66
Mechanical Engineers	0.011	Bus Drivers	0.67
Chief Executives	0.015	Food Preparation Workers	0.87
Financial Analysts	0.23	Loan Interviewers and Clerks	0.92
Medical Assistants	0.3	Telemarketers	0.99

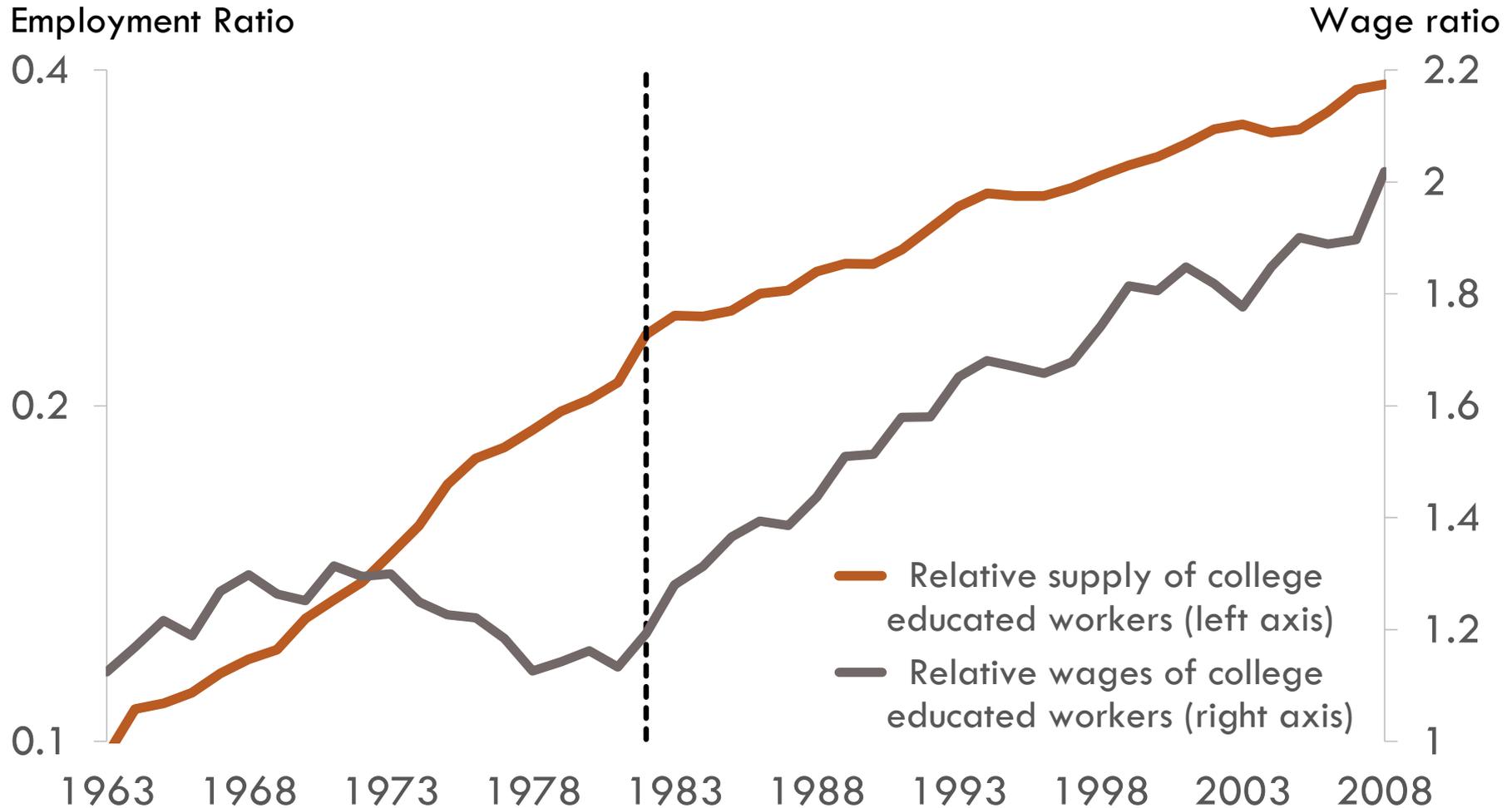
# Causes: Globalization

- Exposure to import competition causes unemployment in local labor markets
  - ▣ Manufacturing, non-college educated workers
  - ▣ Routine tasks are also more affected by globalization
- Areas with a large share of routine task intensive occupations have polarized within each sector

# Routine Employment Share in the U.S.



# The role of education: are we losing the race between education & technology?



# Review of National Polarization

- Labor market has been polarizing for 25+ years
- Extraordinary technological change has led to the automation of middle-paying jobs
  - ▣ Large swath of current employment vulnerable to further automation
- Routine jobs most vulnerable to automation
- Premium for college education has risen as expansion in the supply of skilled workers has slowed

# How has Texas fared?

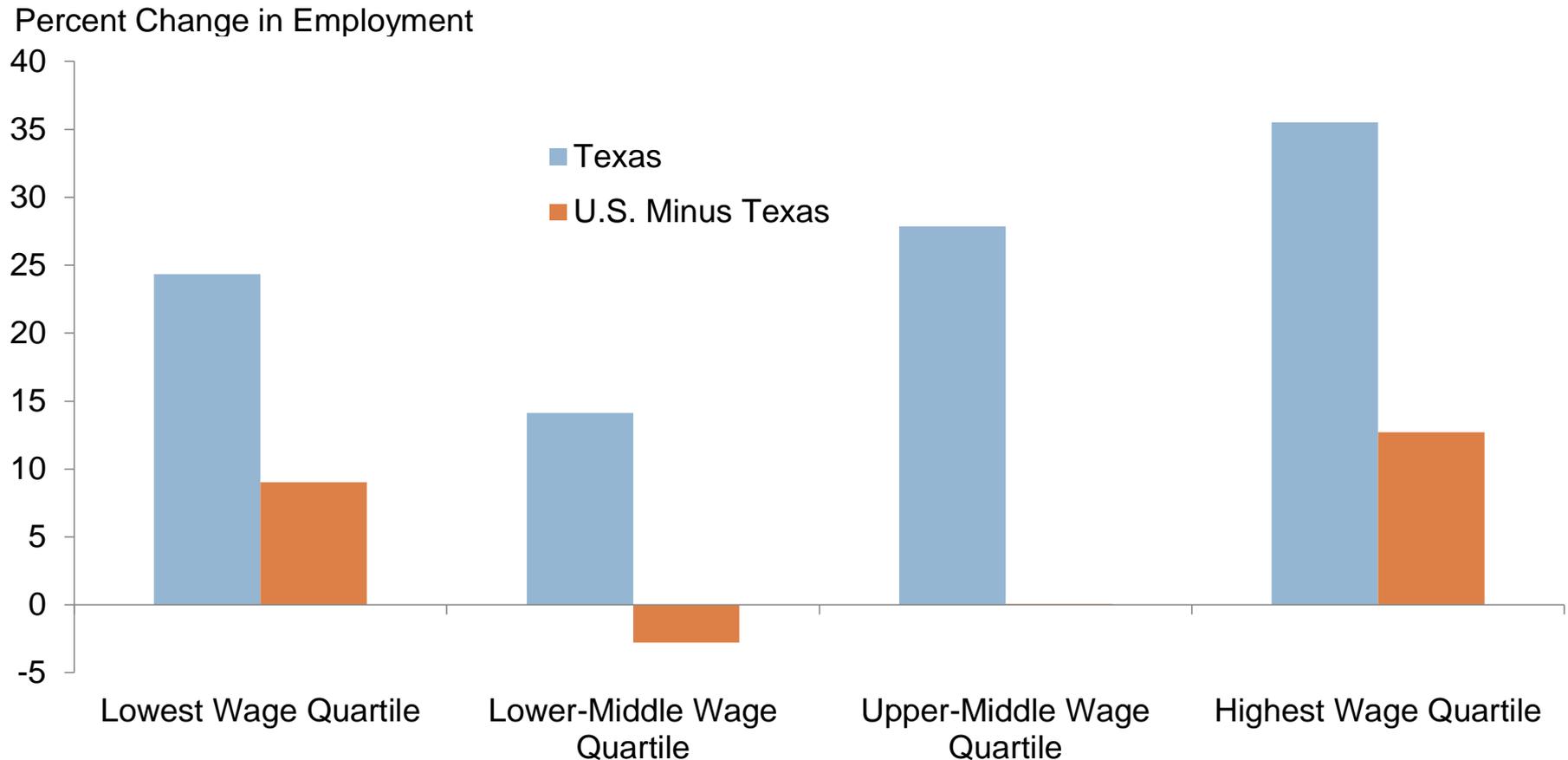
- Texas has been a leader in job creation, especially since the Great Recession
- Texas gets an especially large amount of criticism for creating mainly low-paying, low-skilled jobs
  - “If you want a bad job, go to Texas”

# Larger share of low-paying jobs

State	% At or Below Min Wage	State	% At or Below Min Wage
Idaho	7.7	Connecticut	2.7
<b>Texas</b>	<b>7.5</b>	Vermont	2.7
Oklahoma	7.2	Washington	1.7
Louisiana	7.1	Montana	1.5
Arkansas	6.9	<b>California</b>	<b>1.4</b>
Virginia	6.8	Oregon	1.1
Georgia	6.4	Alaska	1.0
NATIONAL AVERAGE: 4.7			

# ...but strong growth across the wage distribution

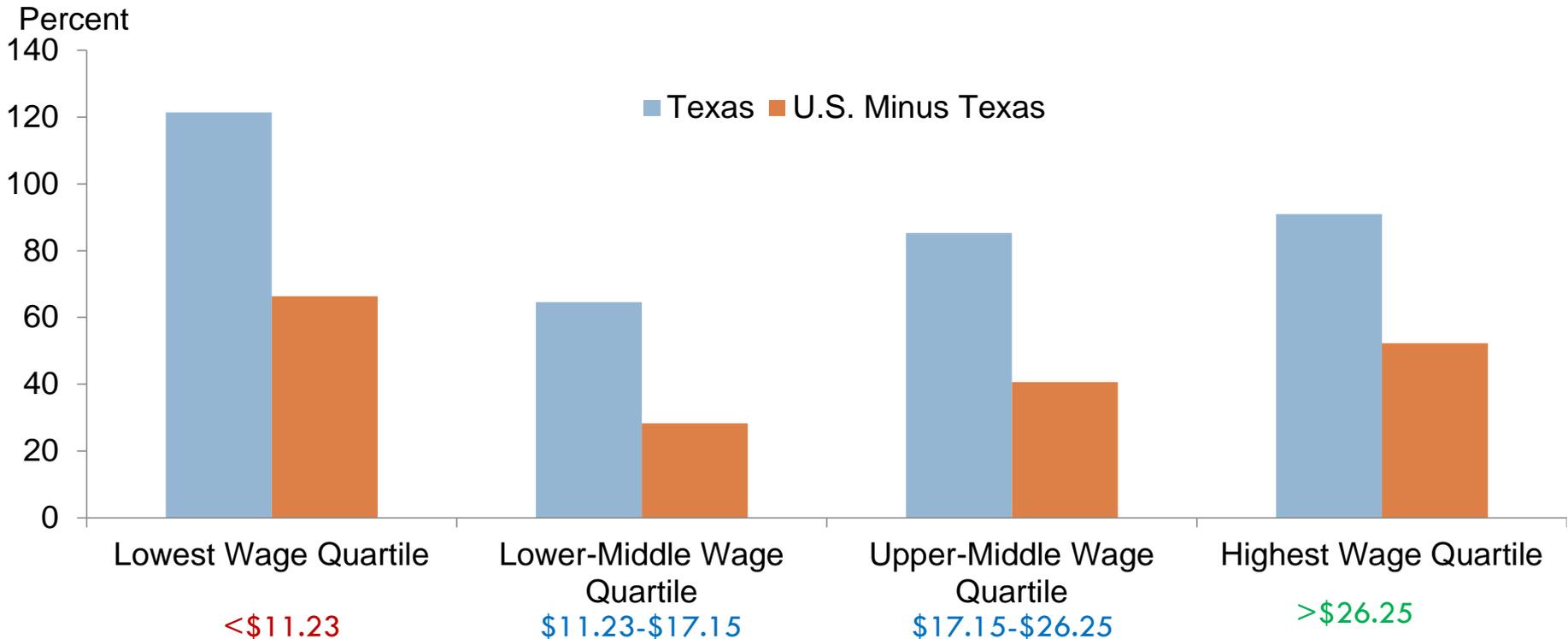
**Job Growth by Wage Quartile 2000-2013**



SOURCE: Current Population Survey Merged Outgoing Rotation Groups 2000, 2013.

# This pattern persists over a longer time period

Change in Employment by Wage Quartile 1979-2011

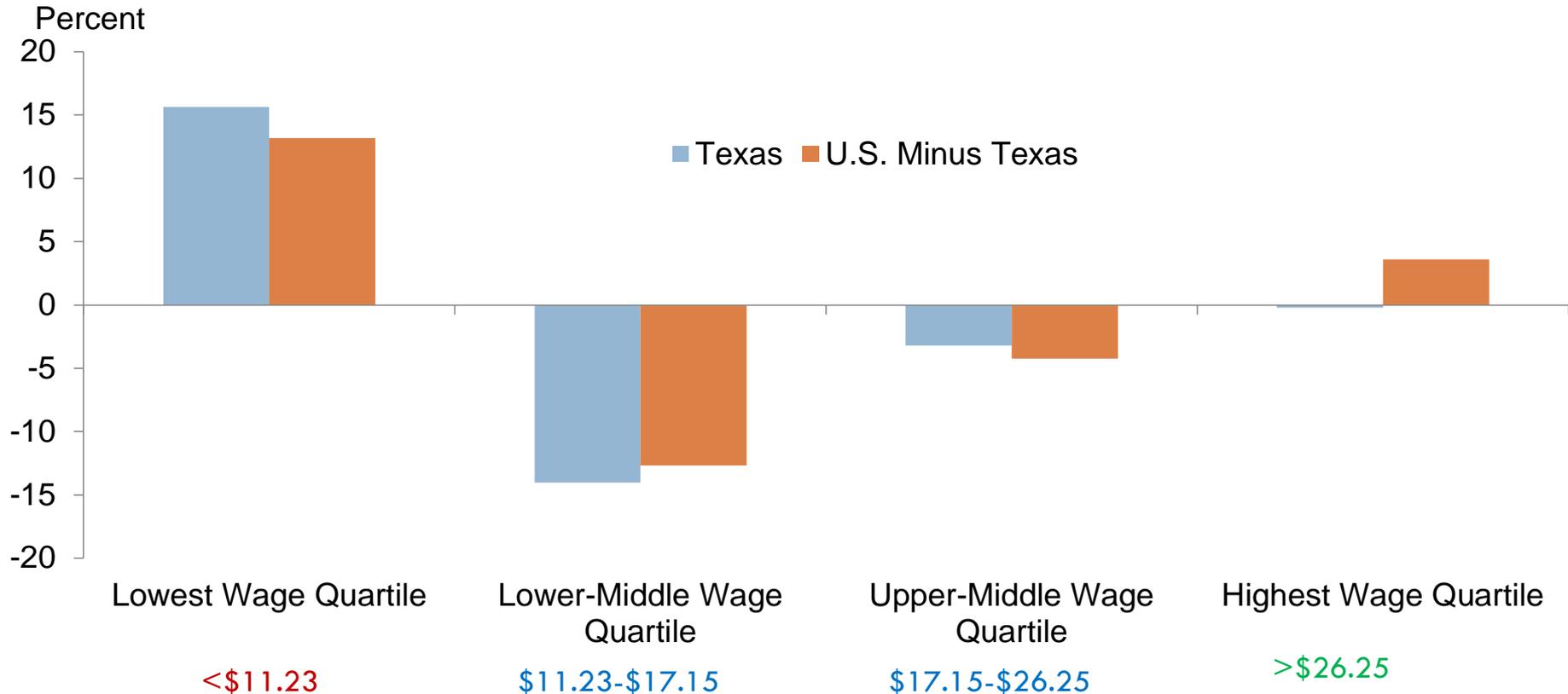


NOTE: Calculations include workers over age 15 with positive wages. Quartiles based on 1980 decennial census, which refers to 1979 wages.

SOURCE: 1980 Census, 2012 American Community Survey.

# ...but Texas is polarizing, too

Change in Employment Share by Wage Quartile 1979-2011

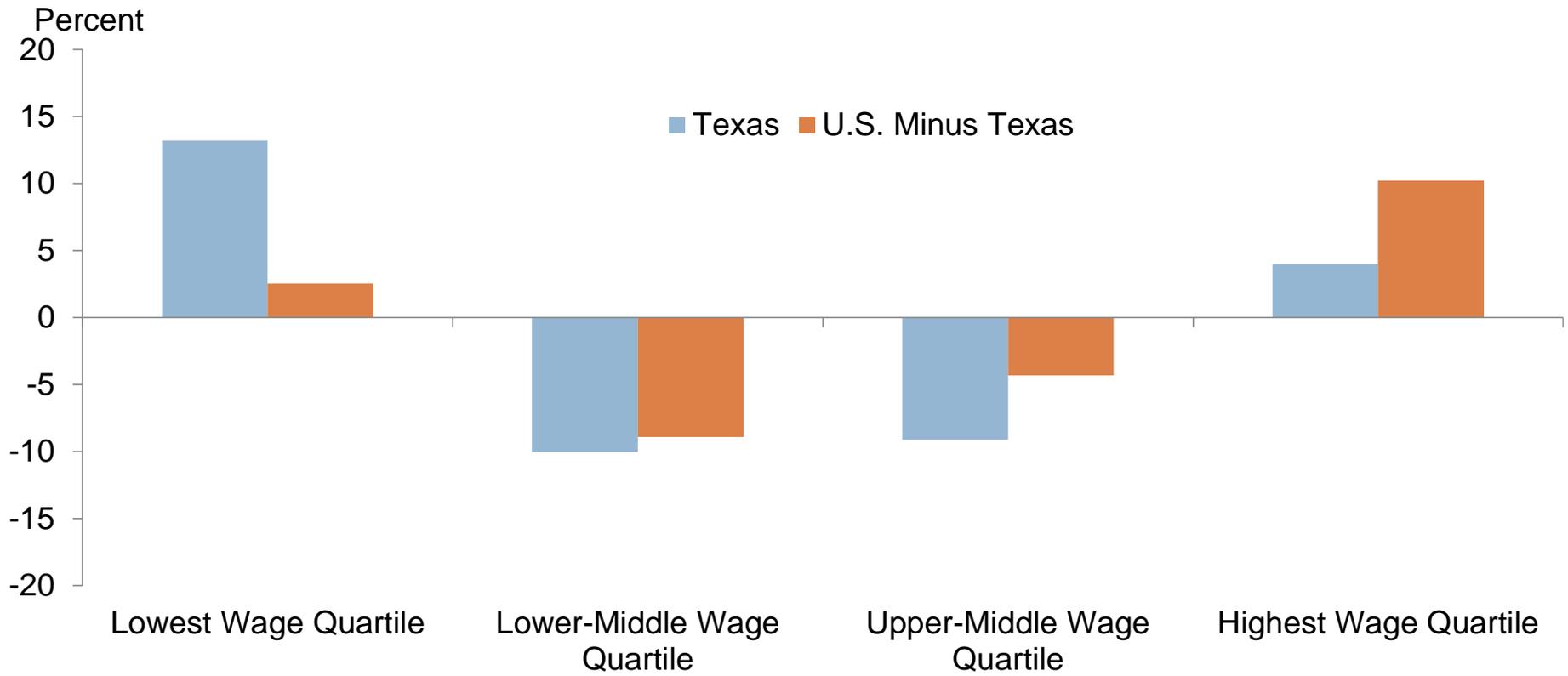


NOTE: Calculations include workers over age 15 with positive wages. Quartiles based on 1980 decennial census, which refers to 1979 wages.

SOURCE: 1980 Census, 2012 American Community Survey.

# Recession has boosted low-wage job growth relative to high-wage

Change in Employment Share by Quartile 1979-2006



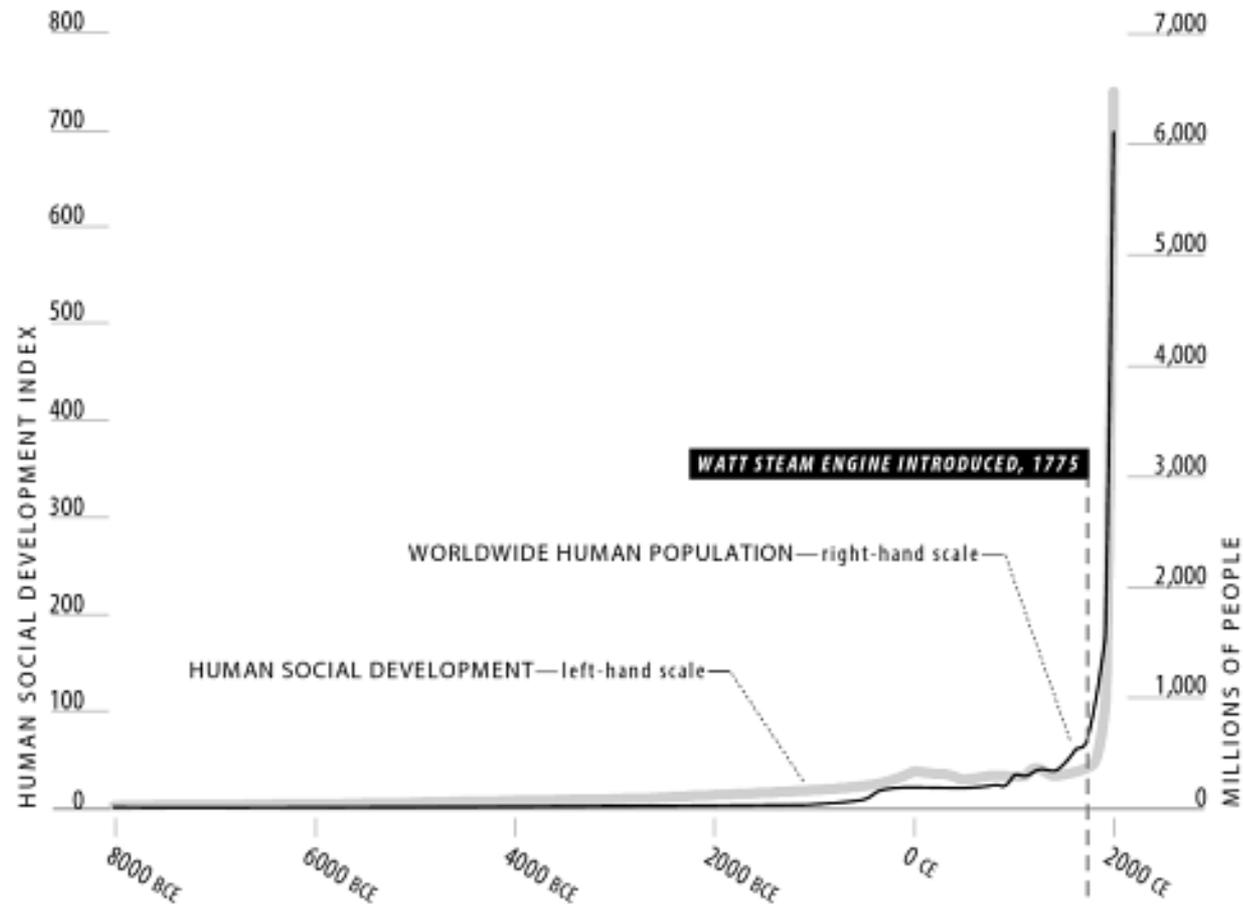
NOTE: Calculations include workers over age 15 with positive wages. Quartiles based on 1980 decennial census, which refers to 1979 wages.

SOURCE: 1980 Census, 2007 American Community Survey.

# Review: Job Growth in Texas

- Texas has experienced above-average employment growth, especially in the last decade, for a variety of reasons
  - ▣ Energy, demographics, abundance of land, light tax/regulatory burden
- But the Texas labor market is also polarizing in the long run, for similar reasons
- The recession has likely exacerbated these trends

# Has this happened before?

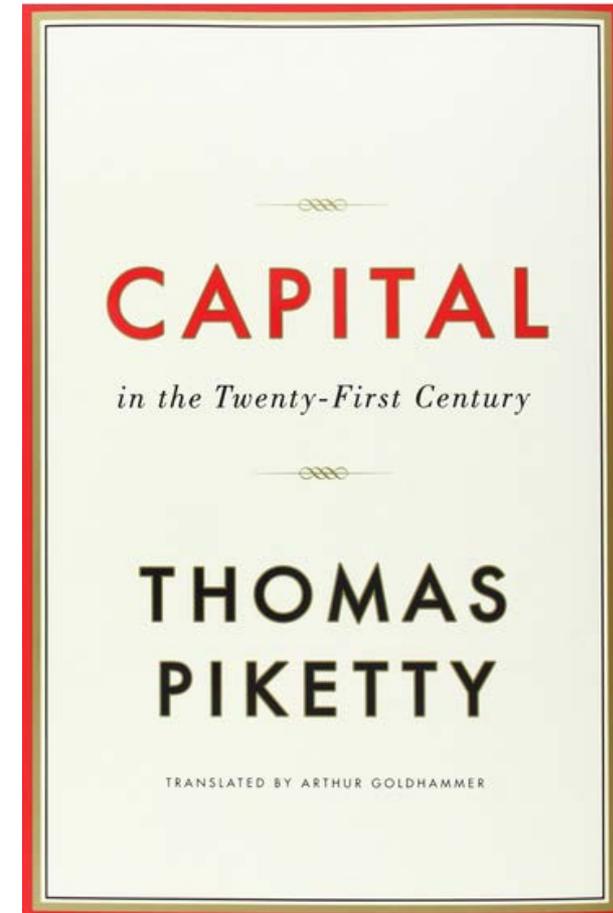
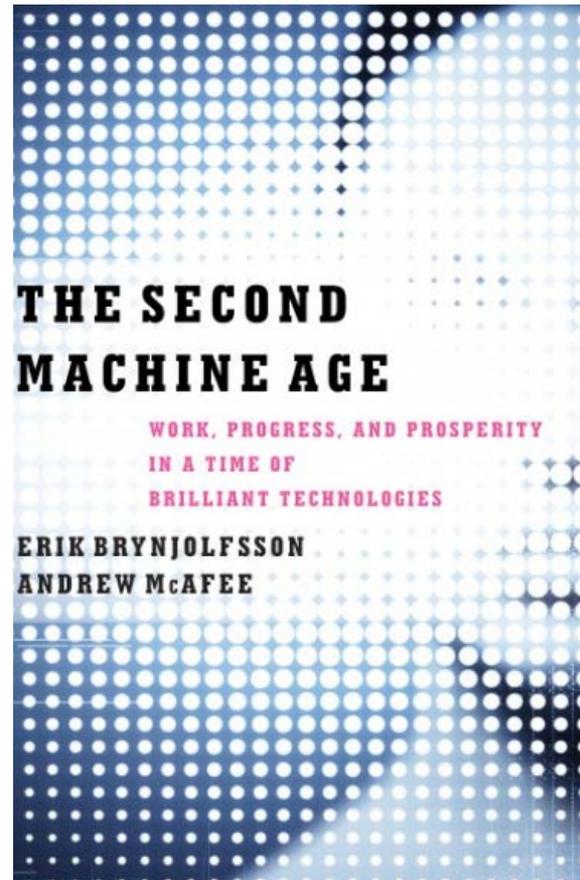
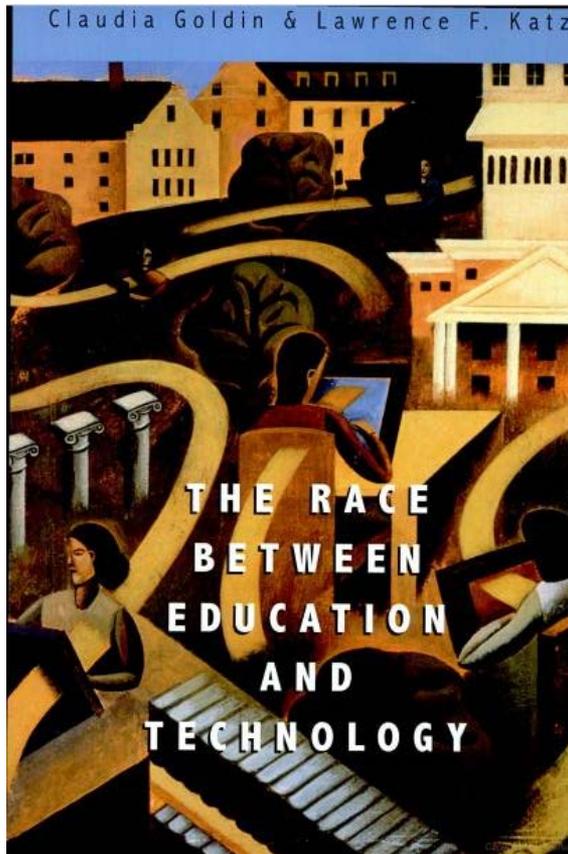


Source: Brynjolfsson and McAfee, 2014.

# The Second Machine Age?

- Some argue that technological change is bending the curve of human development again
  - ▣ In the long-term, we benefit from improved quality of life and new occupations are created
  - ▣ In Brynjolfsson and McAfee's work, the issue is the “bounty” versus the “spread”

# Summer Reading on Polarization



THANKS!





# Wage Quartiles and Employment Growth

		Change in Employment (thous) 2000-2013	
<u>Wage Quartile</u>	<u>Cutoffs (r.2013\$)</u>	<u>Texas</u>	<u>Rest of U.S.</u>
Lowest	< 11.42	627.9	2,329.6
Lower-Middle	11.42-16.92	298.2	-731.4
Upper-Middle	16.93-26.04	512.7	11.4
Highest	>26.04	618.3	3,398.5
Total	-	2,057.1	5,008.2
Total % Change	-	24.9	4.7