Global Inequality & Growth:

Inequality and the skill premium

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Last lecture

- Rising labor income inequality explains bulk of rising income inequality in the US from 1970 to 2000s

This lecture: how large a part does labor market pricing of skills play?

What determines labor income inequality?

- In a perfectly competitive economy, wage = marginal productivity
- Marginal productivity depends on (i) tasks that workers can accomplish (skills); (ii) relative scarcity
- So depends on skill demand (skills employers require) and skill supply (skills workers have acquired)

Tinbergen model of skill premium

- Technological advances → skill demand
- Advances in education → skill supply (→ skill demand?)

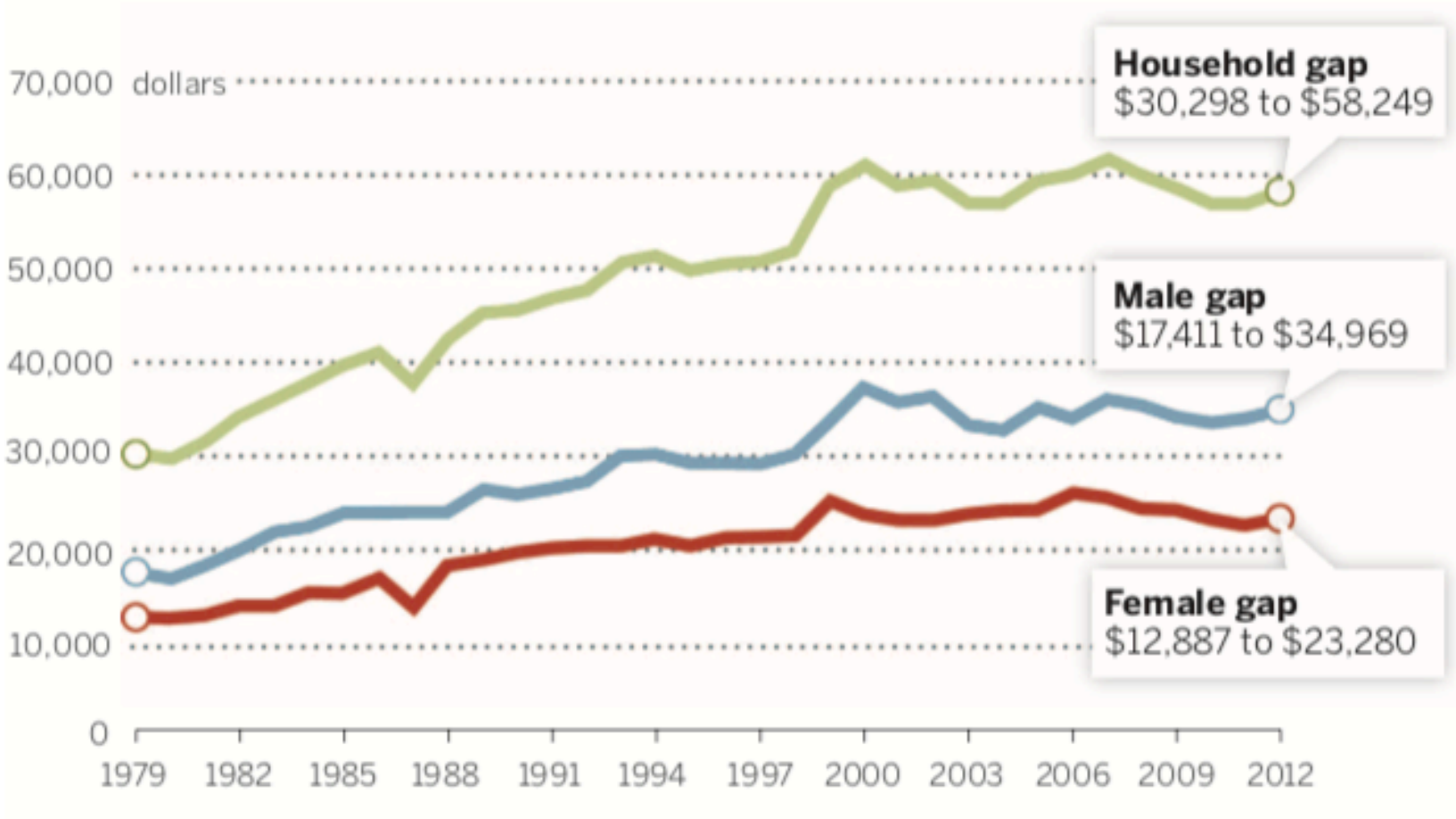
→ There's a race between education (skill supply) and technology (skill demand) = Tinbergen model

The rise in the skill premium

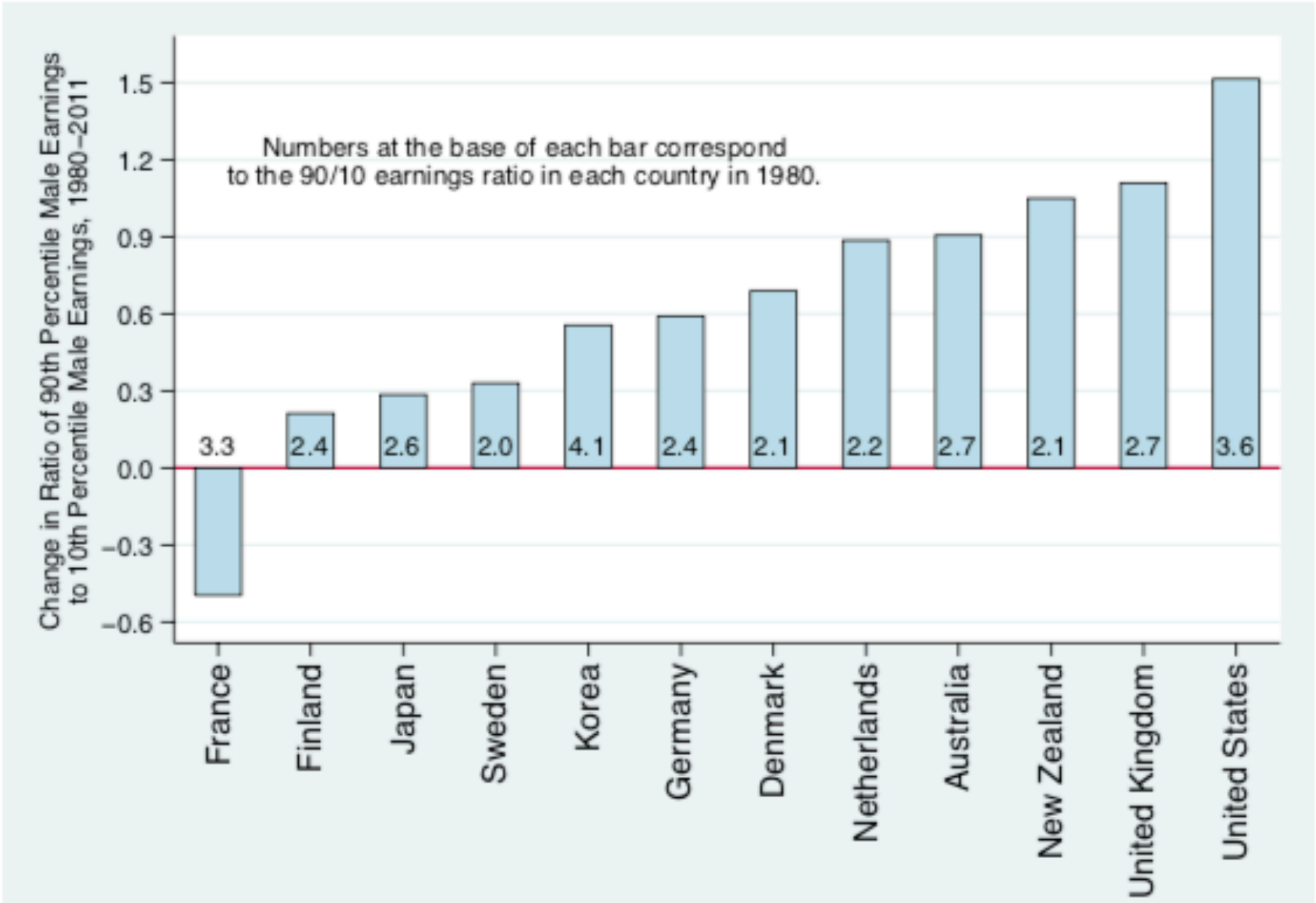
- Skills premium in many advanced countries in recent decades
- US: earnings gap between college and high school graduates has more than doubled over the past three decades
- Increase in the skill wage premium explains 60–70% of the rise of US wage inequ. between 1980 and 2005 (Goldin and Katz 2010)
- The US skill premium has increased more than most other developing countries

College/high school median annual earnings gap, 1979–2012

In constant 2012 dollars



Source: Autor (2014)


Change in Ratio of 90th Percentile Male Earnings to 10th Percentile Male Earnings, 1980–2011
1.5
1.2
0.9
0.6
0.3
0.0
−0.3
−0.6
Numbers at the base of each bar correspond to the 90/10 earnings ratio in each country in 1980.
3.3
2.4
2.6
2.0
4.1
2.4
2.1
2.2
2.7
2.1
2.7
3.6
France
Finland
Japan
Sweden
Korea
Germany
Denmark
Netherlands
Australia
New Zealand
United Kingdom
United States

Kahoot! If there is an increase in the supply of college educated workers the skill premium:

1. Decreases
2. Increases
3. Stagnates
4. Decreases or increases or stagnates

Why has the skill premium increased?

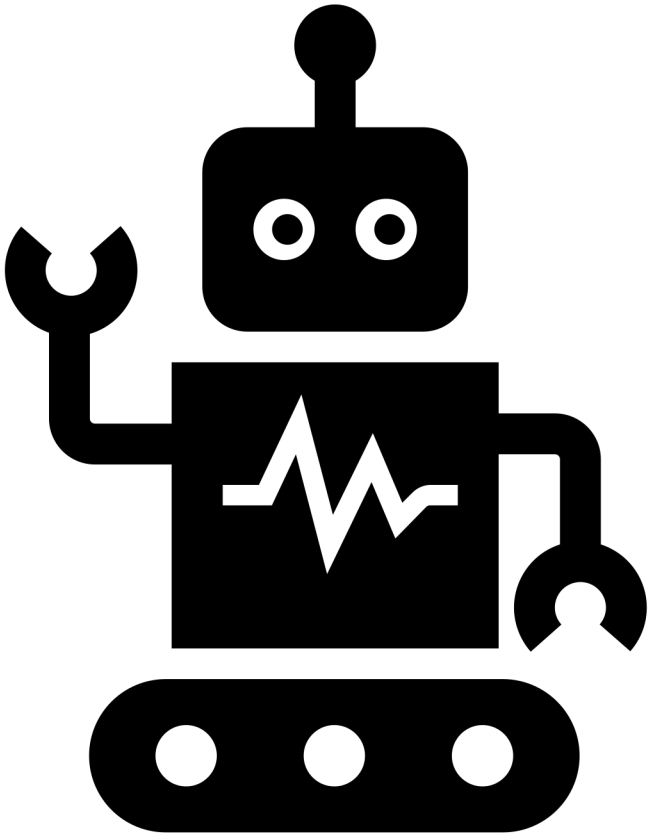
Why are skilled so heavily rewarded? Two main factors:

1. change in skill supply
2. change in skill demand

Skill supply has stagnated

- Key determinant of the supply of skills = education system
- 1900-1940: US became first nation in the world to deliver universal high school education to its citizens.
- But in 1940, only 6% of Americans had 4-year college degree
- 1950s-1970s: sharp rise in college enrollment: GI bills; Vietnam war draft deferral
- After 1982: big slowdown (modest increase since post 2005 → flattening of the college premium after 2005)

The impact of automation: skill demand!



"The Automation Jobless" TIME magazine story of February 24, 1961:

"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 . . . . 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."

Do robots kill jobs?

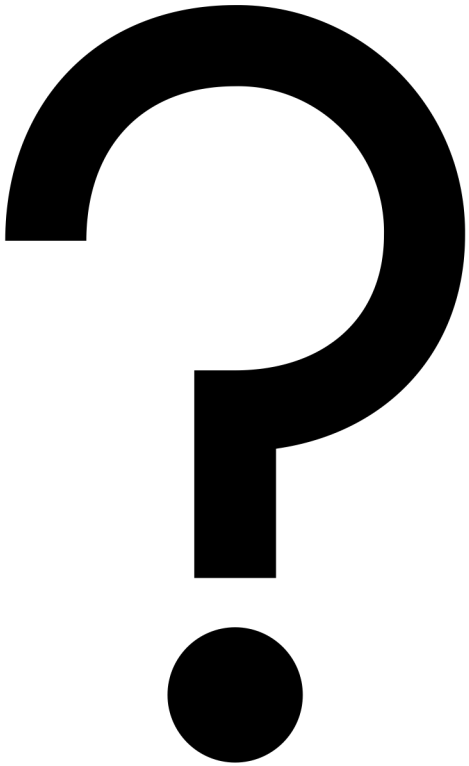
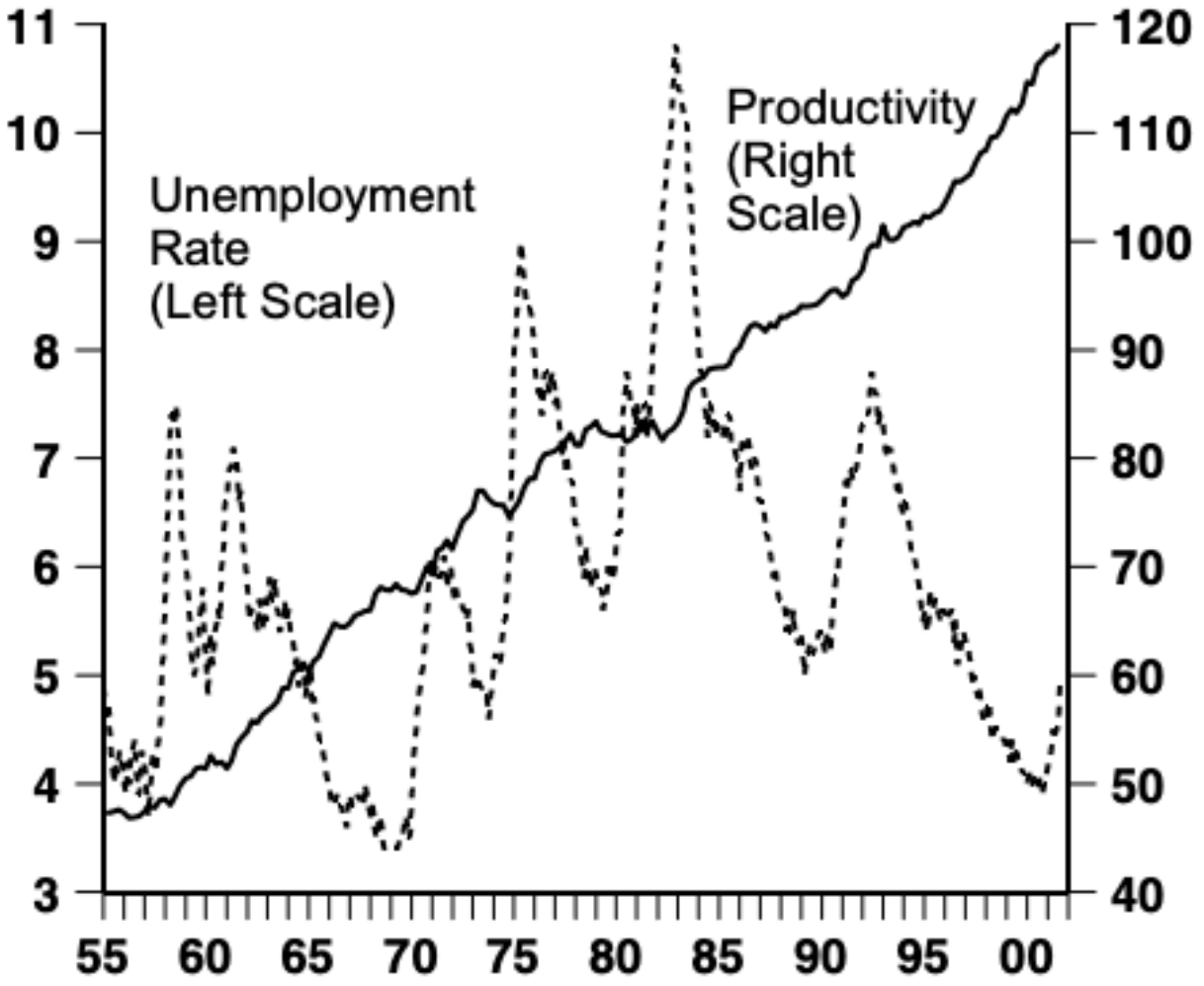


Figure 1

Productivity and unemployment

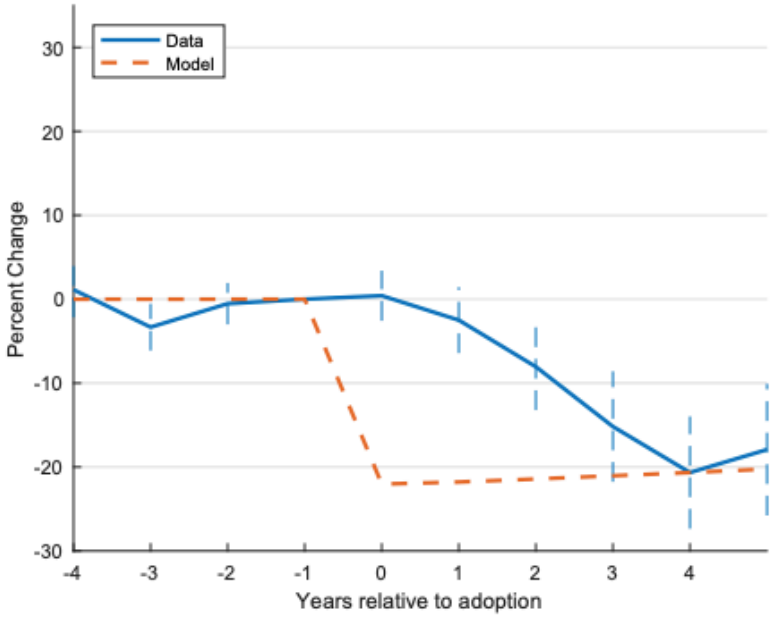


https://www.frbsf.org/economic-research/publications/economic-letter/2001/october/unemployment-and-productivity/#subhead4

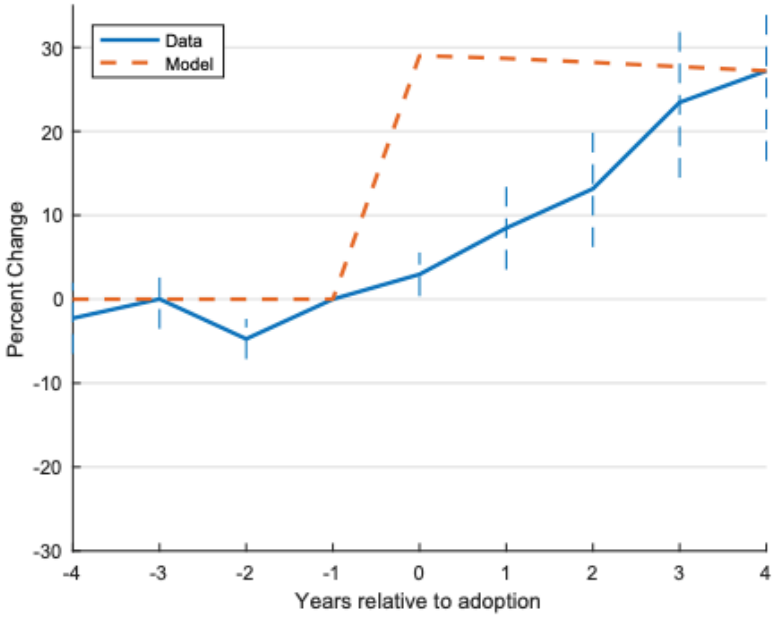
Robot Adoption and Labor Market Dynamics

Figure 2: Firm Wage Bills Around Robot Adoption (Matching Diff-in-Diff)

(a) Production Workers



(b) Tech Workers



Robot Adoption and Labor Market Dynamics, Anders Humlum, 2020

Skill demand is going up

- Stagnating skill supply but skill demand continued to rise post 1980
- 20th century: successive waves of innovation (electrification, mass production, motorized transportation, telecommunications) have demand for physical labor and the centrality of cognitive labor
- Today: ongoing process of machine substitution for routine human labor

Impact of robots/automation on inequality

- Complements educated workers who excel in abstract tasks that are at present difficult to automate but essential to perform
- But devalues the skills of workers → drops in non-college employment opportunities in production, clerical, and administrative support positions stemming from automation

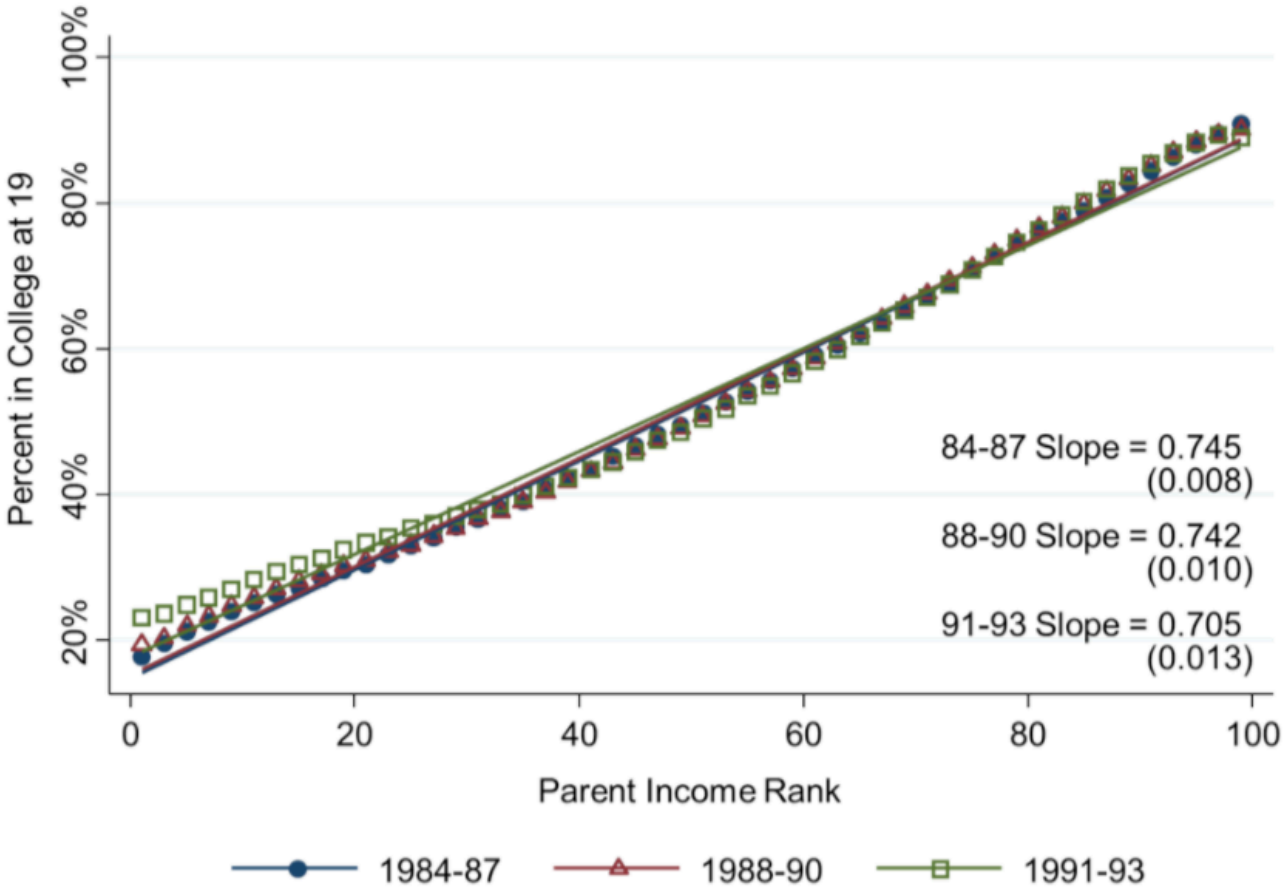
→ fall in real wage of low-educated workers:

- -22% over 1980-2012 for high school dropouts males
- -11% for high school graduate
- Fall of labor force participation

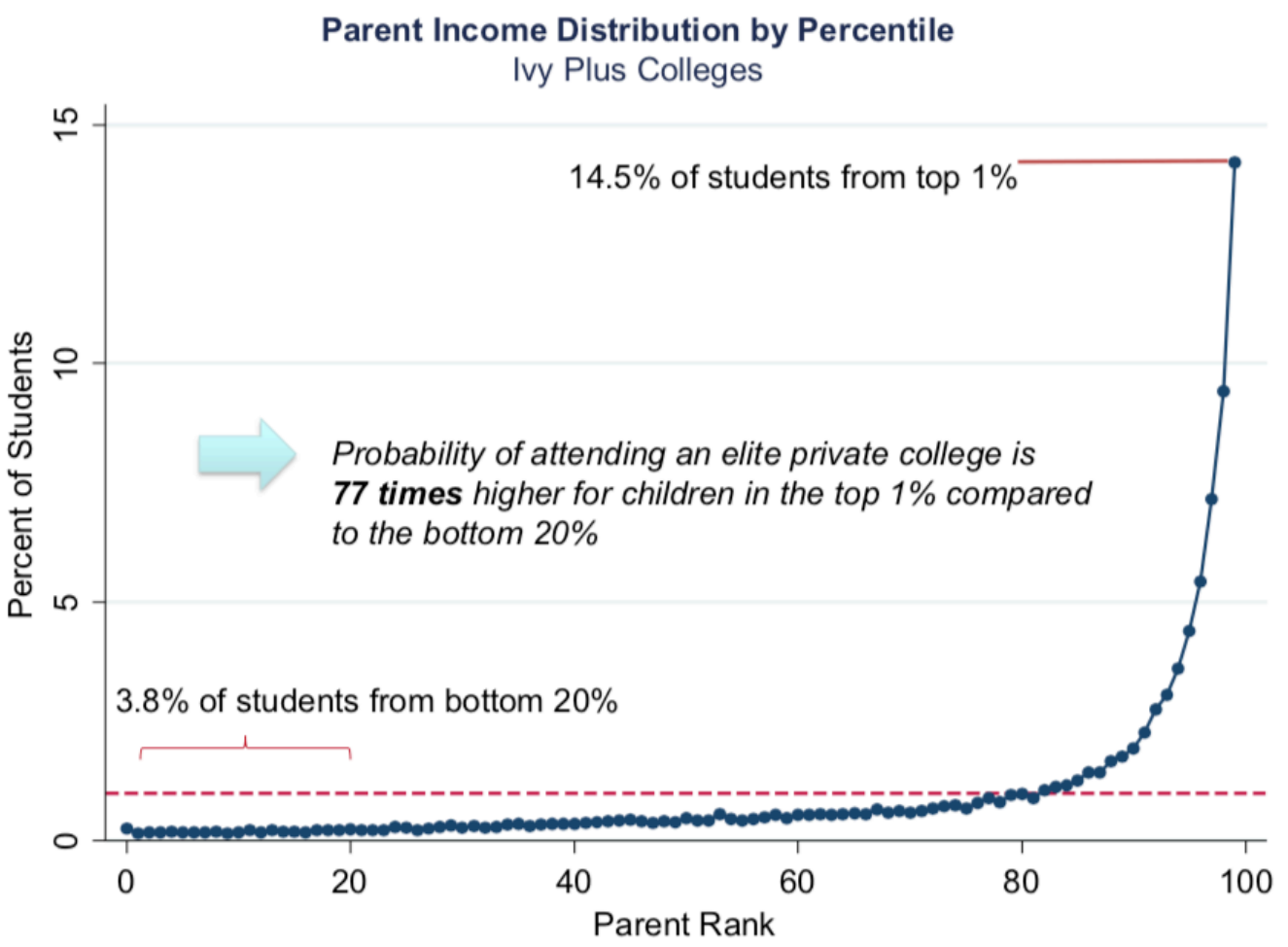
Why has college supply declined?

- Temporary factor: end of Vietnam war
- Long run factor: inequality in access to education

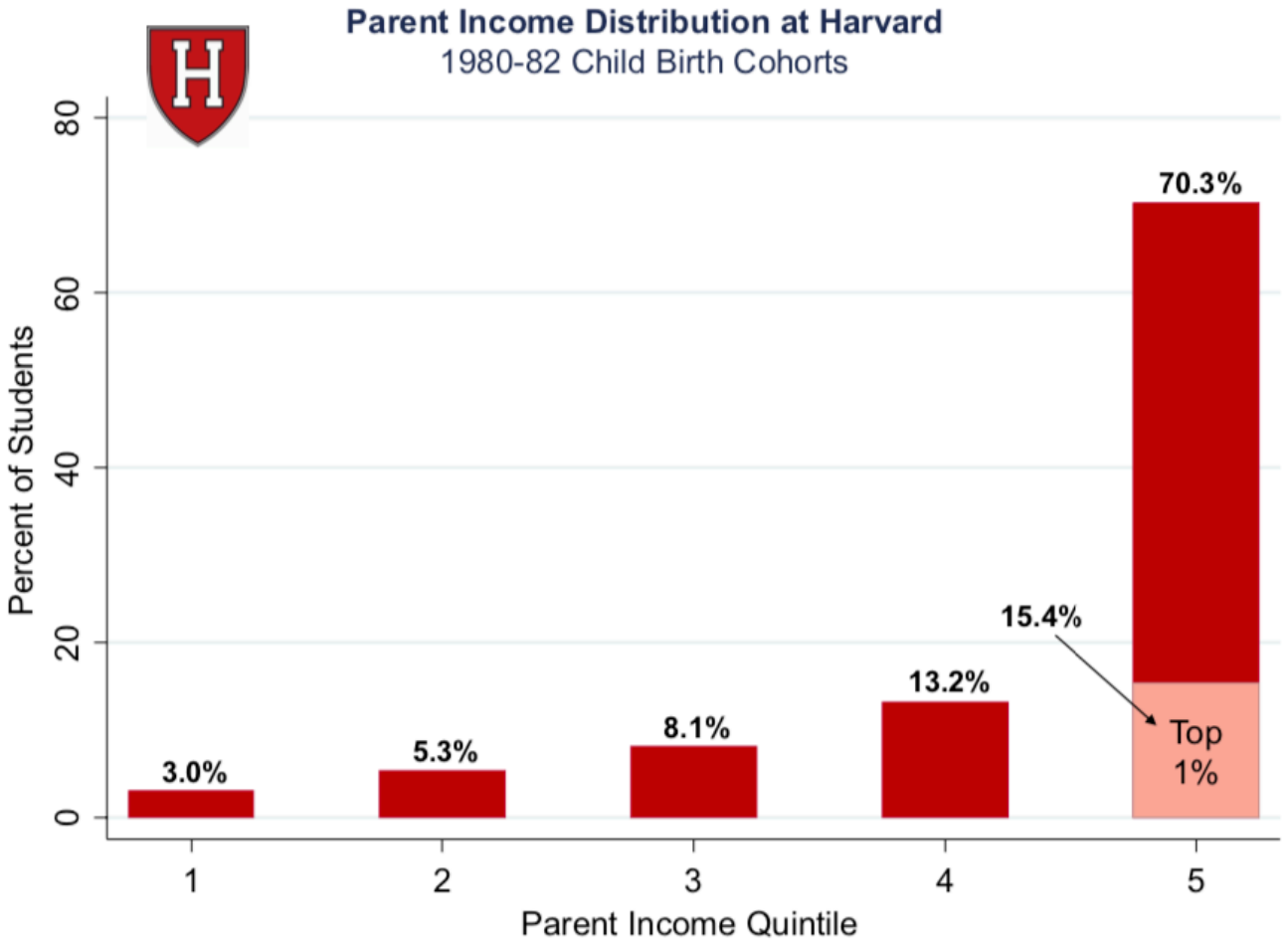
Appendix Figure 4. College Attendance Rates vs. Parent Income Rank by Cohort



Source: Chetty et al. (2014)

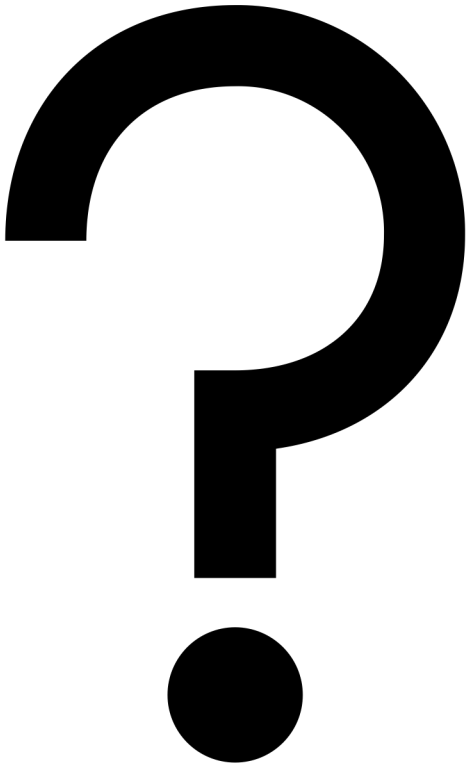


Source: Chetty et al. (2016)



Source: Chetty et al. (2016)

Is the skill premium 100% real?



Kahoot! You have two options:

a) Go to Berkeley and learn lots of stuff, but tell no one

b) Don't go to Berkeley, but get a certificate that says you did

Which matters most for your lifetime earnings?

Policy implications

- Right way to reduce wage inequ. in the long run is through education
- Excellent preschool through high school education
- Broad access to postsecondary education
- Good nutrition, public health, and home environments
- All of this requires gov. revenue: progressive taxes and transfers

References

- Chetty Raj, Nathan Hendren, Patrick Kline, Emmanuel Saez, and Nicholas Turner "Is the United States Still a Land of Opportunity? Recent Trends in Intergenerational Mobility", American Economic Review 2014 (web)
- Chetty Raj, Nathan Hendren, John Friedman, Emmanuel Saez, Nicholas Turner, and Danny Yagan "Mobility Report Cards: The Distribution of Student and Parent Income The Role of Colleges in Intergenerational Mobility", working paper 2017 (web)
- Autor, David "Skills, education, and the rise of earnings inequality among the 'other 99 percent'", Science, 2014 (web)
- Goldinn, Claudia and Lawrence Katz, The Race Between Education and Technology, Harvard University Press, 2010.