

# **Econ 133 – Global Inequality and Growth**

## **Labor income inequality: the role of market forces**

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## Roadmap

- The critical role of skills in the labor market
- Why has the skill premium increased?
- Policy implications of the rise in the skill premium
- Reference for this lecture: Autor (2014)

# 1 The critical role of skills in the labor market

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)

## 1.1 The skill premium

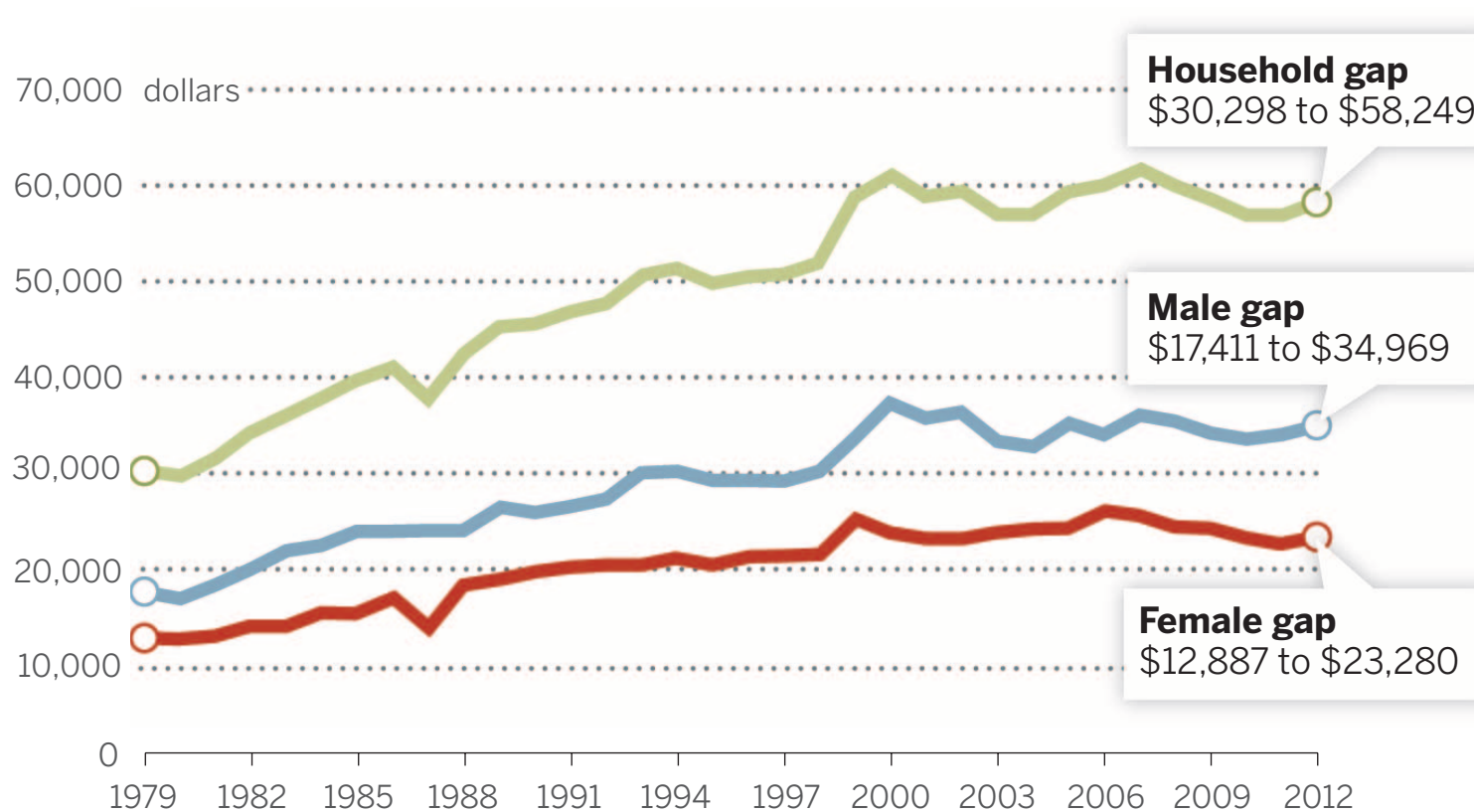
- Assume  $Y = F(L_s, L_u)$  with  $L_s =$  high-skill labor,  $L_u =$  low-skill, and that demand for  $L_s$  rises over time bc of technological change
  - Ex:  $F(L_s, L_u) = L_s^\alpha L_u^{1-\alpha}$ , with  $\alpha \uparrow$  over time
  - If the skill supply  $L_s$  is fixed, then the relative wage of high-skill labor  $w_s/w_u$  (= skill premium) will rise over time
- There's a race between education (skill supply) and technology (skill demand) = Tinbergen model

## 1.2 The rise in the skill premium

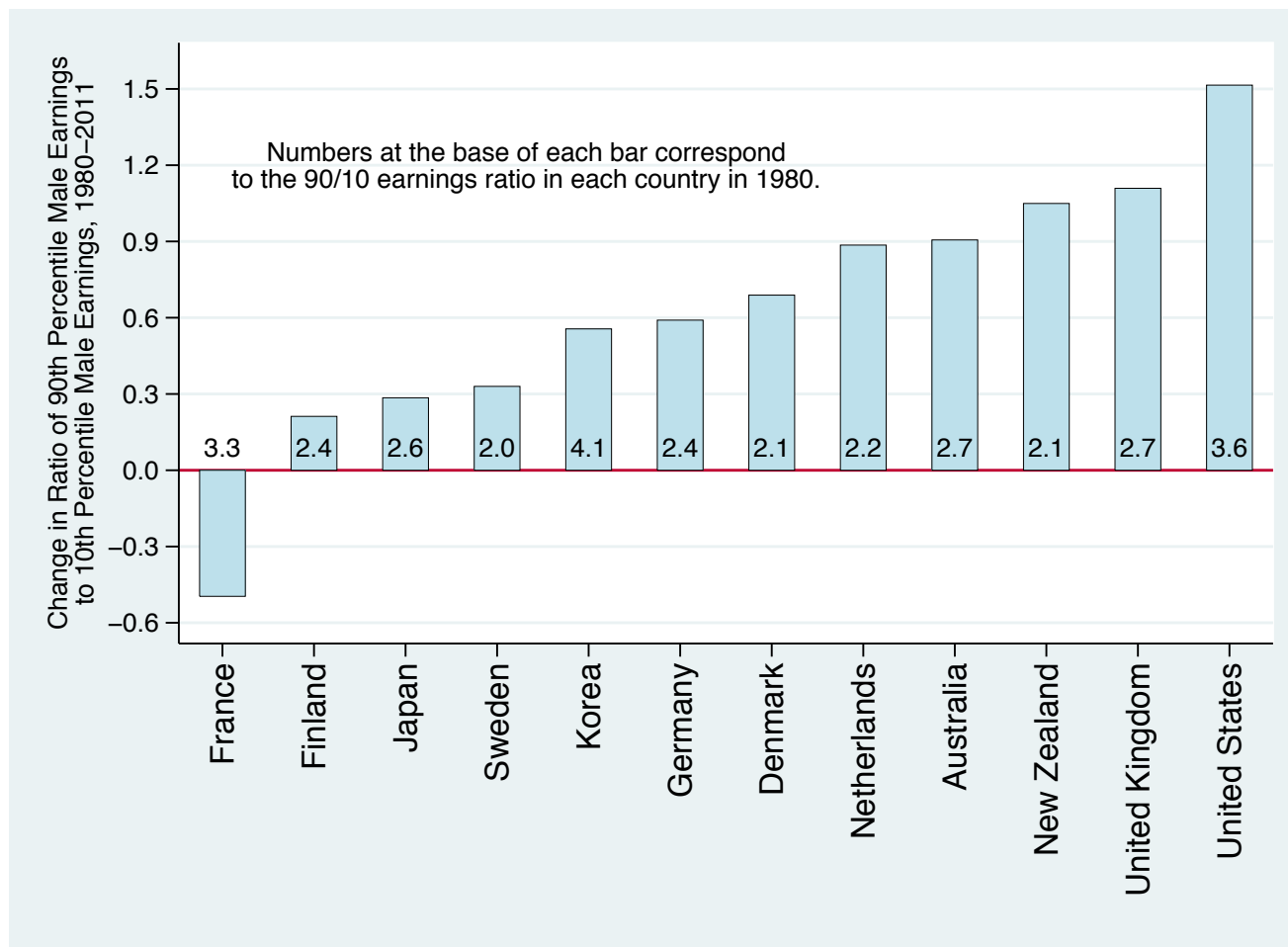
- Skills premium  $\nearrow$  in many advanced countries in recent decades
- US: earnings gap between college and high school graduates has more than doubled over the past three decades
- Increase in the skill wage premium explains 60–70% of the rise of US wage inequ. between 1980 and 2005 (Goldin and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

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

In constant 2012 dollars



Source: Autor (2014)



Source: Autor (2014)

Whenever the supply of college educated workers stagnates, the skill premium always rises:

A — True

B — False



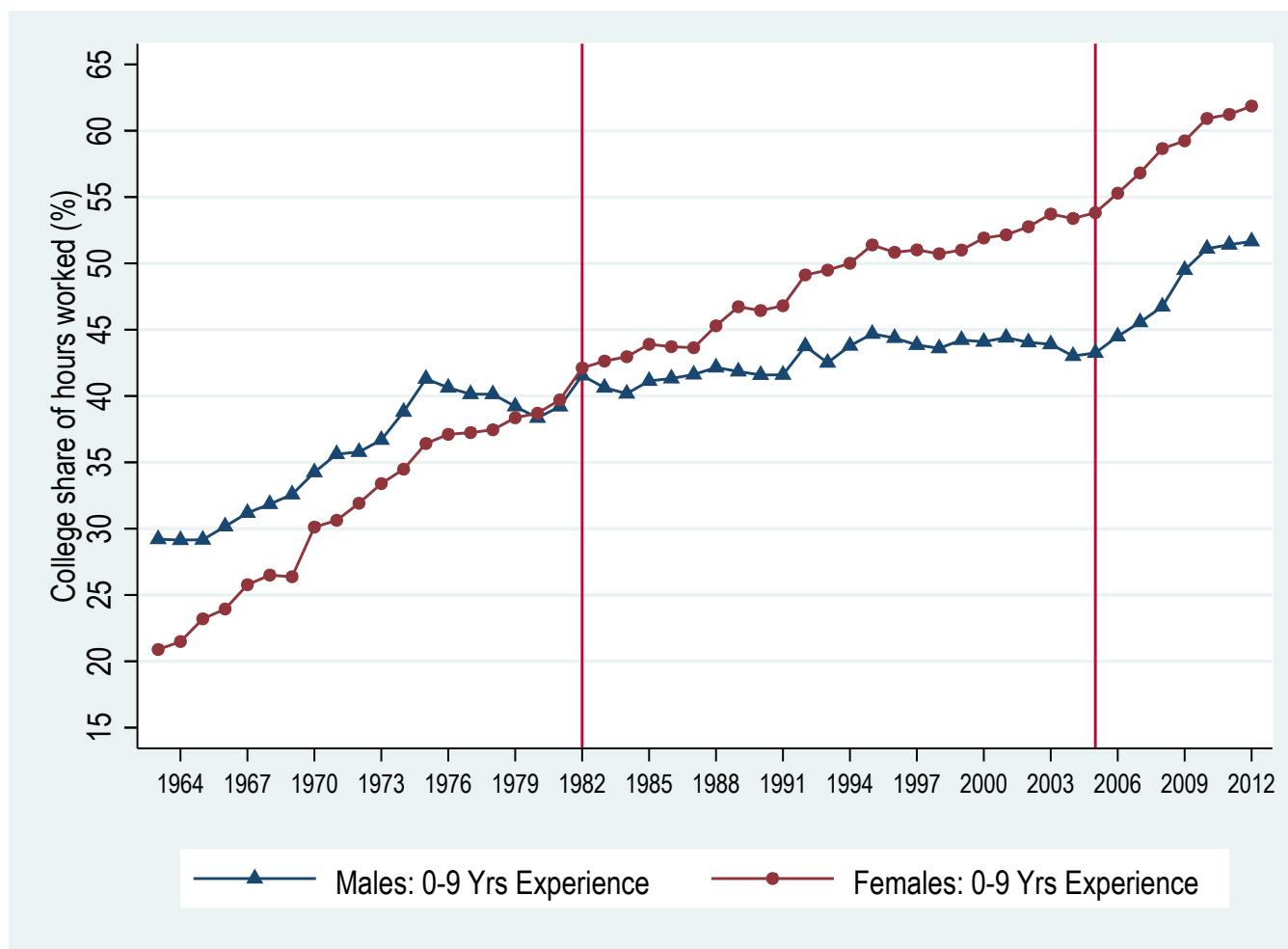
## 2 Why has the skill premium increased?

Why are skilled so heavily rewarded? Two main factors: change in skill supply, change in skill demand

### 2.1 Skill supply

- 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.

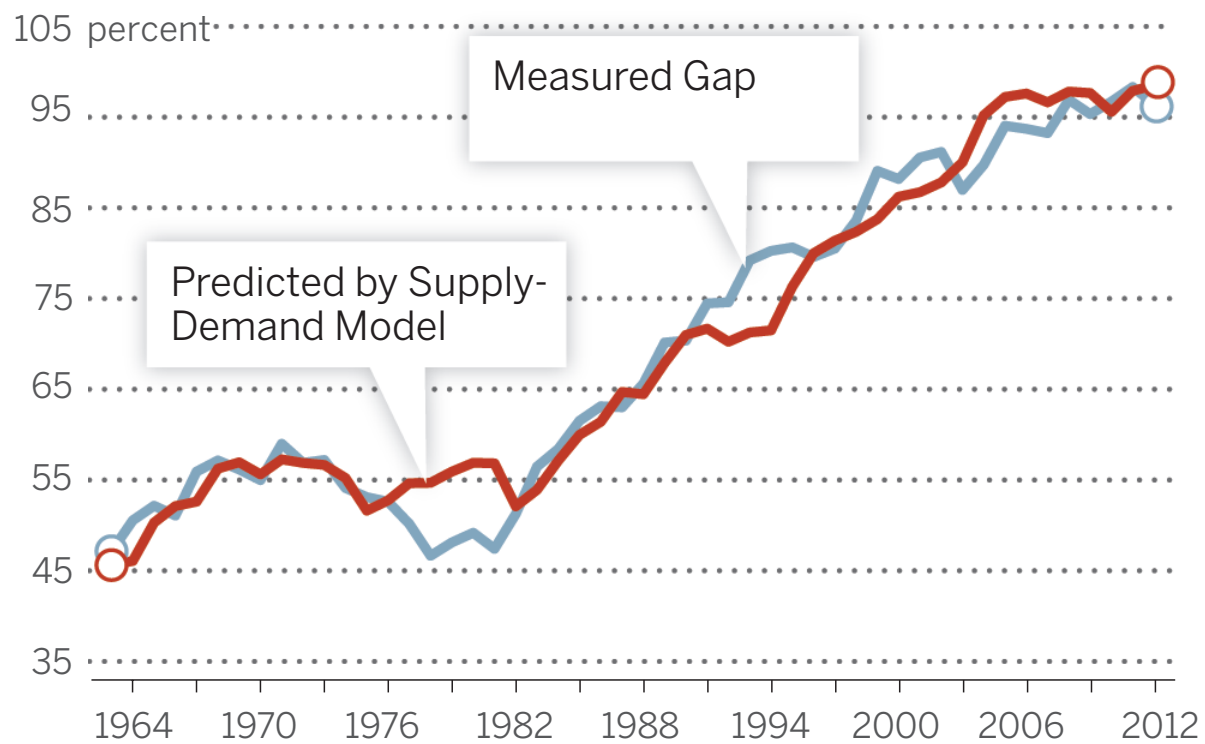
- But in 1940, only 6% of Americans had 4-year college degree
- 1950s-1970s: sharp rise in college enrollment: GI bills; Vietnam war draft deferral
- After 1982: big slowdown (modest increase since post 2005 → flattening of the college premium after 2005)
- Goldin and Katz (2010) find systematic  $< 0$  correlation between growth rate of college grads and change in skill premium in the US



Source: Autor (2014)

### College versus high school wage gap (%)

**B**



Source: Autor (2014)

## 2.2 Skill demand

- Stagnating skill supply a pb bc 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. Consequences:

- 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:

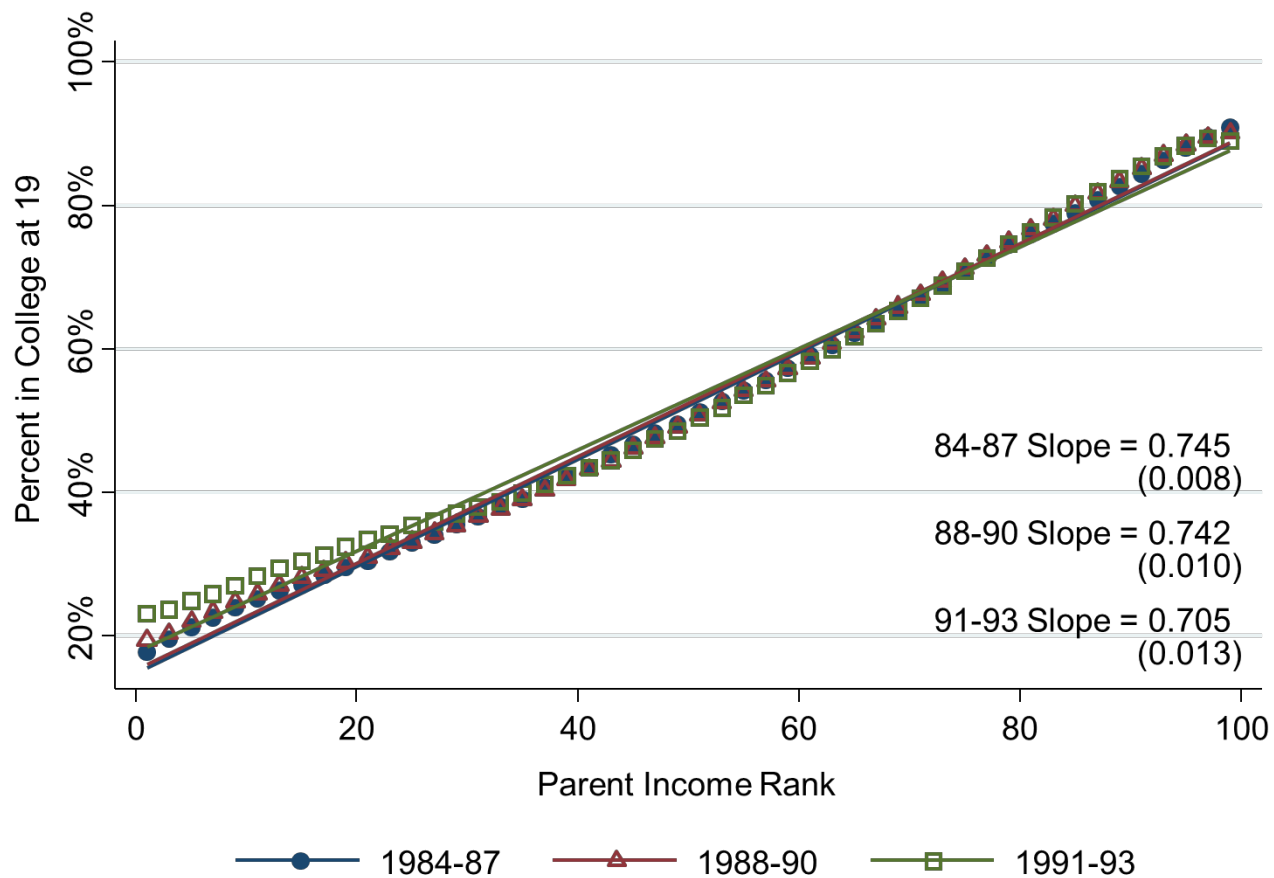
- -22% over 1980-2012 for high school dropouts males

- -11% for high school graduates
- Fall of labor force participation

## **2.3 Why has college supply declined?**

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

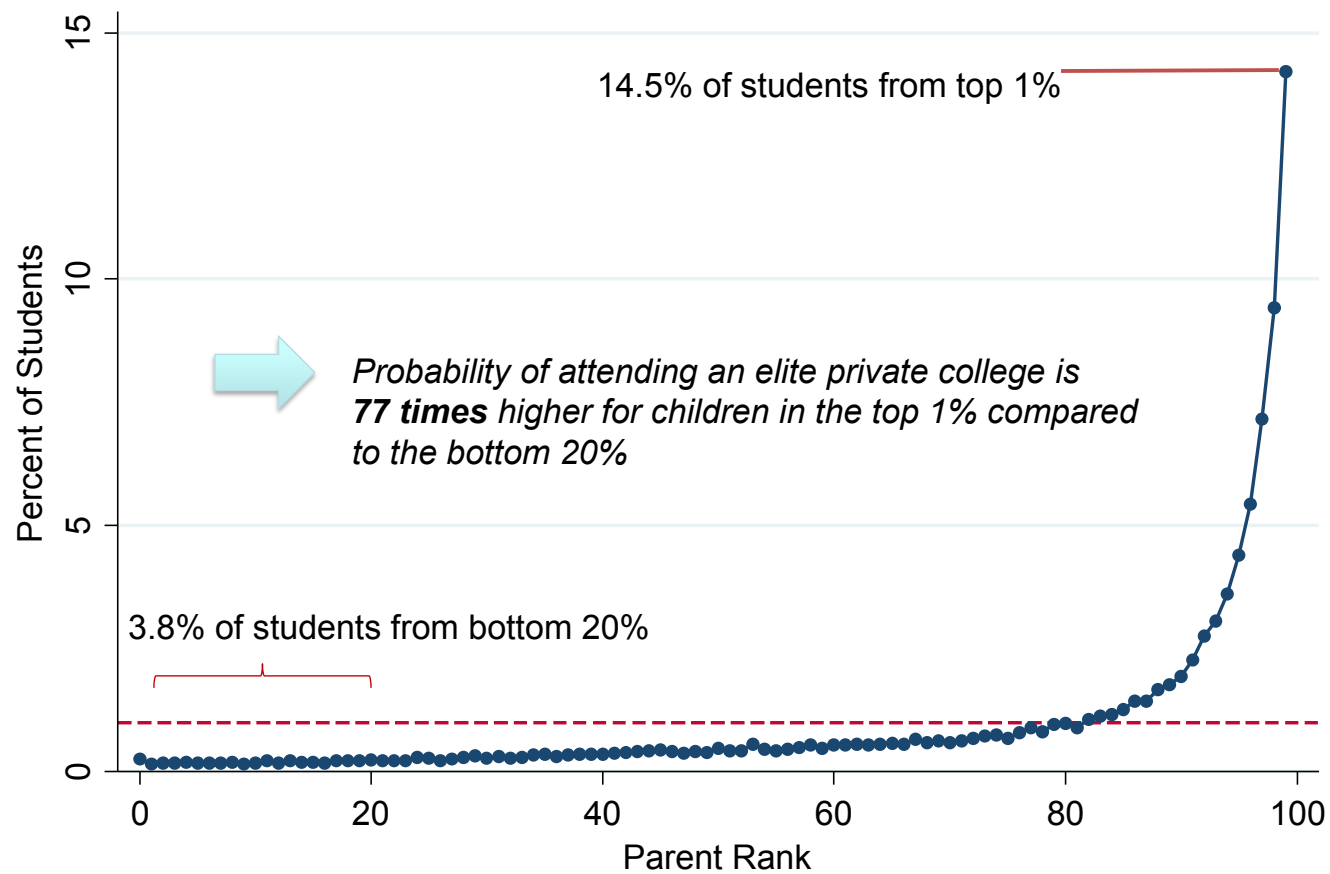
**Appendix Figure 4. College Attendance Rates vs. Parent Income Rank by Cohort**



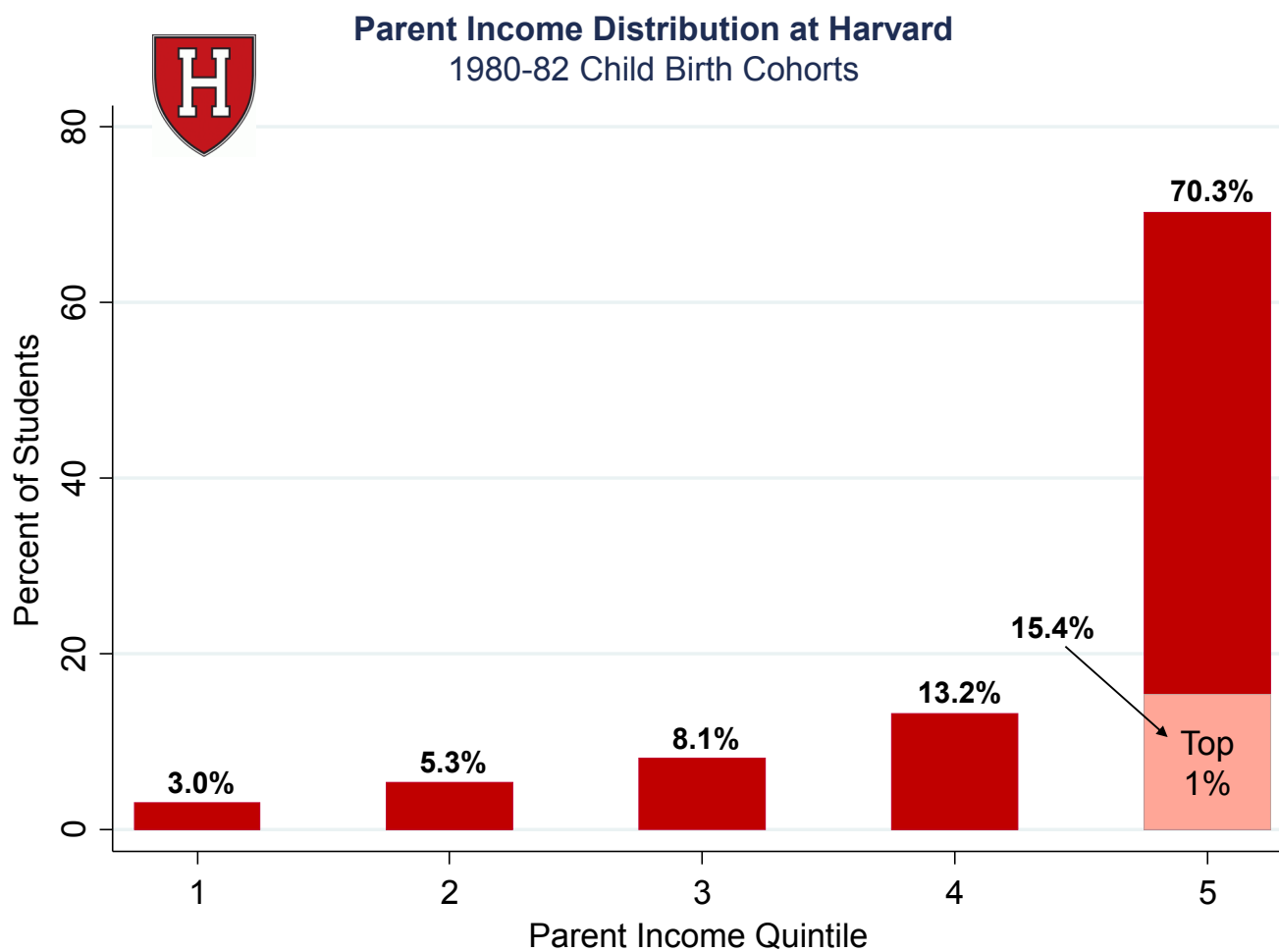
Source: Chetty et al. (2014)



### Parent Income Distribution by Percentile Ivy Plus Colleges



Source: Chetty et al. (2016)



Source: Chetty et al. (2016)

### 3 Policy implications

Right way to reduce wage inequ. in the long run is inv. in 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)

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Goldinn, Claudia and Lawrence Katz, *The Race Between Education and Technology*, Harvard University Press, 2010.