

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)
- Discrimination and bargaining complicates this picture a lot (which we will for the most part ignore in this lecture)

Tinbergen model of skill premium

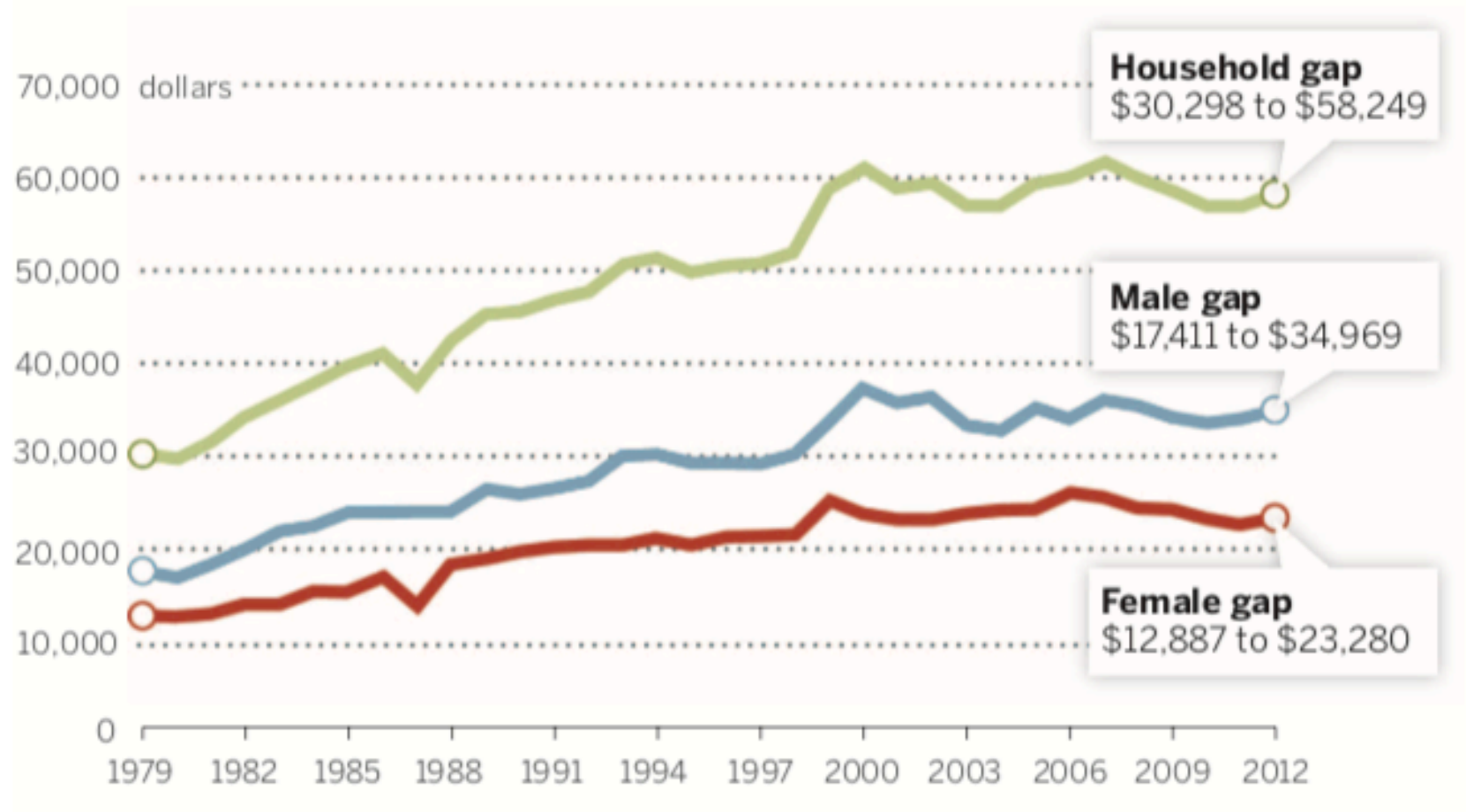
- Technological advances \rightarrow skill demand
 - Advances in education \rightarrow skill supply (\rightarrow skill demand?)
- \rightarrow There's a race between education (skill supply) and technology (skill demand) = Tinbergen model

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

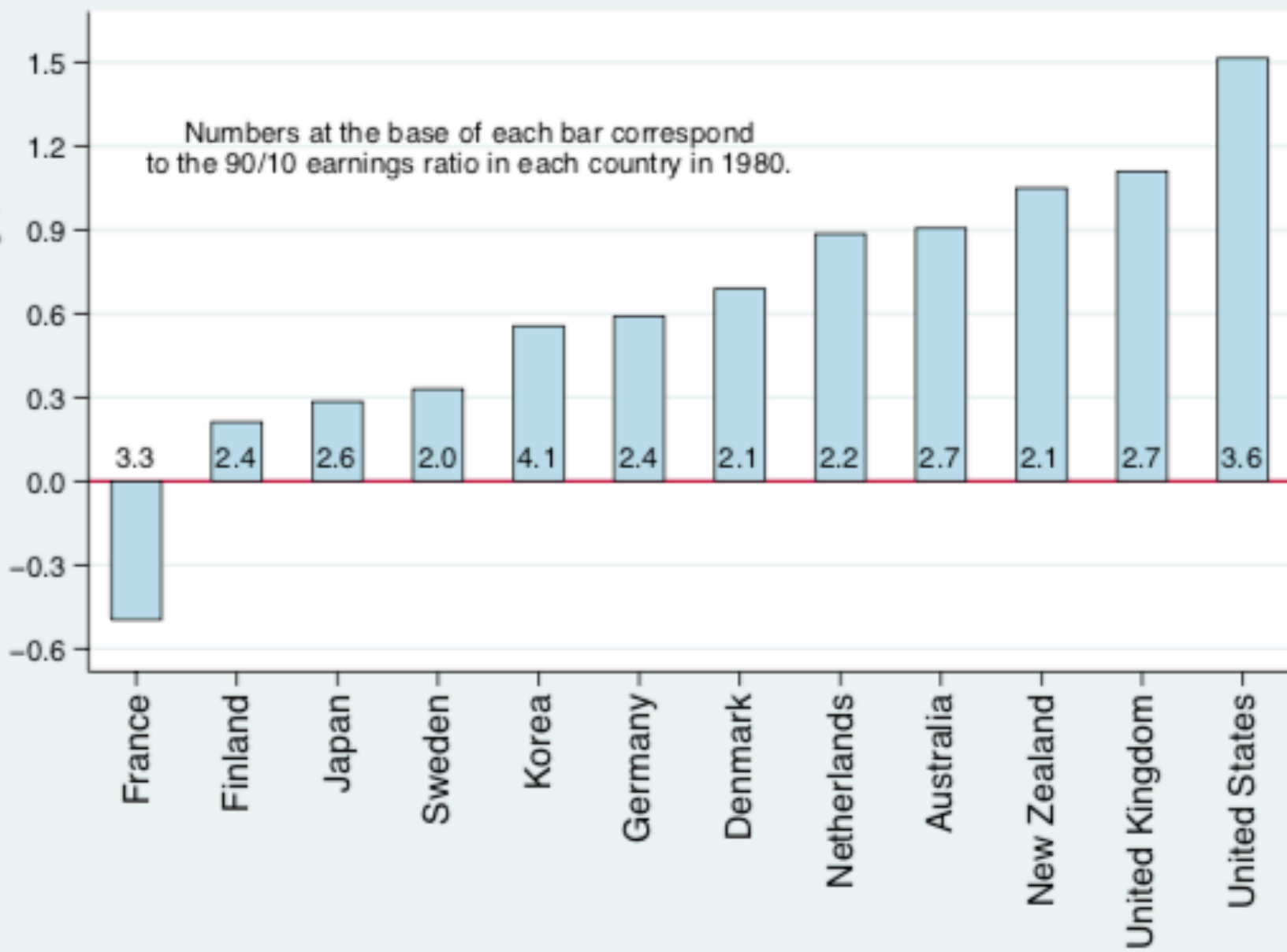
College/high school median annual earnings gap, 1979–2012

In constant 2012 dollars



Source: Autor (2014)

Change in Ratio of 90th Percentile Male Earnings
to 10th Percentile Male Earnings, 1980–2011



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?

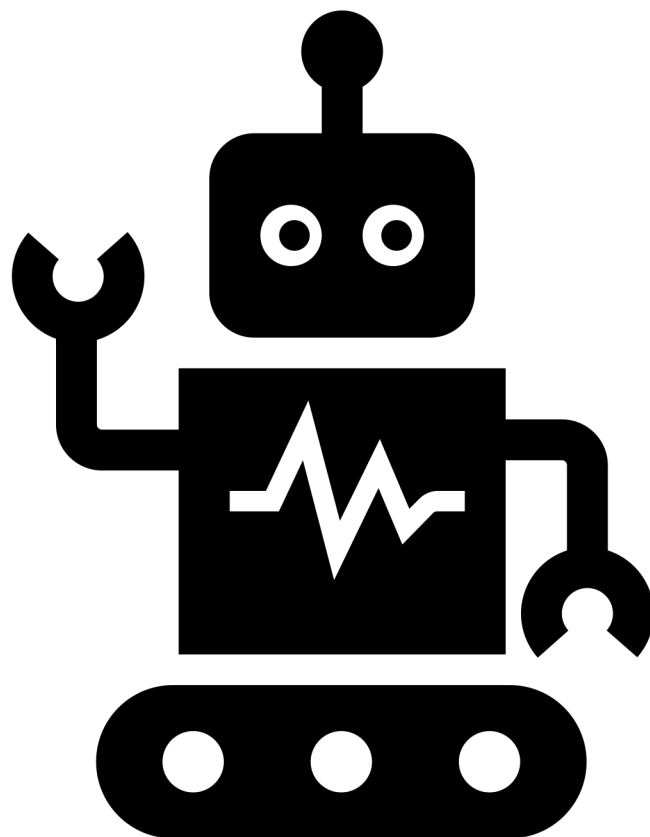
Why are skilled so heavily rewarded? Two main factors:

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!



A Film by STEVEN BOGNAR and JULIA REICHERT

AMERICAN FACTORY

美国工厂



“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?

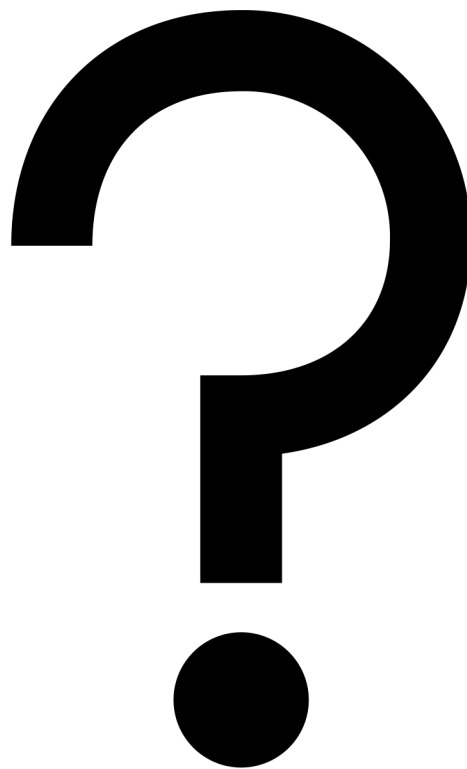
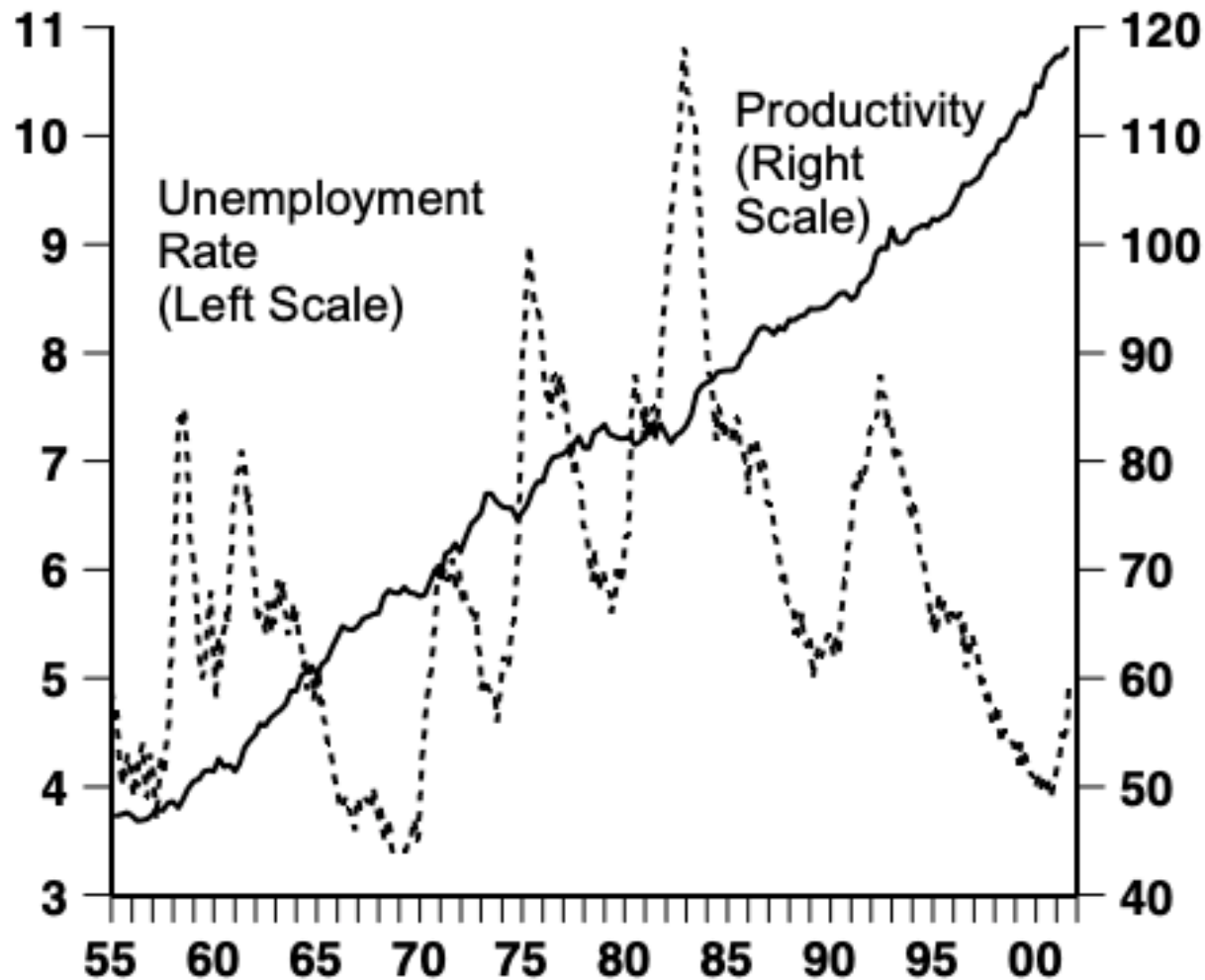


Figure 1
Productivity and unemployment

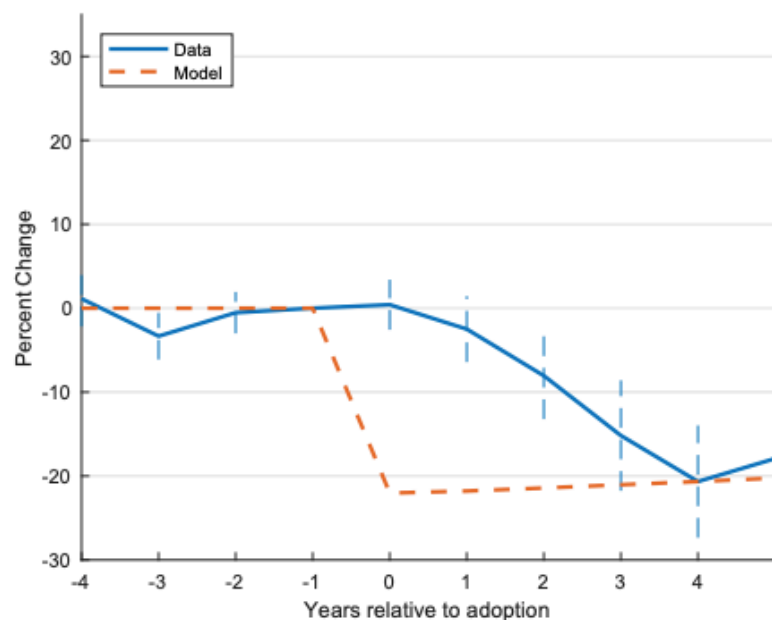


<https://www.frbsf.org/economic-research/publications/economic-letter/2001/october/unemployment-and-productivity/#subhead4>

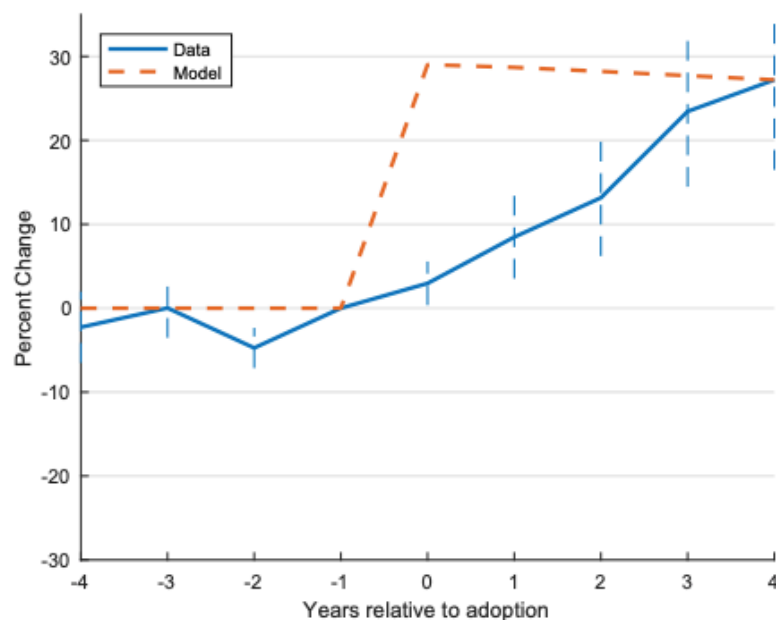
Robot Adoption and Labor Market Dynamics

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

(a) Production Workers



(b) Tech Workers

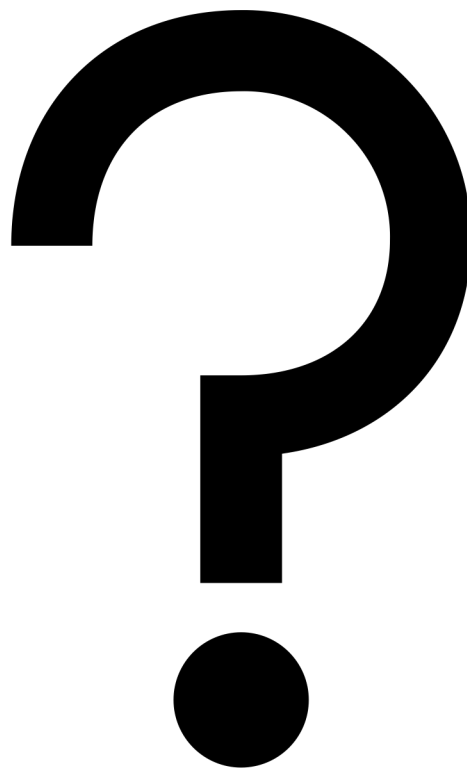


Robot Adoption and Labor Market Dynamics, Anders Humlum, 2020

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

What is the impact of immigration/trade on the skill premium?



Esther Duflo on immigration:

- <https://www.facebook.com/Channel4News/videos/501498330579330/>

Immigrants' Effect on Native Workers: New Analysis on Longitudinal Data[†]

By METTE FOGED AND GIOVANNI PERI*

Using longitudinal data on the universe of workers in Denmark during the period 1991–2008, we track the labor market outcomes of low-skilled natives in response to an exogenous inflow of low-skilled immigrants. We innovate on previous identification strategies by considering immigrants distributed across municipalities by a refugee dispersal policy in place between 1986 and 1998. We find that an increase in the supply of refugee-country immigrants pushed less educated native workers (especially the young and low-tenured ones) to pursue less manual-intensive occupations. As a result immigration had positive effects on native unskilled wages, employment, and occupational mobility. (JEL J15, J24, J31, J61, J62)

Impact of trade on skill-premium

Large literature on the “China shock” – China’s rapid entry into world manufacturing

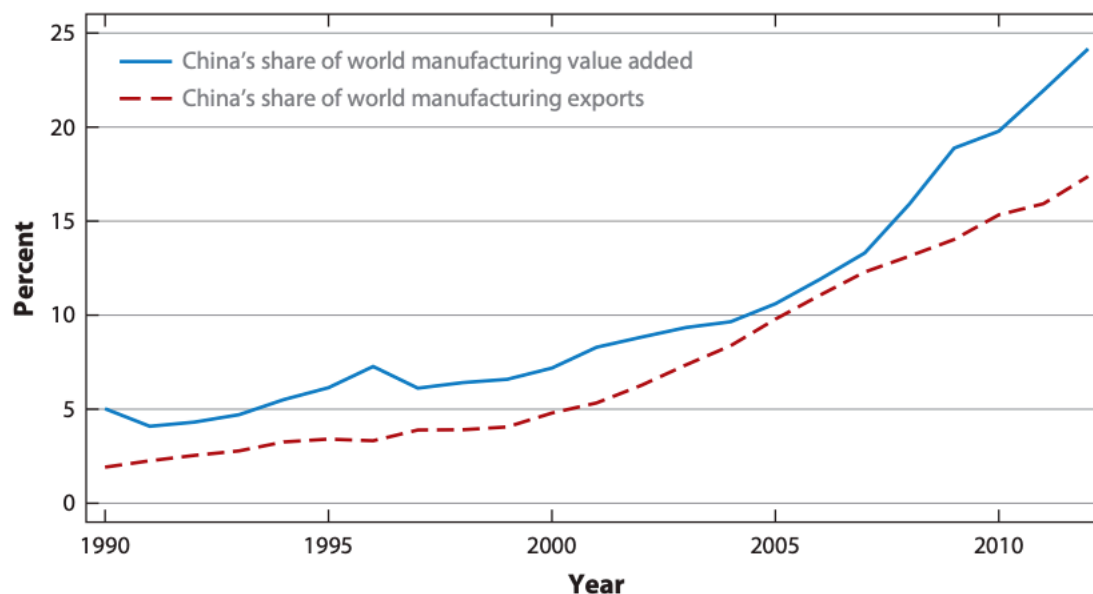


Figure 2

China's share of world manufacturing activity (1990–2012). Source: World Development Indicators (<http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators>).

The impact of the China Shock on the skill-premium

- Individuals who worked in manufacturing industries that experienced high subsequent import growth face:
 - Lower cumulative earnings
 - Face elevated risk of obtaining public disability benefit
 - Higher risk of divorce
 - Higher risk of political polarization
- Earnings losses are larger for individuals with low initial wages, low initial tenure, and low attachment to the labor force
- Source: <http://chinashock.info/>

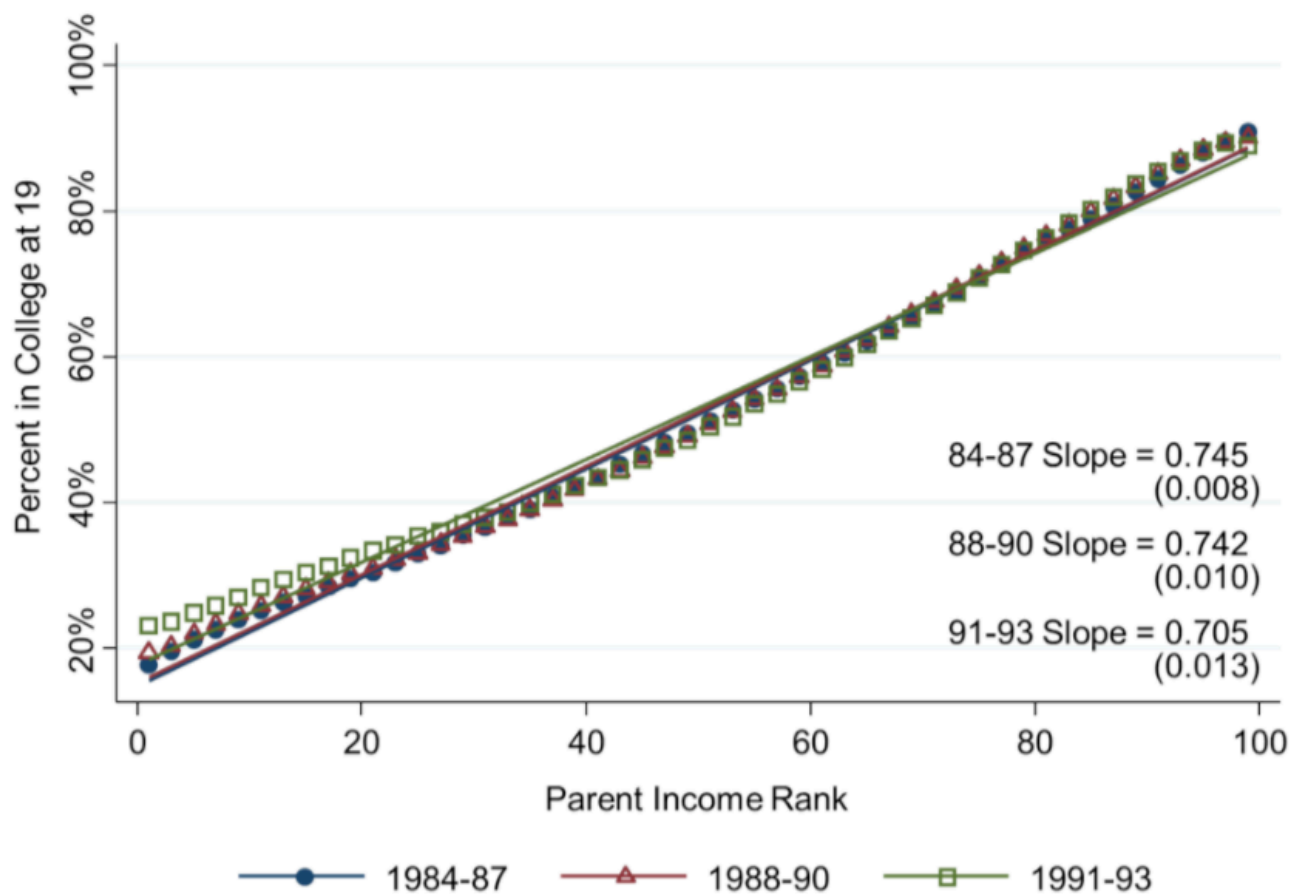
Skill demand is going up

- 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

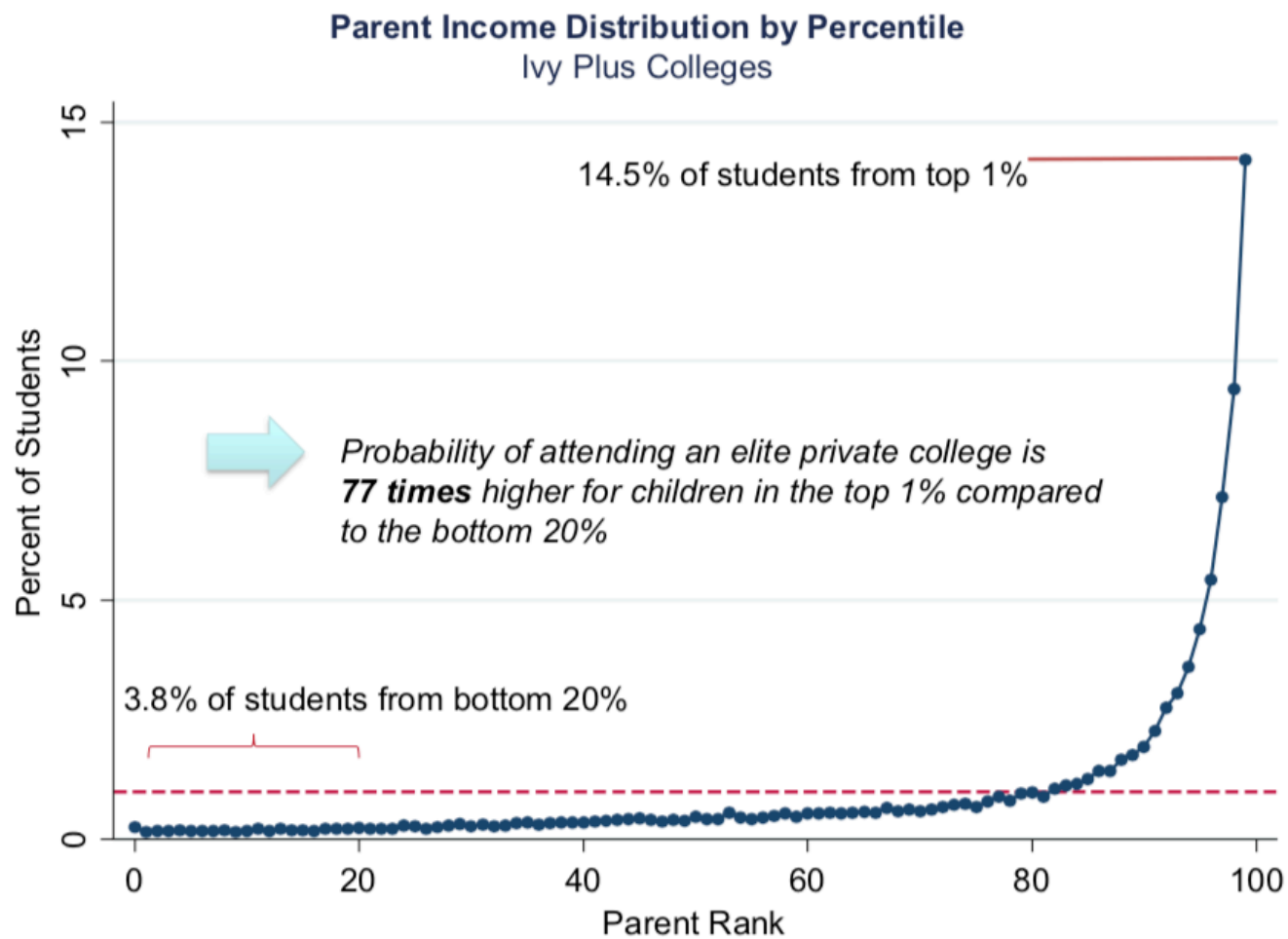
Why has college supply declined?

- 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

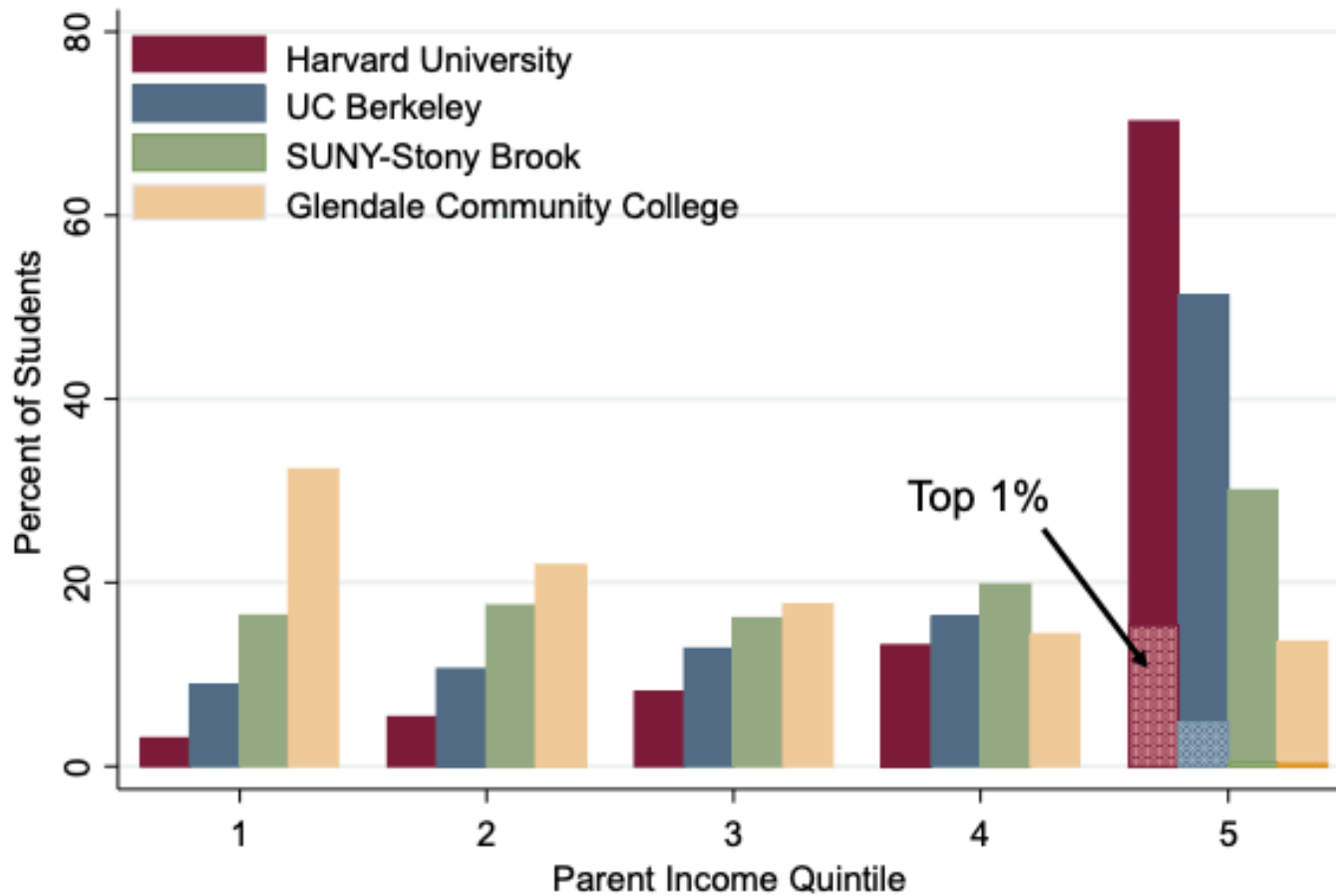


Source: Chetty et al. (2014)

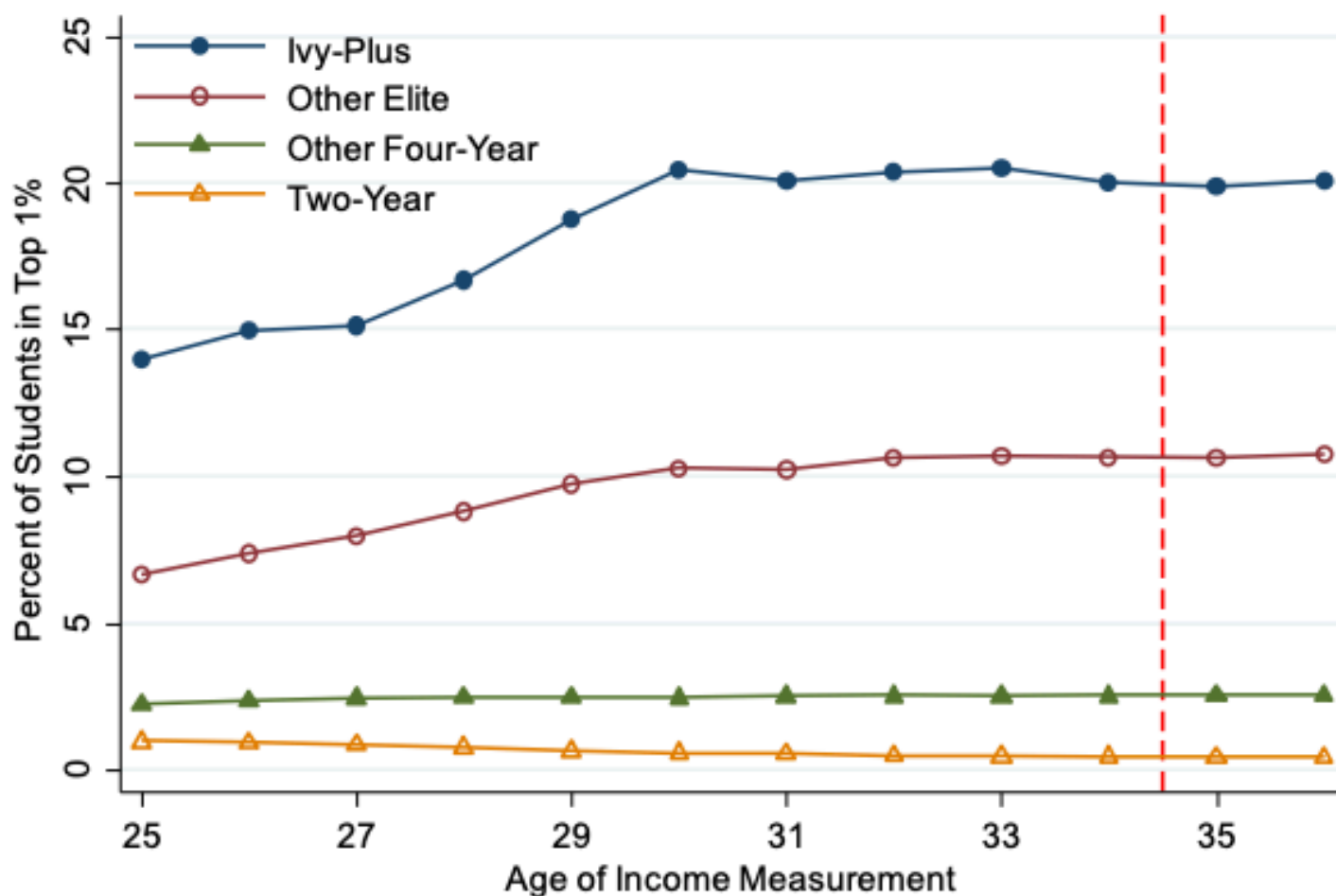


Source: Chetty et al. (2016)

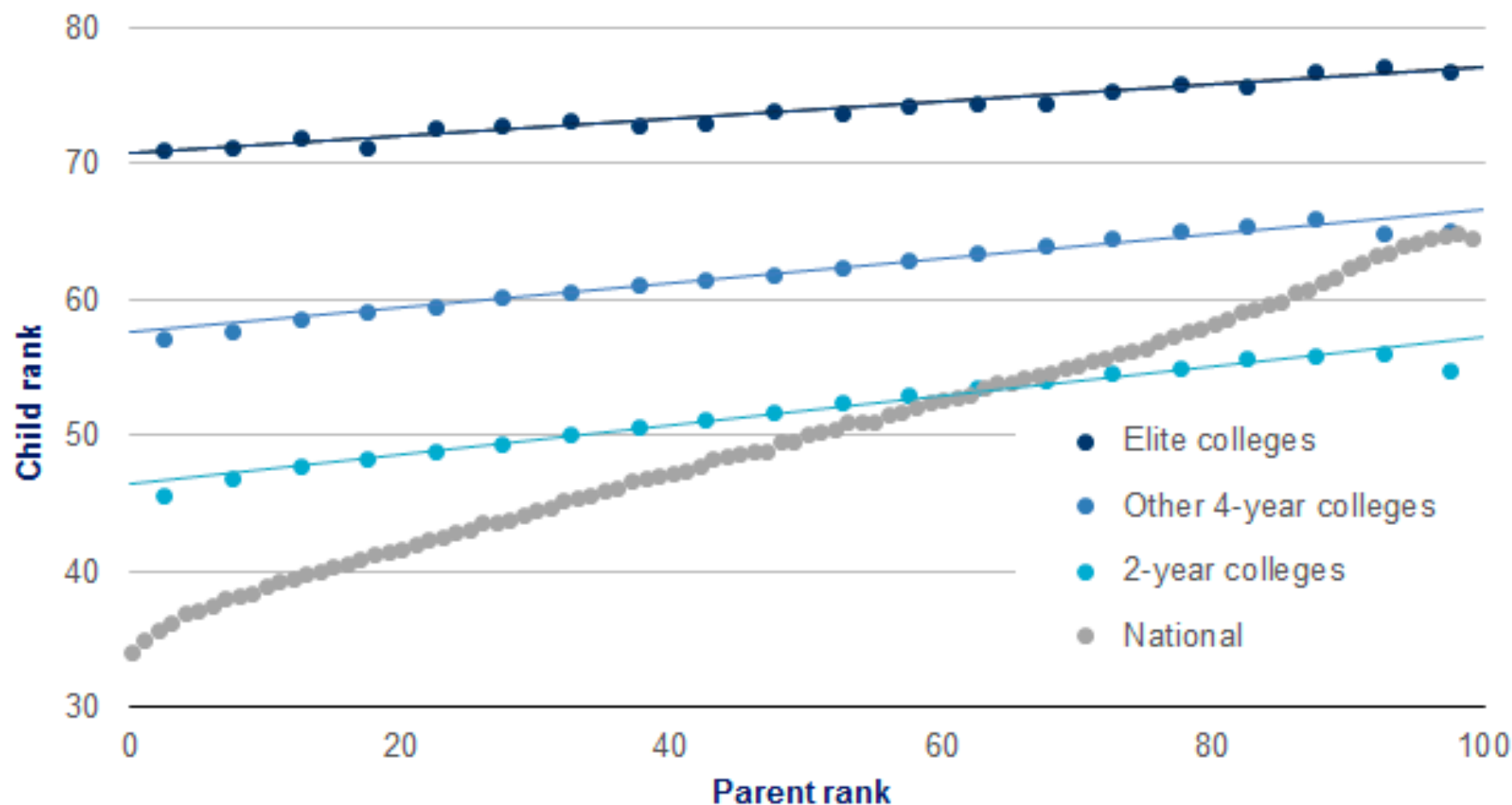
B. Parental Income Distributions at Selected Colleges



D. Fraction of Children in Top 1% by Age and College Tier



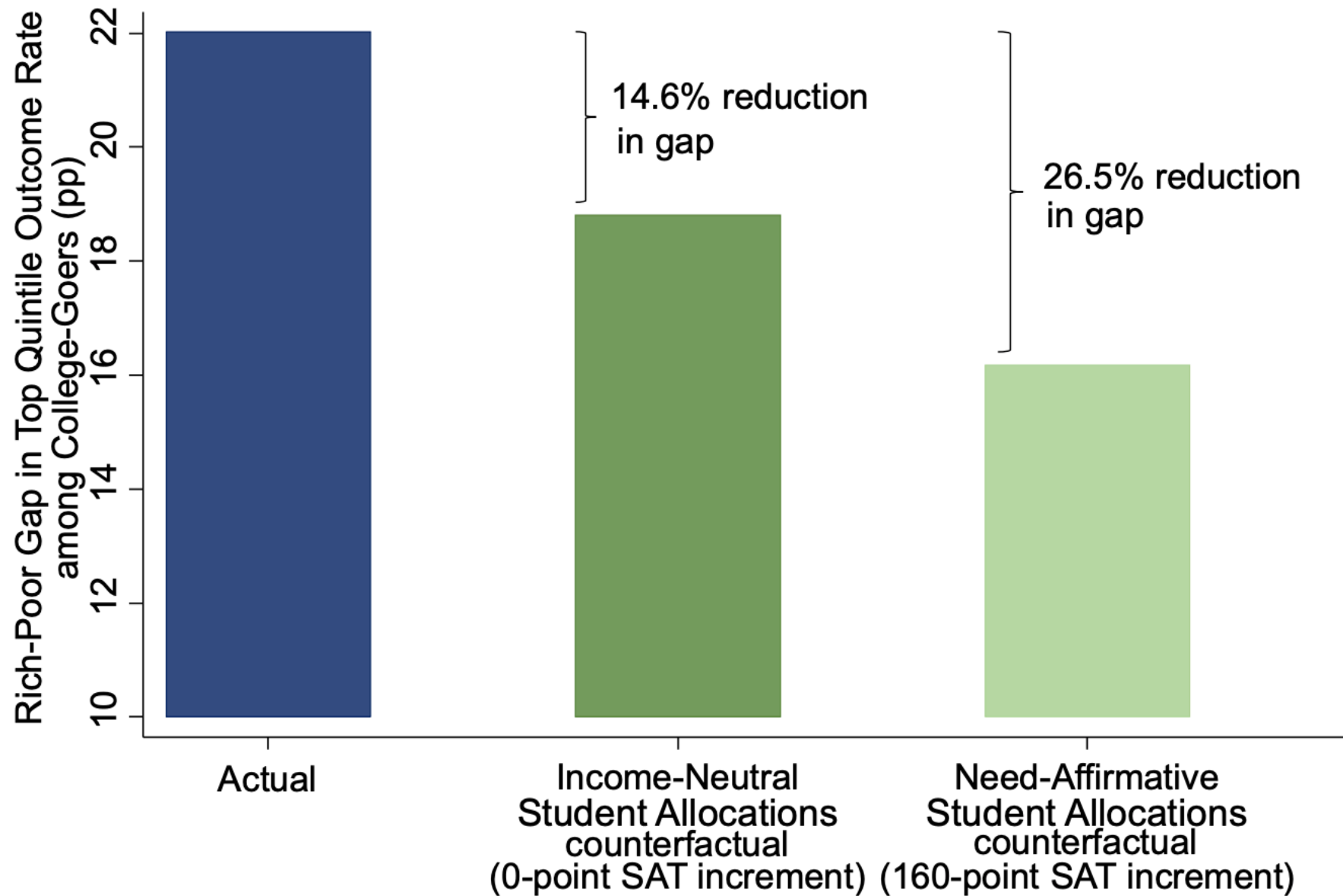
College education levels the playing field



Source: Chetty et al., "Mobility report cards: The role of colleges in intergenerational mobility," Figure III: Relationship between children's and parent's ranks within colleges

Impacts of Counterfactuals on Income Segregation and Intergenerational Mobility

Gaps in Chance of Reaching Top Earnings Quintile

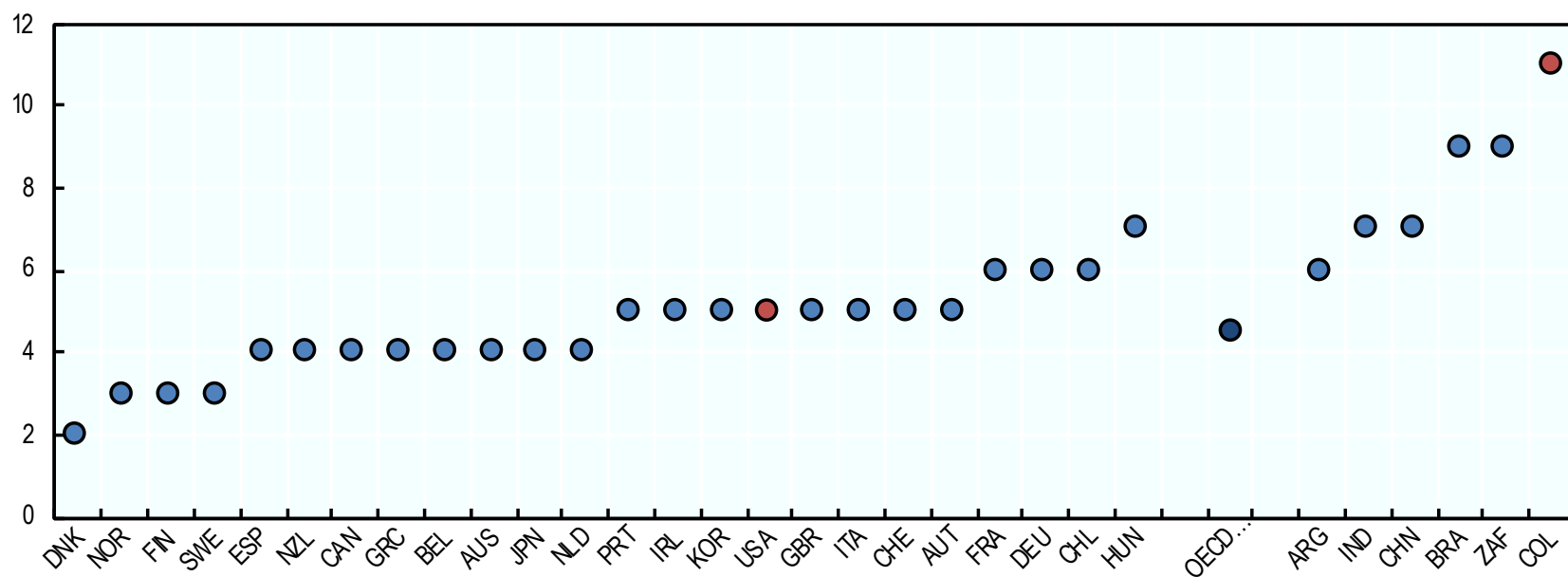


How would equal access to education impact inequality?

“Assuming that 80% of observational differences in students’ earnings conditional on test scores, race, and parental income are due to colleges’ causal effects – a strong assumption, but one consistent with prior work – such changes could reduce intergenerational income persistence among college students by about 25%.”

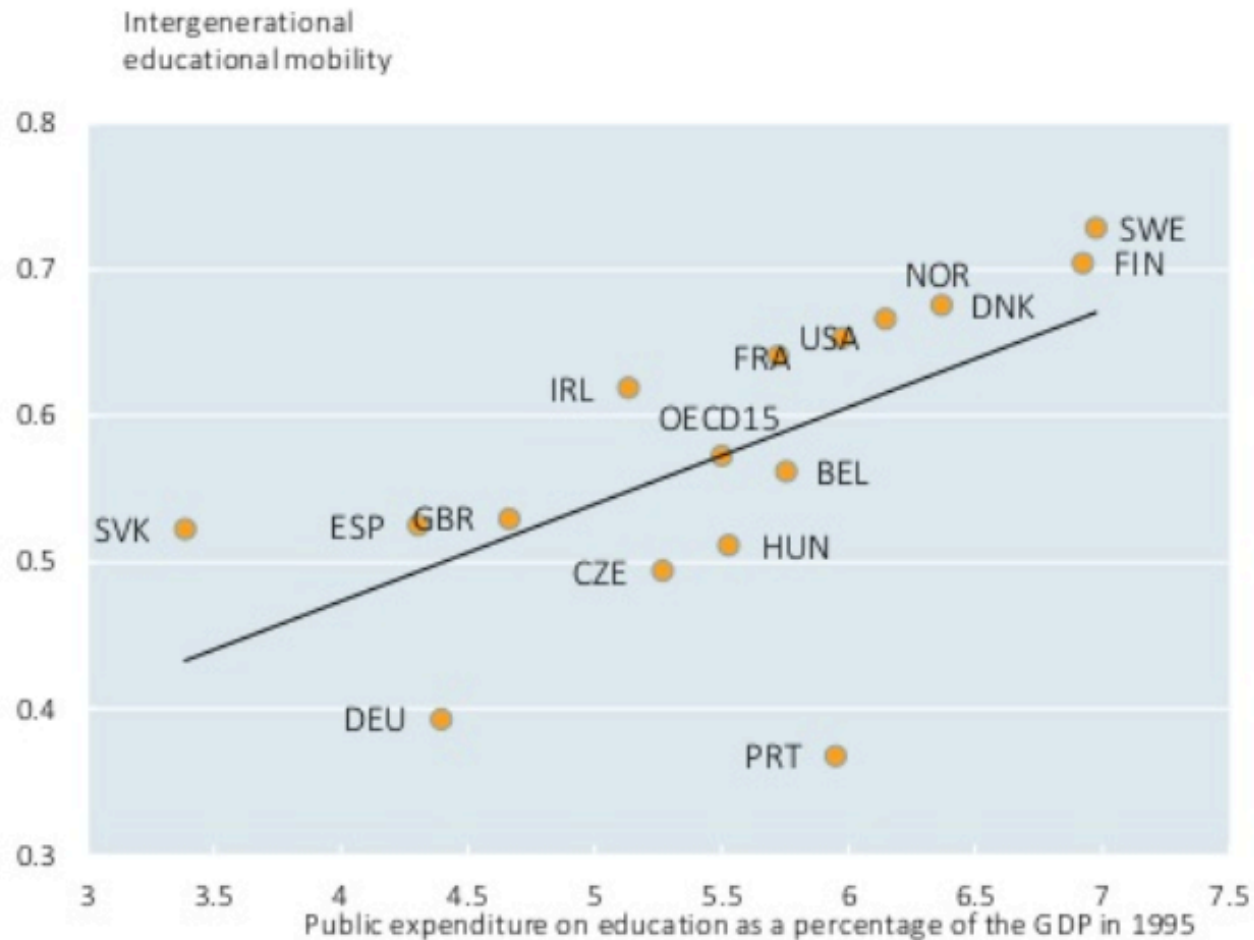
- Chetty et al (2016)

OECD: The Broken Social Elevator

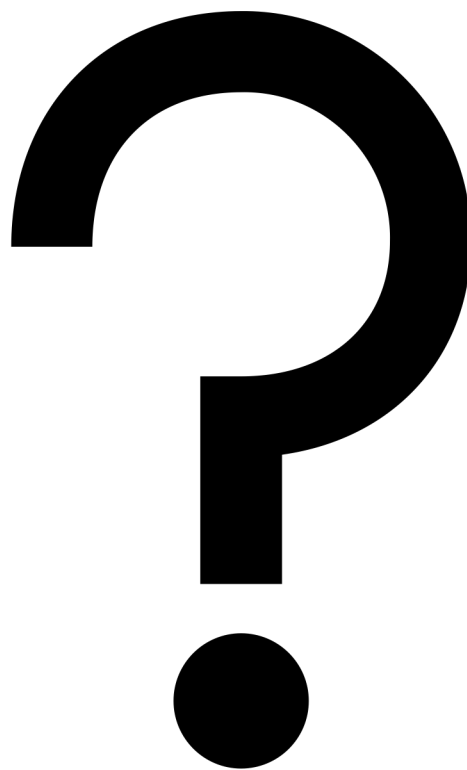


[A Broken Social Elevator? How to Promote Social Mobility - © OECD 2018](#)

OECD: The Broken Social Elevator



Is the skill premium 100% real?



Is the skill premium 100% real?

Published: 27 February 2020

Human capital versus signaling is empirically unresolvable

[Nick Huntington-Klein](#) 

[Empirical Economics](#) (2020) | [Cite this article](#)

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)
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- 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.