Inequality and Redistribution

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Government interventions

▶ **Common reasons for government intervention**
1. Market Failures (second half of course)
2. Redistribution (today)

▶ **Motivation**
   ▶ Efficient markets can produce undesirable levels of inequality
   ▶ Society may prefer more equitable outcomes

▶ **Redistribution Tools**
   ▶ Tax and transfer system moves resources from rich to poor
   ▶ Progressive taxation: higher rates on higher incomes
   ▶ Transfer programs provide support to lower-income households

▶ **Key Questions:**
   ▶ How much inequality is there? (this week)
   ▶ How can we reduce inequality? (this week)
   ▶ Is this the "right" amount of inequality? (next week)

Income vs. Wealth

Income and wealth are related, distinct, and often confused

- ▶ Wealth is a stock
    - ▶ Private wealth includes real estate, corporate/business equity, deposits/bonds
    - ▶ Less debts (mortgate, student debt, auto loans, credit cards)
- ▶ Income is a flow of two pre-tax parts: **labor** and **capital**
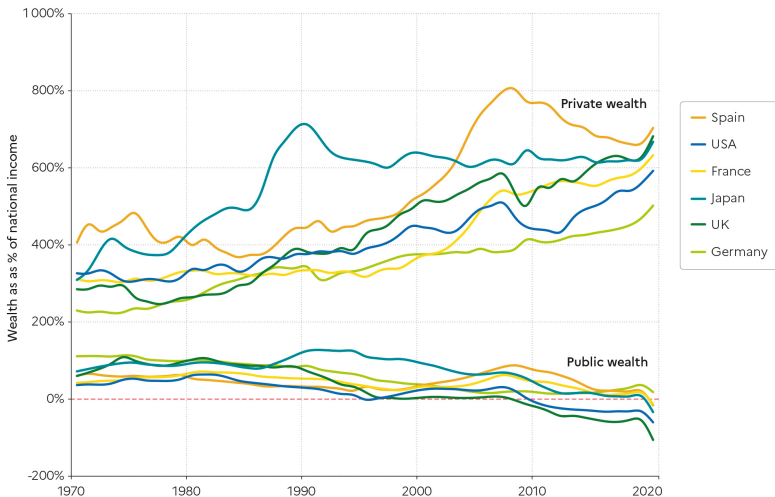
$$z = w \times l + r \times k$$

- ▶ Labor income $wl \approx 75\%$ of national income
- ▶ Capital income $rk \approx 25\%$ of national income (increasing)
    - ▶ Private wealth $k \approx 500\%$ of national income z (increasing)
    - ▶ Rate of return $r \approx 5 - 6\%$

Figure 12: Capital shares in factor-price national income 1975-2010
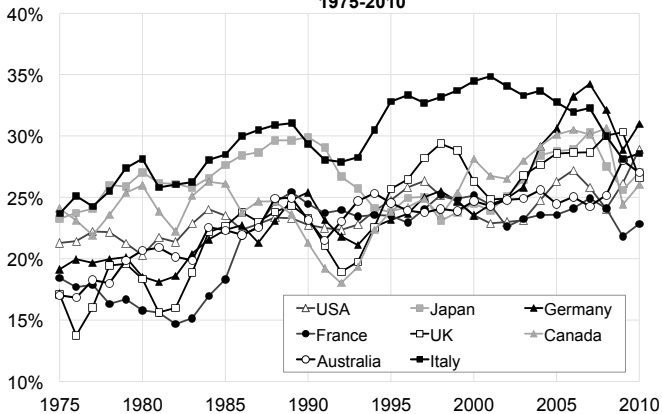
Source: Piketty and Zucman (2014)

Figure 8 *The rise of private versus the decline of public wealth in rich countries, 1970-2020*

Drivers of inequality

- ▶ Drivers of labor inequality:
  - ▶ Working abilities (education, talent, physical ability)
  - ▶ Effort (hours working, grit)
  - ▶ Institutions (minimum wage, unions)
  - ▶ Social norms (gender norms, discrimination)
- ▶ Capital income inequality drivers:
  - ▶ Differences in wealth (past savings/inheritances)
  - ▶ Rate of return r

Figure 1.1 *Global income and wealth inequality, 2021*
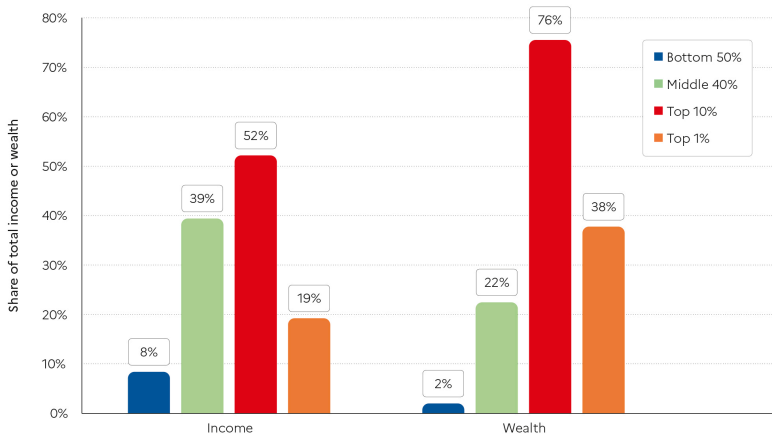
Interpretation: The global 50% captures 8% of total income measured at Purchasing Power Parity (PPP). The global bottom 50% owns 2% of wealth (at Purchasing Power Parity). The global top 10% owns 76% of total Household wealth and captures 52% of total income in 2021. Note that top wealth holders are not necessarily top income holders. Income is measured after the operation of pension and unemployment systems and before taxes and transfers. *Sources and series:* wir2022.wid.world/methodology

Measuring inequality statistically

Many ways to measurement inequality – all tied to the income
distribution (CDF $F(z)$)

- ▶ Percentile income shares
- ▶ Percentile ratios
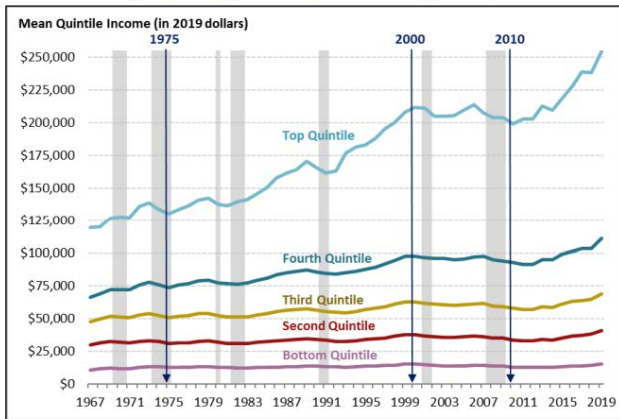- ▶ Gini coefficient - most famous

Each has strengths and weaknesses

Stats Review: Percentiles of the Income Distribution

▶ **XXth Percentile of the Income Distribution:** income at which XX% of individuals have lower income
  ▶ 25% of the U.S. population has income below the 25th income percentile
  ▶ Percentiles allow you to describe the whole income distribution better than the mean

▶ **Quartiles and Median**
  ▶ Median = 50th percentile
  ▶ Half of individuals are above and below the median
  ▶ Quartiles: the 1st, 2nd, 3rd, and 4th quartiles correspond to the bottom 25%, 25-50%, 50-75%, and 75-100%

Average Income for Each Quintile over Time

Figure 2. Mean Quintile Household Income, 1967-2019

Mean Quintile Income (in 2019 dollars)

Top Quintile

Fourth Quintile

Third Quintile

Second Quintile

Bottom Quintile

Figure: Average income by quintile shows rising inequality over time

Share of Top 1 percent income increasing

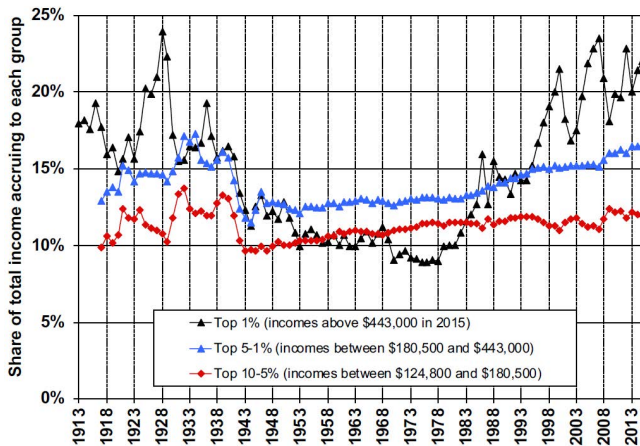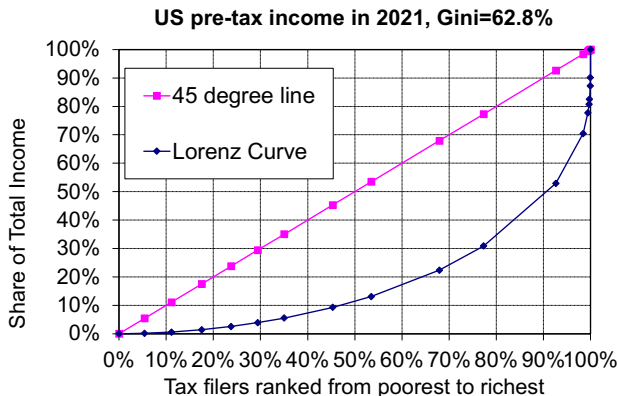

Figure: The share of income going to the top 1% has increased dramatically (Saez & Zucman 2016)

Gini coefficient

US pre-tax income in 2021, Gini=62.8%

Share of Total Income (vertical axis, 0% to 100%)

- 45 degree line
- Lorenz Curve

Tax filers ranked from poorest to richest (horizontal axis, 0% to 100%)

Figure: Lorenz curve $(L(p))$ is fraction of income earned by individuals below percentile p. Gini is share of lower triangle between lines, so $G = 0$ is perfect equality and $G = 1$ is perfect inequality. Formally compare incomes of each pair: $G = \frac{\sum_{i=1}^{n} \sum_{j=1}^{n} |x_i - x_j|}{2n^2 \bar{x}}$

Trends in Income Inequality

- Over the 20th century, the U.S. saw a massive increase in economic growth and average GDP per capita
- During the first half of the 20th century:
    - Decrease in top income inequality
    - Broad-based rise in incomes across distribution
- Starting in the 1970s and 1980s:
    - Sharp increase in income inequality
    - Especially concentrated at very top of distribution
    - Most gains in overall U.S. income went to top earners
- Since 1980, pre-tax incomes have stagnated for:
    - Bottom 50% of earners
    - Particularly non-college educated men

Causes of Rising Income Inequality

- ▶ Returns to skill versus rent-seeking:
  - ▶ Returns to skill: Late 20th century saw increased demand for skilled labor, raising returns for educated workers
  - ▶ Rent-seeking: Highest incomes obtained via unproductive means (exploiting regulations, finance sector, etc.)
- ▶ Potential contributing factors from government policies:
  - ▶ Globalization
  - ▶ Automation
  - ▶ Decline of unions
  - ▶ Erosion of minimum wages
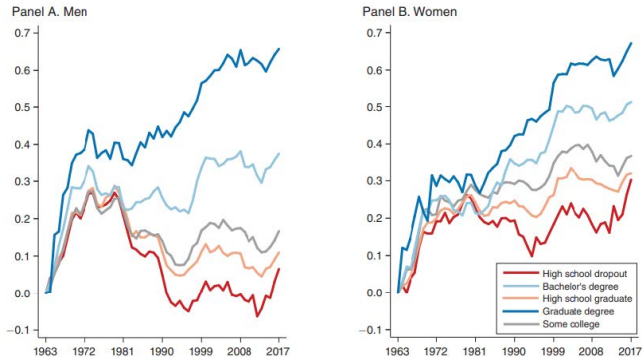
Wage Increases Going to Educated Workers

Panel A. Men

Panel B. Women

High school dropout
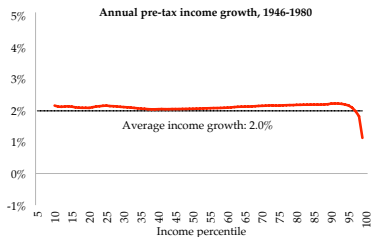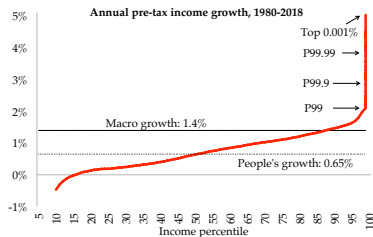Bachelor's degree
High school graduate
Graduate degree
Some college

FIGURE 1. CUMULATIVE CHANGE IN REAL WEEKLY EARNINGS OF WORKING-AGE ADULTS AGES 18–64, 1963–2017

Figure: Wage growth has been concentrated among more educated workers

Increased income growth at the top

(a) 1980-2019   (b) 1946-1980

Wealth and capital income inequality

Capital income is more concentrated than labor income – because wealth is more concentrated (per Saez-Zucman (2016)):

1. Top 1% wealth holders have nearly 40% of total private wealth, bottom 50% nothing
2. Top 1% of incomes earn 19% (Piketty-Saez-Zucman (2018)) or 14% (Auten and Splinter 2024)

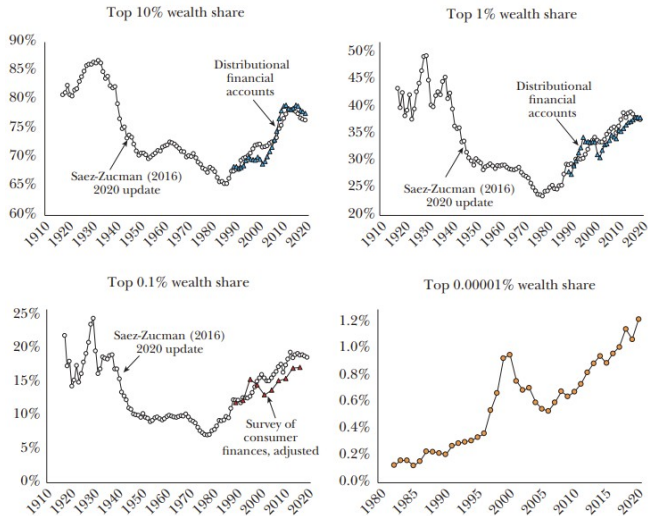Figure: Wealth inequality (Saez and Zucman 2020)
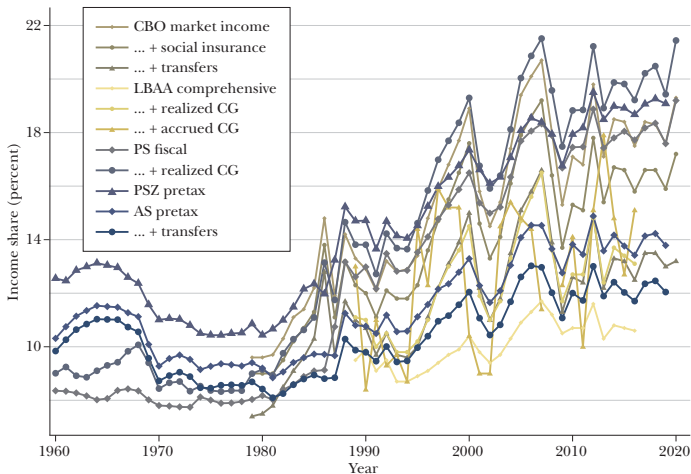
Income and Wealth Measurement Controversies

Income:

- ▶ What measure?
- ▶ Pre-tax vs. post-tax inequality
- ▶ What is income?
    - ▶ Haig-Simons definition is impossible to implement
    - ▶ Count only income subject to tax? This changes over time!

Wealth:

- ▶ Is human capital wealth?
- ▶ How much is an asset worth if it is rarely sold?

Different Estimates of the Top 1 Percent Share in the Literature

Source: Estimates from Larrimore et al. (2021) (LBAA), Congressional Budget Office (2023) (CBO), Piketty and Saez (2003) (PS, updated series), Piketty, Saez, and Zucman (2018) (PSZ, updated series), and Auten and Splinter (2024a) (AS).
Note: The figure shows eleven different measures of the share of US income earned each year by the top 1 percent of income-earners.
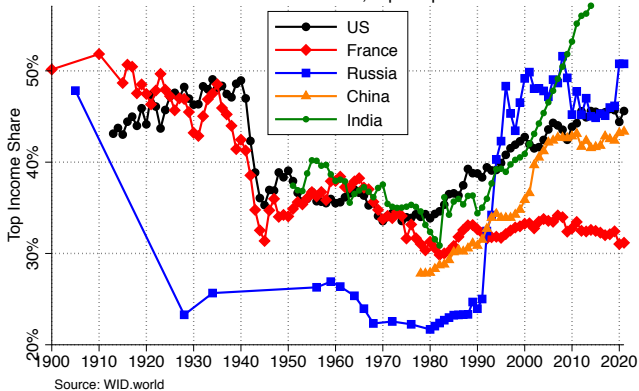
The estimates correspond to different concepts of income and different definitions

Is inequality a problem?

- ▶ Inequality is a consequence of rewarding individual differences (innovation, hard work, etc.), but can also entrench privilege
- ▶ Concerns with inequality: social unrest, instability, etc.
- ▶ Ambiguous relationship between inequality and growth:
  - ▶ Pre-20th century: growth linked to rising inequality; disasters equalize (Scheidel 2017)
  - ▶ Mid-20th century: high growth with less inequality in wealthy nations (USA)
  - ▶ Last 4 decades: growth tied to rising inequality (e.g., India, China)
- ▶ It is not clear what the "right" amount of inequality is
- ▶ Is "poverty" or "inequality" the more important problem?

Top 10% Income Shares Across Countries
Pre-tax National Income, equal-split adults

Legend:
- US (black, circles)
- France (red, diamonds)
- Russia (blue, squares)
- China (orange, triangles)
- India (green, circles)

Y-axis: Top Income Share (20%, 30%, 40%, 50%)
X-axis: 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, 2000, 2010, 2020

Source: WID.world

Two difference unequal societies

Lorenz curves (same Gini, different shapes)
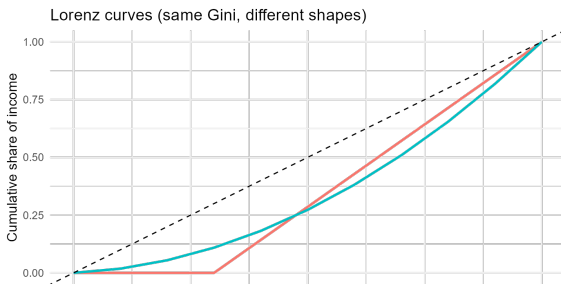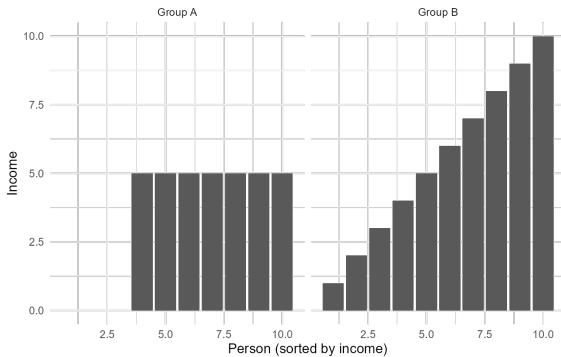
Defining Poverty and Poverty Rate

- ▶ Inequality does not measure absolute deprivation.
- ▶ Absolute deprivation: The amount of income the least wealthy have relative to "minimally acceptable" income.
  - ▶ Measured by the share of people below the poverty line.
  - ▶ Poverty line: Government's standard for measuring absolute deprivation.
  - ▶ 2025 US poverty threshold was $32,150 for a family of four (three times the cost of a minimally nutritionally accepted diet)

**Poverty Rate Definitions:**

- ▶ **Absolute Poverty:** Income below a fixed threshold (e.g., $1.90 per day by World Bank).
- ▶ **Relative Poverty:** Income below a threshold relative to median income (e.g., 60% in EU).
- ▶ Absolute poverty $\Downarrow$ with economic growth; relative poverty may not – it solely reflects inequality.
- ▶ Relative poverty keeps inequality in the debate.

Absolute poverty has plummeted worldwide

FIGURE 1.3 **Number of Extreme Poor by Region, 1990–2030**
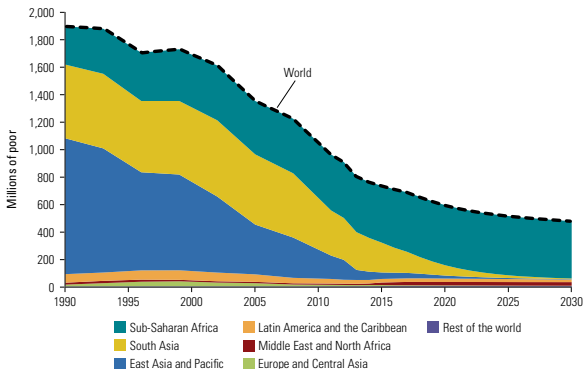
Source: PovcalNet (online analysis tool), http://iresearch.worldbank.org/PovcalNet/. World Bank, Washington, DC, World Development Indicators; World Economic Outlook; Global Economic Prospects; Economist Intelligence Unit.

Poverty Rates Over Time in the US
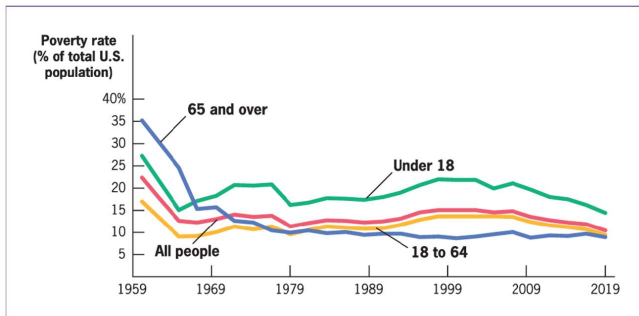
Figure: Poverty rates in the United States stable since the 1970s (Source: Gruber textbook)

# Integenerational income mobility

- ▶ What is the intergenerational persistence of poverty?
- ▶ Simple measure (Chetty et al. 2014, 2020, 2023): average income rank of children by income rank of parents
- ▶ Data sources: Census data (2000, 2010, ACS) covering U.S. population linked to federal tax returns from 1989-2015
- ▶ Link children to parents based on dependent claiming
- ▶ Target sample: Children born 1978-83 in the U.S. or who immigrated to the U.S. in childhood with documentation
  - ▶ 20.5 million children – 96% of target
- ▶ Parents' household incomes: average income reported on Form 1040 tax return from 1994-2000
- ▶ Children's incomes measured from tax returns in 2014-15 (ages 31-37)

A. Mean Child Income Rank vs. Parent Income Rank in the U.S.

Rank-Rank Slope (U.S) = 0.341
(0.0003)
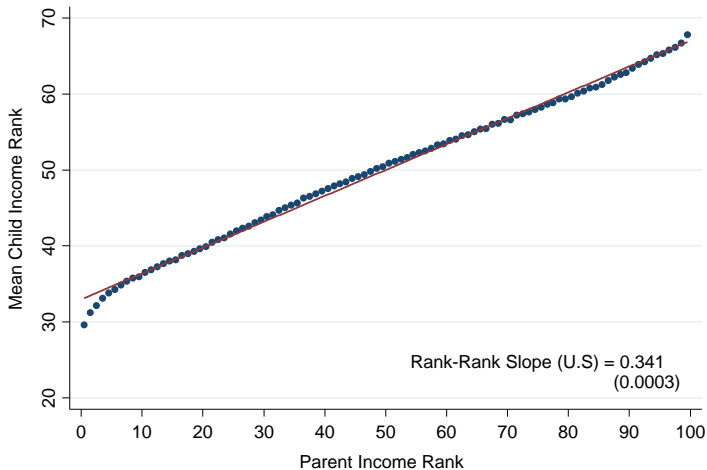
Source: Chetty, Hendren, Kline, Saez (2014)
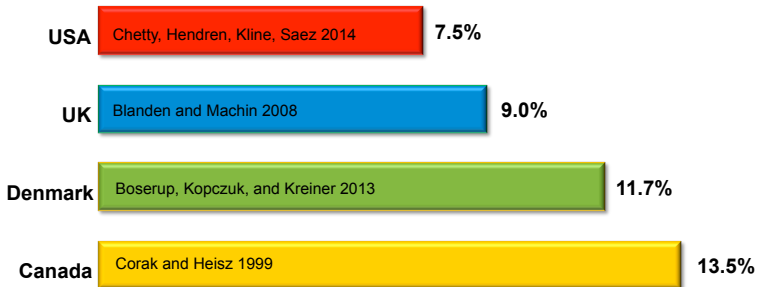
B. United States vs. Denmark
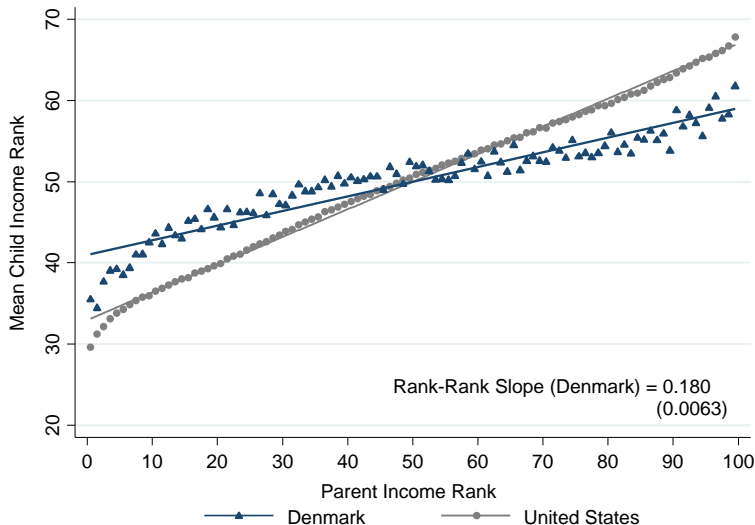
Source: Chetty, Hendren, Kline, Saez (2014)

Figure: US has less mobility than Europe (especially Scandinavian

The American Dream?

- Probability that a child born to parents in the bottom fifth of the income distribution reaches the top fifth:

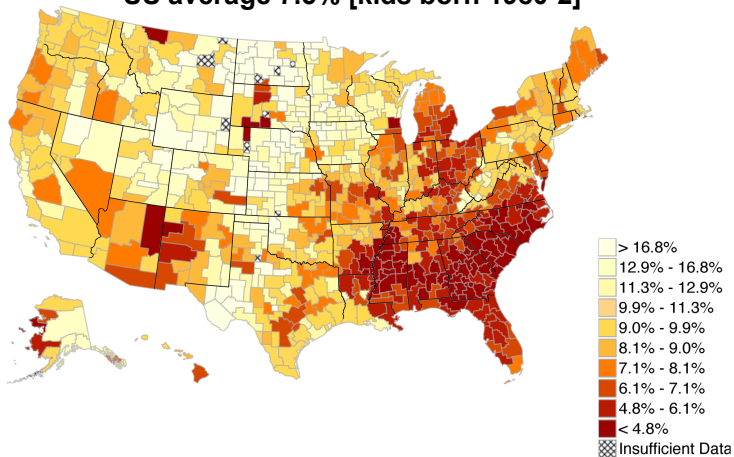|	
USA — Chetty, Hendren, Kline, Saez 2014	**7.5%**
UK — Blanden and Machin 2008	**9.0%**
Denmark — Boserup, Kopczuk, and Kreiner 2013	**11.7%**
Canada — Corak and Heisz 1999	**13.5%**

→ Chances of achieving the "American Dream" are almost two times higher in Canada than in the U.S.

Figure: US has less mobility than Europe (especially Scandinavian countries)

The Geography of Upward Mobility in the United States
Probability of Reaching the Top Fifth Starting from the Bottom Fifth

US average 7.5% [kids born 1980-2]

Legend:
- > 16.8%
- 12.9% - 16.8%
- 11.3% - 12.9%
- 9.9% - 11.3%
- 9.0% - 9.9%
- 8.1% - 9.0%
- 7.1% - 8.1%
- 6.1% - 7.1%
- 4.8% - 6.1%
- < 4.8%
- Insufficient Data

Note: Lighter Color = More Upward Mobility
Download Statistics for Your Area at www.equality-of-opportunity.org

Figure: Varies quite a bit by place – areas with more inequality, segregation, worse schools, lower social capital, lower family stability

The Geography of Upward Mobility in the United States
Odds of Reaching the Top Fifth Starting from the Bottom Fifth
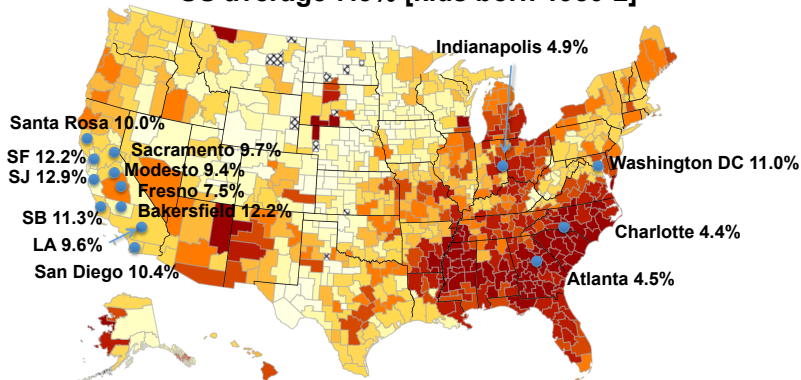
US average 7.5% [kids born 1980-2]

Indianapolis 4.9%

Santa Rosa 10.0%

SF 12.2%
SJ 12.9%

Sacramento 9.7%
Modesto 9.4%
Fresno 7.5%
Bakersfield 12.2%

Washington DC 11.0%

SB 11.3%

LA 9.6%

Charlotte 4.4%

San Diego 10.4%

Atlanta 4.5%

Note: Lighter Color = More Upward Mobility
Download Statistics for Your Area at www.equality-of-opportunity.org

Figure: Varies quite a bit by place

TABLE 1. Upward Mobility in the 50 Largest Metro Areas: The Top 10 and Bottom 10

Rank	Commuting Zone	Odds of Reaching Top Fifth from Bottom Fifth	Rank	Commuting Zone	Odds of Reaching Top Fifth from Bottom Fifth
1	San Jose, CA	12.9%	41	Cleveland, OH	5.1%
2	San Francisco, CA	12.2%	42	St. Louis, MO	5.1%
3	Washington, D.C.	11.0%	43	Raleigh, NC	5.0%
4	Seattle, WA	10.9%	44	Jacksonville, FL	4.9%
5	Salt Lake City, UT	10.8%	45	Columbus, OH	4.9%
6	New York, NY	10.5%	46	Indianapolis, IN	4.9%
7	Boston, MA	10.5%	47	Dayton, OH	4.9%
8	San Diego, CA	10.4%	48	Atlanta, GA	4.5%
9	Newark, NJ	10.2%	49	Milwaukee, WI	4.5%
10	Manchester, NH	10.0%	50	Charlotte, NC	4.4%

Note: This table reports selected statistics from a sample of the 50 largest commuting zones (CZs) according to their populations in the 2000 Census. The columns report the percentage of children whose family income is in the top quintile of the national distribution of child family income conditional on having parent family income in the bottom quintile of the parental national income distribution—these probabilities are taken from Online Data Table VI of Chetty et al., 2014a.

Source: Chetty et al., 2014a.
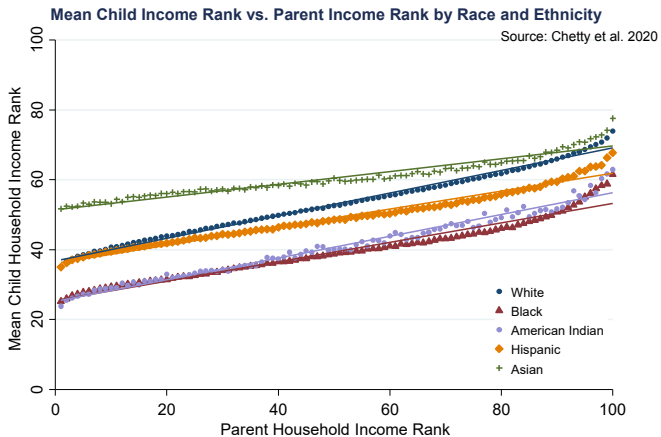
Figure: Racial disparity in mobility

Final remarks

- ▶ Many measures of inequality – each illustrates similar point: U.S. income inequality is high
- ▶ Wealth inequality rising even faster
- ▶ Measures of inequality are sensitive to definitions (what do you include)
- ▶ Consequences of inequality on real economy uncertain
- ▶ Absolute poverty has fallen worldwide, while relative poverty remains stable in the US (before taxes)
- ▶ Strong evidence that poverty persists across generations, potentially exacerbating inequality