

Lecture 1: Income Distribution, Poverty, Taxes and Transfers

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My research

Mostly in public econ, mixed with labor, macro, & political economy.

Both theory and empirical work.

Long-run effects of taxation:

- Capital taxation;

- Education

- Innovation, R&D Policies

What shapes our views on policies and redistribution?

- Large-scale online surveys and experiments in many countries.

- Social Economics Lab <http://socialeconomicslab.org>

- Understanding Economics Project: Website: understandingeconomics.org

PUBLIC ECONOMICS DEFINITION

Public Economics (or public finance) = study of the Role of the Government in the Economy

Government is instrumental in most aspects of economic life:

- 1) Government in charge of huge **regulatory** structure
 - 2) **Taxes:** governments in advanced economies collect 35-50% of National Income in taxes
 - 3) **Expenditures:** taxes fund **public goods** (infrastructure, public order and safety, defense) and **welfare state** (Education, Retirement benefits, Health care, Income support)
 - 4) Macro-economic **stabilization** through central bank (interest rate, inflation control), fiscal stimulus, bailout policies
- ⇒ We pool a large share of our incomes through government

STEP BACK: A BIGGER VIEW OF GOVERNMENT

Sometimes, economics takes a narrow minded view of individual behavior: purely selfish and economically rational interacting through markets ⇒ Limitation to fully understand **public economics**

Social interactions are critical for humans: we naturally cooperate at many levels: families, communities, nation states, global treaties with very strong/versatile in-group attachments

Archaic human societies depended on social cooperation for protection and taking care of the young, sick, and old

⇒ Explains best why our modern nation states provide defense and education, health care, and retirement benefits

Humans reveal their social nature from the size of their “governments” (informal and formal)

HENCE WHY IT IS SO IMPORTANT TO STUDY PUBLIC ECONOMICS

Replacing social institutions by markets does not always work:

Education is primarily government funded: student loans work in economic theory but in practice end up being a huge lifetime burden. For-profit education has a tendency to become a scam

Retirement benefits: Saving for your own retirement works in theory but in practice most people unable to do so unless institutions (employers/government) help them

Health care: Health care relies heavily on government/community support everywhere. People are not able to afford or shop rationally for health care

Economists are not blind advocates for “markets.” They play a useful role in understanding when markets can help and how individualistic forces can undermine institutions

THREE QUESTIONS IN PUBLIC ECONOMICS

- 1) When should the government intervene in the economy?
- 2) What is the effect of those interventions on economic outcomes?
- 3) Why do governments choose to intervene in the way that they do?

Q1: When should the government intervene in the economy?

1) **Market Failures:** Market economy sometimes fails to deliver an outcome that is efficient

⇒ Government intervention may improve the situation

2) **Redistribution:** Market economy generates substantial inequality in economic resources across individuals

Inequality is an issue because we are “social beings”

⇒ People willing to pool their resources (through government taxes and transfers) to help reduce inequality

First part of the class focuses on Redistribution

Second part of the class focuses on Market Failures

Main Market Failures

- 1) Externalities:** (example: greenhouse carbon emissions) \Rightarrow require govt interventions (such as corrective taxation)
- 2) Imperfect competition:** (example: monopoly) \Rightarrow requires regulation (typically studied in Industrial Organization)
- 3) Imperfect or Asymmetric Information:** (example: health insurance markets are subject to death spirals)
- 4) Individual failures:** People do not behave as “fully rational individuals”. This is analyzed in behavioral economics a field in huge expansion (example: myopic people may not save enough for retirement)

Inequality and Redistribution

Even if market outcome is efficient, society might not be happy with the market outcome because market equilibrium might generate very high economic disparity across individuals

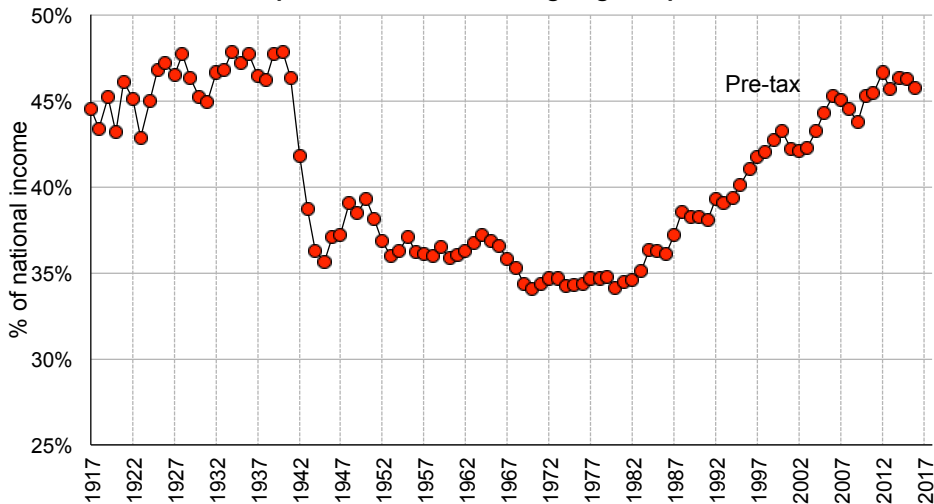
Governments use taxes and transfers to redistribute from rich to poor and reduce inequality

Redistribution through taxes and transfers might reduce incentives to work (**efficiency costs**)

⇒ Redistribution creates an **equity-efficiency trade-off**

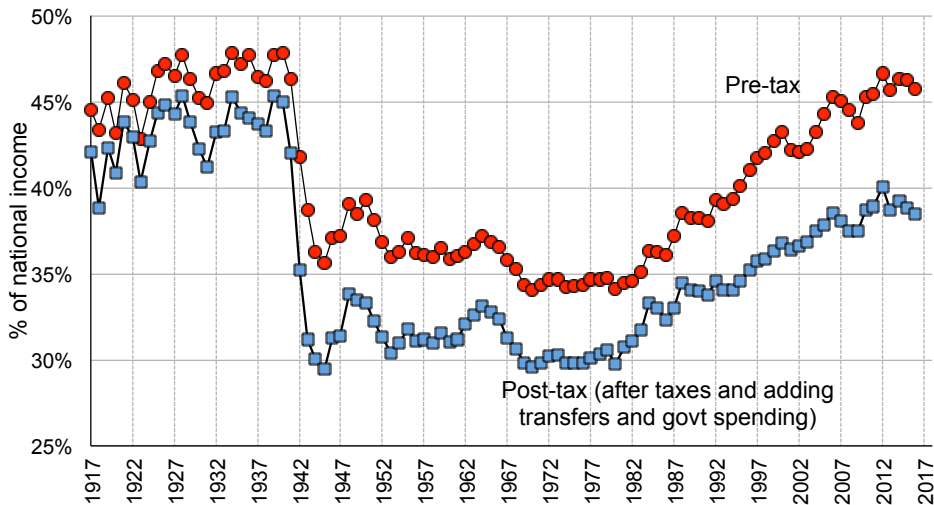
Income inequality has soared in the United States in recent decades, and has moved to the forefront in the public debate (Piketty's 2014 book success, stats from Piketty-Saez-Zucman '18)

Share of pre-tax national income going to top 10% adults



Source: Piketty, Saez, and Zucman (2018)

Top 10% national income share: pre-tax vs. post-tax



Source: Piketty, Saez, Zucman (2018)

Q2: What Are the Effects of Alternative Interventions?

1) Direct Effects: The effects of government interventions that would be predicted if individuals did not change their behavior in response to the interventions.

Direct effects are relatively easy to compute

2) Indirect Effects: The effects of government interventions that arise only because individuals change their behavior in response to the interventions (sometimes called **unintended effects**)

Empirical public economics analysis tries to estimate indirect effects to inform the policy debate

Example: increasing top income tax rates mechanically raises tax revenue but top earners might find ways to evade/avoid taxes, reducing tax revenue relative to mechanical calculation

Q3: Why Do Governments Intervene in the Way They Do?

Political economy: The theory of how the political process produces decisions that affect individuals and the economy

Example: Understanding how the level of taxes and spending is set through voting and voters' preferences

Public choice is a sub-field of political economy from a Libertarian perspective that focuses on **government failures**

government failures = situations where the government does not act in the benefit of society (e.g., government captured by special interests or a self-perpetuating bureaucracy)

Normative vs. Positive Public Economics

Normative Public Economics: Analysis of How Things Should be (e.g., should the government intervene in health insurance market? how high should taxes be?, etc.)

Positive Public Economics: Analysis of How Things Really Are (e.g., Does govt provided health care crowd out private health care insurance? Do higher taxes reduce labor supply?)

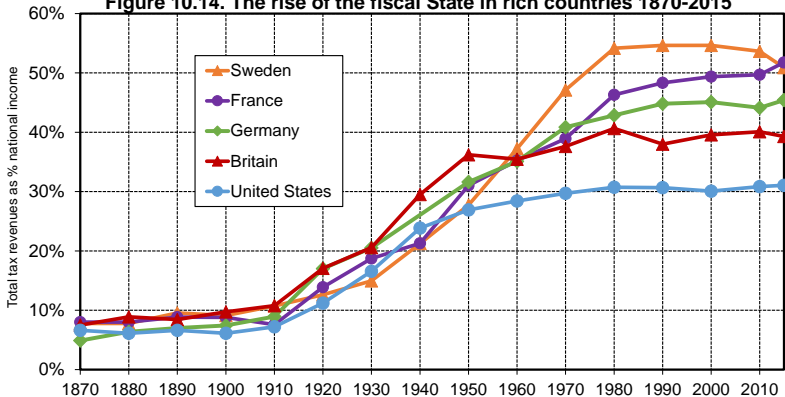
Positive Public Economics is a required 1st step before we can complete Normative Public Economics

Positive analysis is primarily empirical and Normative analysis is primarily theoretical

Key Facts on Taxes and Spending

- 1) Government Growth:** Size of government relative to National Income grows dramatically over the process of development from less than 10% in less developed economies to 30-50% in most advanced economies
- 2) Government Size Stable** in richest countries after 1980
- 3) Government Growth** is due to the expansion of the **welfare state**: (a) public education, (b) public retirement benefits, (c) public health insurance, (d) income support programs
- 4) Govt spending > Taxes:** Most rich countries run deficits and have significant public debt (relative to GDP), particularly during Great Recession of 2008-10

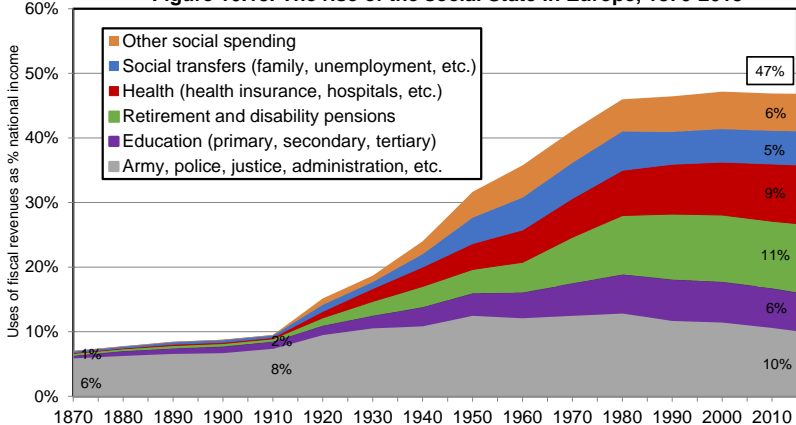
Figure 10.14. The rise of the fiscal State in rich countries 1870-2015



Interpretation. Total fiscal revenues (all taxes and social contributions included) made less than 10% of national income in rich countries during the 19th century and until World War 1, before rising strongly from the 1910s-1920s until the 1970s-1980s and then stabilizing at different levels across countries: around 30% in the U.S., 40% in Britain and 45%-55% in Germany, France and Sweden.

Sources and series: see piketty.pse.ens.fr/ideology.

Figure 10.15. The rise of the social State in Europe, 1870-2015



Interpretation. In 2015, fiscal revenues represented 47% of national income on average in Western Europe et were used as follows: 10% of national income for regalian expenditure (army, police, justice, general administration, basic infrastructure: roads, etc.); 6% for education; 11% for pensions; 9% for health; 5% for social transfers (other than pensions); 6% for other social spending (housing, etc.). Before 1914, regalian expenditure absorbed almost all fiscal revenues. **Note.** The evolution depicted here is the average of Germany, France, Britain and Sweden (see figure 10.14). Sources and séries: see piketty.pse.ens.fr/ideology.

DIFFERENT LEVELS OF GOVERNMENTS

US Federal govt raises about 20% of GDP in taxes (and can run deficits)

State+Local govts raise about 10% of GDP in taxes

Decentralized govt = a larger fraction of taxes/spending are decided at local level

Decentralized govt can tailor policy to local views (example: California has more liberal policies than Texas)

Redistribution through taxes and transfers harder to achieve at local level (rich can leave local jurisdiction if local taxes are too high) ⇒ Local govts tend to do less redistribution

⇒ Conservatives/libertarians tend to prefer decentralized states

DISTRIBUTION OF TAXES

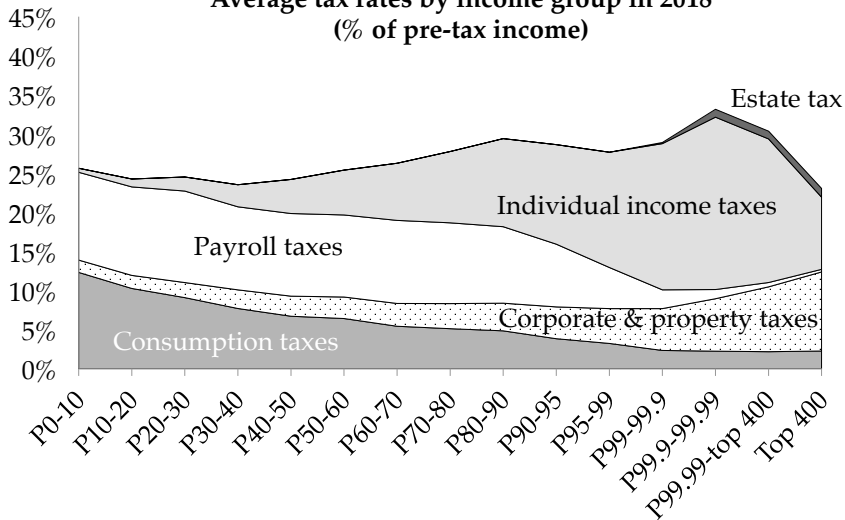
US Federal govt raises about $\frac{2}{3}$ of total taxes, State+Local govt raises $\frac{1}{3}$ of total taxes.

Main Federal taxes: (1) Individual income tax (40% of Fed tax revenue), (2) payroll taxes on earnings (40%), (3) corporate tax (15%)

Main State taxes: (1) real estate property taxes (30% of state+local tax revenue), (2) sales and excise taxes (30%), (3) individual and corporate state taxes (30%)

Key questions: how are these taxes distributed by income groups (Saez-Zucman '19 book)? what impact do they have on the economy?

Average tax rates by income group in 2018 (% of pre-tax income)



REGULATORY ROLE OF THE GOVERNMENT

Another critical role the government plays in all nations is that of *regulating economic and social activities*. Examples:

- 1) **Minimum wage** at the Federal level is \$7.25 (States can adopt higher min wages) ⇒ Potential impact on inequality
- 2) The **Food and Drug Administration (FDA)** regulates the labeling and safety of nearly all food products and approves drugs and medical devices to be sold to the public
- 3) The **Occupational Safety and Health Administration (OSHA)** is charged with regulating the workplace safety of American workers
- 4) The **Environmental Protection Agency (EPA)** is charged with minimizing dangerous pollutants in the air, water, and food supplies

PUBLIC DEBATES OVER TAXES, HEALTH CARE, AND CLIMATE CHANGE

Taxes, health care, and climate change are each the subject of debate, with both the "liberal" and "conservative" positions holding differing views in their approach to each problem.

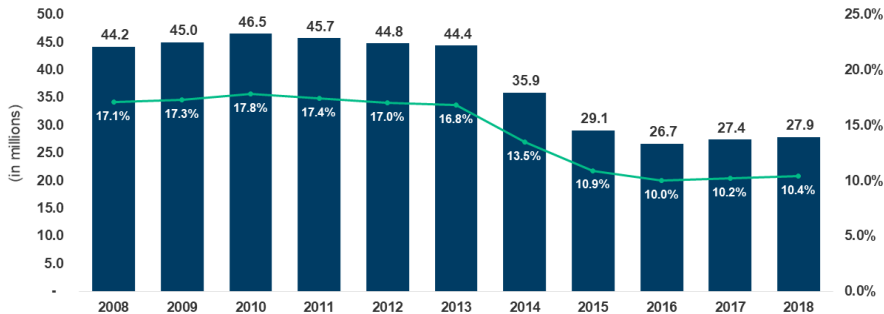
Taxes: Trump administration decreased taxes on corporations and individuals in 2018. Democratic candidates want to tax the rich more. During the 2020 election, some proposed new progressive wealth taxes.

Health Care: Up to 2013, 17-18% of the non-elderly U.S. population not insured. With Obamacare down to 10%. Some candidates propose Medicare for All.

Climate change: Carbon emissions are generating global warming with potentially devastating future consequences (sea rise, extreme weather, agricultural output). What should government do? Nothing (Trump) vs. Green New Deal

Figure 1

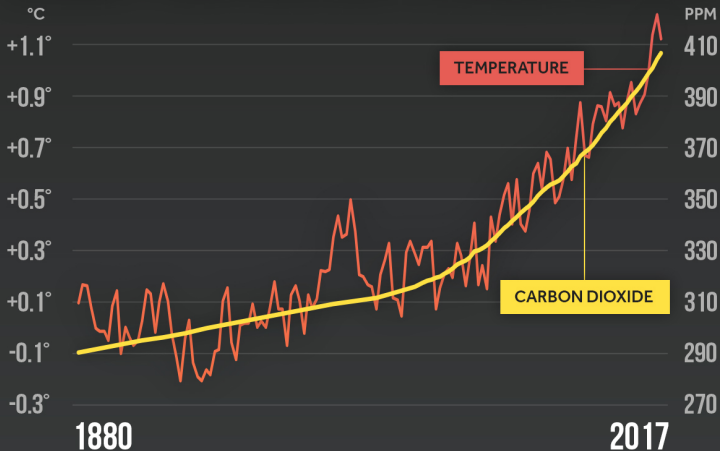
Number of Uninsured and Uninsured Rate among the Nonelderly Population, 2008-2018



NOTE: Includes nonelderly individuals ages 0 to 64.

SOURCE: KFF analysis of 2008-2018 American Community Survey, 1-Year Estimates.

GLOBAL TEMPERATURE & CARBON DIOXIDE



Global temperature anomalies averaged and adjusted to early industrial baseline (1881-1910)
Source: NASA GISS, NOAA NCEI, ESRL

Recall: Two General Rules for Government Intervention

- 1) **Market Failures:** Government intervention can help if there are market failures
- 2) **Redistribution:** Free market generates inequality. Public cares about economic disparity. Govt taxes and spending can reduce inequality

Role 2: Redistribution

Even with no market failures, free market outcome might generate substantial inequality

Inequality matters because people evaluate their economic well-being relative to others, not in absolute terms ⇒ Public cares about inequality

In advanced economies, people pool 30-50% of their income through their government to fund many transfer programs

Do taxes and transfers affect economic behavior?

⇒ Generates an efficiency and equity trade-off (size of economic pie vs. distribution of the economic pie)

Income Inequality: Labor vs. Capital Income

Economic production happens with labor and capital

Individuals derive market income (before tax) from **labor** (work) and **capital** (ownership): $z = wl + rk$ where w is wage, l is labor supply, k is capital, r is rate of return on capital

- 1) **Labor income inequality** is due to differences in working abilities (education, talent, physical ability, etc.), work effort (hours of work, effort on the job, etc.), and luck (labor effort might succeed or not)
- 2) **Capital income inequality** is due to differences in wealth k (due to past saving behavior and inheritances received), and in rates of return r

Capital Income (or wealth) is much more concentrated than Labor Income

Macro-aggregates: Labor vs. Capital Income

Labor income $wl \simeq 75\%$ of market income z

Capital income $rk \simeq 25\%$ of market income z

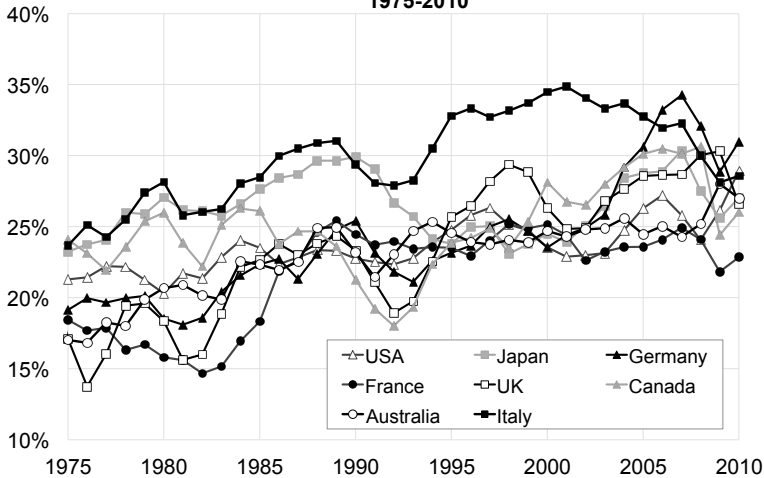
Private wealth $k \simeq 400 - 500\%$ of market income z (increased a lot in the US in the last decade, to 550% in 2020).

Rate of return on capital $r \simeq 5 - 6\%$

In GDP, gross capital share is higher (35%) because it includes depreciation of capital

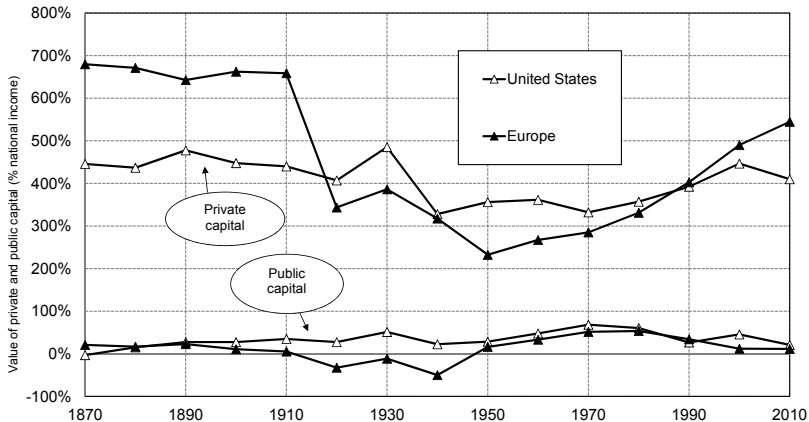
National Income = GDP - depreciation of capital + net foreign income

**Figure 12: Capital shares in factor-price national income
1975-2010**



Source: Piketty and Zucman (2014)

Figure 5.1. Private and public capital: Europe and America, 1870-2010



The fluctuations of national capital in the long run correspond mostly to the fluctuations of private capital (both in Europe and in the U.S.). Sources and series: see piketty.pse.ens.fr/capital21c.

Income Inequality Measurement

Inequality can be measured by indexes such as Gini coefficient, quantile income shares which are functions of the income distribution $F(z)$

Most famous inequality index: **Gini coefficient**

Gini = 2 * area between 45 degree line and Lorenz curve

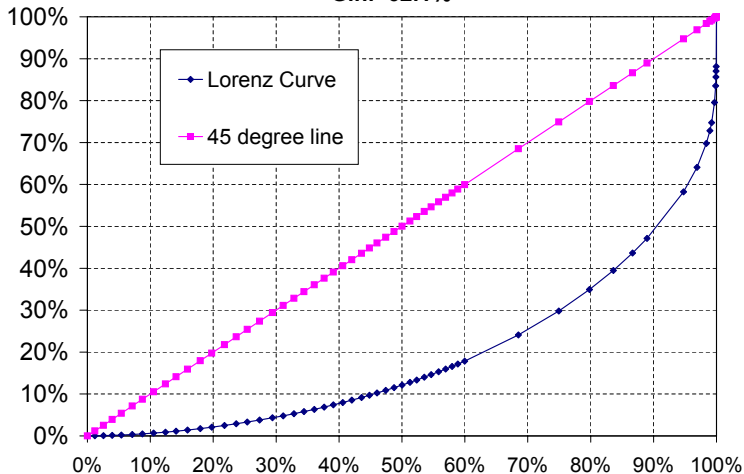
Lorenz curve $L(p)$ at percentile p is fraction of total income earned by individuals below percentile p

$$0 \leq L(p) \leq p$$

Gini=0 means perfect equality

Gini=1 means complete inequality (top person has all the income)

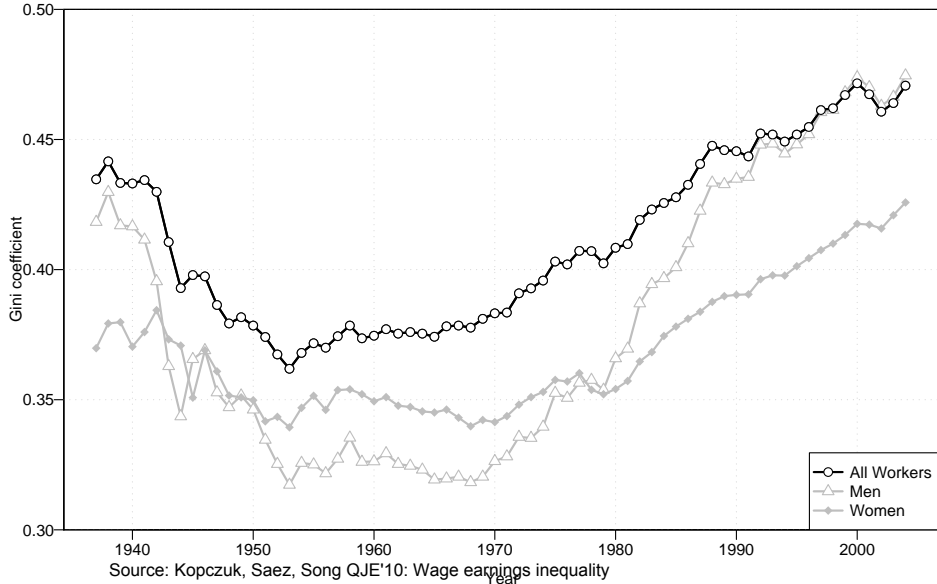
Gini Coefficient California pre-tax income, 2000, Gini=62.1%



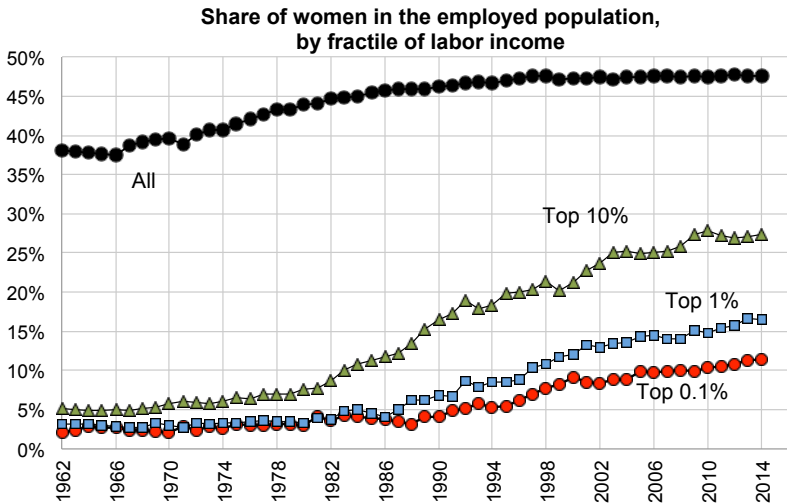
Key Empirical Facts on Income Inequality

- 1) In the US, labor income inequality has increased substantially since 1970: debate between skilled biased technological progress view vs. institution view (min wage and Unions) [Autor-Katz'99]
- 2) Gender gap has decreased but remains substantial especially at the very top
- 3) In the US, top income shares dropped dramatically from 1929 to 1950 and increased dramatically since 1980
- 4) Bottom 50% pre-tax income per adult have stagnated since 1980 in spite of a 60% increase in average national income
- 4) Fall in top income shares from 1900-1950 happened in most OECD countries. Surge in top income shares has happened primarily in English speaking countries, not as much in Continental Europe and Japan [Atkinson, Piketty, Saez JEL'11]

Figure 1: Gini coefficient

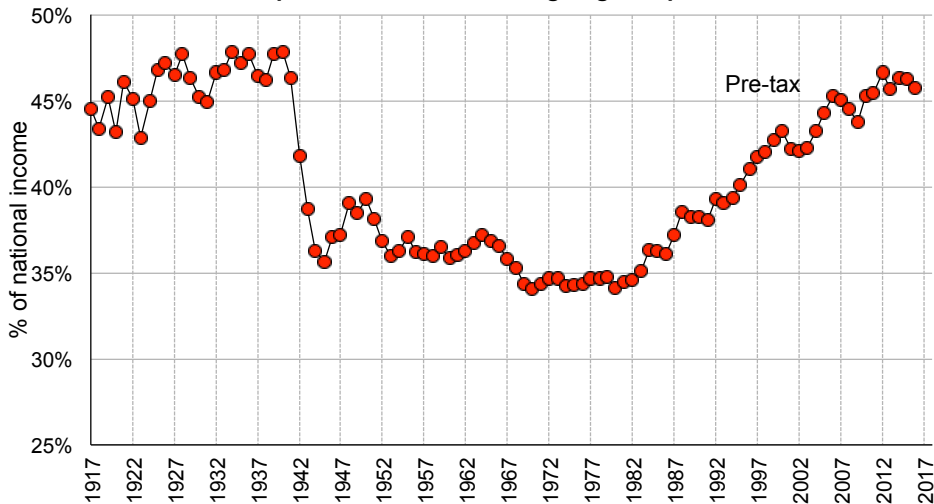


Men still make 85% of the top 1% of the labor income distribution



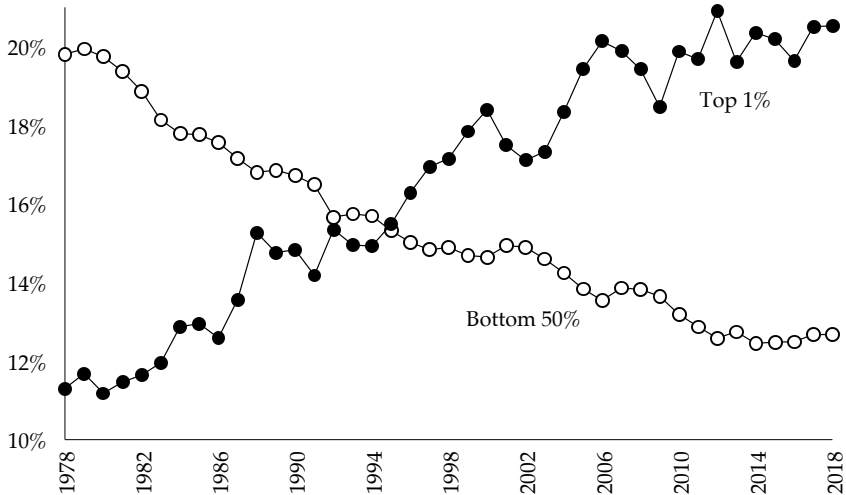
Source: Appendix Table II-F1.

Share of pre-tax national income going to top 10% adults



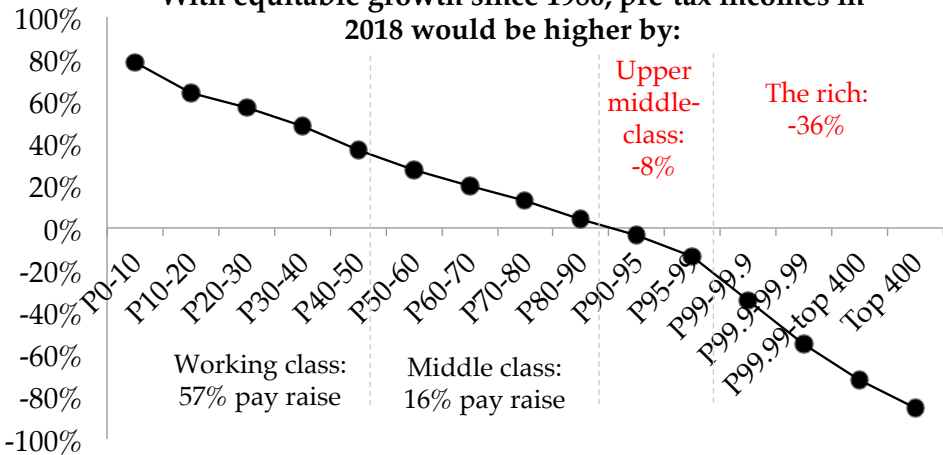
Source: Piketty, Saez, and Zucman (2018)

Share of pre-tax national income



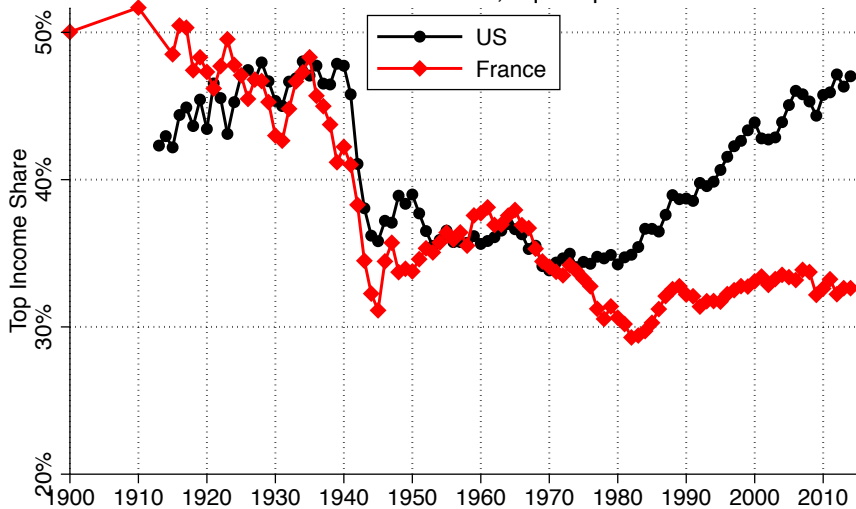
Source: Saez and Zucman (2019), Figure 1.1

With equitable growth since 1980, pre-tax incomes in 2018 would be higher by:



Top 10% Income Shares Across Countries

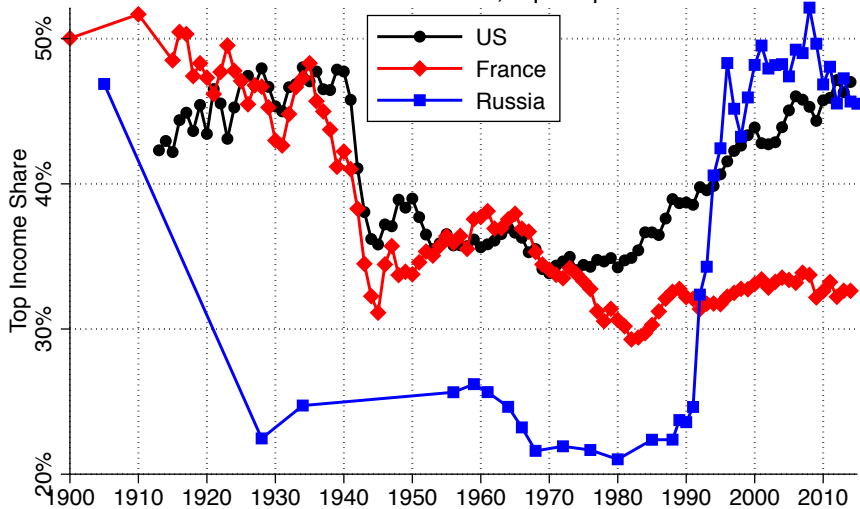
Pre-tax National Income, equal-split adults



Source: WID.world

Top 10% Income Shares Across Countries

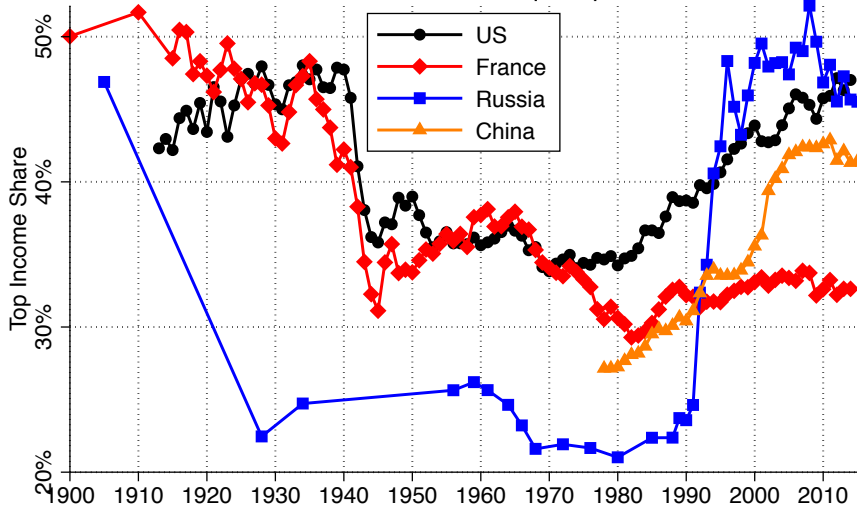
Pre-tax National Income, equal-split adults



Source: WID.world

Top 10% Income Shares Across Countries

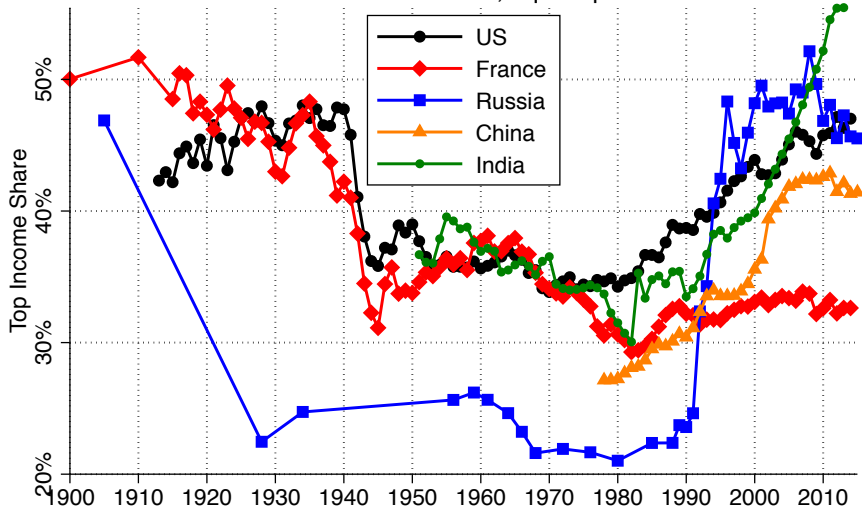
Pre-tax National Income, equal-split adults



Source: WID.world

Top 10% Income Shares Across Countries

Pre-tax National Income, equal-split adults



Source: WID.world

POVERTY RATE DEFINITIONS

1) **Absolute:** Fraction of population with disposable income (normalized by family size) below **poverty threshold** z^* fixed in real terms (e.g., World Bank now uses \$1.90/day in 2011 dollars)

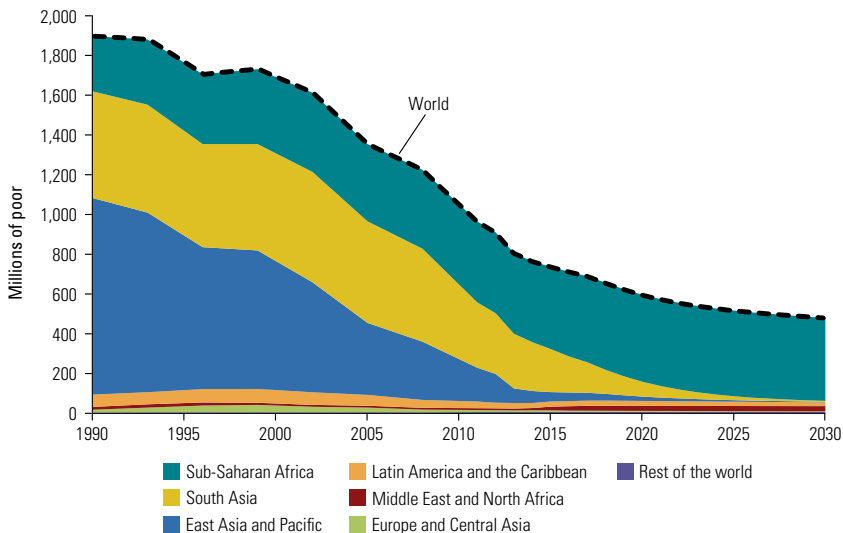
2) **Relative:** Fraction of population with disposable income (normalized by family size) below **poverty threshold** z^* fixed relative to median (European Union defines poverty threshold as 60% of median)

Absolute poverty falls in the long run with economic growth [nobody in the US is World Bank poor] but relative poverty does not

Absolute poverty captures both growth and inequality effects while relative poverty captures only inequality effects

The fact that inequality stays in the debate in spite of huge growth since 1800 shows that relative income matters (see e.g. Luttmer 2005 for an empirical study)

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 Rate Disposable Income Definition

Most intuitive notion of poverty is based on consumption c [not pre-tax income z]

$$c = z - T(z) + B(z) + E - s$$

where $T(z)$ is tax, $B(z)$ govt transfers, E net private transfers (charity, family, friends), s is net savings (change in assets)

Consumption c is difficult to measure

Disposable Income $z - T(z) + B(z)$ [post-tax income] measured in traditional Current Population Survey (CPS)

FAMILY SCALE

Ideally, poverty should be defined at the individual level based on individual consumption [e.g., kids better off when mother or grandmother controls income instead of father, Duflo '03]

However, many consumption goods are shared within the family [e.g., housing, joint meals, etc.] and it is difficult to measure consumption at individual level

Measured poverty is therefore based on consumption or disposable income at the family level [or unit sharing resources] and everybody within the family has same poverty status

Bigger families need more resources but economies of scale in consumption: scale disposable income by family size

US POVERTY RATE DEFINITION

Based on **money income** = market income before taxes + cash govt transfers + cash private transfers

In-kind market income and transfers (employer health insurance, Medicaid, nutrition, public housing) do NOT count

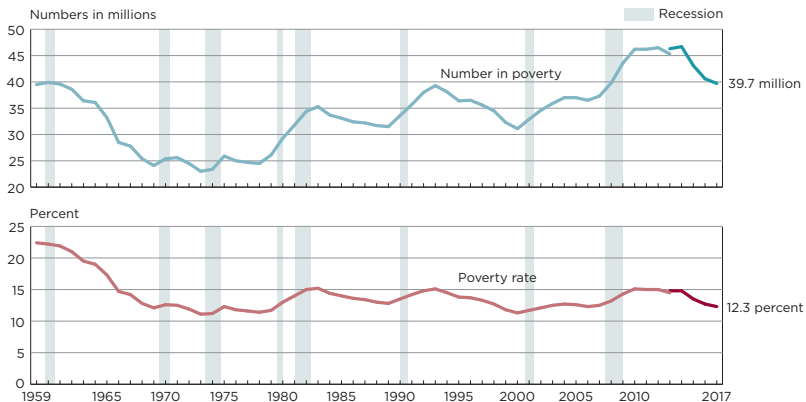
Income and employee payroll taxes are NOT deducted, Income tax credits (EITC, Child Tax Credit) are NOT added

Threshold depends on household size/structure: e.g., \$20K/year for single parent with 2 kids

Thresholds adjusted annually using the official CPI

In 2020: \$13K for single adult, \$17K family of 2, \$22K for family of 3, \$26K for 4

Figure 4.
Number in Poverty and Poverty Rate: 1959 to 2017

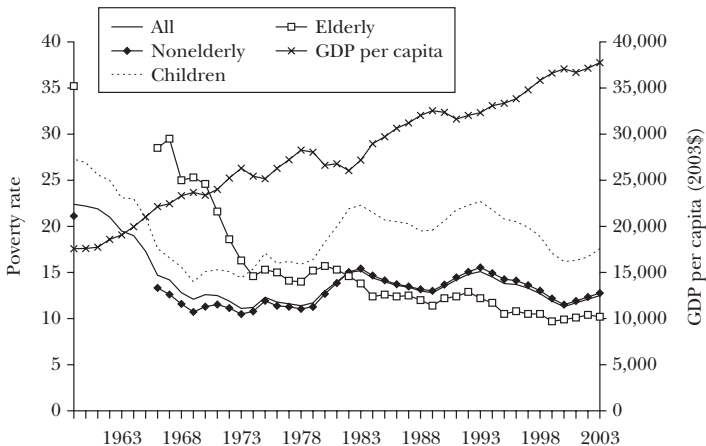


Note: The data for 2013 and beyond reflect the implementation of the redesigned income questions. The data points are placed at the midpoints of the respective years. For information on recessions, see Appendix A. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see <www2.census.gov/programs-surveys/cps/techdocs/cpsmar18.pdf>.

Source: U.S. Census Bureau, Current Population Survey, 1960 to 2018 Annual Social and Economic Supplements.

Figure 1

Trends in Individual Poverty Rates and Real GDP per Capita, 1959–2003



Source: Poverty rates are from U.S. Bureau of the Census, Current Population Survey, Annual Social and Economic Supplements. The GDP per capita series is from the Economic Report of the President (2005).

Note: The poverty rate data are unavailable for some subgroups for 1960–1965.

Factors Explaining Evolution of Poverty

Based on Hoynes-Page-Stevens JEP'06

- 1) Increasing pre-tax inequality: stagnant bottom wages in spite of economic growth per capita [large effect]
- 2) Changes in family structure: single parent families ↑ from 7% in 1967 to 14.4% in 2003 ⇒ Increases poverty rate by 4 pts [large effect]
- 3) Increase in female labor force participation ⇒ Reduces poverty rate [significant effect only since 1980]
- 4) Immigration: accounts for about 0.7 points in the poverty rate increase from 1969 to 1999 [small effect]
- 5) Means-tested transfers [medium effect because they are concentrated below poverty line]

ISSUES WITH US POVERTY RATE DEFINITION

Definition was close to disposable income when measuring poverty started but no longer:

- 1) In-kind transfers have grown substantially [Medicaid]
- 2) Payroll tax and Income tax credits (EITC, Child Tax Credit) have grown substantially for low income families
- 3) Official CPI overstates inflation [and understates real economic growth] because it is not chained [i.e., does not take into account that relative price changes lead to changes in consumption]

Politically difficult to change definition

Measuring Intergenerational Income Mobility

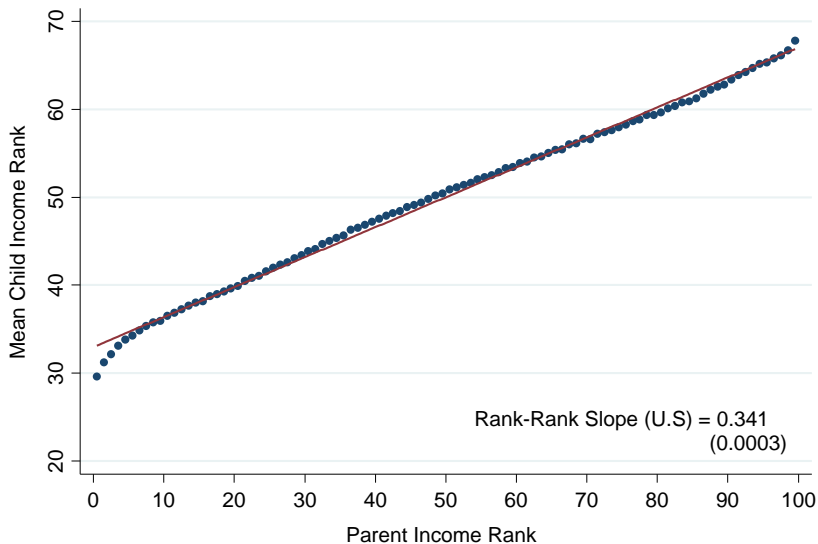
Strong consensus that children's success should not depend too much on parental income

Studies linking adult children to their parents can measure link between children and parents income

Simple measure: average income rank of children by income rank of parents (Chetty et al. '14)

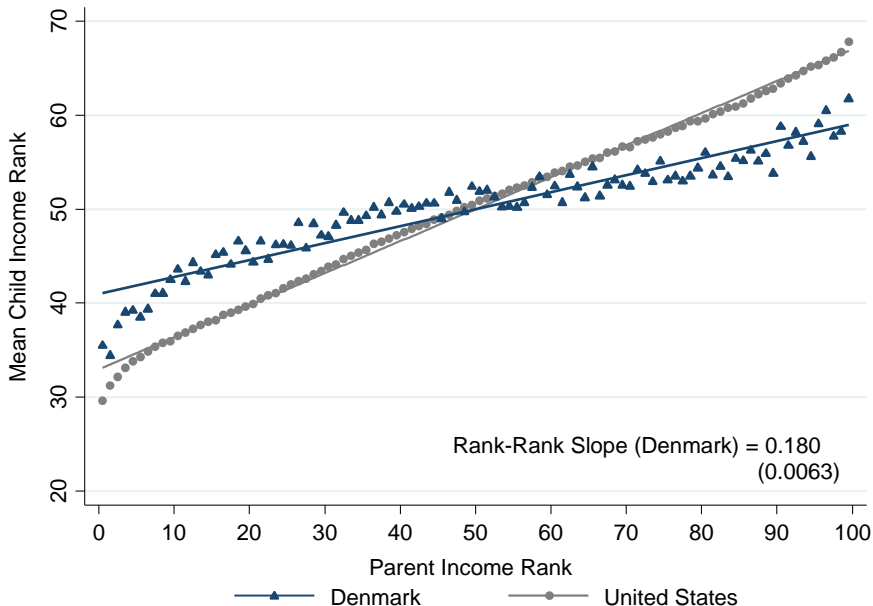
- 1) US has less mobility than European countries (especially Scandinavian countries such as Denmark)
- 2) Substantial heterogeneity in mobility across cities in the US
- 3) Places with low segregation, low income inequality, good K-12 schools, high social capital, high family stability tend to have high mobility [this is a correlation and not necessarily causal]
- 4) Substantial racial disparity in mobility (Chetty et al. 2020)

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



Source: Chetty, Hendren, Kline, Saez (2014)

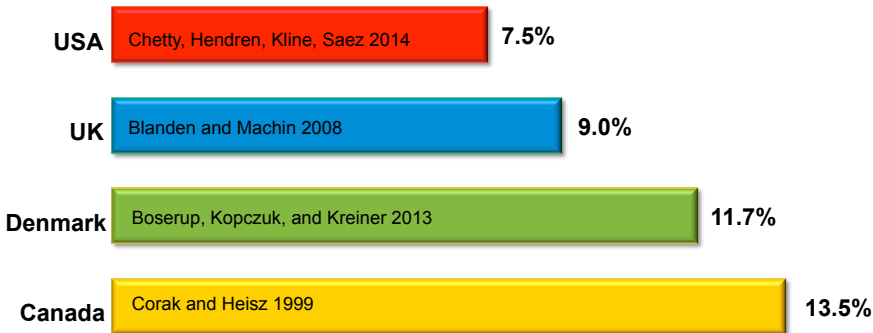
B. United States vs. Denmark



Source: Chetty, Hendren, Kline, Saez (2014)

The American Dream?

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

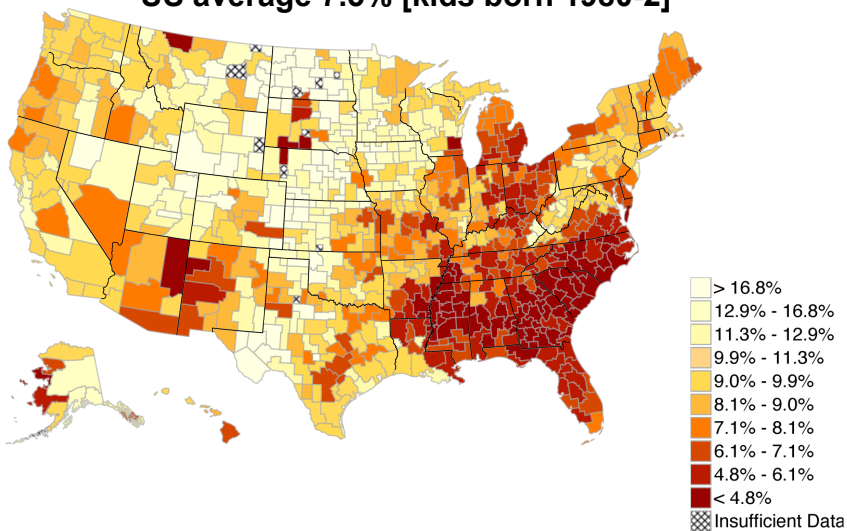


→ Chances of achieving the “American Dream” are almost two times higher in Canada than in the U.S.

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]



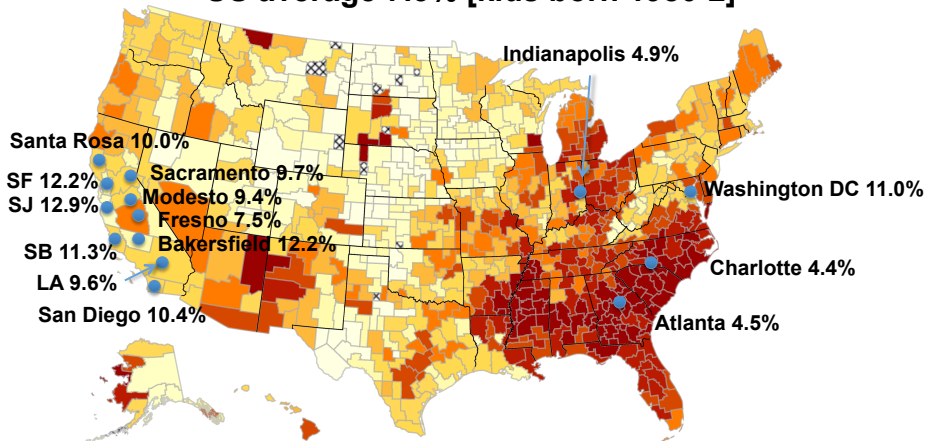
Note: Lighter Color = More Upward Mobility

Download Statistics for Your Area at www.equality-of-opportunity.org

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]



Note: Lighter Color = More Upward Mobility

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

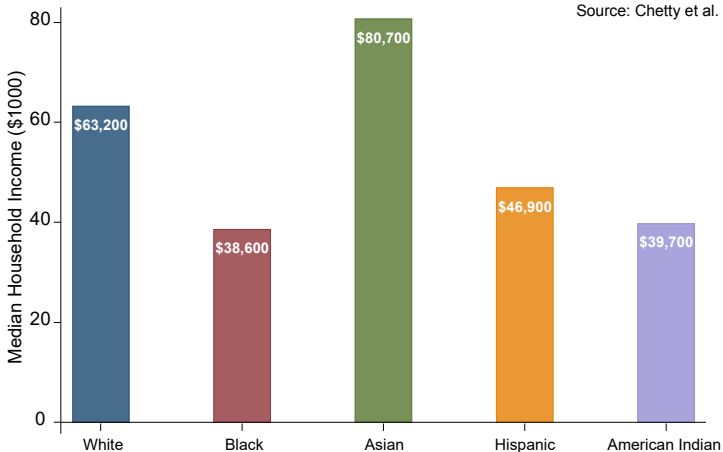
Rank	Commuting Zone	Odds of Reaching Top Fifth from Bottom Fifth	Rank	Commuting Zone	Odds of Reaching Top Fifth from Bottom Fifth
1	San Jose, CA	12.9%	41	Cleveland, OH	5.1%
2	San Francisco, CA	12.2%	42	St. Louis, MO	5.1%
3	Washington, D.C.	11.0%	43	Raleigh, NC	5.0%
4	Seattle, WA	10.9%	44	Jacksonville, 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.

Median Household Income by Race and Ethnicity in 2016

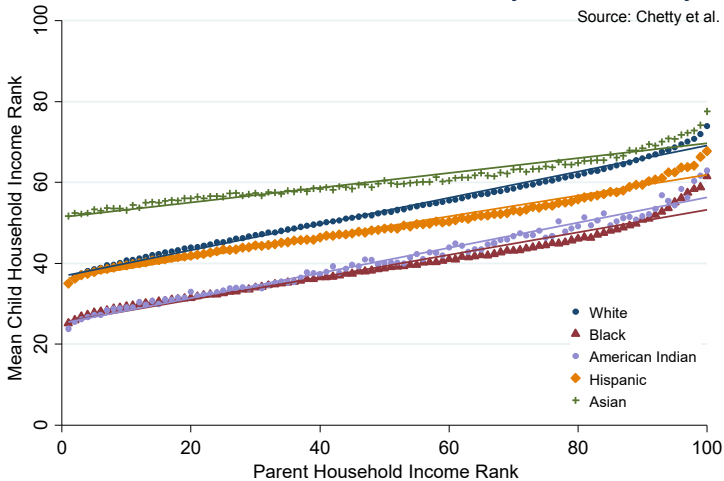
Source: Chetty et al. 2020



Note: We focus here and in subsequent analyses on four non-Hispanic single-race groups (white, black, Asian, American Indian and Alaska Native) and Hispanics. Source: American Community Survey 2016.

Mean Child Income Rank vs. Parent Income Rank by Race and Ethnicity

Source: Chetty et al. 2020



Govt Redistribution with Taxes and Transfers

Govt taxes individuals based on income and consumption and provides transfers: z is pre-tax income, $y = z - T(z) + B(z)$ is post-tax income

- 1) If inequality in y is less than inequality in $z \Leftrightarrow$ tax and transfer system is redistributive (or progressive)
 - 2) If inequality in y is more than inequality in $z \Leftrightarrow$ tax and transfer system is regressive
- a) If $y = z \cdot (1 - t)$ with constant t , tax/transfer system is neutral
 - b) If $y = z \cdot (1 - t) + G$ where G is a universal transfer, then tax/transfer system is progressive

Actual tax/transfer systems in rich countries roughly like b) with G welfare state transfers [education, health, retirement]

US Distributional National Accounts

Piketty-Saez-Zucman NBER'16 distribute both pre-tax and post-tax US **national income** across adult individuals

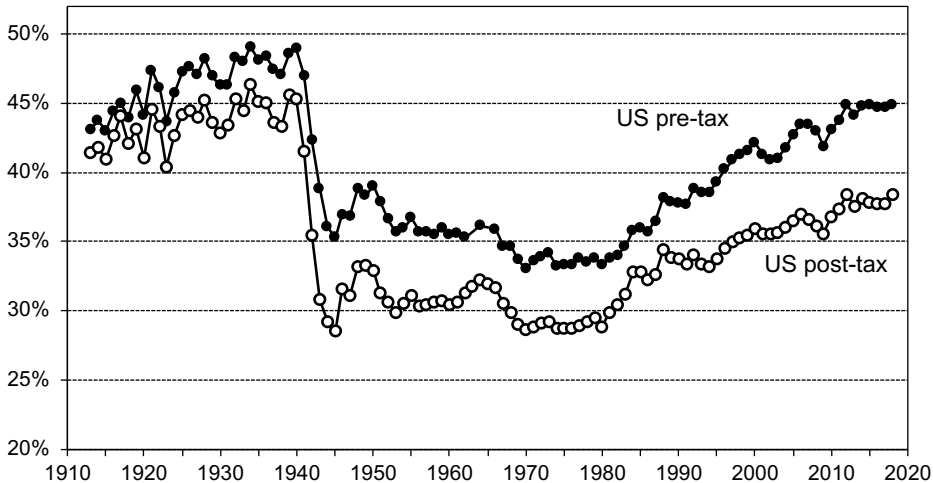
National income = GDP - depreciation of capital + net foreign income = broadest measure of income

Pre-tax income is income before taxes and transfers: z

Post-tax income is income net of all taxes and adding all transfers and public good spending: $y = z - T(z) + G$

Both concepts add up to national income and provide a comprehensive view of the mechanical impact of government redistribution

US Top 10% Income Shares pre-tax vs. post-tax, 1913-2018

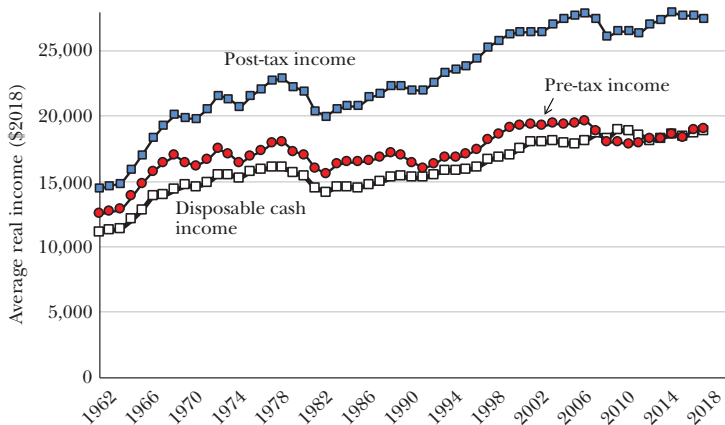


Top income shares of pretax and posttax national income among adults (income within married couples equally split). Source is Piketty, Saez, Zucman (2018) for US and Piketty et al. (2020) for France.

Figure 6

The Evolution of Bottom 50 Percent Incomes

Source: Saez and Zucman JEP2020



Source: Piketty, Saez, and Zucman (2018), updated September 2020.

Note: The figure depicts the evolution of the real incomes per adult (in 2018 dollars) for the bottom half of the income distribution for three income concepts: (1) pre-tax income before deducting taxes or adding government transfers (concept sums up to national income), (2) post-tax income that deducts all taxes and adds all transfers (cash and in-kind) and collective public expenditures minus the government deficit (also sums up to national income), (3) disposable cash income which is pre-tax income minus all taxes and social security contributions (also sums up to national income) minus all taxes and social security contributions (also sums up to national income) minus all taxes and social security contributions (also sums up to national income).

Federal US Tax System (2/3 of total taxes)

- 1) Individual income tax (on both labor+capital income) [progressive](40% of fed tax revenue)
- 2) Payroll taxes (on labor income) financing social security programs [about neutral] (40% of revenue)
- 3) Corporate income tax (on capital income) [progressive if incidence on capital income] (15% of revenue)
- 4) Estate taxes (on capital income) [very progressive] (1% of revenue)
- 5) Minor excise taxes (on consumption) [regressive] (3% of revenue)

Fed agencies (CBO, Treasury, Joint Committee on Taxation) and think-tanks (Tax Policy Center) provide distributional Fed tax tables

State+Local Tax System (1/3 of total taxes)

Decentralized governments can experiment, be tailored to local views, create tax competition and make redistribution harder (famous Tiebout 1956 model) hence favored by conservatives

1) Individual + Corporate income taxes [progressive] (1/3 of state+local tax revenue)

2) Sales taxes + Excise taxes (tax on consumption) [regressive] (1/3 of revenue)

3) Real estate property taxes (on capital income) [slightly progressive] (1/3 of revenue)

See ITEP (2018) "Who Pays" for systematic state level distributional tax tables

US Census provides Census of Government data

US Tax System: Progressivity and Evolution

0) US Tax/Transfer system is progressive overall: pre-tax national income is less equally distributed than post-tax/post-transfer national income

1) Medium Term Changes: Federal Tax Progressivity has declined since 1950 (Saez and Zucman 2019) but govt redistribution through transfers has increased (Medicaid, Social Security retirement, DI, UI various income support programs)

2) Long Term Changes: Before 1913, US taxes were primarily tariffs, excises, and real estate property taxes [slightly regressive], minimal welfare state (and hence small govt)

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