Lecture 1: Income Distribution, Poverty, Taxes and Transfers

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My research

I do mostly public, but mixed with labor, macro, and (some) political economy.

Both theory and empirical work.

Classical optimal tax theory (e.g.: labor market frictions, rent-seeking, capital taxation)

Dynamic new Public Finance and Mechanism Design (e.g.: human capital, R&D incentives).

Social preference theory.

Empirical experimental work on preferences for redistribution.

Empirical effects of taxes (e.g: migration, innovation, capital income).

Innovation policy.

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:** tax revenue funds **traditional 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

Four questions of public finance

1) When should the government intervene in the economy?

2) How might the government intervene?

3) What is the effect of those interventions on economic outcomes?

4) Why do governments choose to intervene in the way that they do?

When should the government intervene in the economy?

1) Market Failures: Market economy sometimes fails to deliver an outcome that is efficient $\Rightarrow$ Government intervention may improve the situation

2) Redistribution: Market economy generates substantial inequality in economic resources across individuals $\Rightarrow$ People willing to pool their resources (through government taxes and transfers) to help reduce inequality

Main Market Failures

1) Externalities: (example: greenhouse carbon emissions) $\Rightarrow$ require govt interventions (Pigouvian taxes/subsidies, public good provision)

2) Imperfect competition: (example: monopoly) $\Rightarrow$ requires regulation (typically studied in Industrial Organization)

3) Imperfect or Asymmetric Information: (example: adverse selection in health insurance may require mandatory insurance)

4) Individual failures: People are not always rational. This is analyzed in behavioral economics, field in huge expansion (example: myopic people may not save enough for retirement)

Inequality and Redistribution

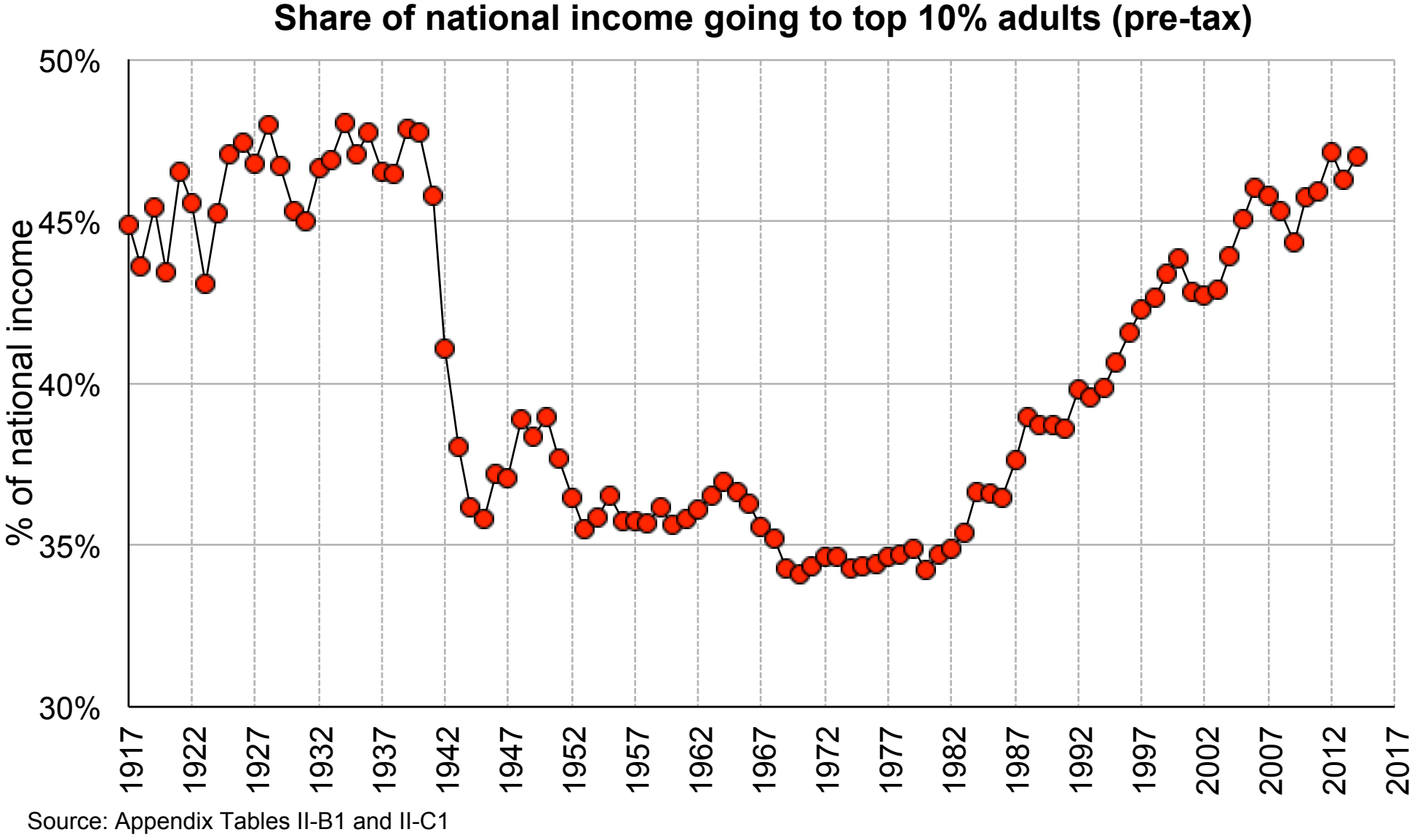
Even if market outcome is efficient, society might not be happy with the market outcome because market equilibrium might generate very high economic disparity across individuals

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

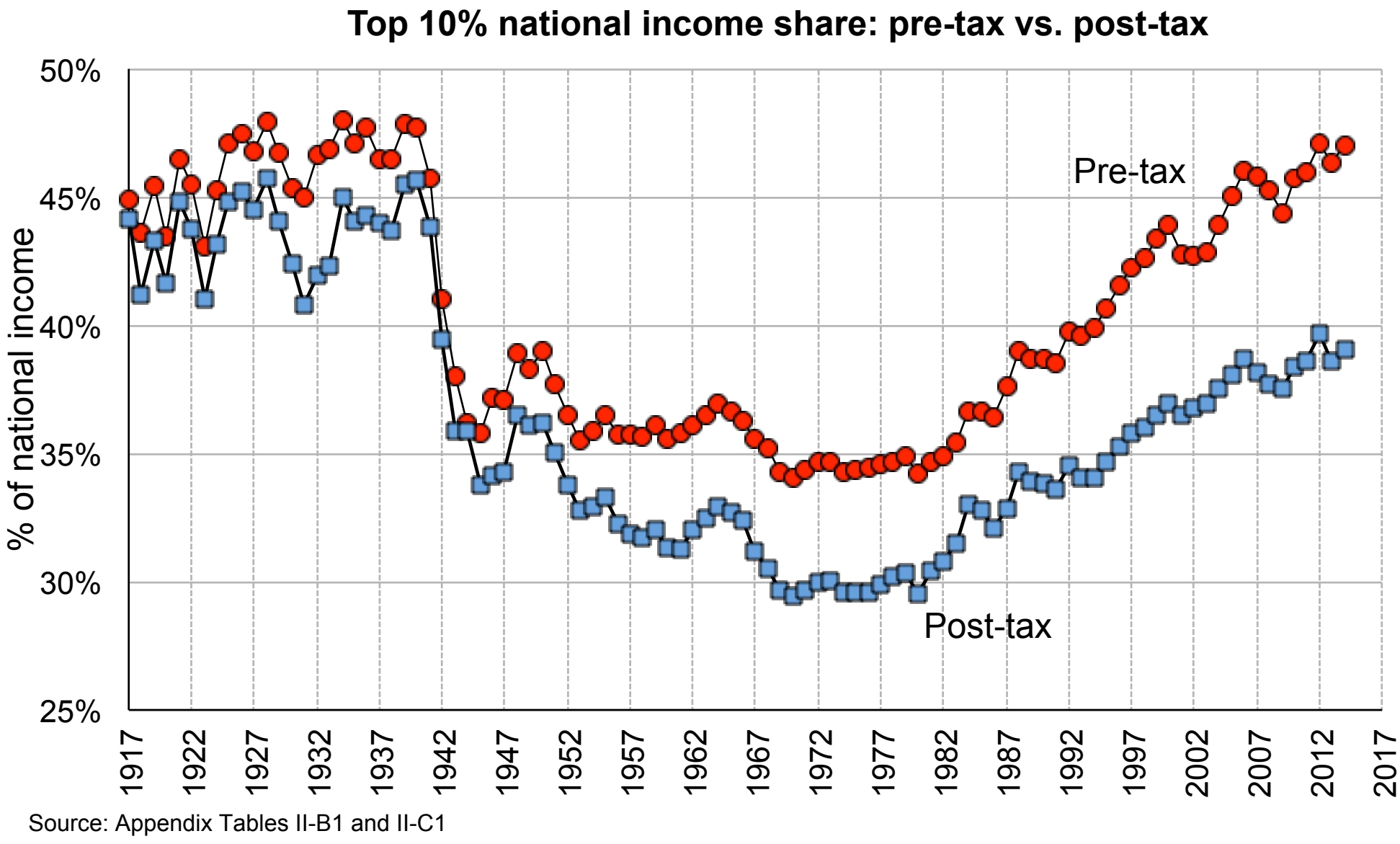
Redistribution through taxes and transfers might reduce incentives to work (**efficiency costs**)

$\Rightarrow$ 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 '16)



Source: Appendix Tables II-B1 and II-C1



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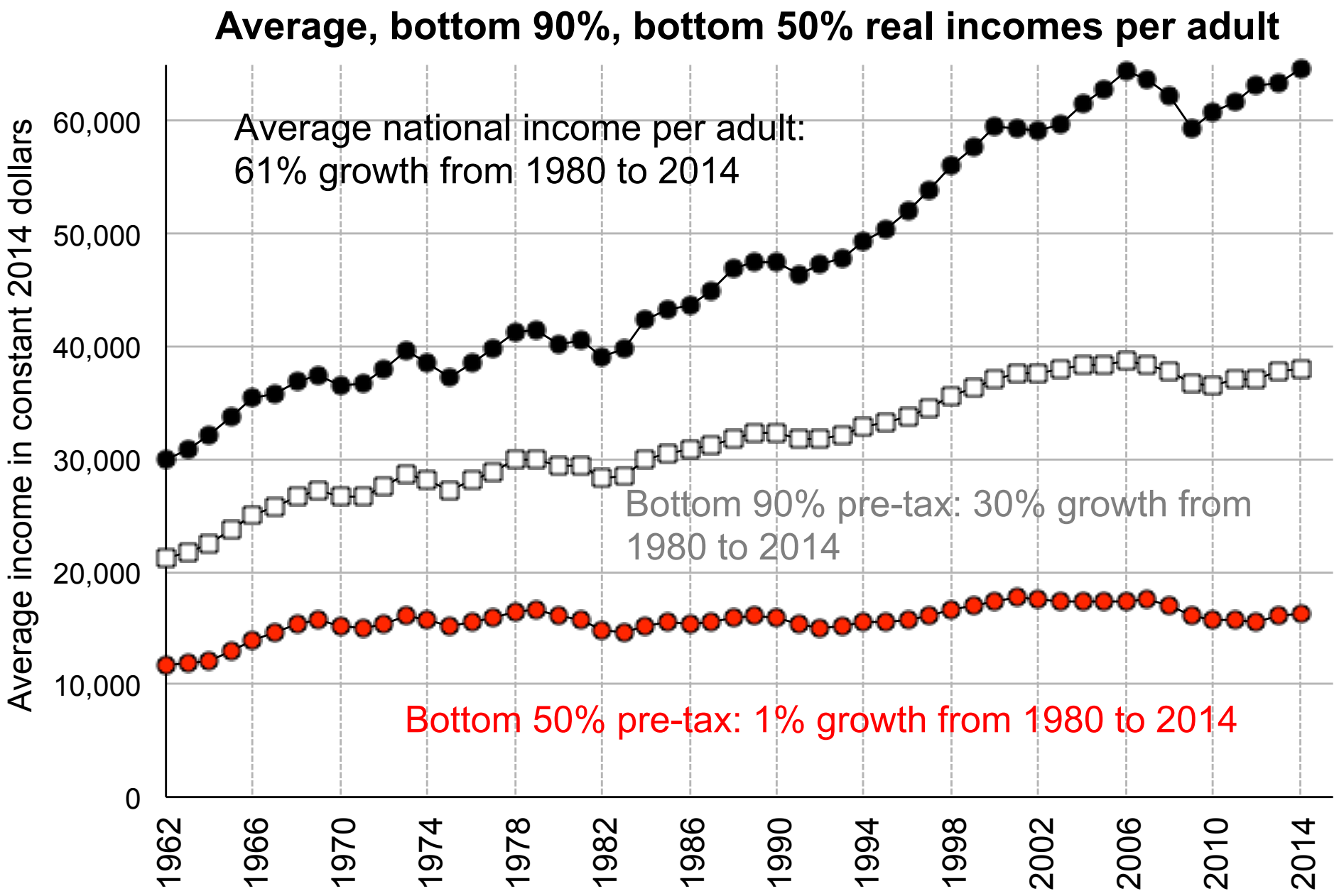

Average, bottom 90%, bottom 50% real incomes per adult
Average income in constant 2014 dollars
60,000
50,000
40,000
30,000
20,000
10,000
0
1962
1966
1970
1974
1978
1982
1986
1990
1994
1998
2002
2006
2010
2014
Average national income per adult:
61% growth from 1980 to 2014
Bottom 90% pre-tax: 30% growth from
1980 to 2014
Bottom 50% pre-tax: 1% growth from 1980 to 2014

How Might the Government Intervene?

1) Tax or Subsidize Private Sale or Purchase: Tax goods that are overproduced (e.g. carbon tax) and subsidized goods underproduced (e.g., flu shots subsidies)

2) Restrict or Mandate Private Sale or Purchase: Restrict the private sale or purchase of overproduced goods (e.g. fuel efficiency requirements), or mandate the private purchase of underproduced goods (e.g., auto insurance)

3) Public Provision: The government can provide the good directly, in order to potentially attain the level of consumption that maximizes social welfare (example is National Defense)

4) Public Financing of Private Provision: Government pays for the good but private sector supplies it (e.g., privately provided health insurance paid for by US government in Medicare-Medicaid)

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 work less and earn less, reducing tax revenue relative to mechanical calculation

Why Do Governments Do What 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

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

Paternalism vs. Individual Failures

In many situations, individuals may not or do not seem to act in their best interests [e.g., many individuals are not able to save for retirement]

Two Polar Views on such situations:

1) **Paternalism [Libertarian View]** Individual failures do not exist and government wants to impose its own preferences against individuals' will

2) **Individual Failures [Behavioral Economics View]** Individual Failures exist: Self-control problems, Cognitive Limitations

Distinguishing the 2 views: Under Paternalism, individuals are opposed to government interventions. If individuals understand they have failures, they will support govt interventions.

Key Facts on Taxes and Spending

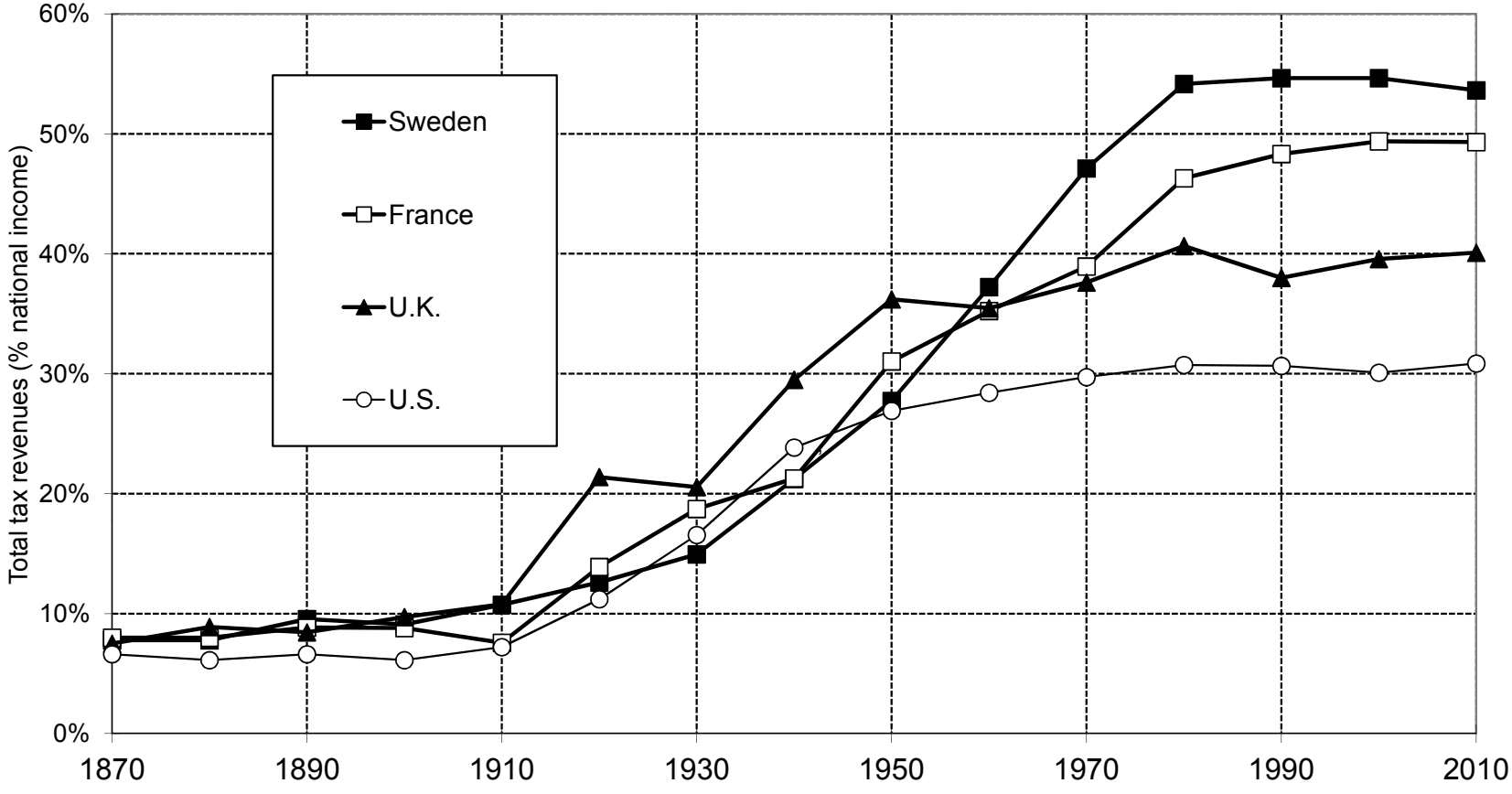
1) Government Growth: Size of government relative to National Income grows dramatically over the process of development from less than 10% in less developed economies to 30-50% in most advanced economies

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 after Great Recession of 2008

Figure 13.1. Tax revenues in rich countries, 1870-2010

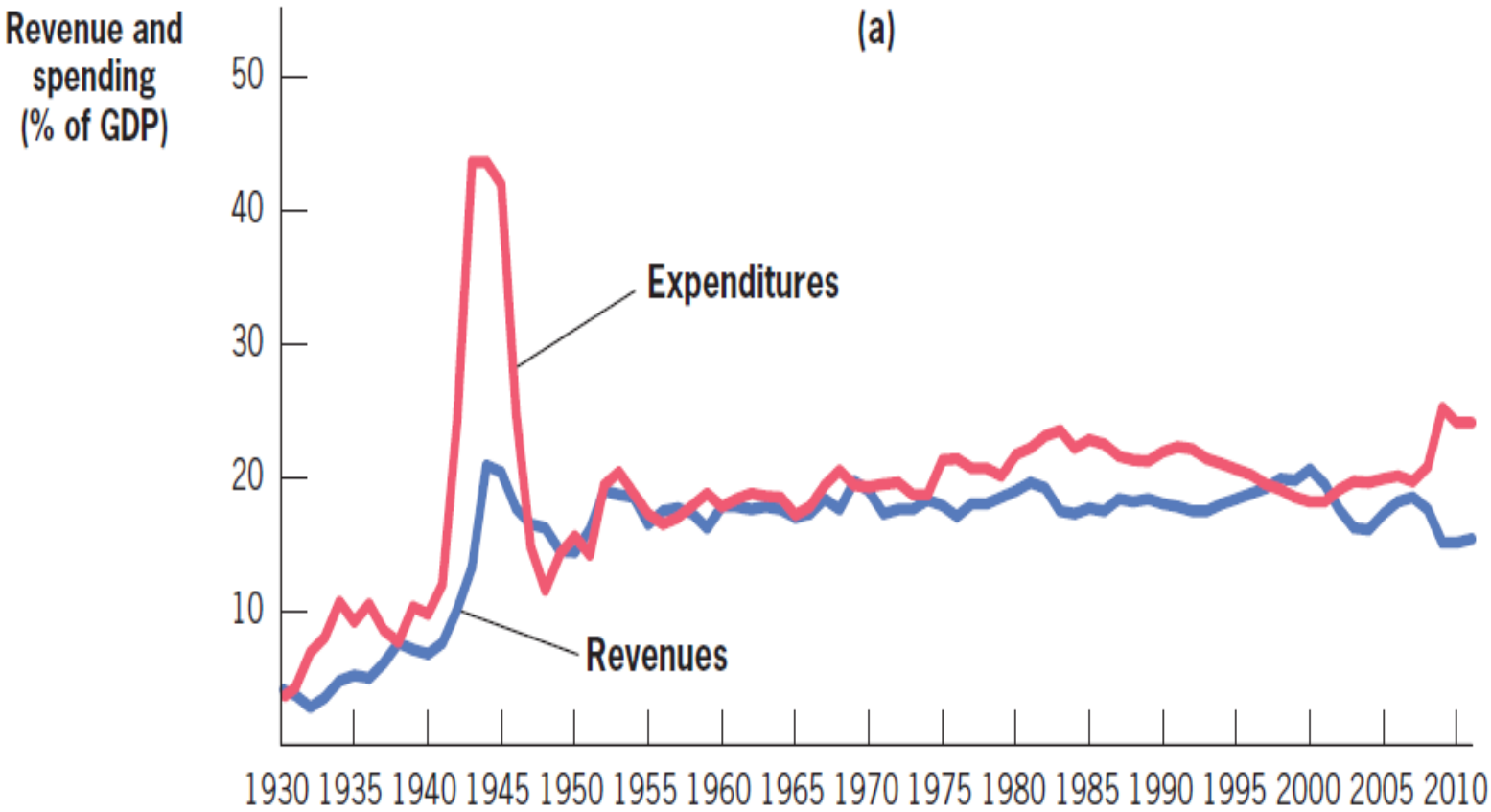


Total tax revenues were less than 10% of national income in rich countries until 1900-1910; they represent between 30% and 55% of national income in 2000-2010. Sources and series: see piketty.pse.ens.fr/capital21c.

Source: Piketty (2014)

1.2

Federal Revenues and Expenditures, 1930–2011



DIFFERENT LEVELS OF GOVERNMENTS

US Federal govt raises about 20% of National Income in taxes

State+Local govts raise about 10% of Nat. Income in taxes

Decentralized states = states where a larger fraction of taxes/spending take place at local level

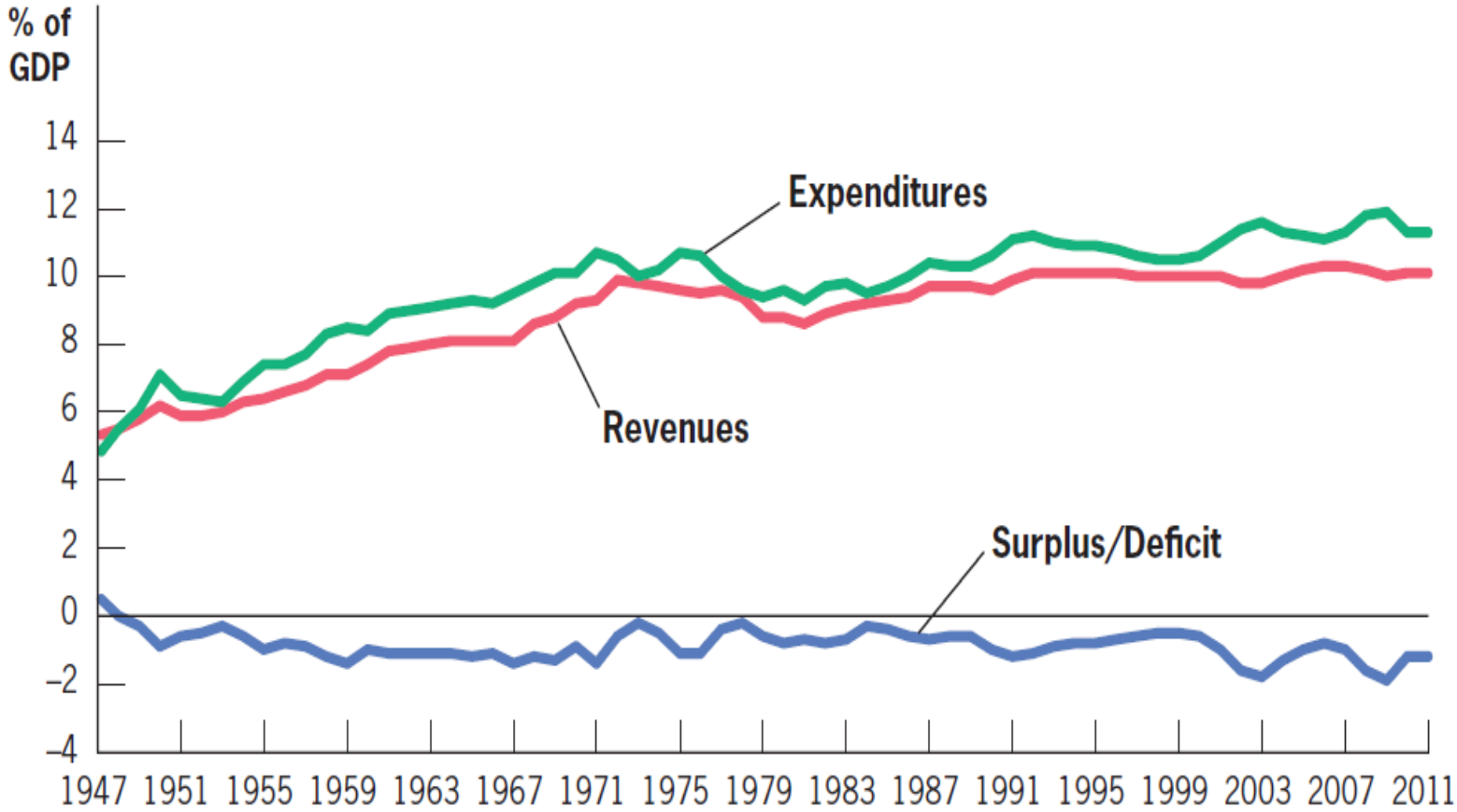
Decentralized states give additional power to individuals who can also vote with their feet

Creates competition between local govts: If local govt is inefficient (high taxes and wasteful spending), residents can leave, putting the local govt out of business

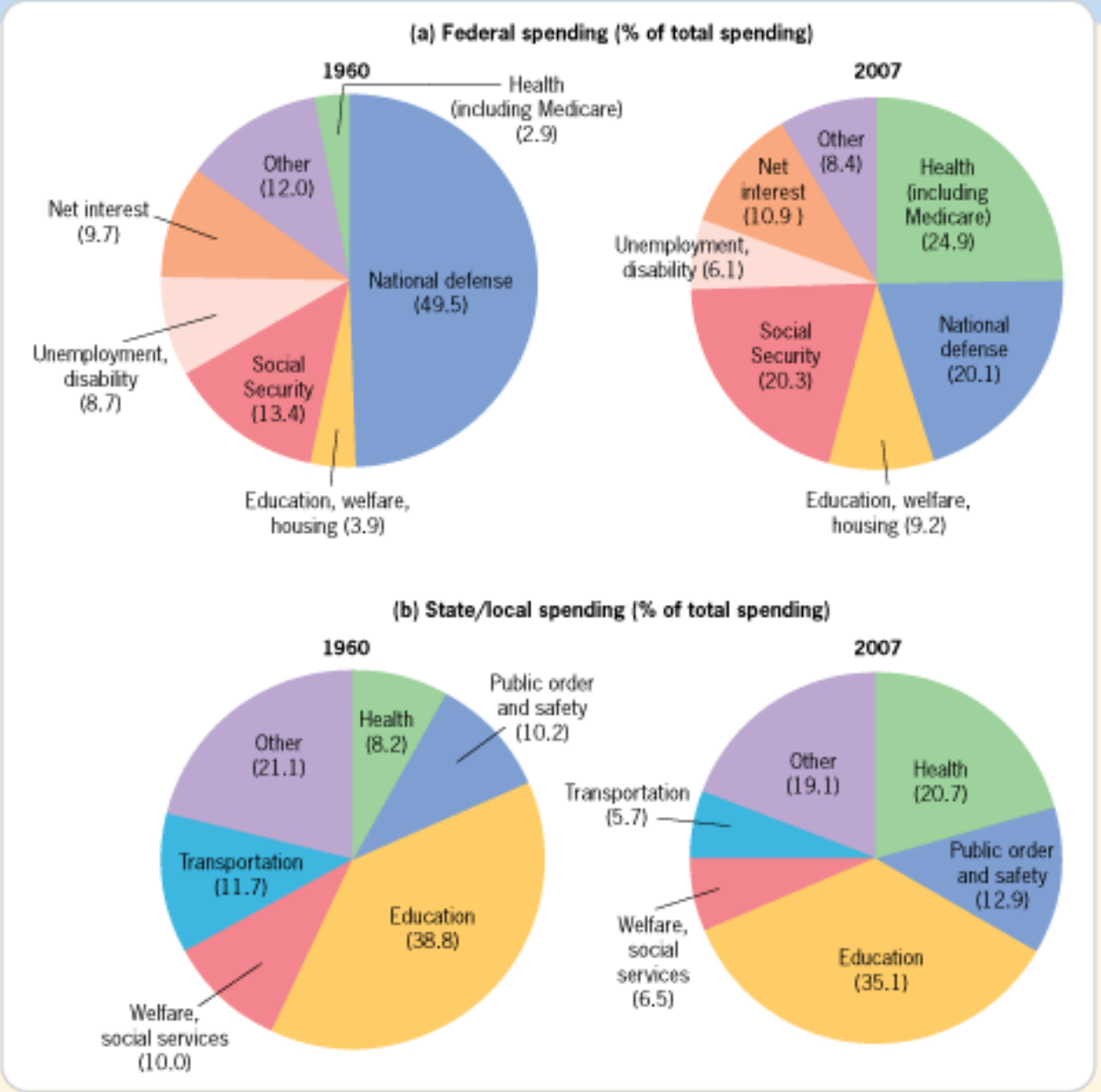
Redistribution through taxes and transfers harder to achieve at local level (rich can leave if local taxes are too high)

$\Rightarrow$ Conservatives/libertarians tend to prefer decentralized states

State and Local Government Receipts, Expenditures, and Surplus, 1947–2008



■ FIGURE 1-7



Distribution of Spending

The Distribution of Federal and State Expenditures, 1960 and 2007 • This figure shows the changing composition of federal and state spending over time, as a share of total spending. (a) For the federal government, defense spending has fallen and Social Security and health spending have risen. (b) For the states, the distribution has been more constant, with a small decline in education and welfare spending and a rise in health spending.

DISTRIBUTION OF TAXES

US Federal govt raises about 20% of GDP in taxes, State+Local govt raises about 10% of GDP in taxes.

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

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

Key questions: who bears the burden of those taxes (tax incidence), what impact do they have on the economy?

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) $\Rightarrow$ 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 SOCIAL SECURITY, HEALTH CARE AND EDUCATION

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: Obama’s administration increased taxes on top earners significantly in 2013 (repeal of Bush tax cuts + Obamacare taxes). New Trump administration wants to reverse these changes and more.

Health Care: Up to 2013, about 20% of the non-elderly U.S. population did not have health insurance Obamacare cut this number down to 10% but might be repealed

Climate change: Carbon emissions are generating global warming with potentially huge negative consequences in the future (sea rise, extreme weather, agricultural output). Debate on costs of global warming. What should govt do?

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 $\Rightarrow$ 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?

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

Income Inequality: Labor vs. Capital Income

Individuals derive market income (before tax) from **labor** and **capital**: $z = wl + rk$ 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

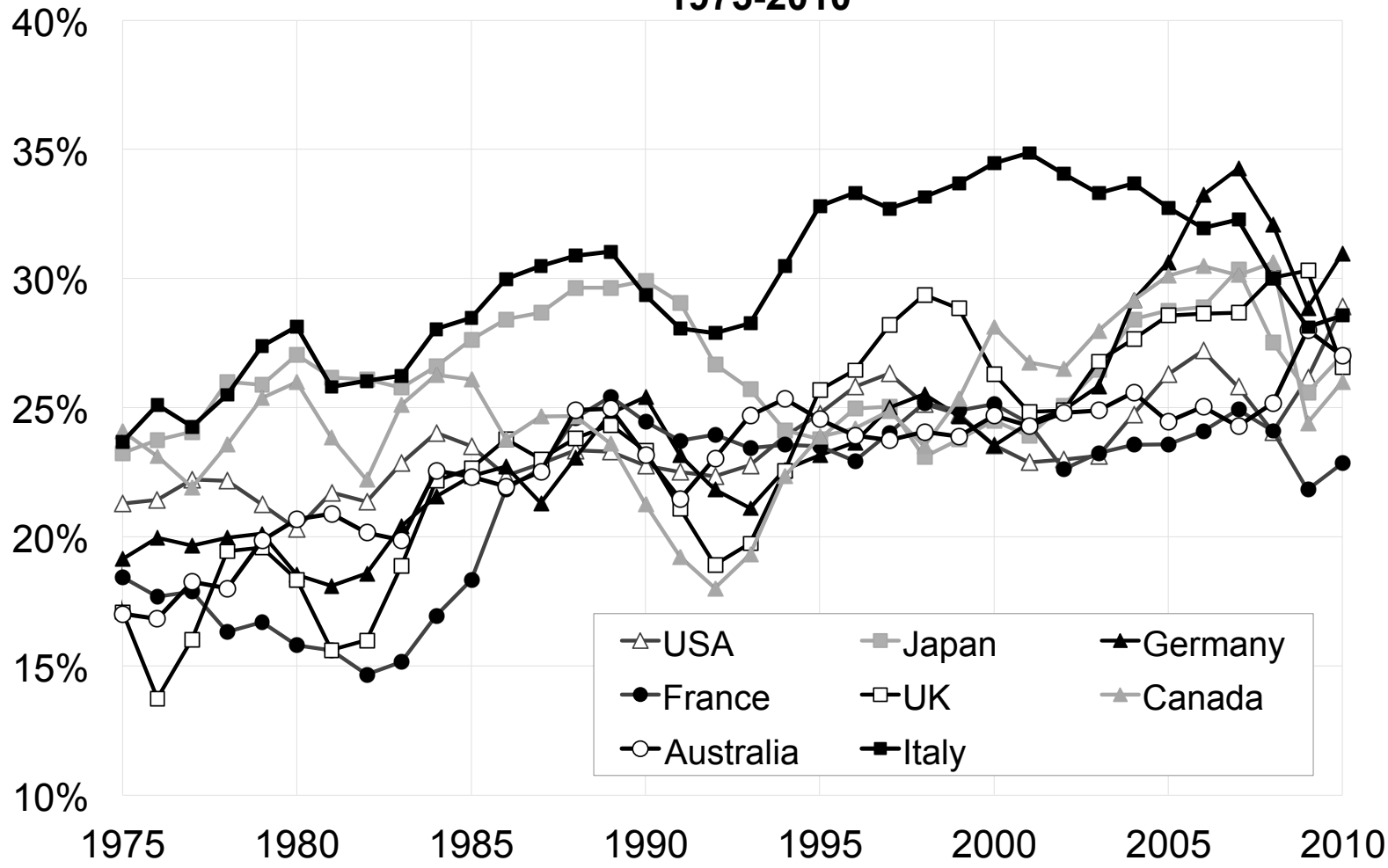
Capital stock $k \simeq 400 - 500\%$ of market income z

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

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

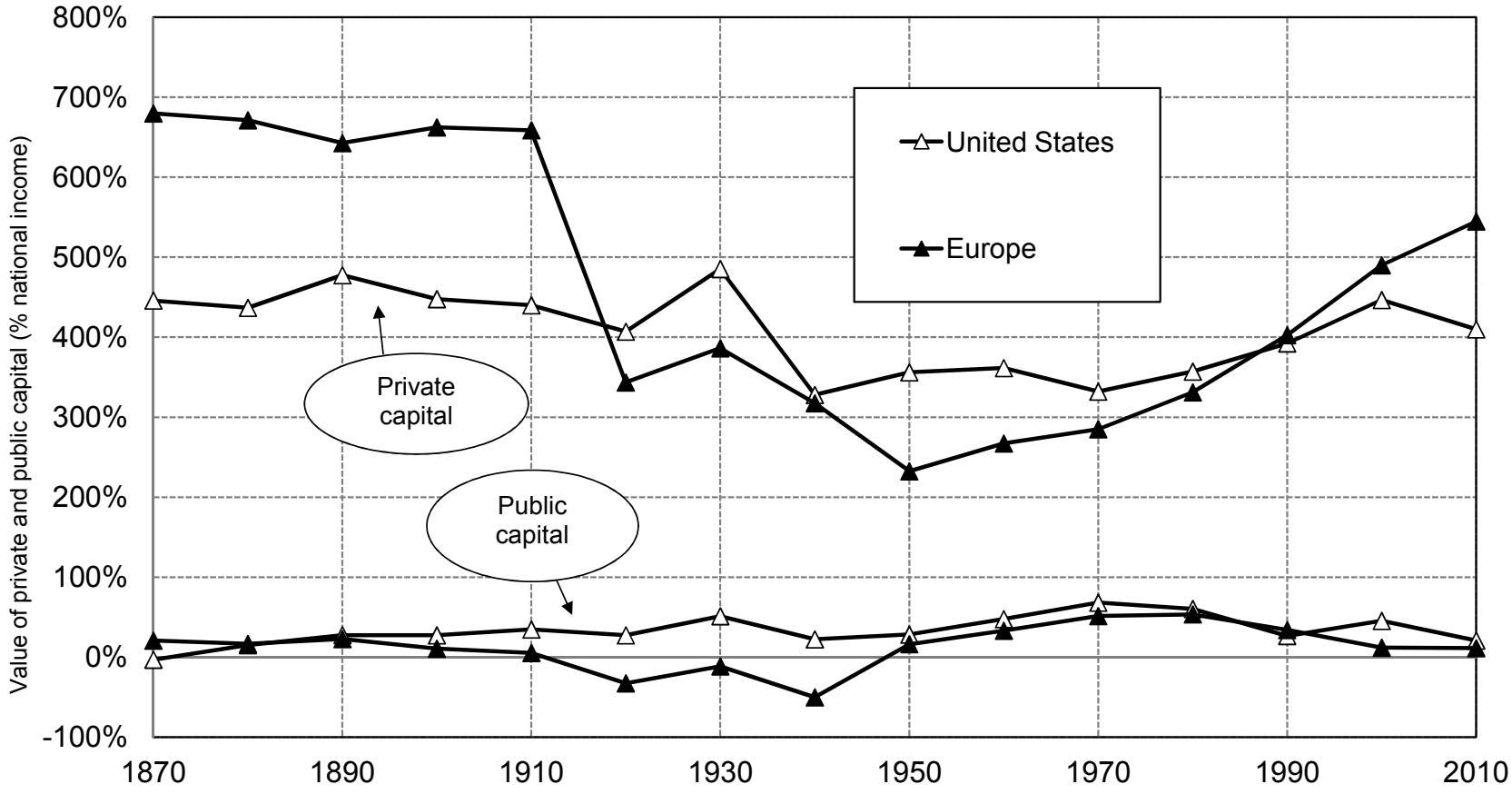
National Income = GDP - depreciation of capital + net foreign income

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.

Source: Piketty (2014)

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**

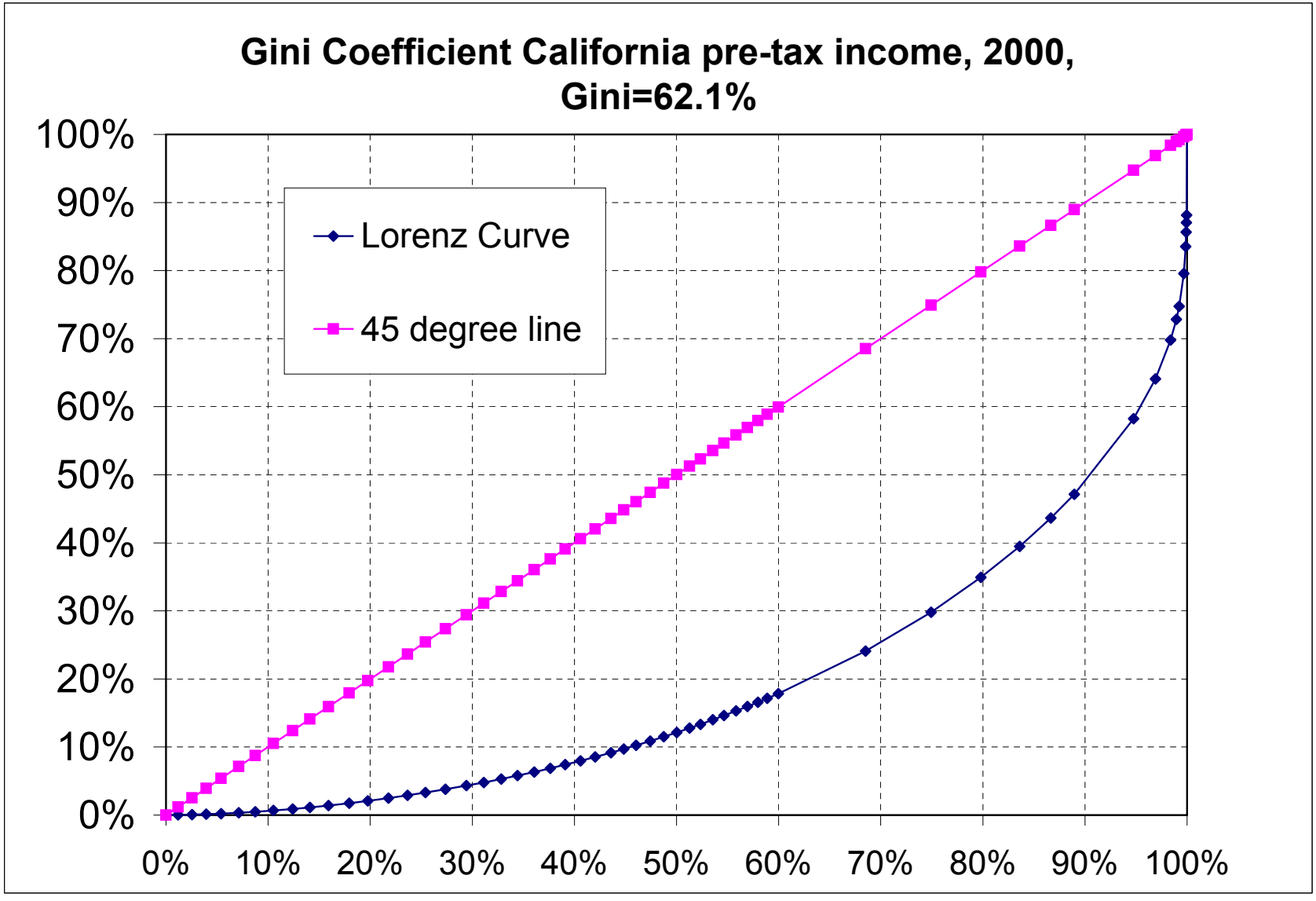
Gini = 2 * area between 45 degree line and Lorenz curve

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)



Source: Annual Report 2001 California Franchise Tax Board

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]

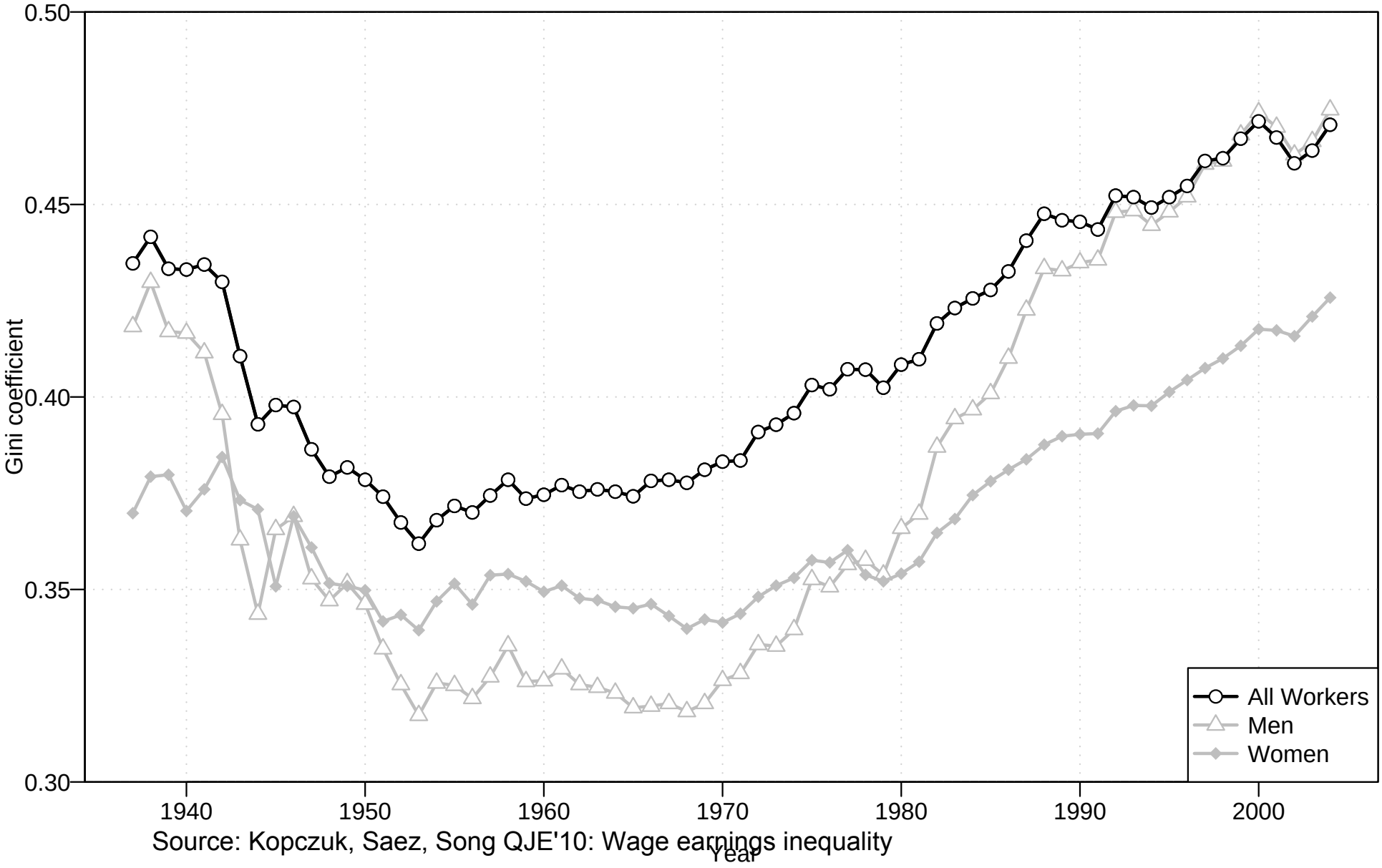
2) Gender gap has decreased but remains substantial especially at the very top

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

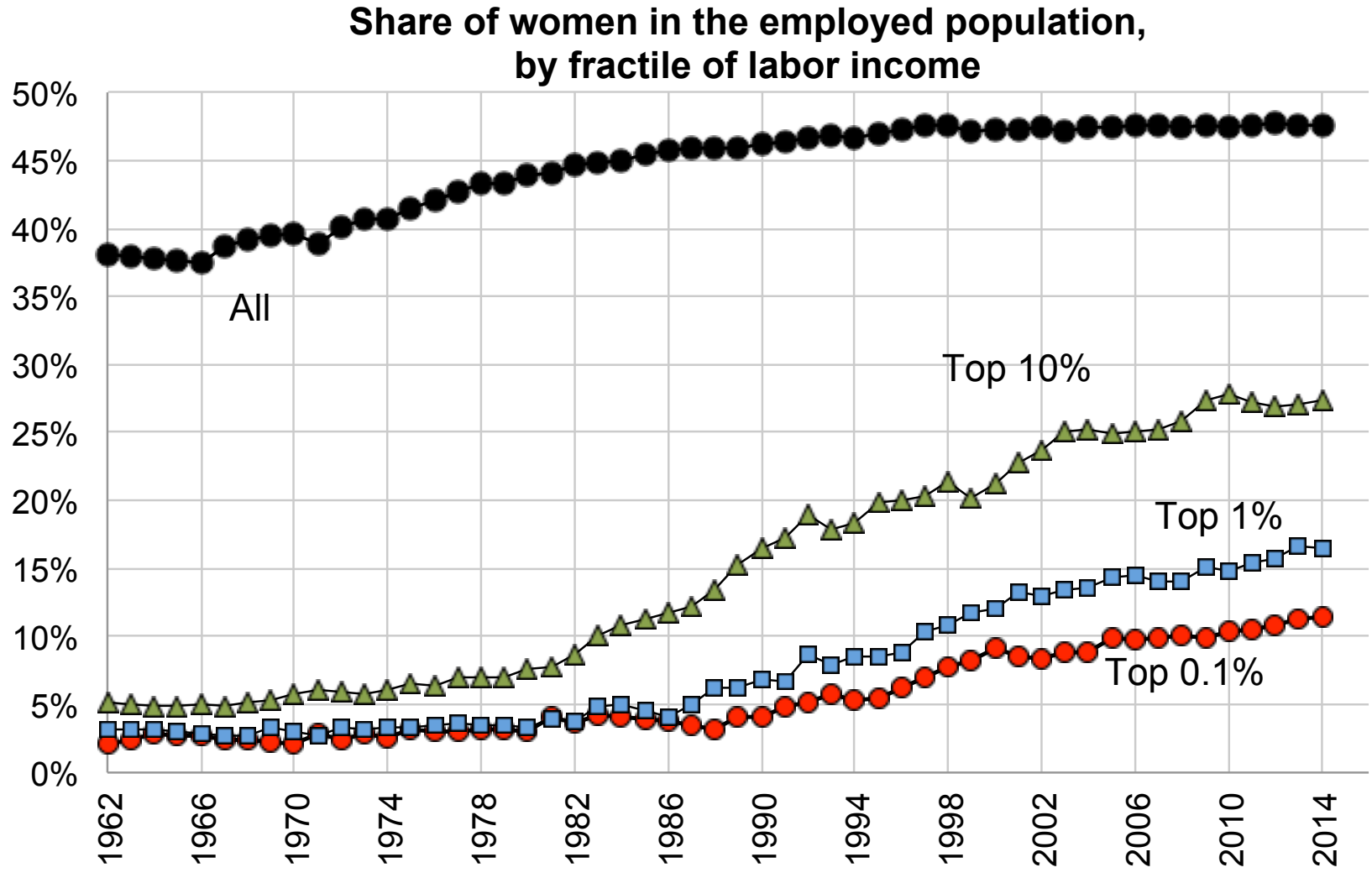
4) Fall in top income shares from 1900-1950 happened in most OECD countries. Surge in top income shares has happened primarily in English speaking countries, not as much in Continental Europe and Japan [Atkinson, Piketty, Saez JEL'11]

Figure 1: Gini coefficient

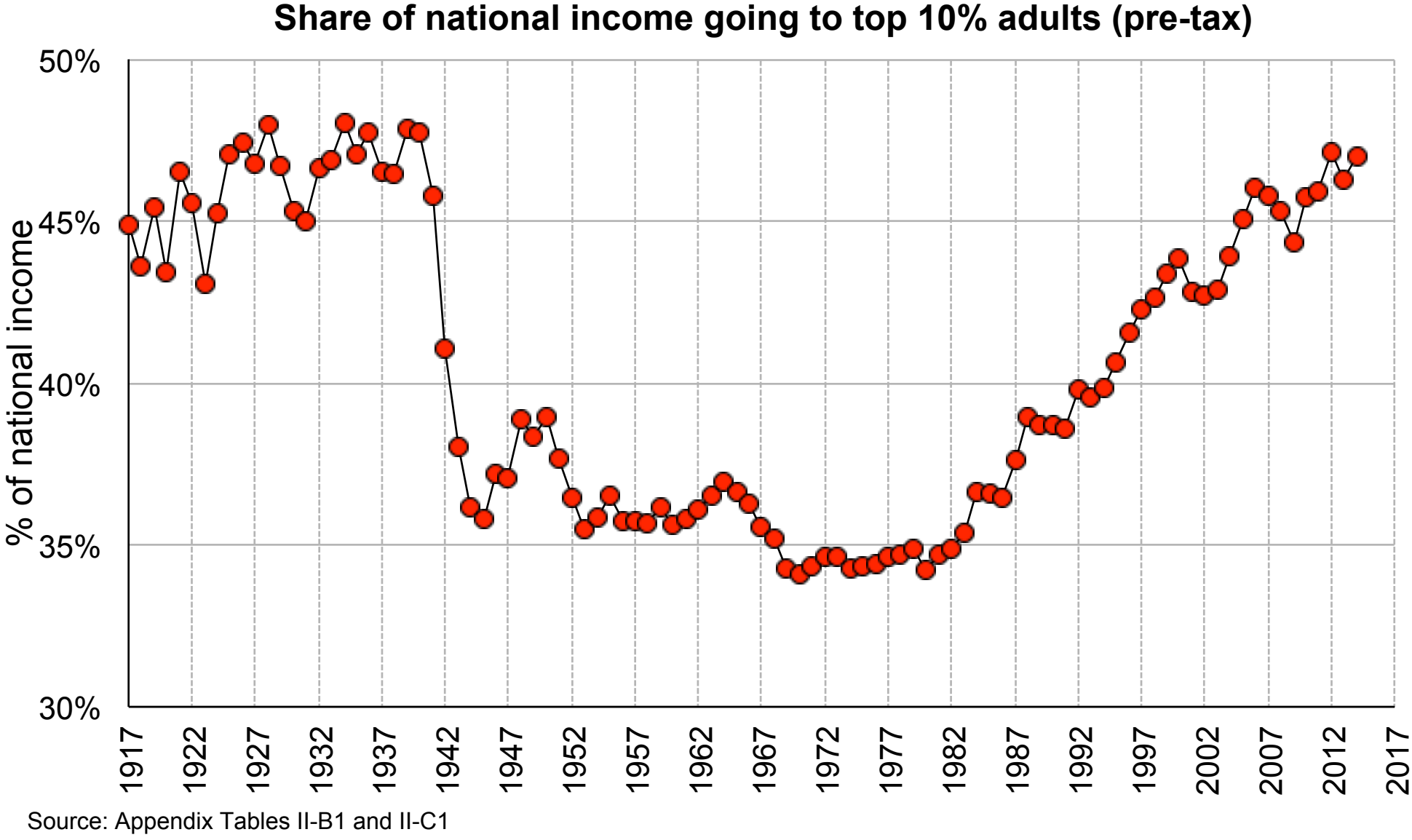


Source: Kopczuk, Saez, Song QJE'10: Wage earnings inequality

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



Source: Appendix Table II-F1.



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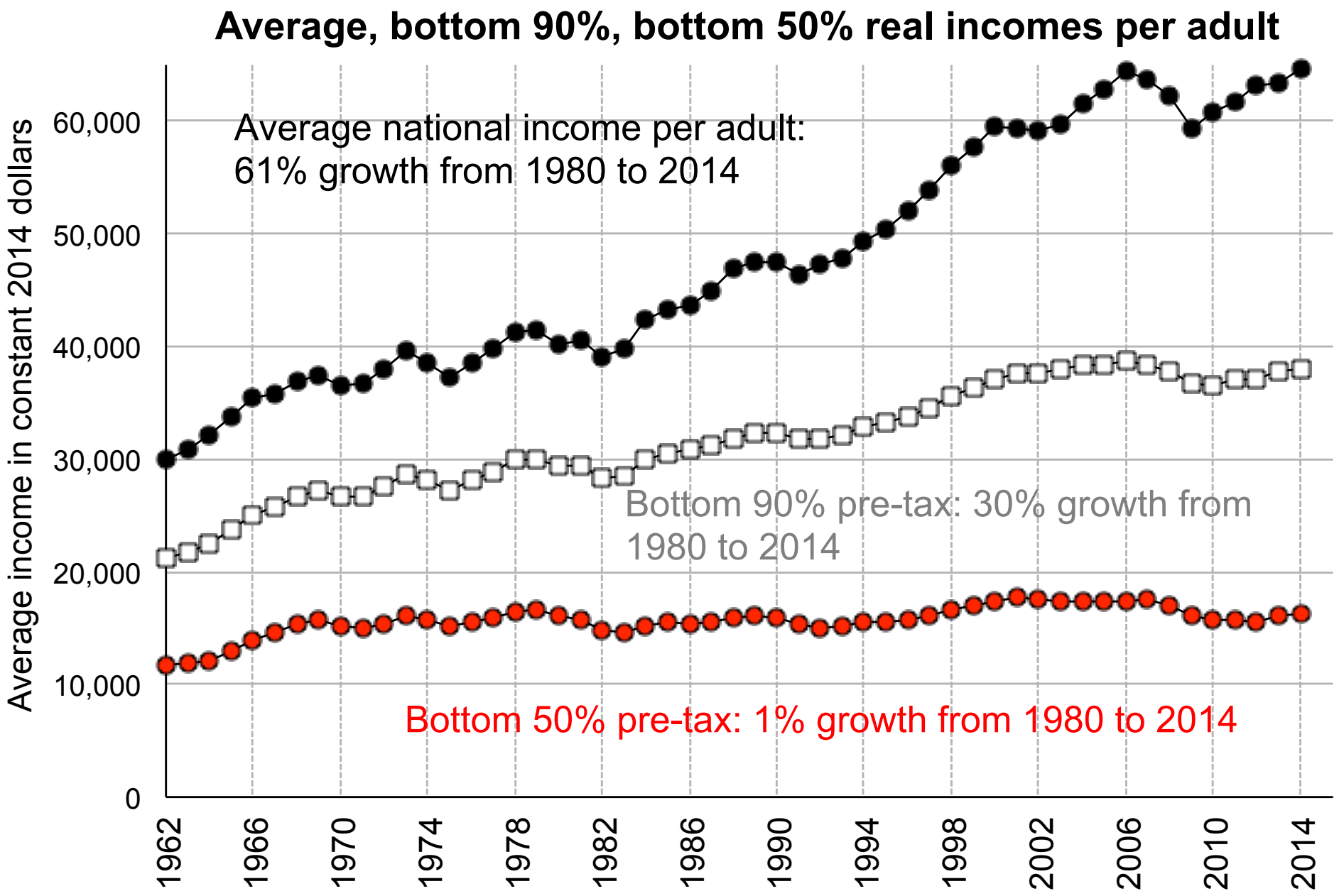
Average, bottom 90%, bottom 50% real incomes per adult
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1962
1966
1970
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1990
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Average national income per adult:
61% growth from 1980 to 2014
Bottom 90% pre-tax: 30% growth from
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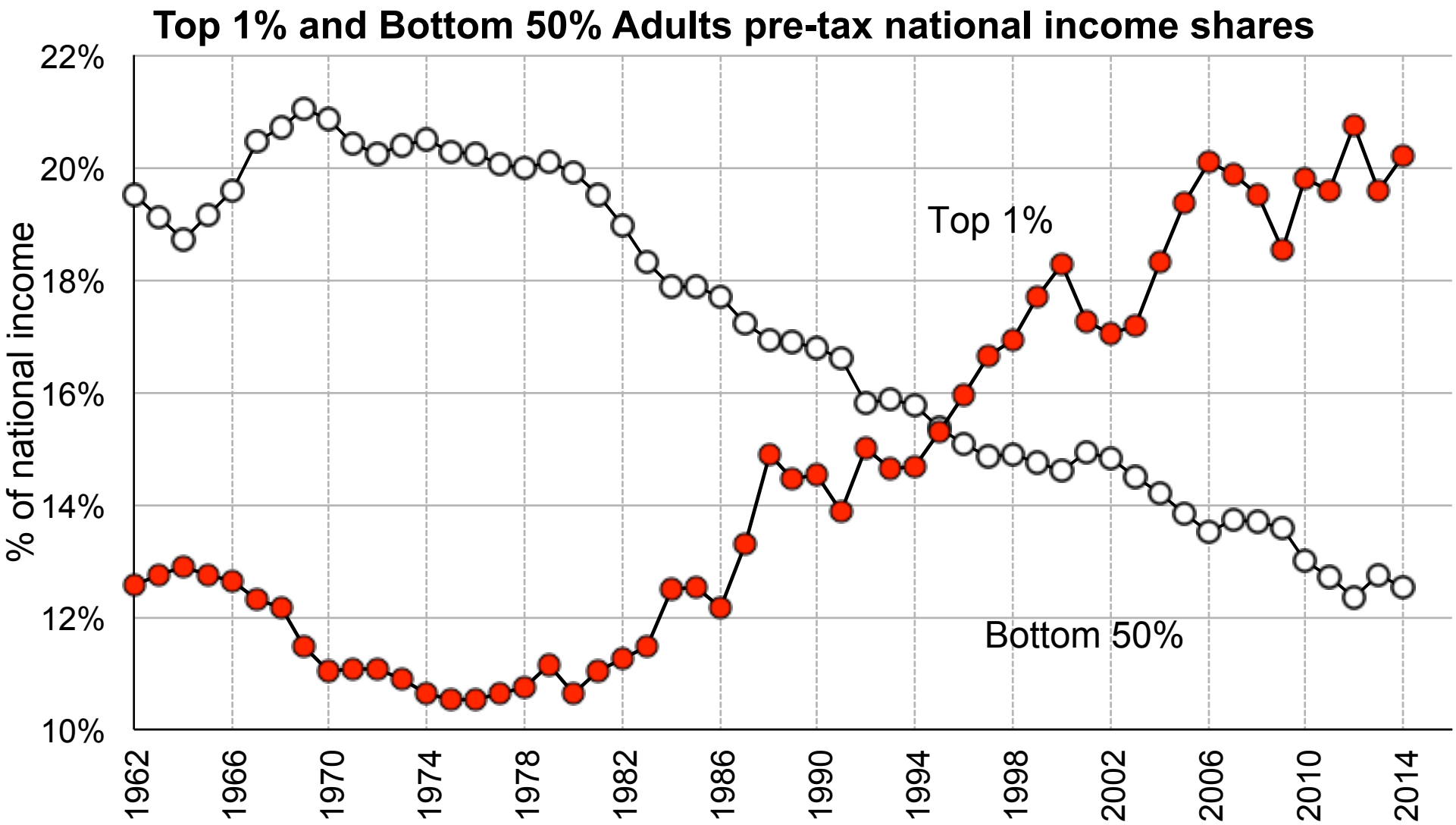
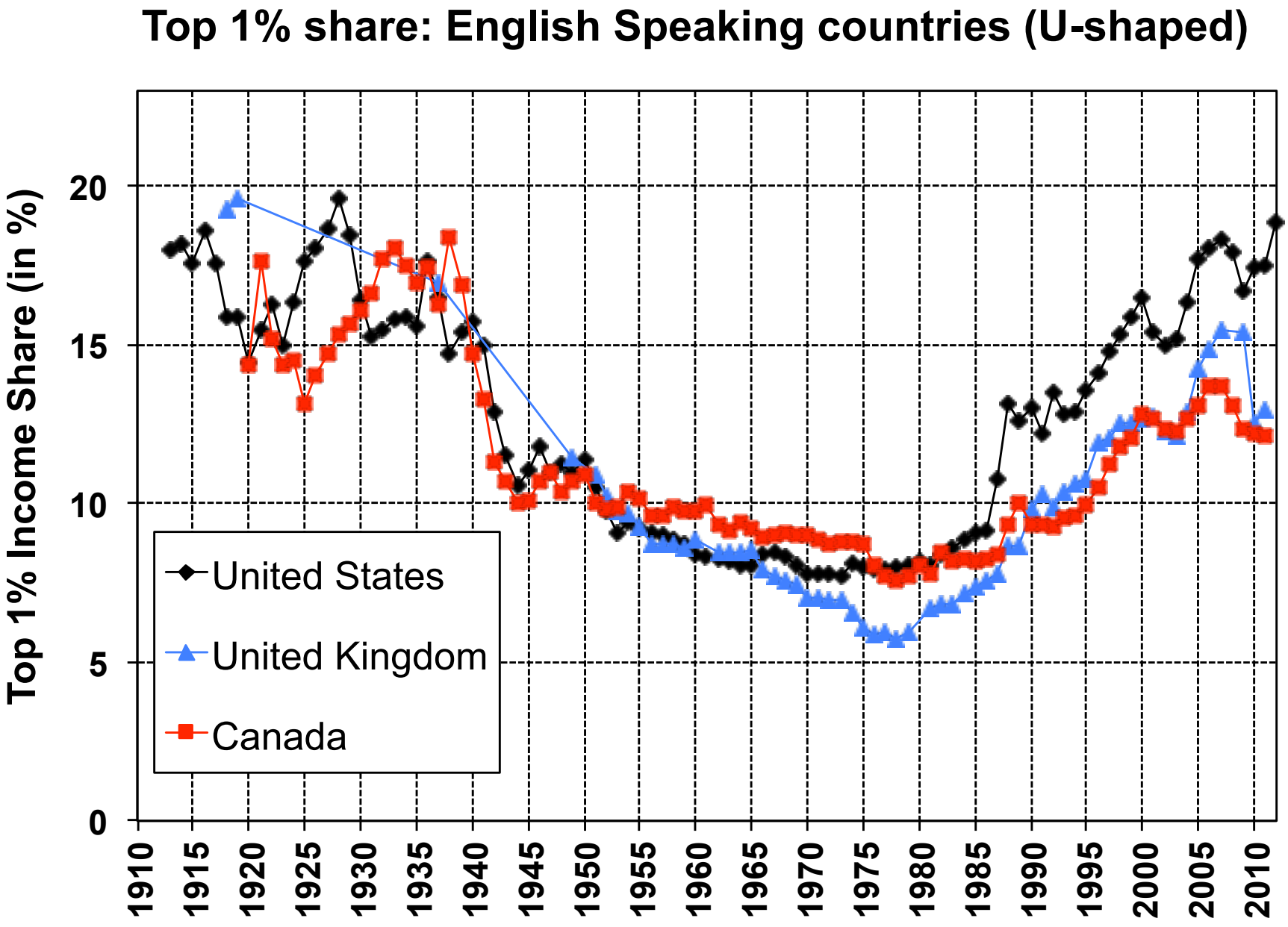
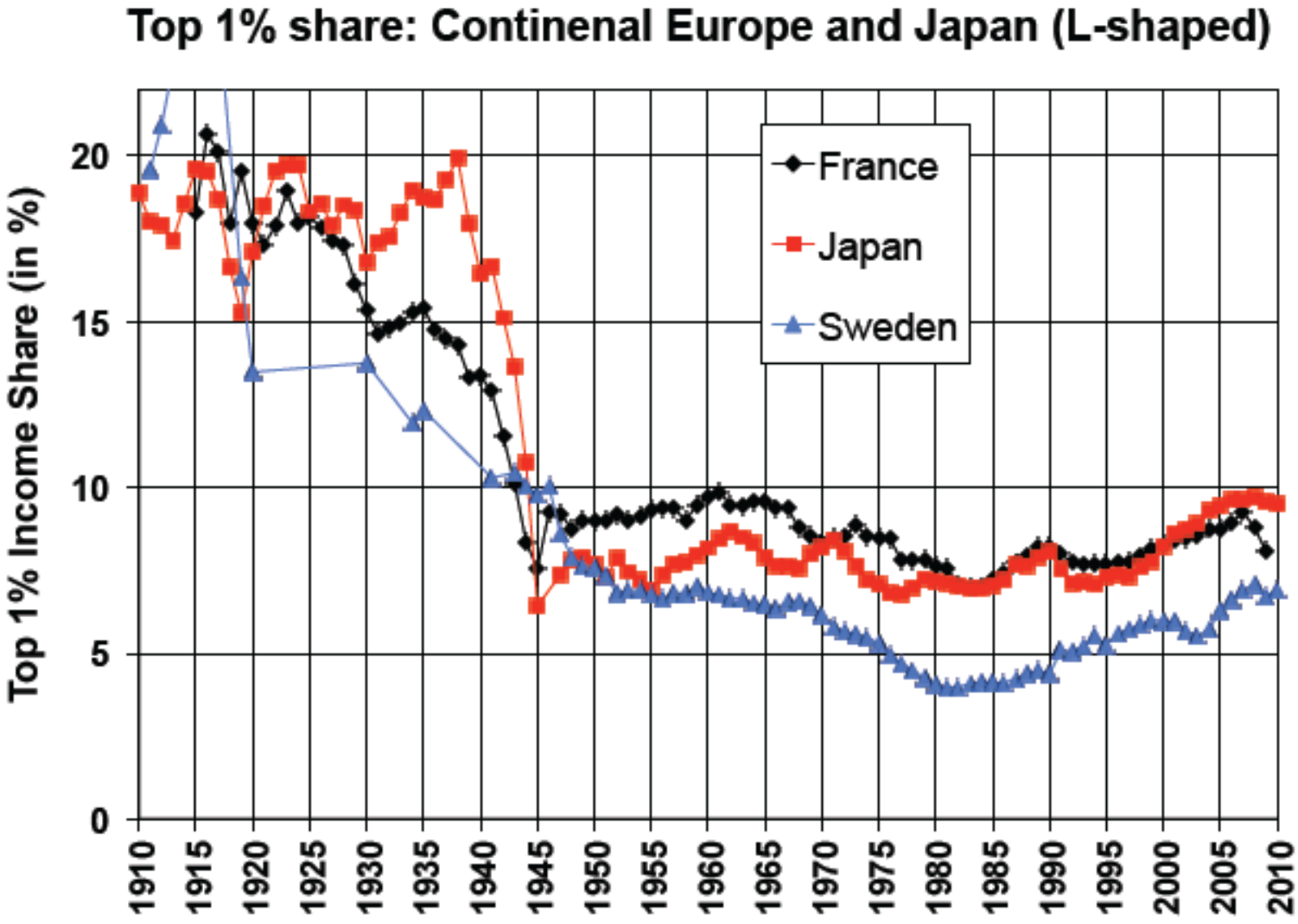

Top 1% and Bottom 50% Adults pre-tax national income shares
22%
20%
18%
16%
14%
12%
10%
% of national income
Top 1%
Bottom 50%
1962
1966
1970
1974
1978
1982
1986
1990
1994
1998
2002
2006
2010
2014


Top 1% share: English Speaking countries (U-shaped)
Top 1% Income Share (in %)
0
5
10
15
20
1910
1915
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
United States
United Kingdom
Canada



Source: THE WORLD TOP INCOMES DATABASE

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

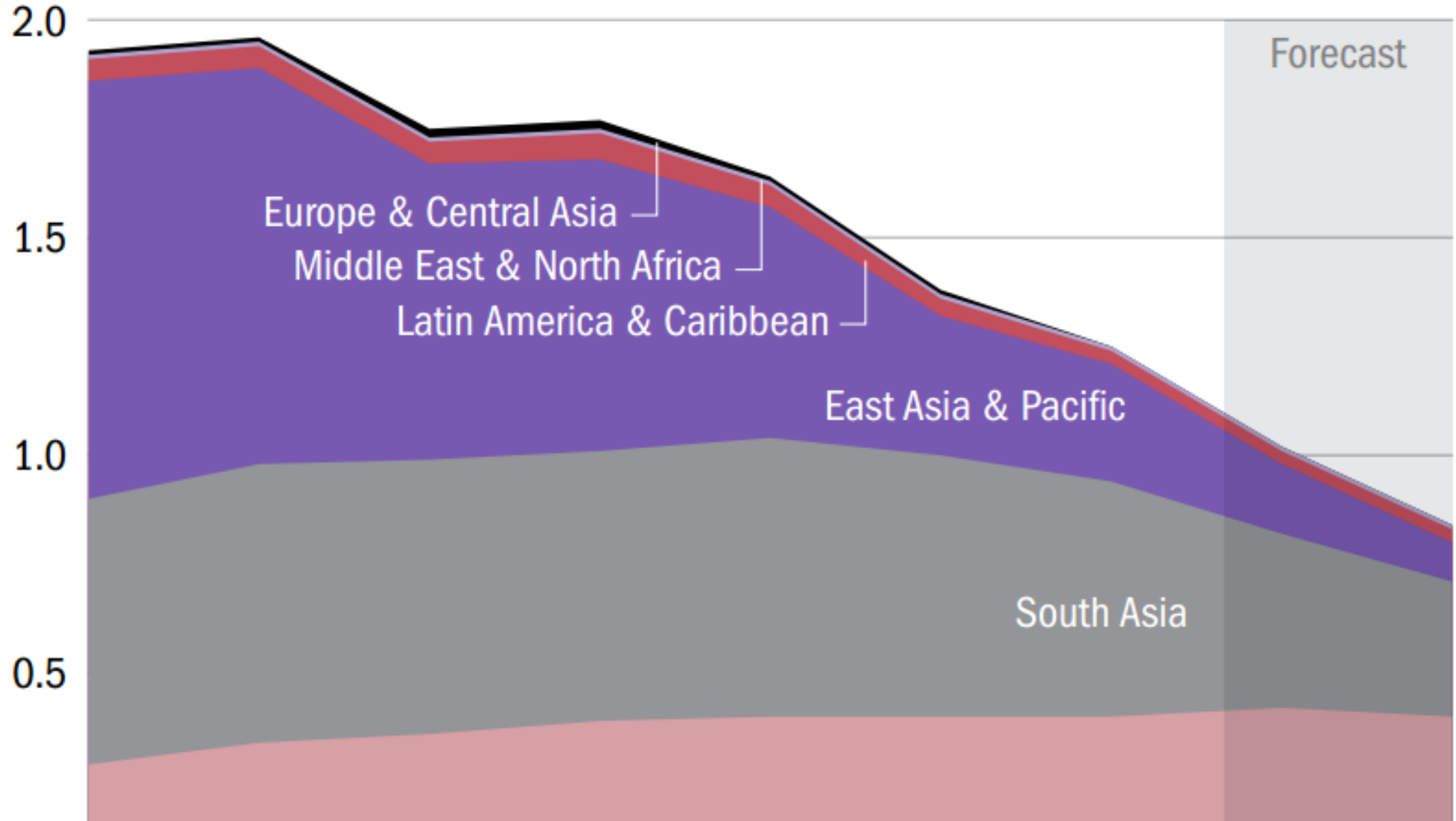
Absolute poverty captures both growth and inequality effects while relative poverty captures only inequality effects

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)

A billion people were lifted out of extreme poverty between 1990 and 2015

1b

Number of people living on less than 2005 PPP $1.25 a day
(billions)



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

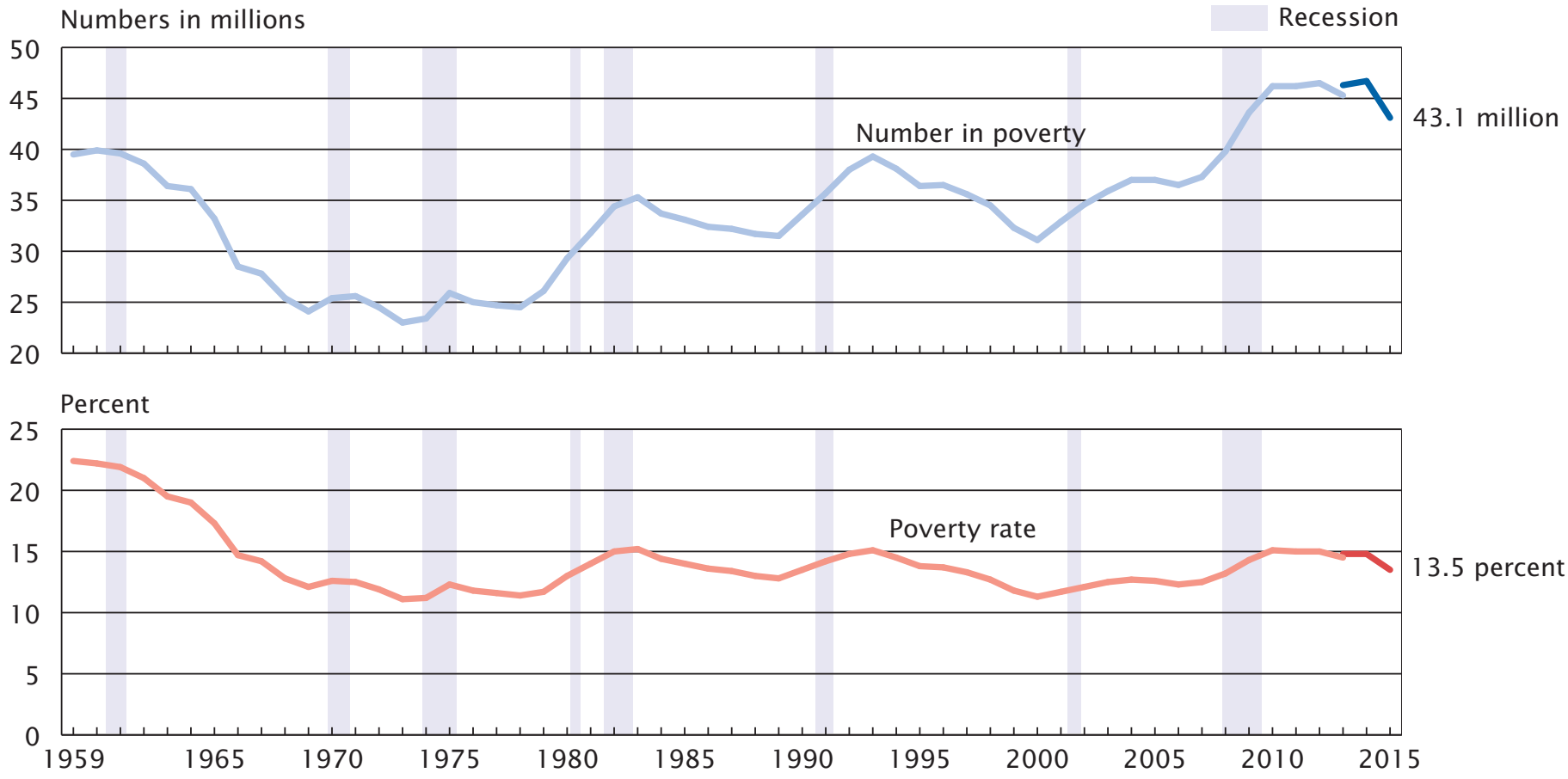
17.1

Poverty Lines by Family Size (2012)

Size of Family Unit	Poverty Line
1	$11,170
2	15,130
3	19,090
4	23,050
5	27,010
For each additional person, add	3,960

Figure 4.

Number in Poverty and Poverty Rate: 1959 to 2015

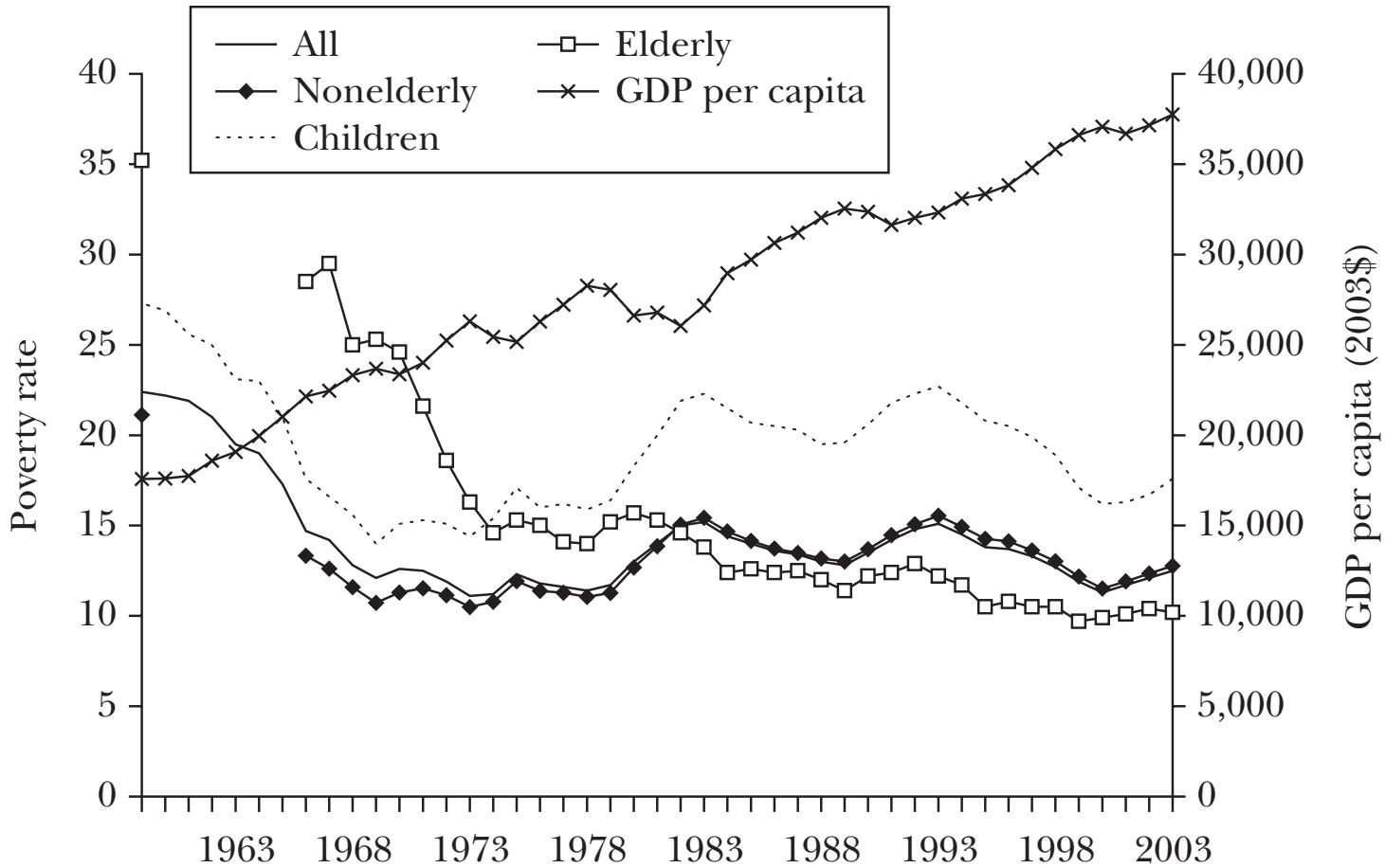


Note: The data for 2013 and beyond reflect the implementation of the redesigned income questions. The data points are placed at the midpoints of the respective years. For information on recessions, see Appendix A. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see <www2.census.gov/programs-surveys/cps/techdocs/cpsmar16.pdf>.

Source: U.S. Census Bureau, Current Population Survey, 1960 to 2016 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 $\uparrow$ from 7% in 1967 to 14.4% in 2003 $\Rightarrow$ Increases poverty rate by 4 pts [large effect]

3) Increase in female labor force participation $\Rightarrow$ 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

Recomputing Poverty Rate: Meyer-Sullivan NBER'09

1) Change the scaling for family size (no strong effect)

2) Change the price index: shift to CPI-U-RS instead of official CPI-U (large legitimate effect, CPI-U-RS better index)

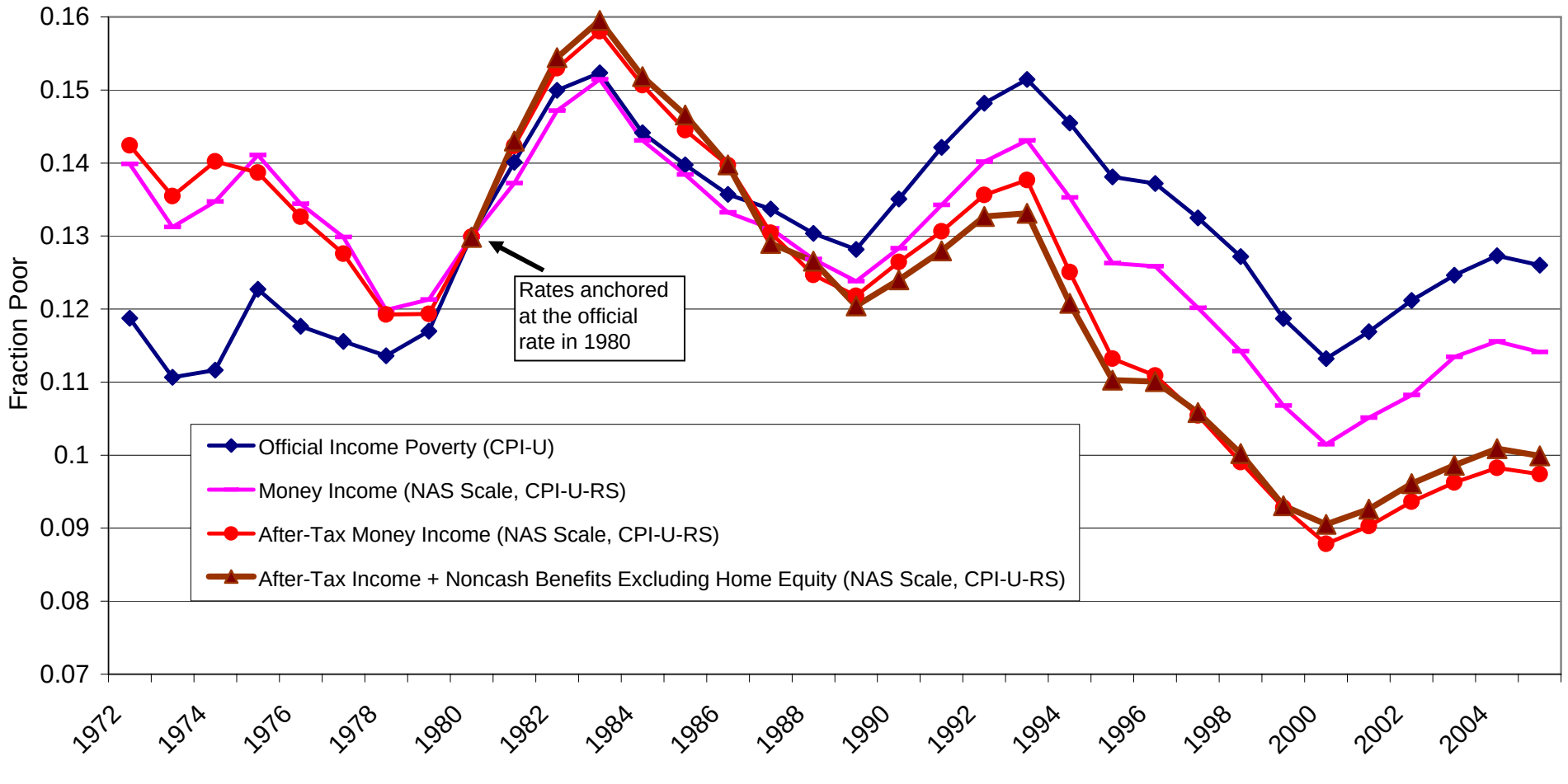
3) Shift to households [people living in same unit] instead of family [people in same unit related by blood/adoption]: not clear which is best, depends on sharing [some effect]

4) Shift to after-tax income [deduct income/payroll taxes, add tax credits]: large legitimate effect

5) Add non-cash benefits [nutrition, housing, health insurance]: tiny net effect [medicaid $\uparrow$, other programs $\downarrow$]

6) Shift to consumption [modest effect on poverty rate, huge effect on deep poverty]

Figure 1: Official and Alternative Income Poverty Rates, 1972-2005



Notes: The rates are anchored at the official rate in 1980. Data are from the CPS-ASEC/ADF. Official Income Poverty follows the U.S. Census definition of income poverty using official thresholds. For measures other than the official one, the threshold in 1980 is equal to the value that yields a poverty rate equal to the official poverty rate in 1980 (13.0 percent). The thresholds in 1980 are then adjusted overtime using the CPI-U-RS. Poverty status is determined at the family level and then person weighted. After-Tax Money Income includes taxes and credits (calculated using TAXSIM). After-Tax Money Income + Noncash Benefits Excluding Home Equity also includes food stamps and CPS-imputed measures of housing and school lunch subsidies, and the fungible value of Medicaid and Medicare. This last series is only available starting with the 1980 CPS-ASEC/ADF. See Data Appendix for more details.

Source: Meyer, Bruce D., and James X. Sullivan (2009)

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

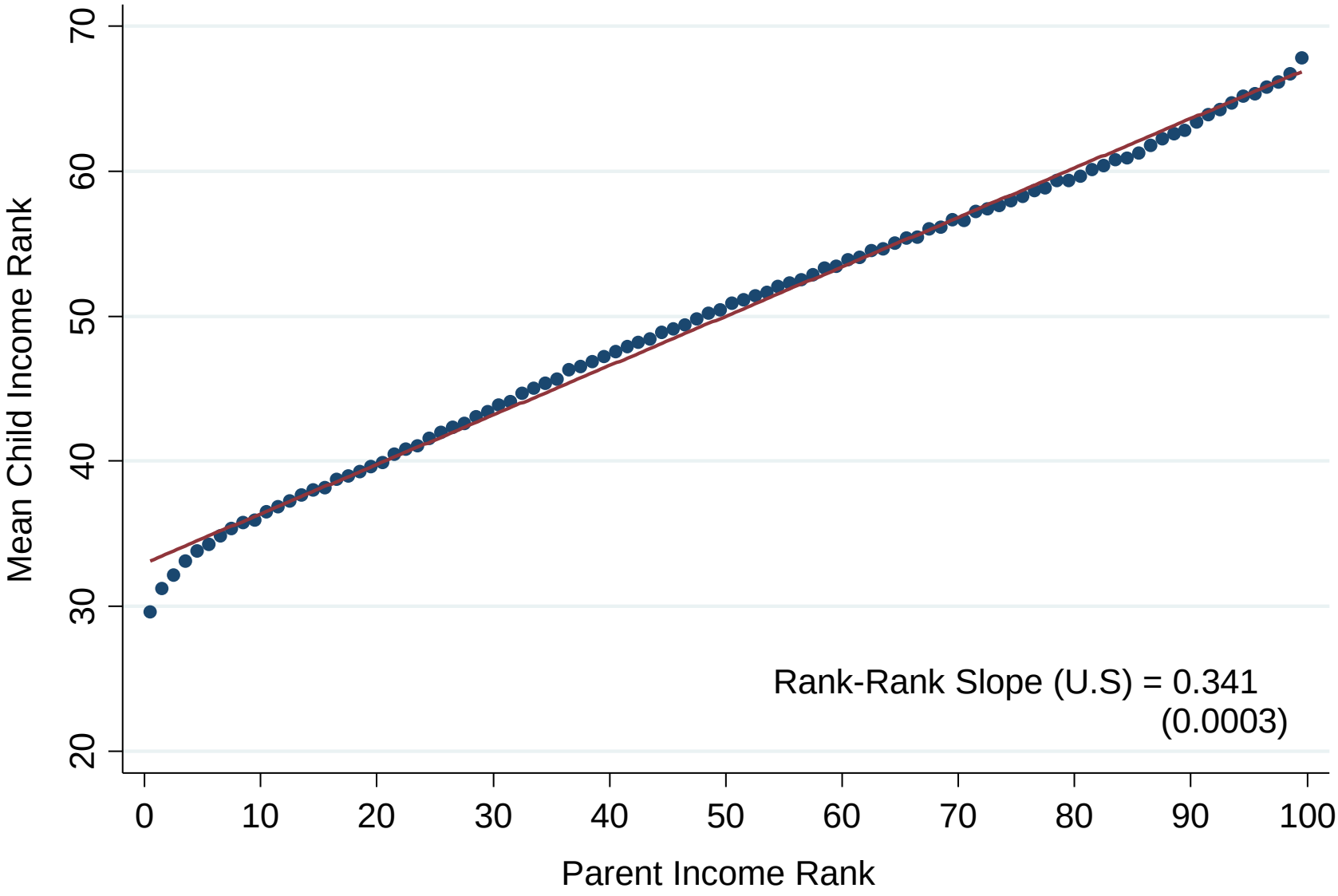
Simple measure: average income rank of children by income rank of parents (Chetty et al. '14)

1) US has less mobility than European countries (especially Scandinavian countries such as Denmark)

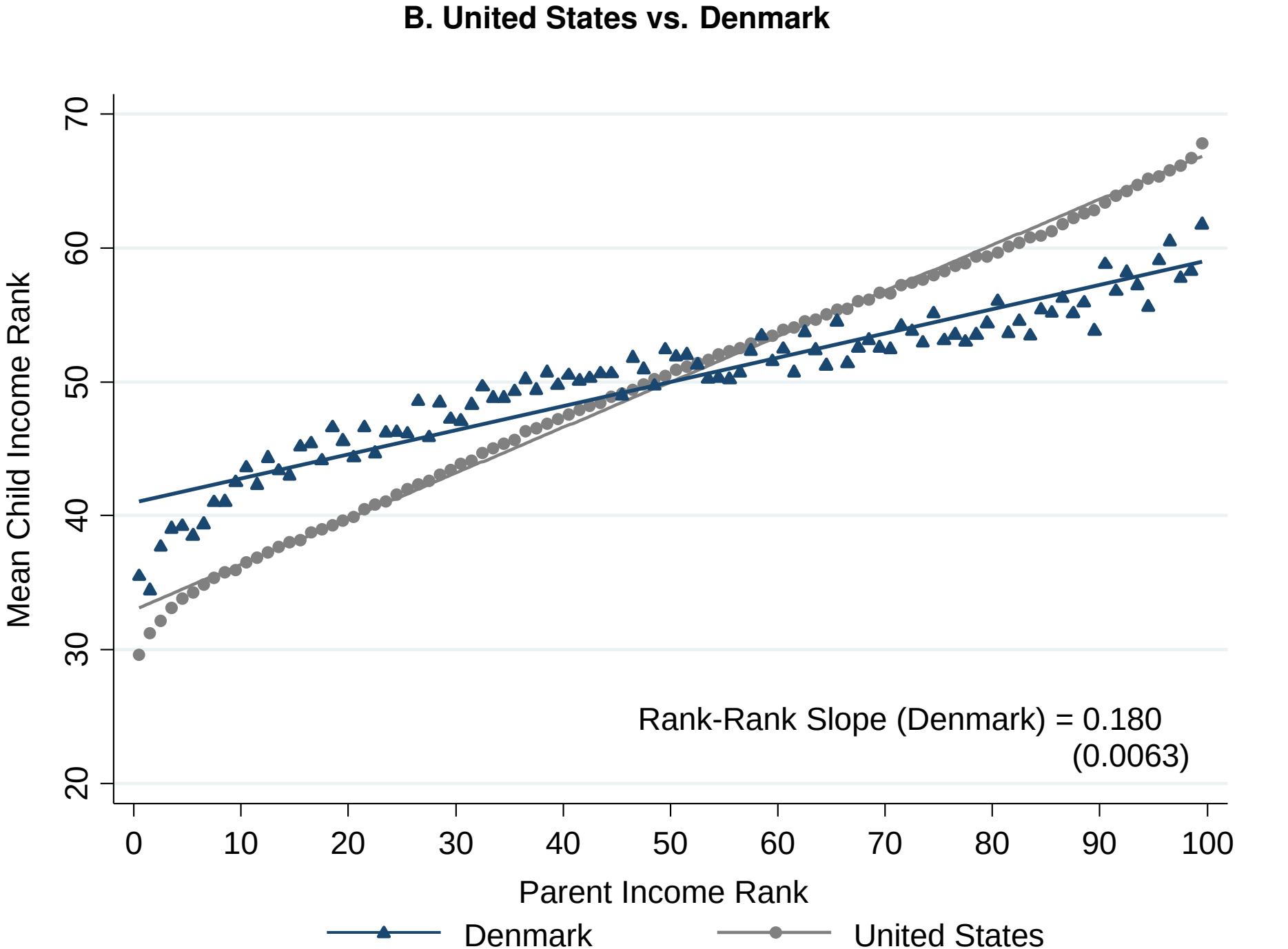
2) Substantial heterogeneity in mobility across cities in the US

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]

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

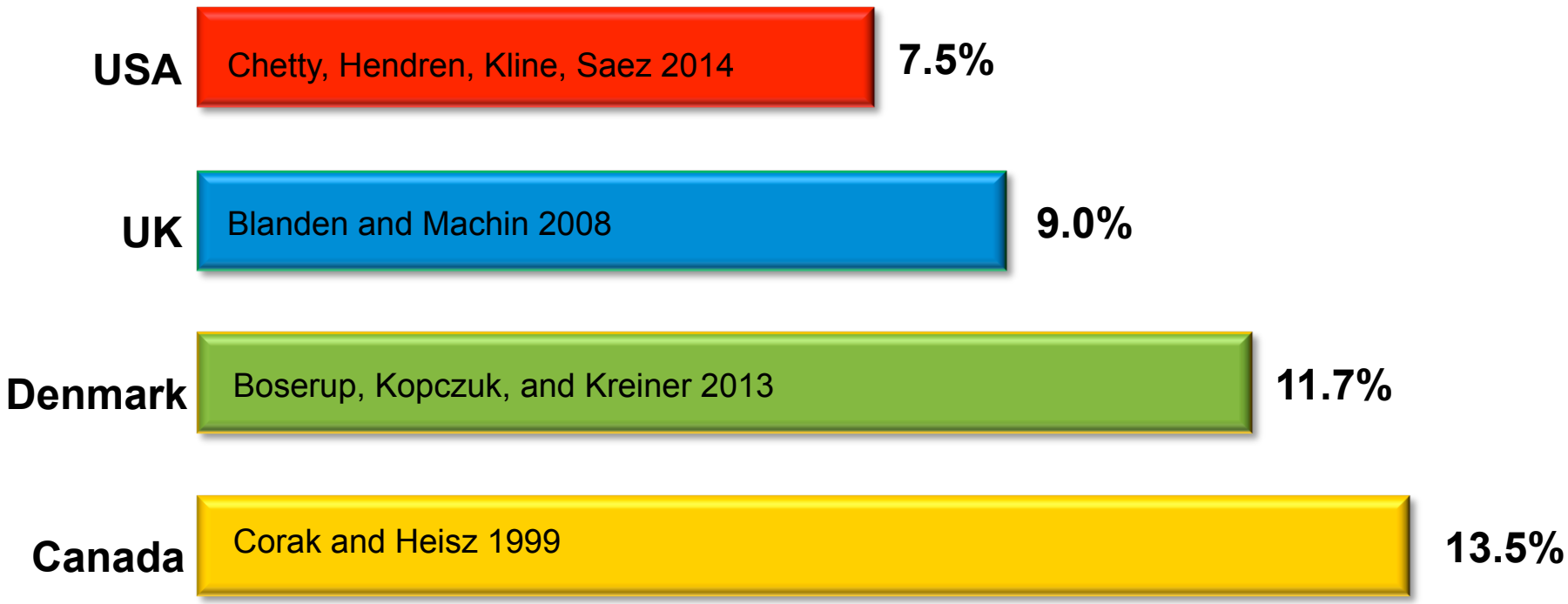


Source: Chetty, Hendren, Kline, Saez (2014)


B. United States vs. Denmark
Mean Child Income Rank
20
30
40
50
60
70
0
10
20
30
40
50
60
70
80
90
100
Parent Income Rank
Rank-Rank Slope (Denmark) = 0.180
(0.0063)
Denmark
United States
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:

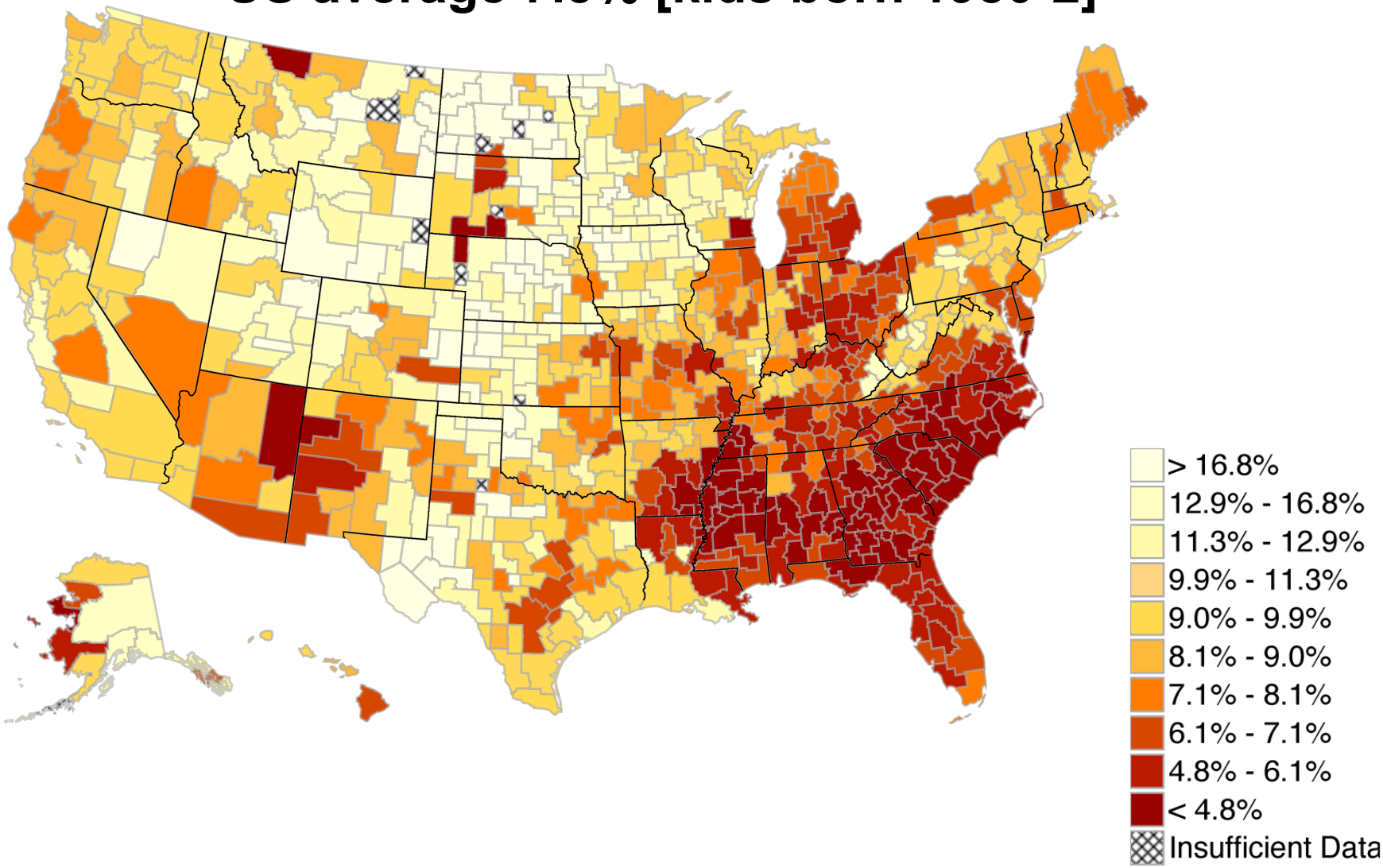


→ Chances of achieving the “American Dream” are almost two times higher in Canada than in the U.S.

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]



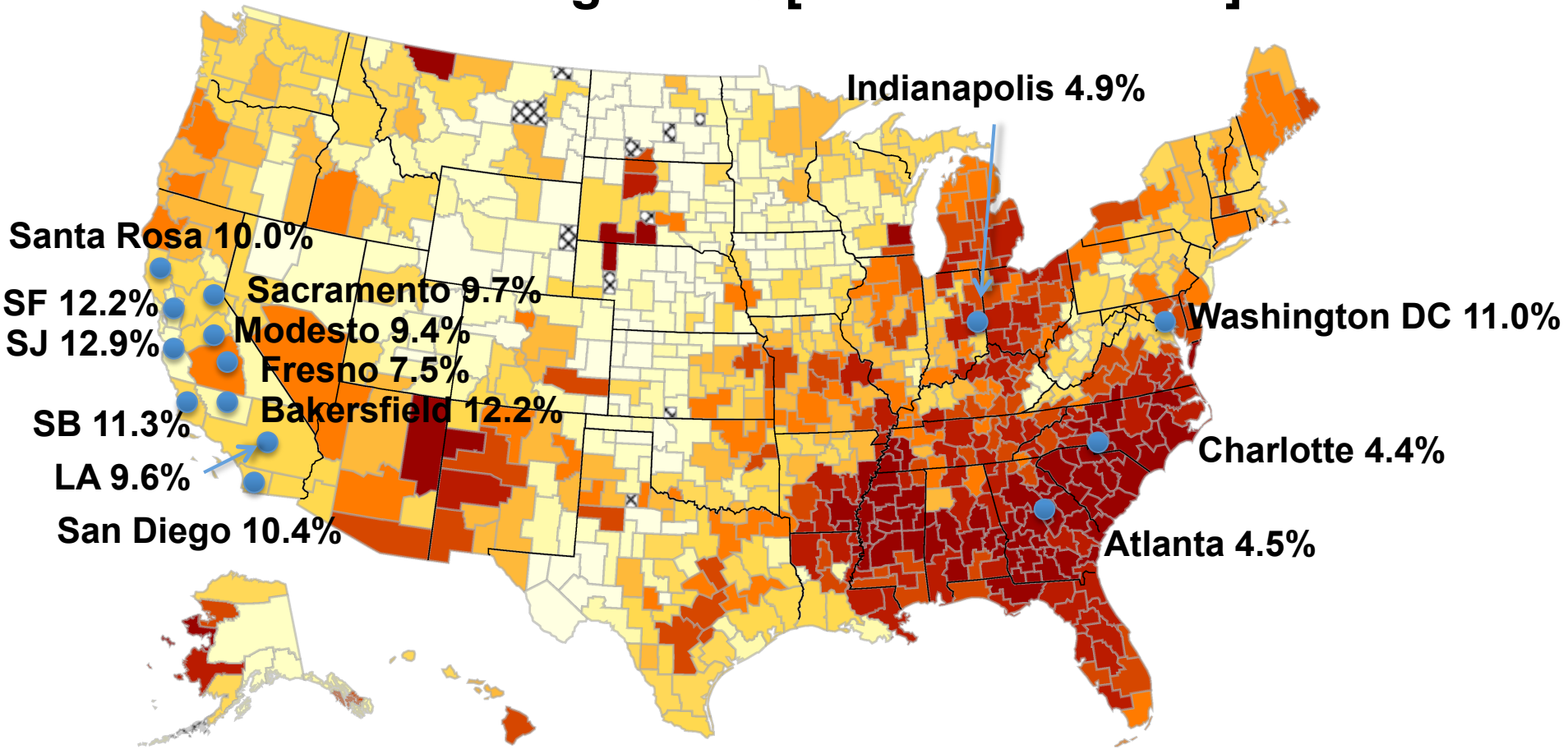
Note: Lighter Color = More Upward Mobility

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

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

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.

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

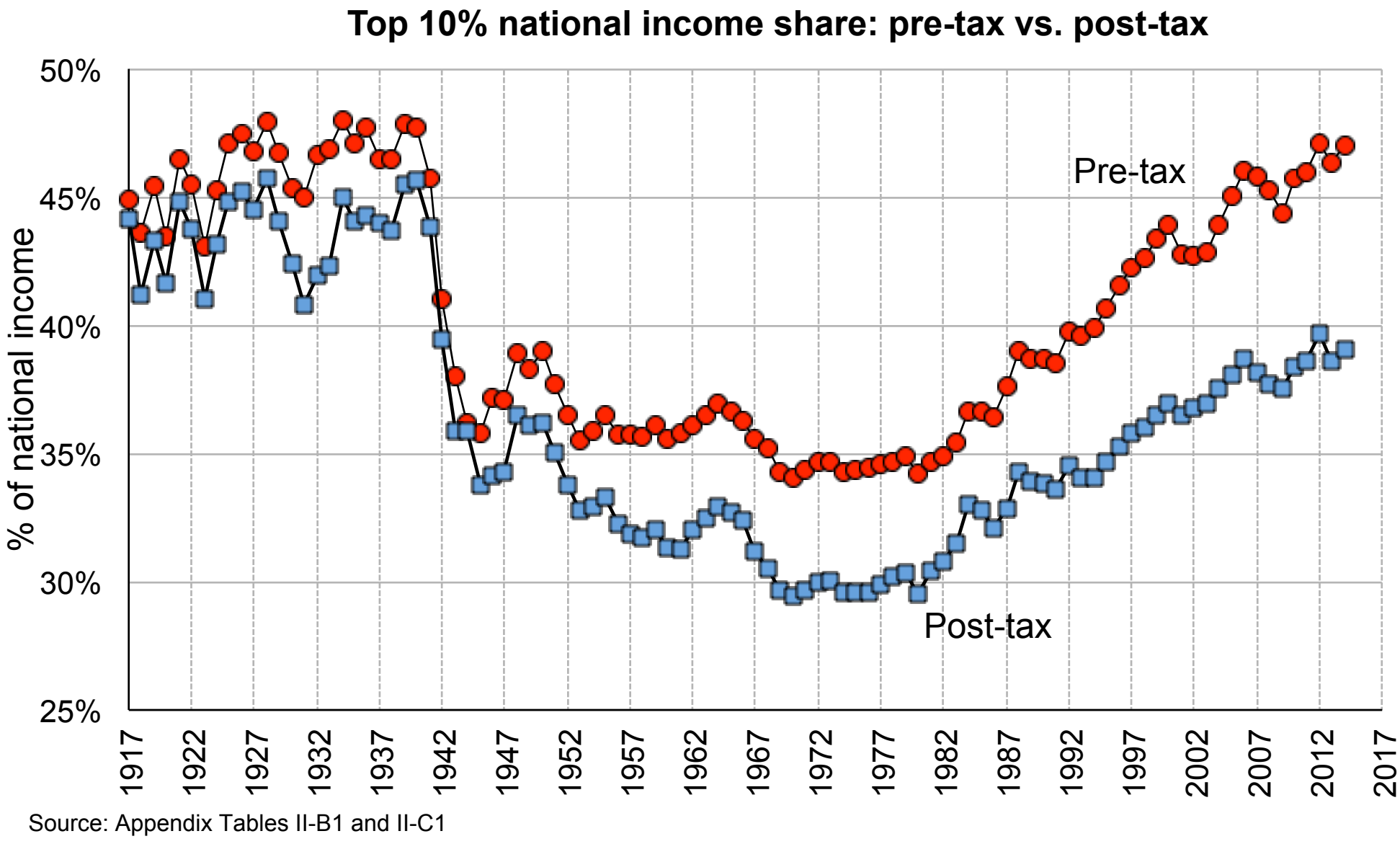
Pre-tax income is income before taxes and transfers: z

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

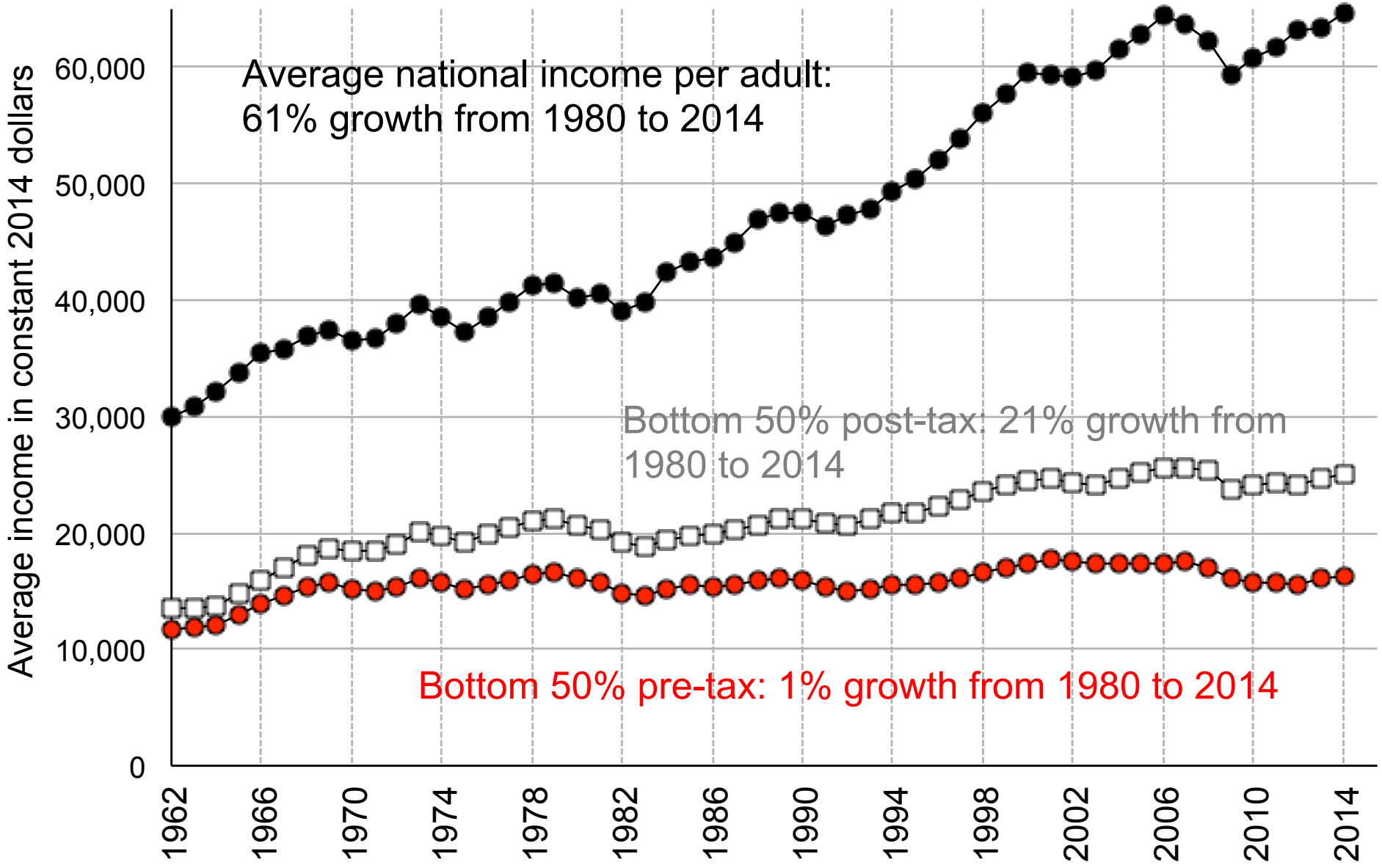
Both concepts add up to national income and provide a comprehensive view of the mechanical impact of government redistribution

National Income Distribution 2014 from Piketty, Saez, and Zucman NBER '16

		Pre-tax income		Post-tax income	
Income group	**Number of adults**	**Average income**	**Income share**	**Average income**	**Income share**
Full Population	234,400,000	$64,600	100%	$64,600	100%
Bottom 50%	117,200,000	$16,200	12.5%	$25,000	19.4%
Middle 40%	93,760,000	$65,400	40.5%	$67,200	41.6%
Top 10%	23,440,000	$304,000	47.0%	$252,000	39.0%
Top 1%	2,344,000	$1,300,000	20.2%	$1,010,000	15.6%
Top 0.1%	234,400	$6,000,000	9.3%	$4,400,000	6.8%
Top 0.01%	23,440	$28,100,000	4.4%	$20,300,000	3.1%
Top 0.001%	2,344	$122,000,000	1.9%	$88,700,000	1.4%



Source: Appendix Tables II-B1 and II-C1


Average vs. bottom 50% income growth per adult
Average income in constant 2014 dollars
60,000
50,000
40,000
30,000
20,000
10,000
0
Average national income per adult:
61% growth from 1980 to 2014
Bottom 50% post-tax: 21% growth from
1980 to 2014
Bottom 50% pre-tax: 1% growth from 1980 to 2014
1962
1966
1970
1974
1978
1982
1986
1990
1994
1998
2002
2006
2010
2014

Federal US Tax System: Overview

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] (2% of revenue)

5) Minor excise taxes (mostly labor income) [regressive] (3% of revenue)

State+Local Tax System: Overview

1) Individual+Corporate income taxes [progressive] (30% of state+local tax revenue)

2) Sales + Excise taxes (tax on consumption = income - savings) [slightly regressive] (30% of revenue)

3) Real estate property taxes (on capital income) [slightly progressive] (30% of revenue)

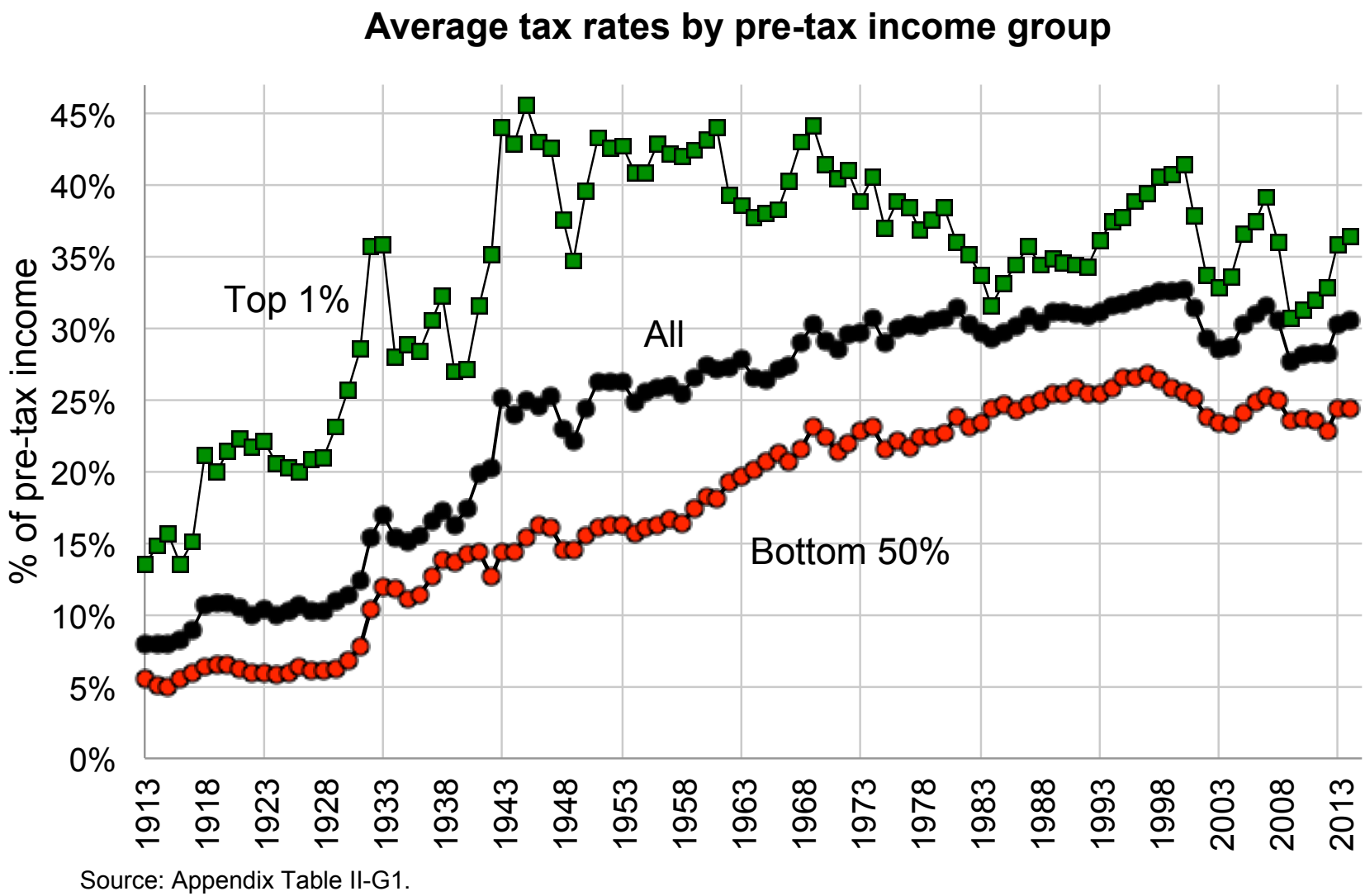
http://www.census.gov/govs/www/qtax.html

US Tax System: Progressivity and Evolution

1) Medium Term Changes: Federal Tax Progressivity has declined since 1970 but govt redistribution remains substantial especially when including transfers (Medicaid, Social Security, UI, DI, various income support programs)

2) Long Term Changes: Before 1913, US taxes were primarily tariffs, excises, and real estate property taxes [slightly regressive], no transfer programs (and hence small govt)

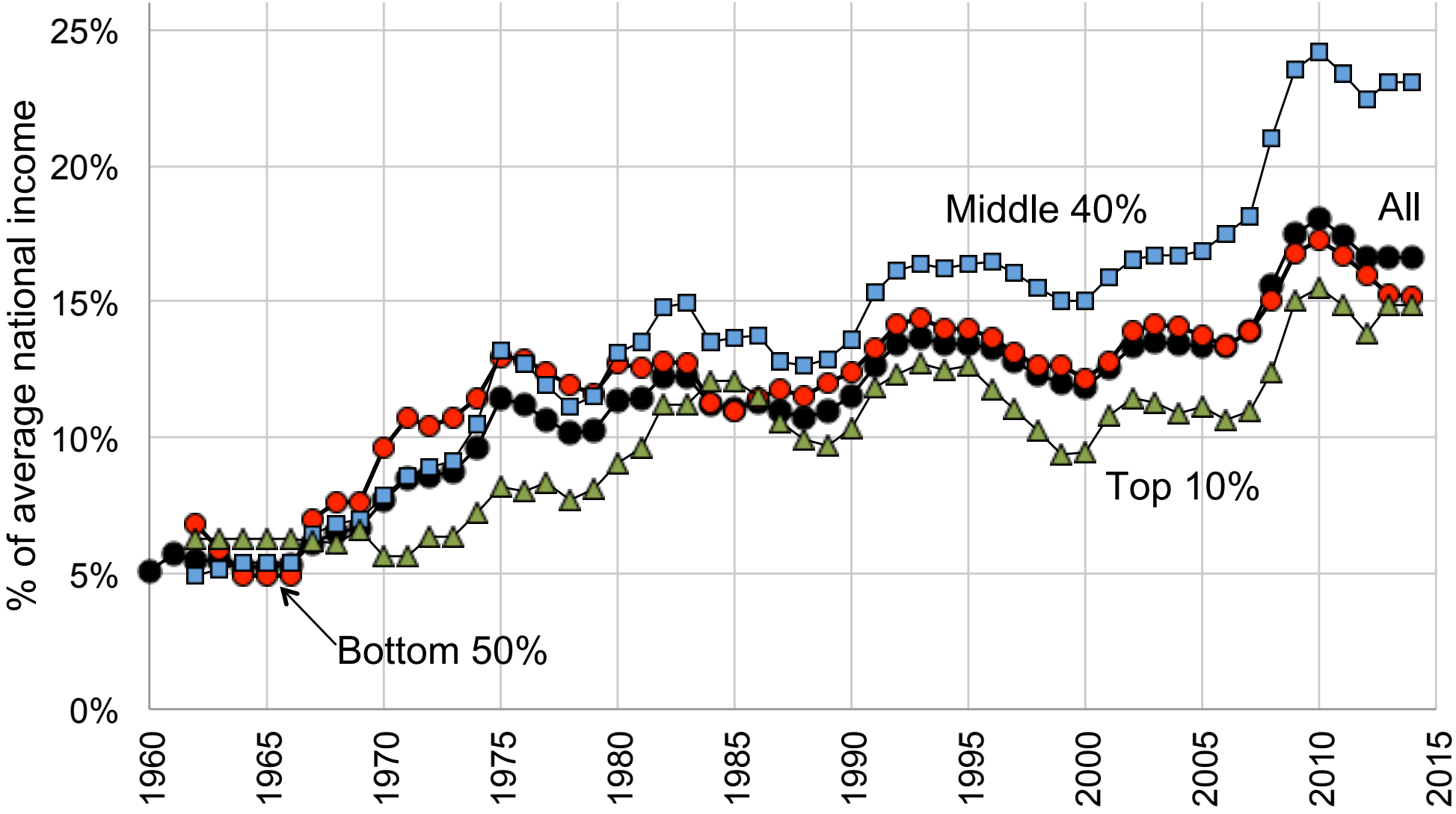
Tax progressivity has declined since the 1960s



Source: Appendix Table II-G1.

Source: Piketty, Saez, Zucman (2016)

Figure S.13: Average individualized transfer by post-tax income group (including Social Security)



Source: Appendix Table II-G4b.

Plan for Lectures on Taxation/Redistribution

1) Tax incidence (who bears the burden of taxation), efficiency costs of taxation, optimal commodity taxation

2) Taxation of labor income:

Optimal design of labor income taxation and means-tested transfers

Empirical analysis of tax and transfer programs on labor supply and earnings

3) Taxation of capital income (savings, wealth, and corporate profits)

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