Lecture 1: Introduction to Graduate Public Economics

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Spring 2019

Our Goals for this class

1. Learn skills and methods (theory and empirical).
2. Create a culture of key papers and read widely.
3. Get you inspired and ready for your own research.

Class Logistics

- Meet once per week, 2.45 hours. Break halfway through.
- One referee report.
- One paper proposal.
- One final exam.
- Office hours: Wednesdays 3:30–4:30pm starting Feb 20th.
- Starting end of Feb (depending on share of you taking class for credit), we will spend time on your proposals.
- What I expect from you.

My research:

I study the taxation of firms and individuals. I focus on three main issues:

1) The long-run effects of taxes on innovation, education & training, and wealth. How can we design the tax system to foster innovation?

2) The determinants of our social preferences, attitudes, and perceptions, which ultimately drive support for redistribution. To answer this, I conduct large-scale online surveys and experiments.

3) The effects of taxes in imperfect markets with informational frictions and rents.

PUBLIC ECONOMICS DEFINITION

Public economics = Study of the role of the government in the economy

Government is instrumental in most aspects of economic life:

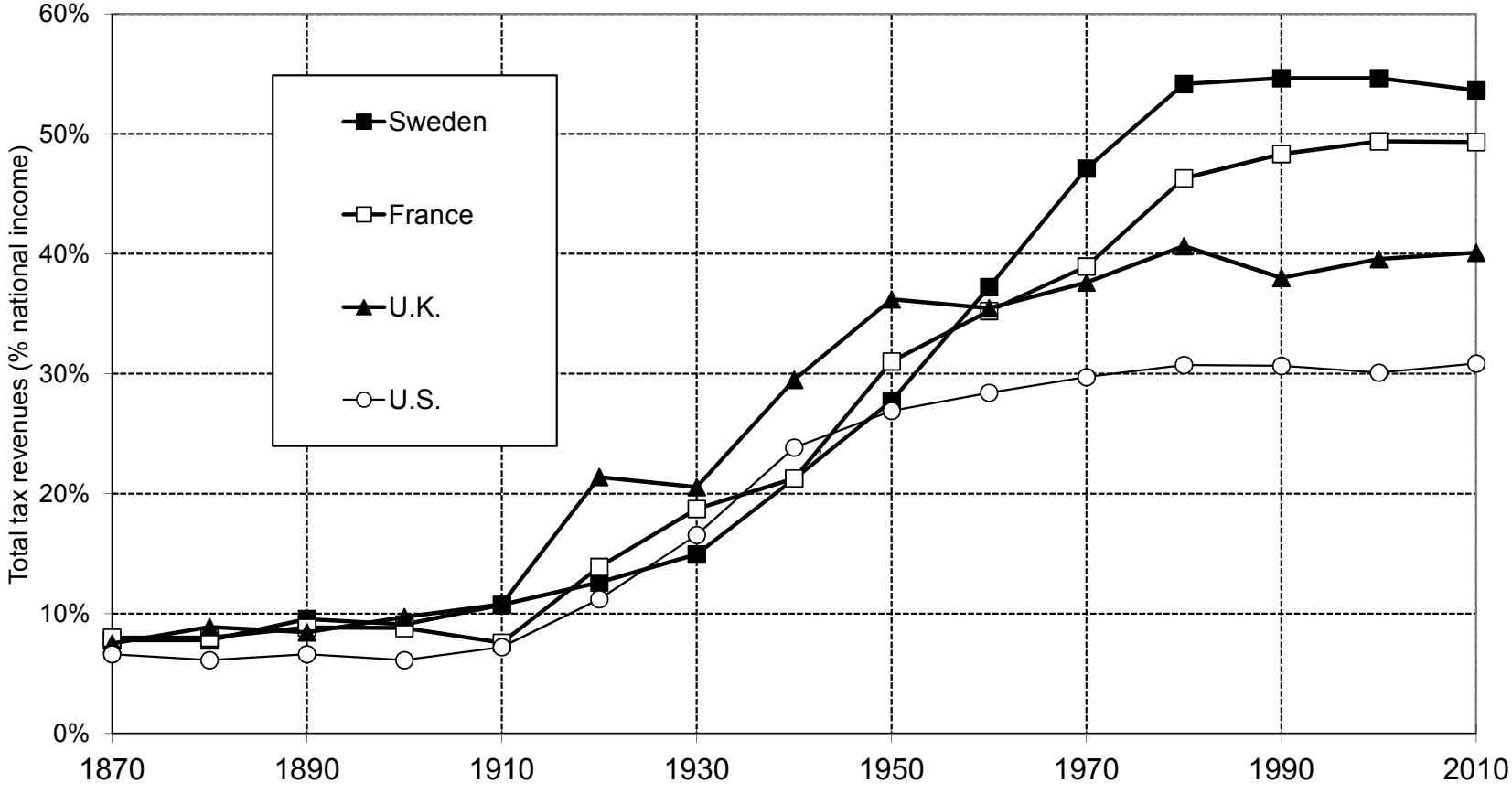
1) Government in charge of huge regulatory structure

2) Taxes: governments in advanced economies collect 30-50% 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

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)

Bigger view on government

Economists have a narrow minded view of individual behavior: selfish, rational, and utility based on own consumption only

But social interactions are critical for humans: we naturally cooperate at many levels: families, communities, nation states, global treaties

Governments are a formal way to organize cooperation

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

$\Rightarrow$ Explains best why our modern nation states have defense and provide education, health care, and retirement benefits

Replacing social institutions by markets does not always work

E.g., Retirement benefits: Saving for your own retirement is economically rational but in practice most people unable to do so unless institutions (employers/government) help them

For Economists: Two General Rules for Government Intervention

1) Failure of 1st Welfare Theorem: Government intervention can help if there are market or individual failures. Markets first, government second. Why?

2) Fallacy of the 2nd Welfare Theorem: Distortionary Government intervention is required to reduce economic inequality

Role 1: 1st Welfare Theorem Failure

1st Welfare Theorem: If (1) no externalities, (2) perfect competition, (3) perfect information, (4) agents are rational, then private market equilibrium is Pareto efficient

Government intervention may be desirable if:

1) Externalities require government interventions (Pigouvian taxes/subsidies, public good provision)

2) Imperfect competition requires regulation (typically studied in Industrial Organization)

3) Imperfect or Asymmetric Information (e.g., adverse selection may call for mandatory insurance)

4) Agents are not rational (= **individual failures** analyzed in behavioral economics, field in huge expansion): e.g., myopic or hyperbolic agents may not save enough for retirement

1. Externalities

Markets may be incomplete (e.g., smoking, pollution).

Achieving the Coasian efficient solution requires a coordinating institution, such as a government.

Public goods (infrastructure, defense, education).

Important question: what public goods to provide, how to correct for externalities.

2. Imperfect competition

Role for government regulation when markets are not competitive.

We will see some of this when we study R&D policies and innovation.

Typically we leave this to IO, but we shouldn't!

3. Imperfect and asymmetric information

Adverse Selection in health insurance (reason for mandated coverage).

Capital markets and credit constraints (subsidies for education).

Intergenerational issues (future generations may not be valued appropriately in today's market).

4. Individual Failures

Behavioral issues, own-agency problems.

If agents do not optimize, may be best to intervene. E.g.: mandated retirement savings.

Paternalism?

Currently very active area of research, theoretically and empirically.

Individual Failures vs. Paternalism

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

2) **Paternalism [Libertarian Chicago View]** Individual failures do not exist and govt wants to impose on individuals its own preferences against individuals' will

Key way to distinguish those 2 views: Under Paternalism, individuals should be opposed to govt programs such as Social Security. If individuals understand they have failures, they will tend to support govt programs such as Social Security.

Role 2: 2nd Welfare Theorem Fallacy

Even with no market failures, free market might generate substantial inequality. Inequality is an issue because of people care about their relative situation.

2nd Welfare Theorem: Any Pareto Efficient outcome can be reached by (1) Suitable redistribution of initial endowments [individualized **lump-sum** taxes based on indiv. characteristics and not behavior], (2) Then letting markets work freely

$\Rightarrow$ No conflict between efficiency and equity [1st best taxation]

Redistribution of initial endowments is not feasible (information pb) $\Rightarrow$ govt needs to use **distortionary** taxes and transfers $\Rightarrow$ Trade-off between efficiency and equity [2nd best taxation]

This class will focus on both roles, but first on 2).

Illustration of 2nd Welfare Theorem Fallacy

Suppose economy is populated 50% with disabled people unable to work (hence they earn \$0) and 50% with able people who can work and earn \$100

Free market outcome: disabled have \$0, able have \$100

2nd welfare theorem: govt is able to tell apart the disabled from the able [even if the able do not work]

$\Rightarrow$ can tax the able by \$50 [regardless of whether they work or not] to give \$50 to each disabled person $\Rightarrow$ the able keep working [otherwise they'd have zero income and still have to pay \$50]

Real world: govt can't tell apart disabled from non working able

$\Rightarrow$ \$50 tax on workers + \$50 transfer on non workers destroys all incentives to work $\Rightarrow$ govt can no longer do full redistribution $\Rightarrow$ Trade-off between equity and size of the pie

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

Positive Public Economics overlaps with Labor Economics

Political Economy is a positive analysis of govt outcomes [public choice is political economy from a libertarian view]

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 wealth, r is rate of return on wealth

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 (varies dramatically overtime and across assets)

Entrepreneurs start with labor which then transmutes into wealth (e.g., Zuckerberg with Facebook)

Macro-aggregates: Labor vs. Capital Income

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

Capital income $rk \simeq 25\%$ of national income z (has increased in recent decades)

Wealth stock $k \simeq 400 - 500\%$ of national income z (is increasing)

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

$\alpha = \beta \cdot r$ where $\alpha = rk/z$ share of capital income and $\beta = k/z$ wealth to income ratio

In GDP, gross capital share is higher (35%) because it includes depreciation of capital ($\simeq 10\%$ of GDP)

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

Income Inequality Measurement

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

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)

Income Inequality: Labor vs. Capital Income

Capital Income (or wealth) is more concentrated than Labor Income. In the US:

Top 1% wealth holders have 40% of total wealth (Saez-Zucman 2014). Bottom 50% wealth holders hold almost no wealth.

Top 1% incomes have 20% of total income (Piketty-Saez)

Top 1% labor income earners have about 15% of total labor income

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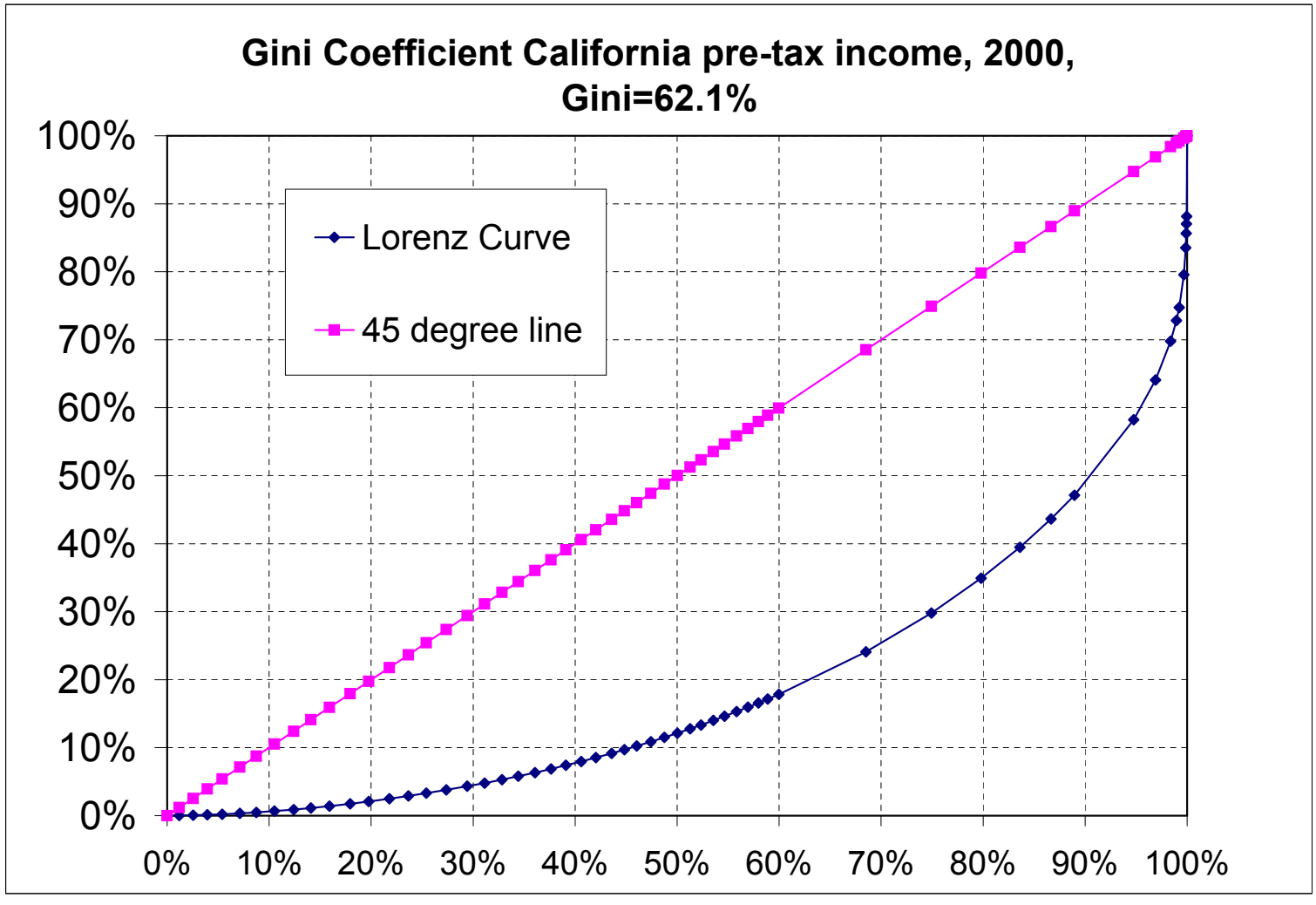


Source: Annual Report 2001 California Franchise Tax Board

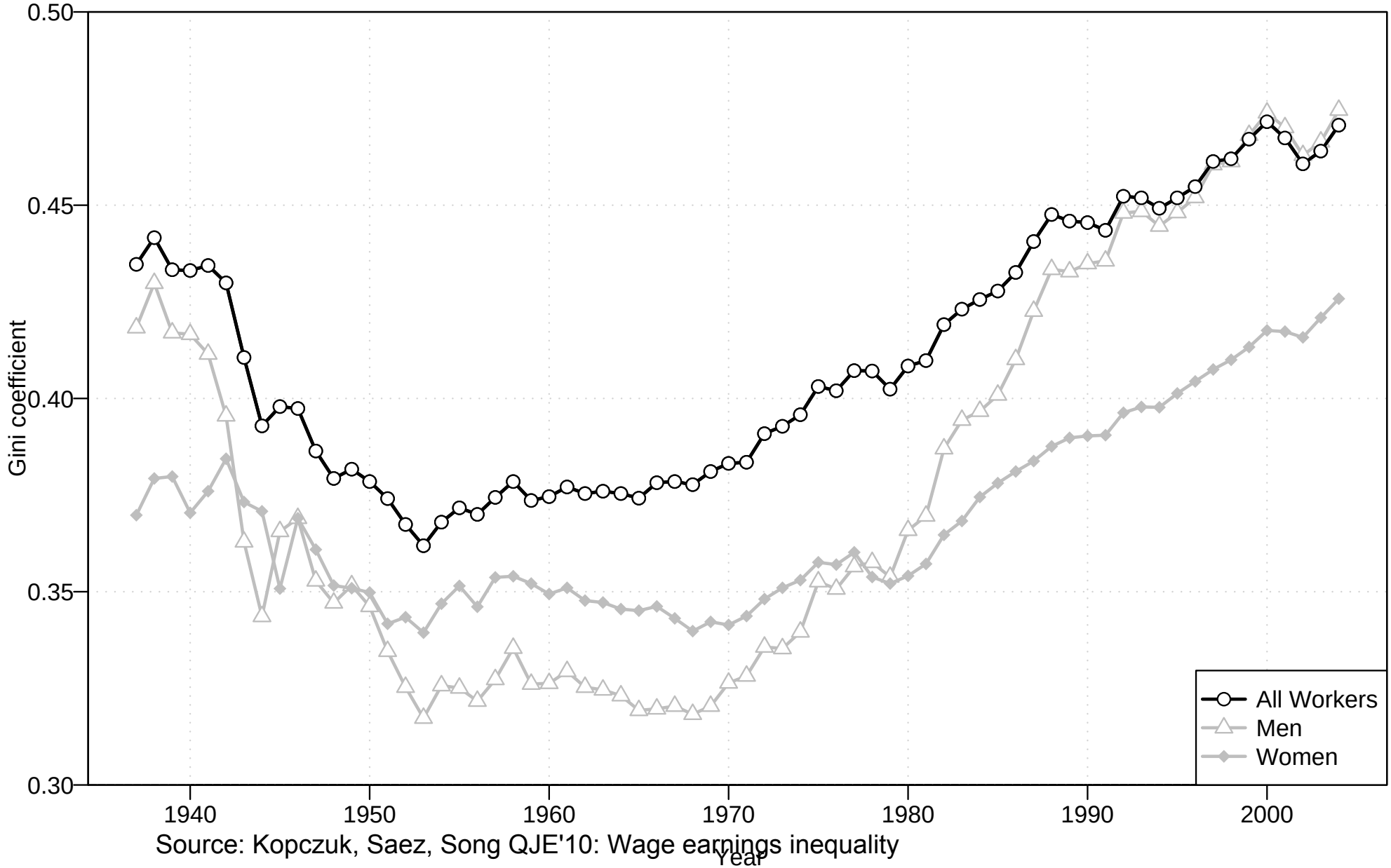
Key Empirical Facts on Income/Wealth Inequality

1) In the US, labor income inequality has increased substantially since 1970: due to skilled biased technological progress vs. institutions (min wage and Unions) [Autor-Katz'99]

2) US top income shares dropped dramatically from 1929 to 1950 and increased dramatically since 1980. Bottom 50% incomes have stagnated in real terms since 1980 [Piketty-Saez-Zucman '18 distribute full National Income]

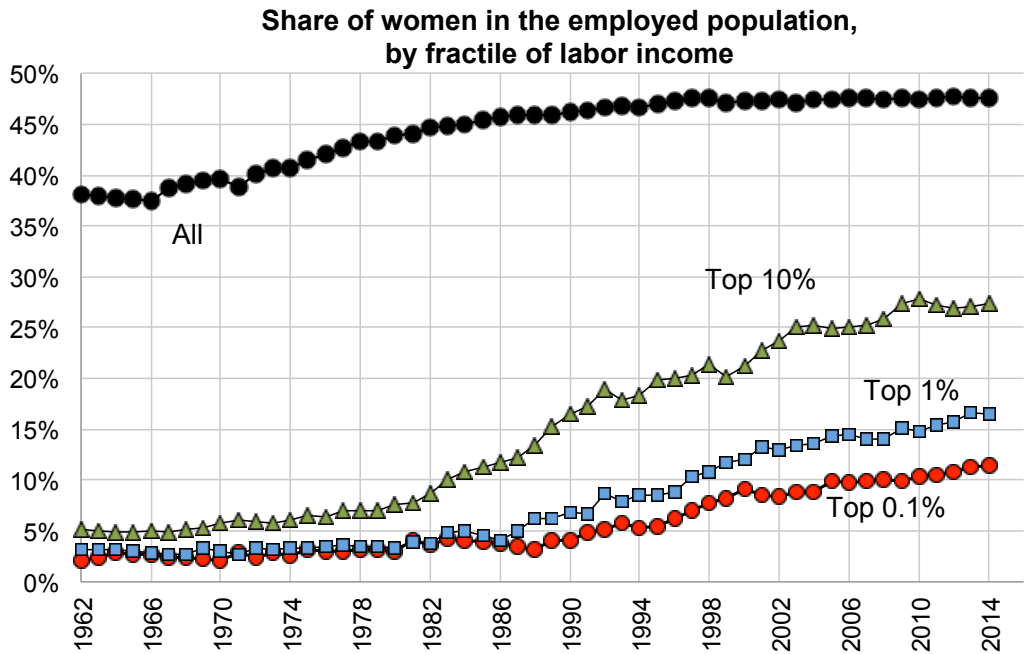
3) Fall in top income shares from 1900-1950 happened in most OECD countries. Surge in top income shares has happened primarily in English speaking countries, and not as much in Continental Europe and Japan [Atkinson, Piketty, Saez JEL'11]

Figure 1: Gini coefficient

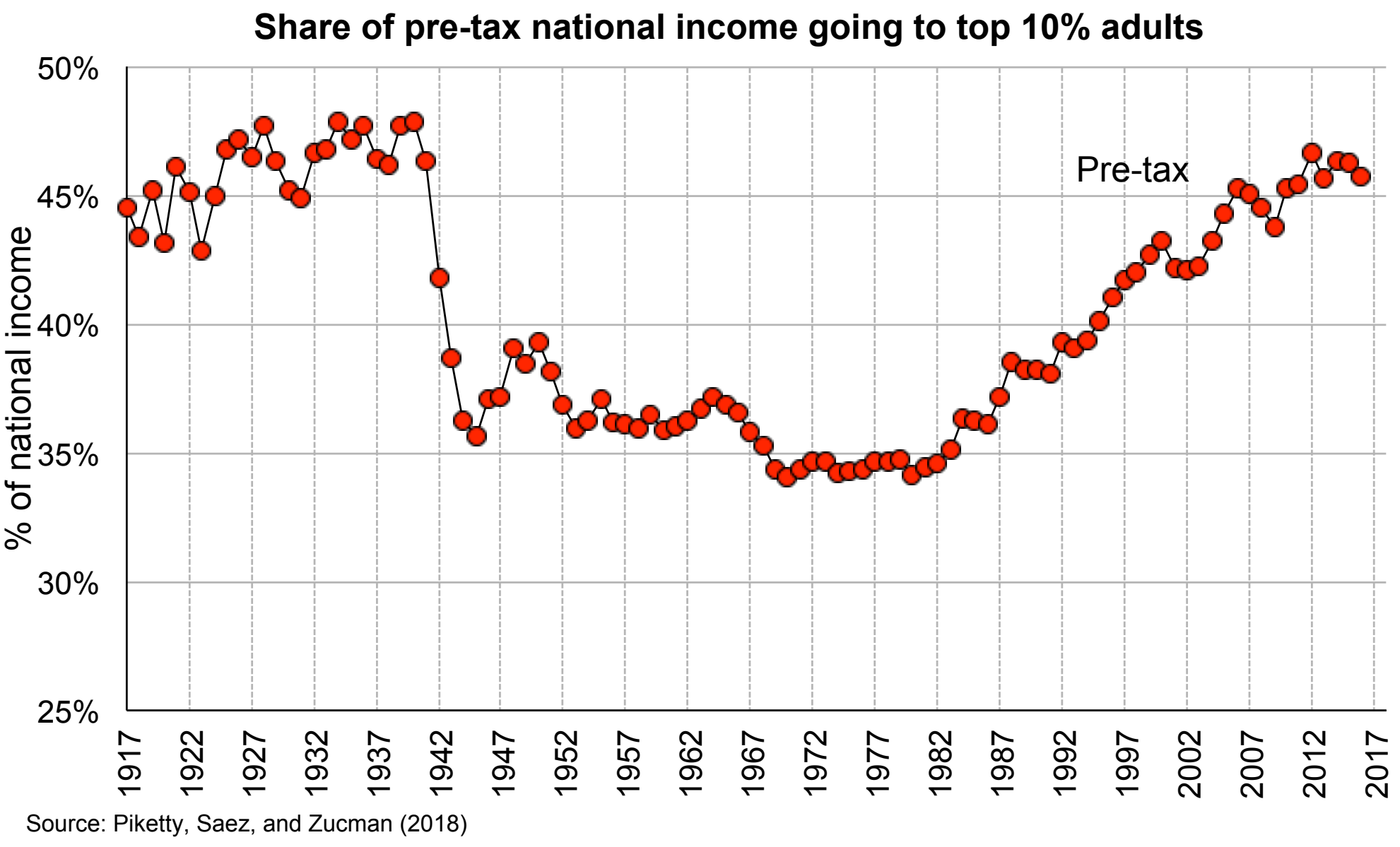


Source: Kopczuk, Saez, Song QJE'10: Wage earnings inequality

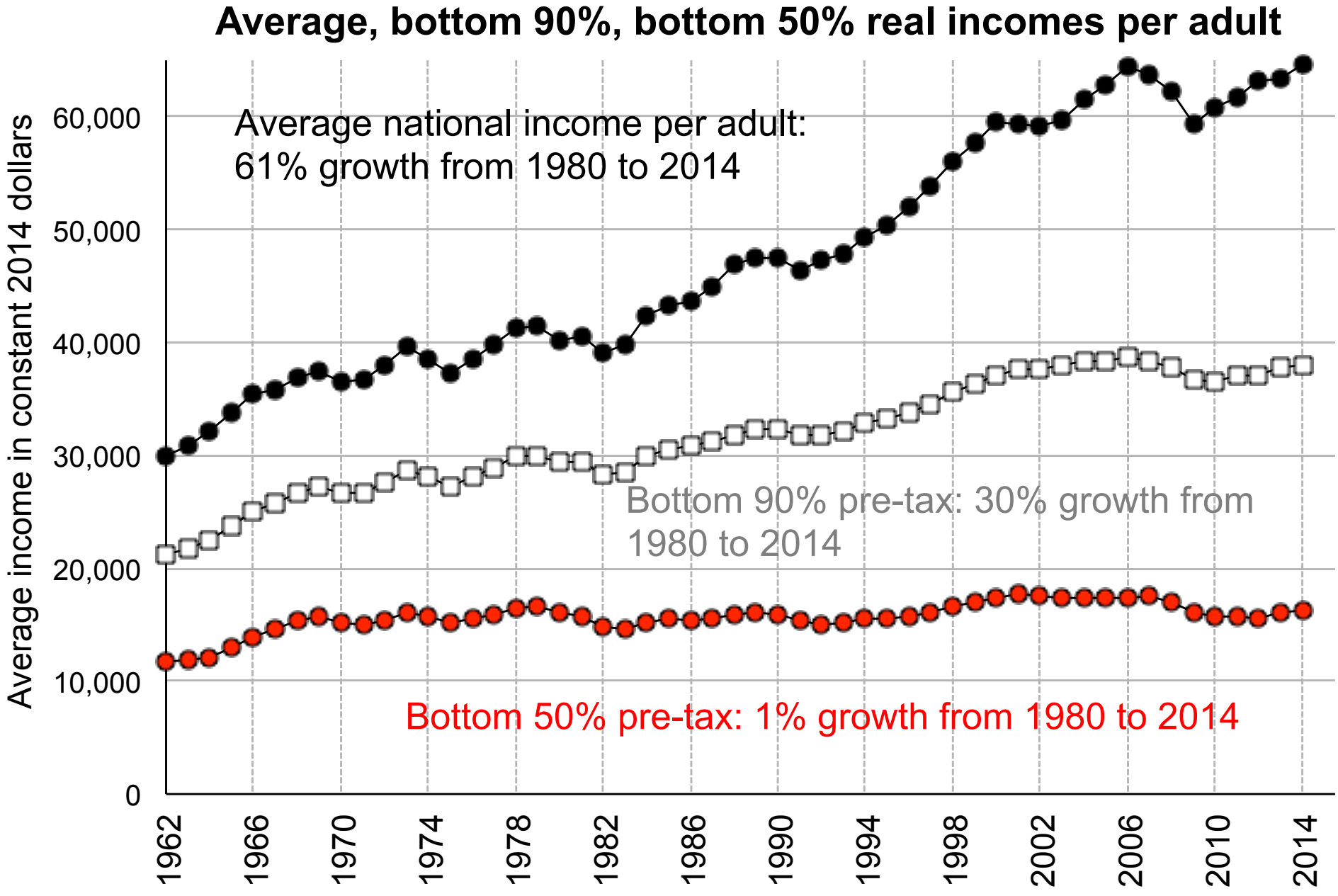
Men still make 85% of the top 1% of the labor income distribution



Source: Appendix Table II-F1.



Source: Piketty, Saez, and Zucman (2018)


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
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
1962
1966
1970
1974
1978
1982
1986
1990
1994
1998
2002
2006
2010
2014

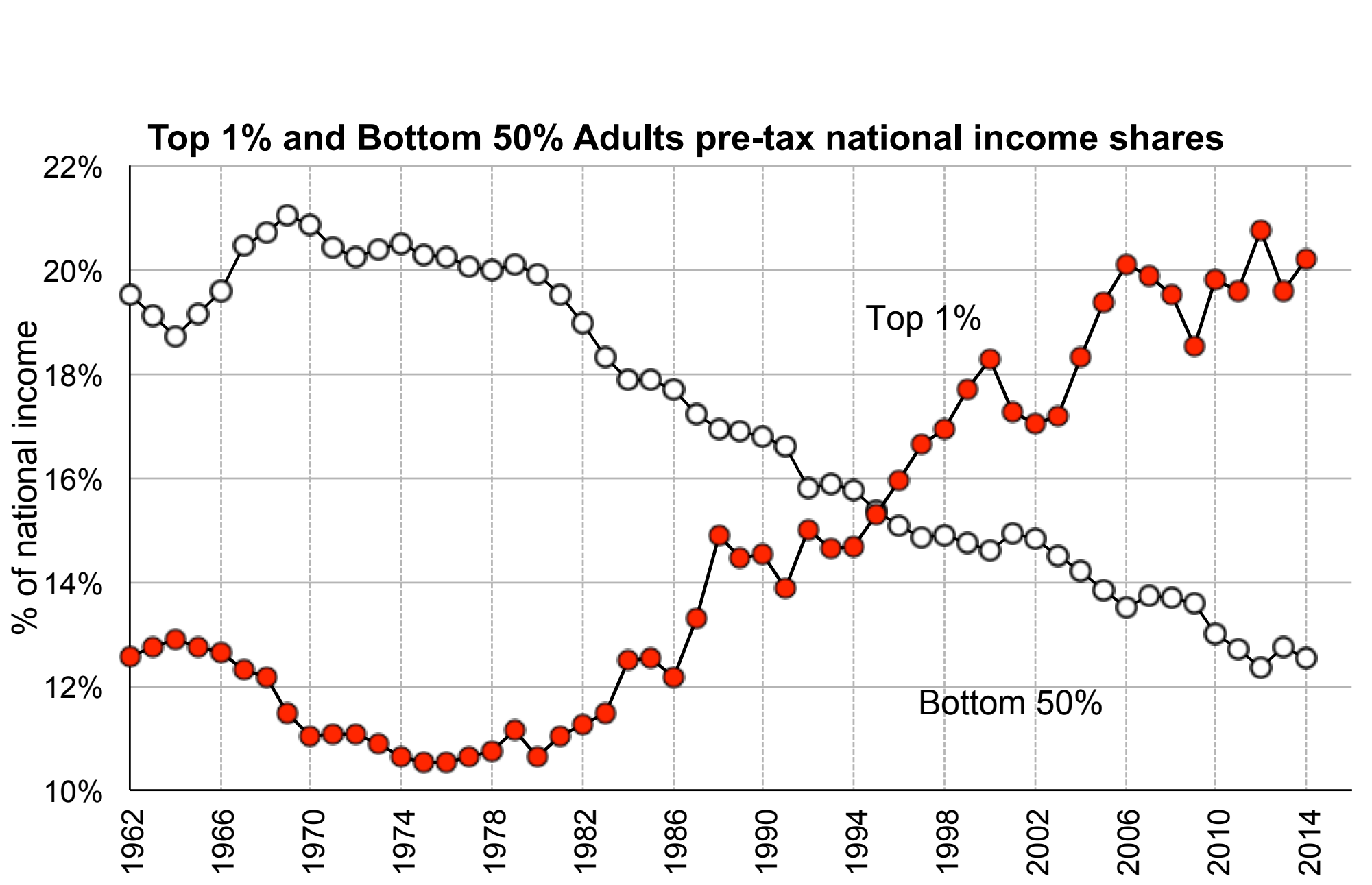
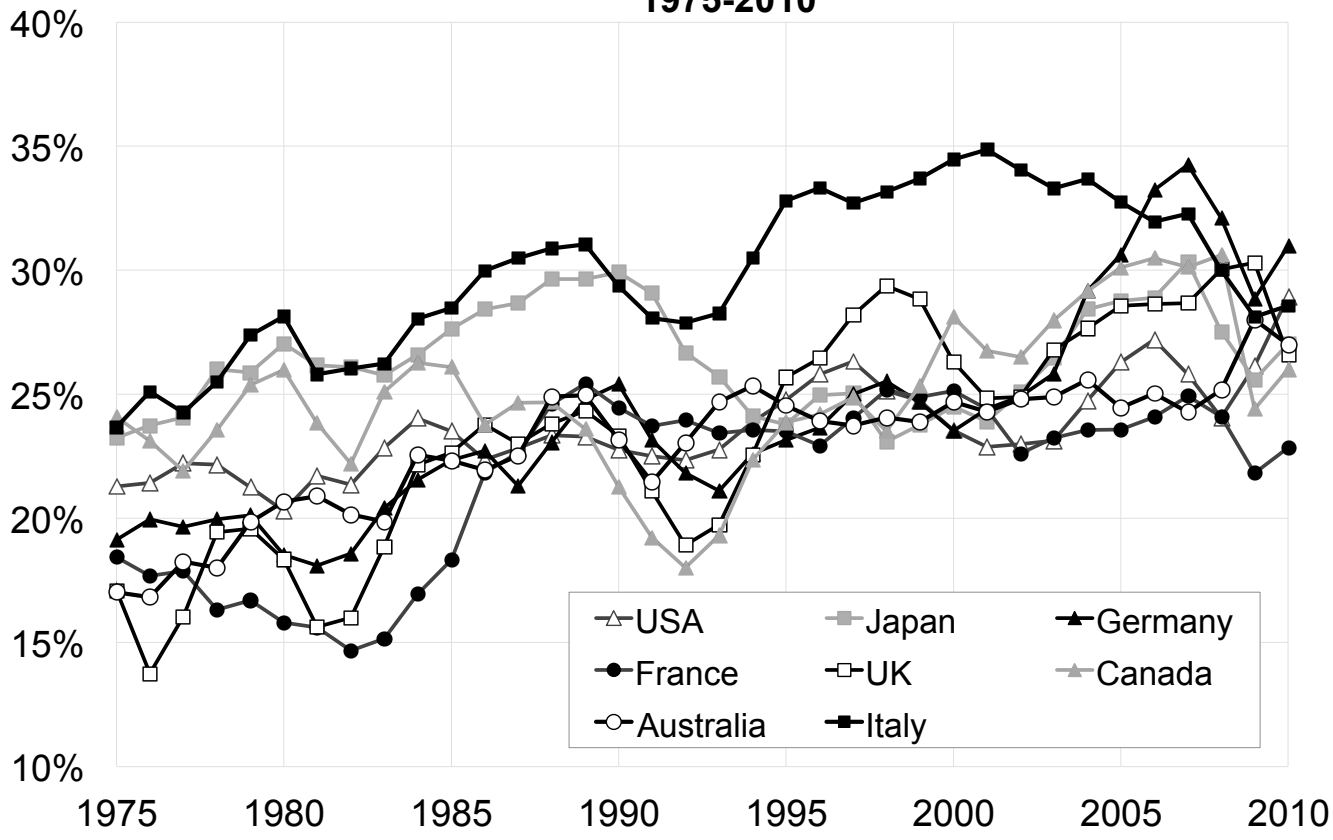
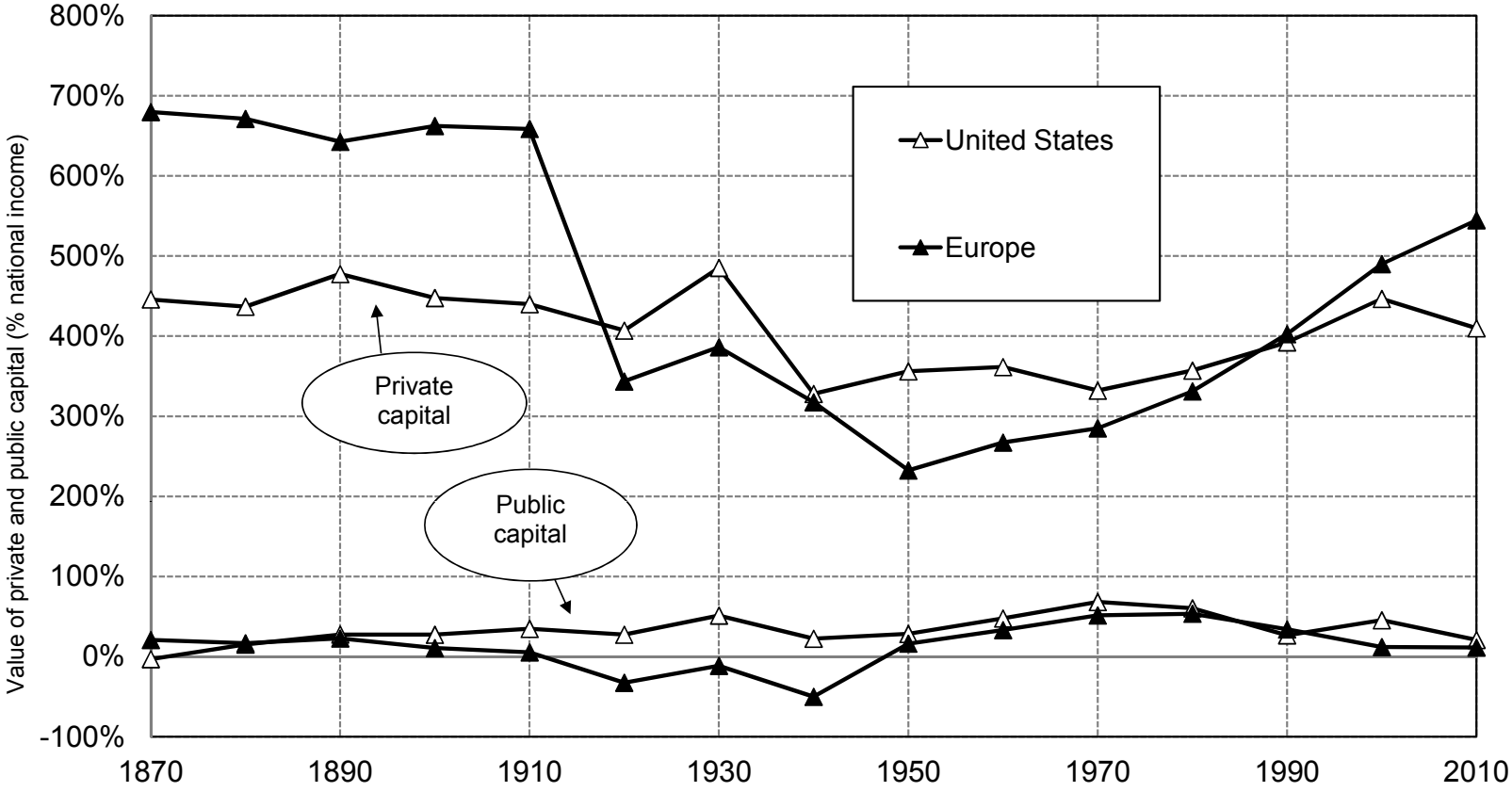

Top 1% and Bottom 50% Adults pre-tax national income shares
22%
20%
18%
16%
14%
12%
10%
% of national income
Top 1%
Bottom 50%
1962
1966
1970
1974
1978
1982
1986
1990
1994
1998
2002
2006
2010
2014

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)

Key Empirical Facts on Income/Capital Inequality Cross-Sectionally

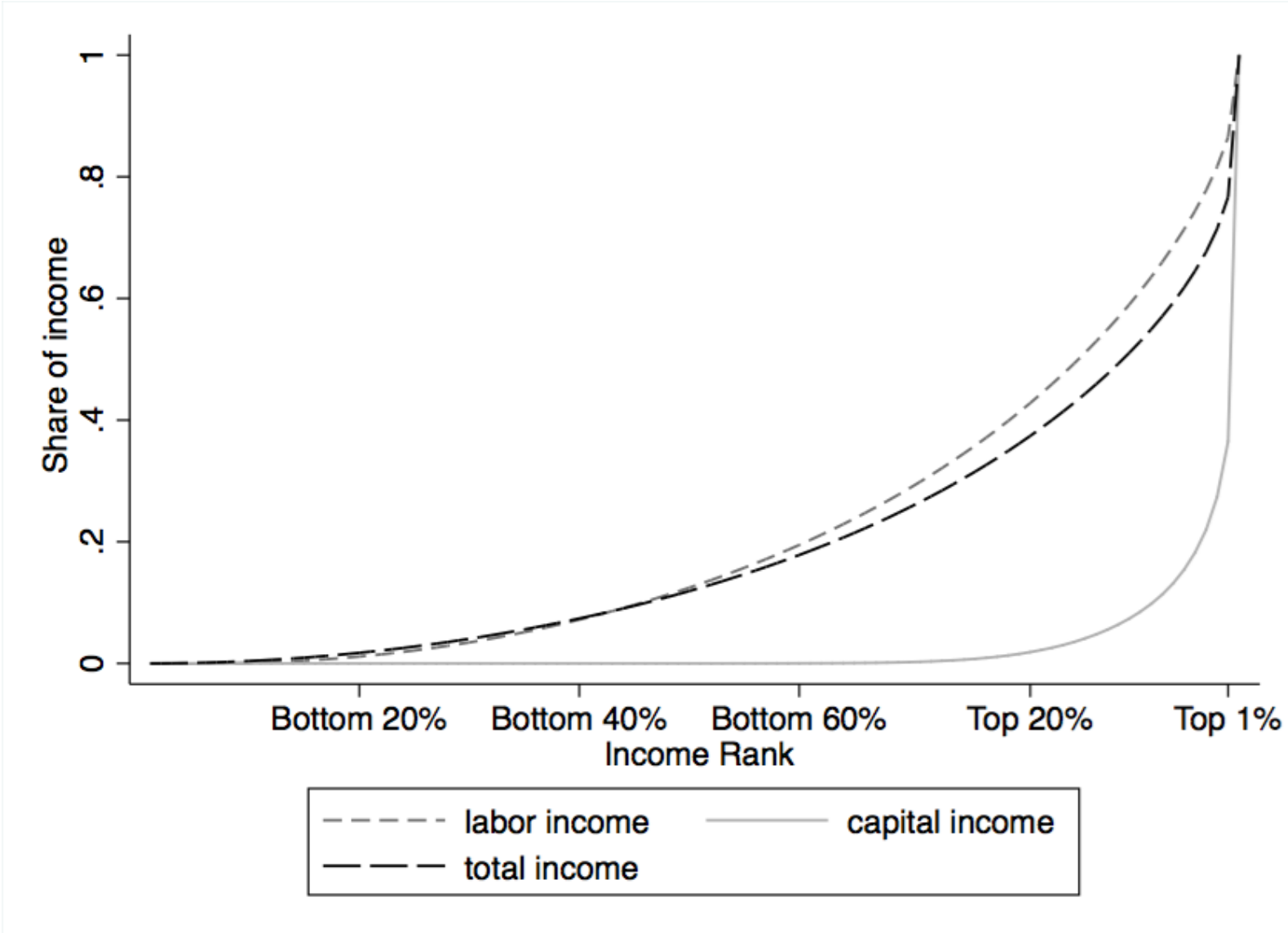
Based on IRS tax returns data from Saez and Zucman (2015) for 2007.

Fact 1: Capital income is more unequally distributed than labor income.

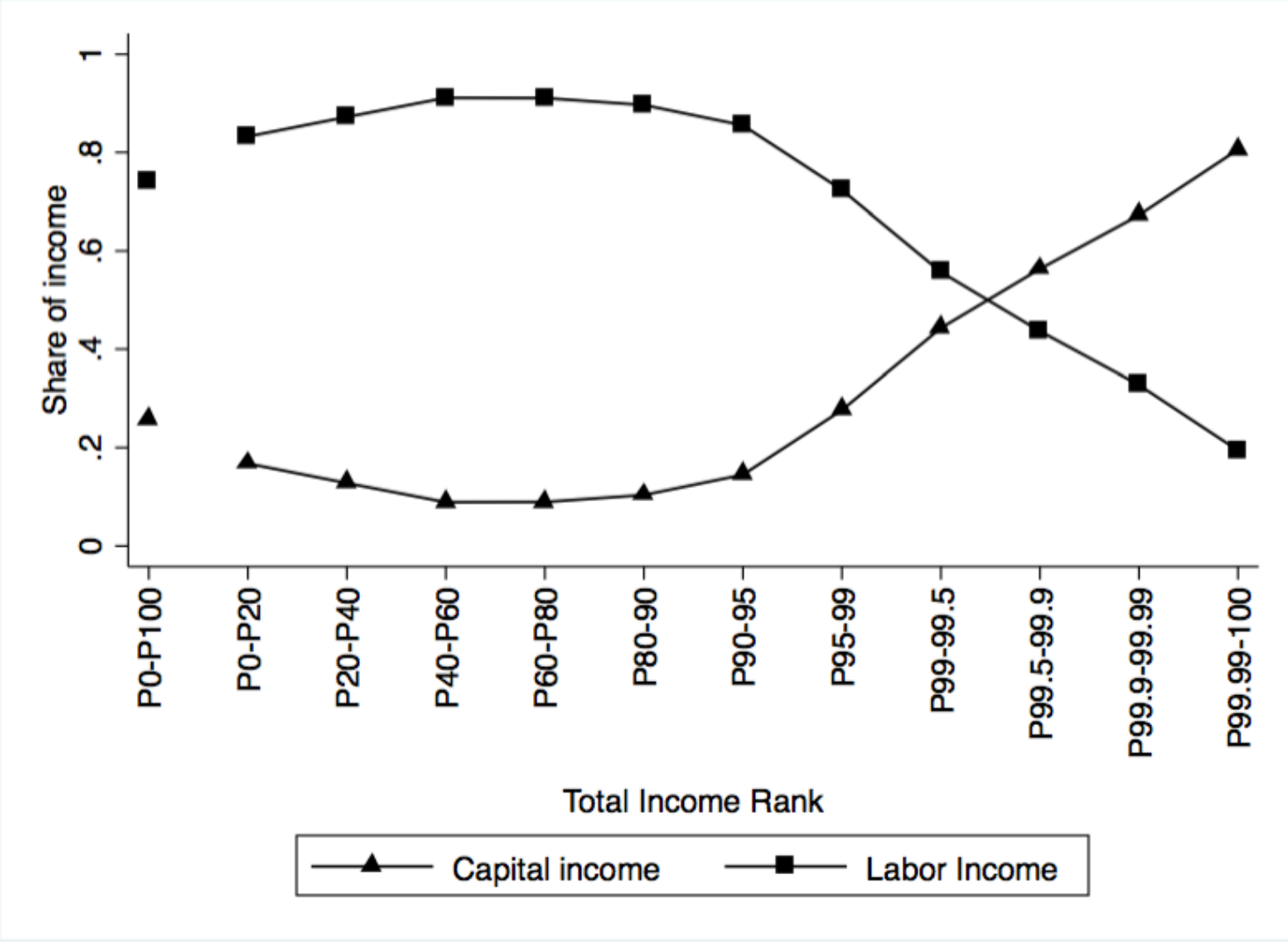
Fact 2: At the top, total income is mostly capital income.

Fact 3: Two-dimensional heterogeneity: even conditional on labor income, a lot of inequality in capital income.

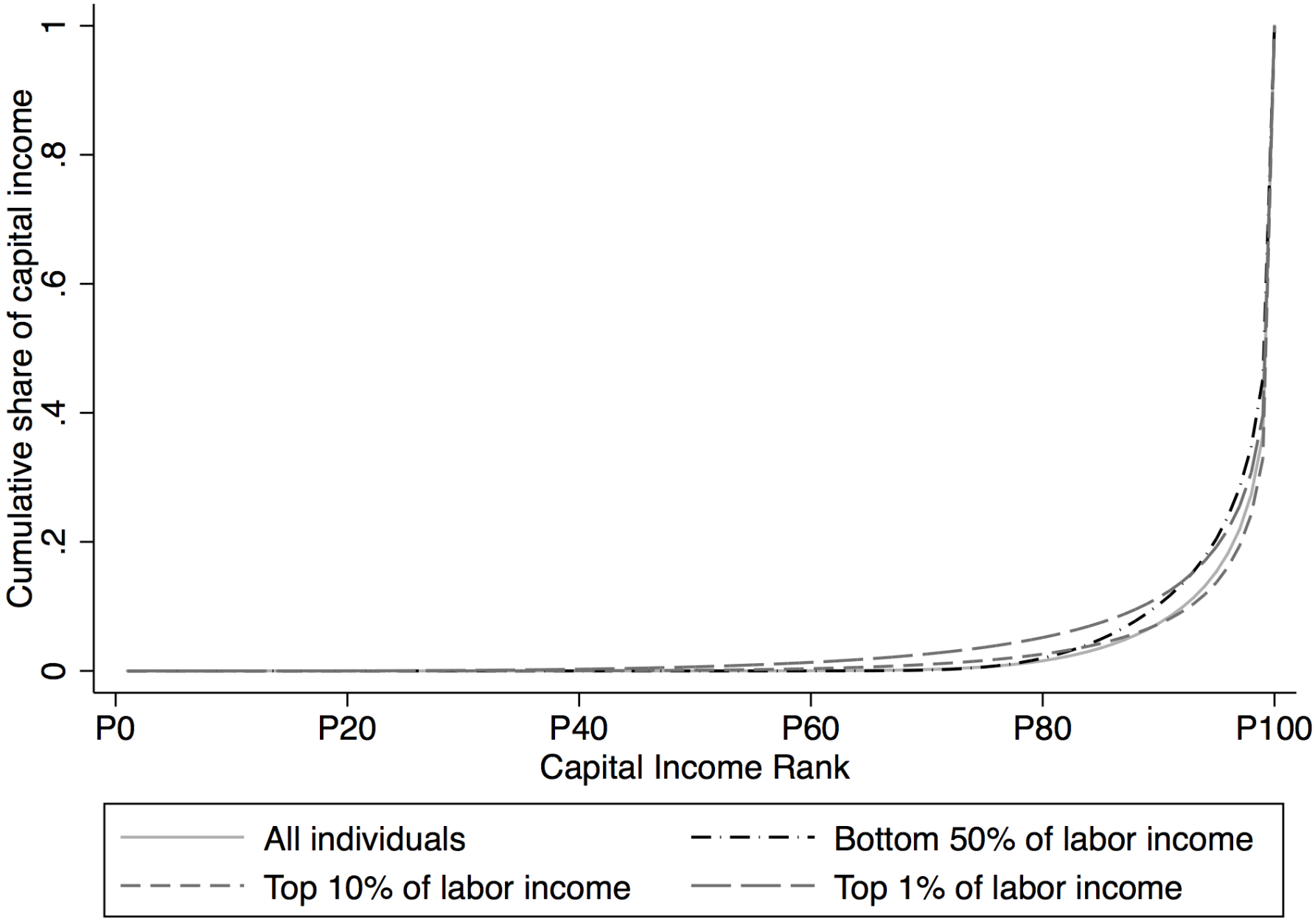
Labor, Capital, and Total Income Distributions (Fact 1)

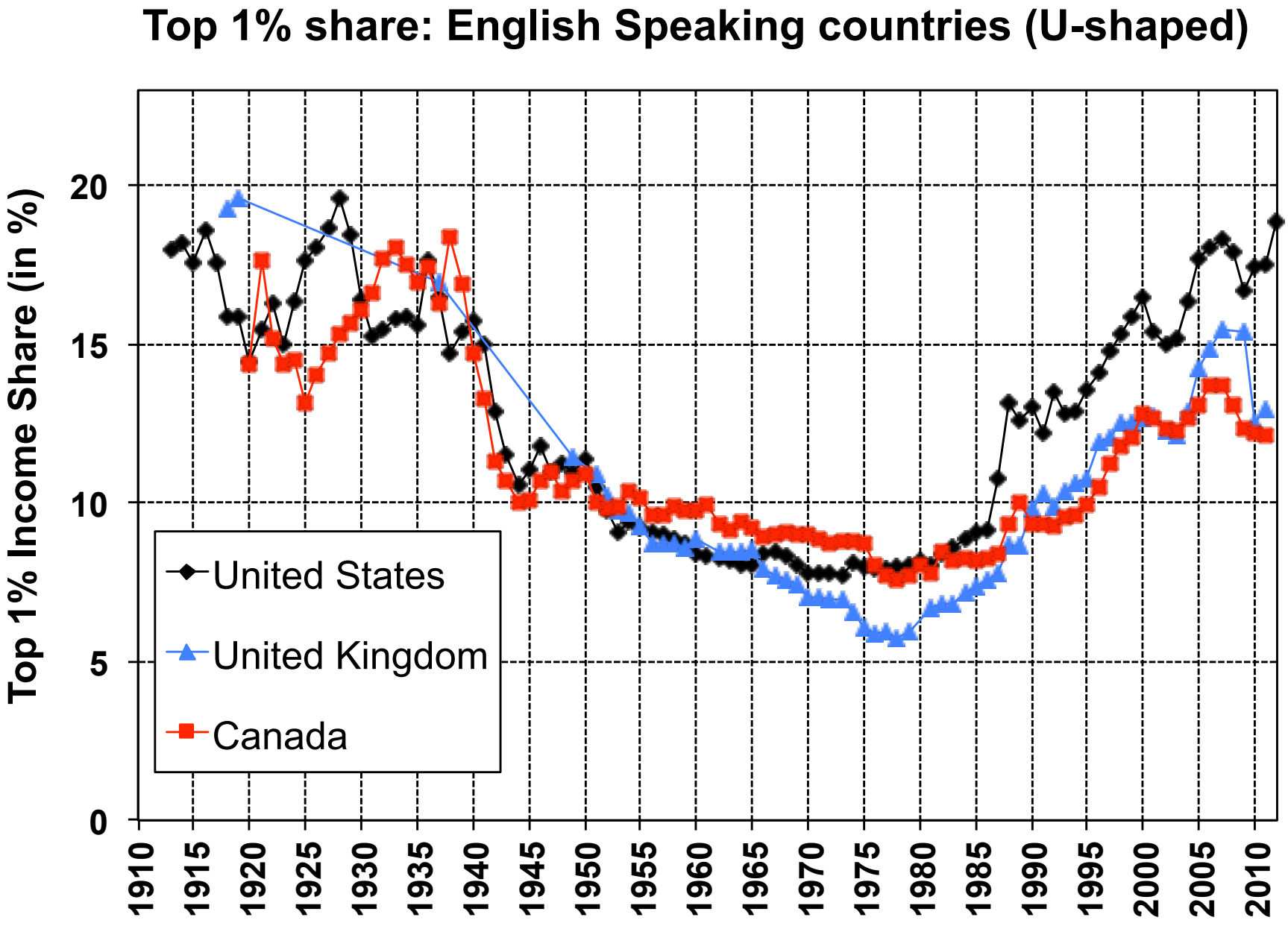


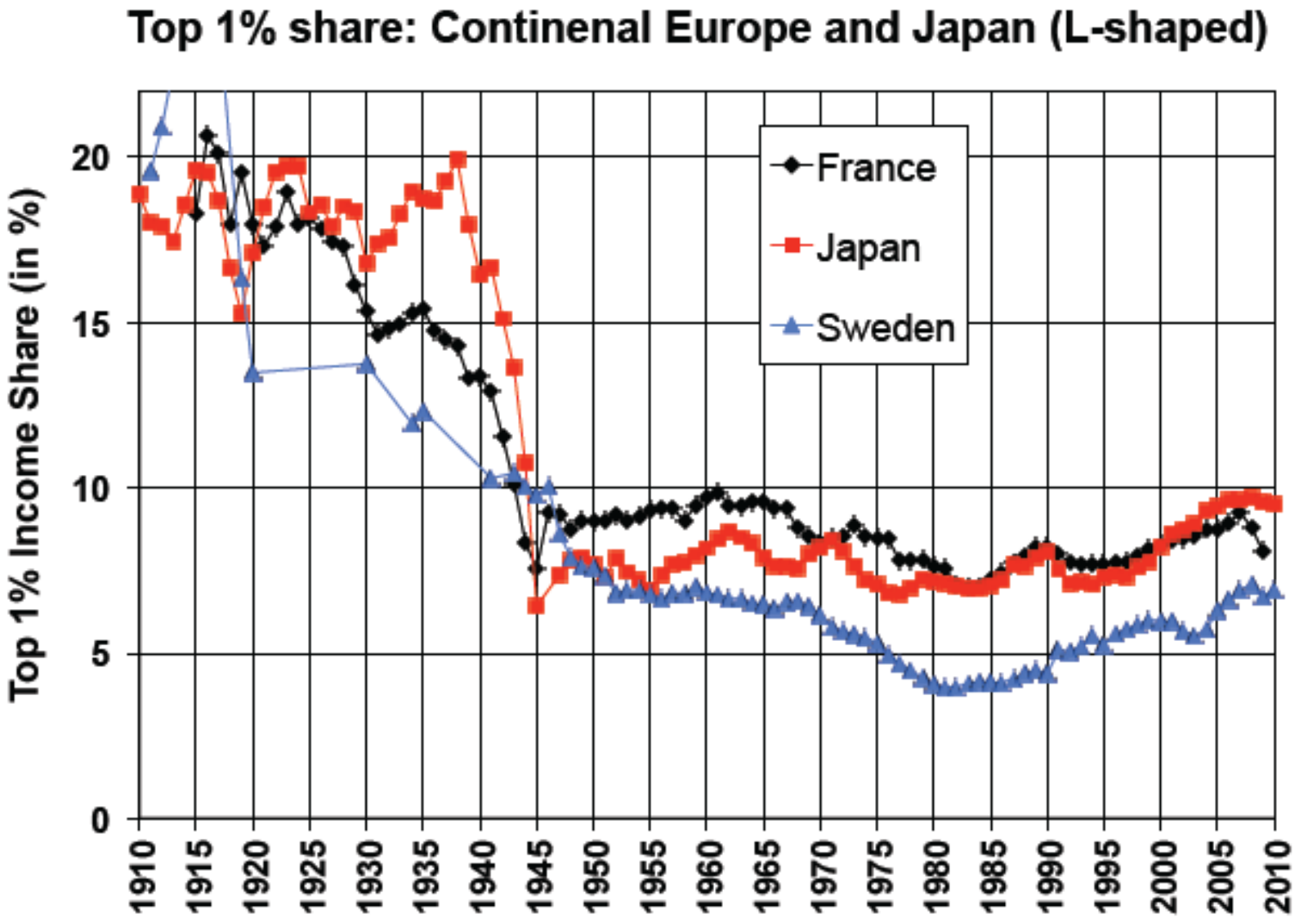
Labor, Capital, and Total Income Distributions (Fact 2)



Capital Income Conditional on Labor Income (Fact 3)




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

Measuring Intergenerational Income Mobility

Strong consensus that children's success should not depend too much on parental income [Equality of Opportunity]

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

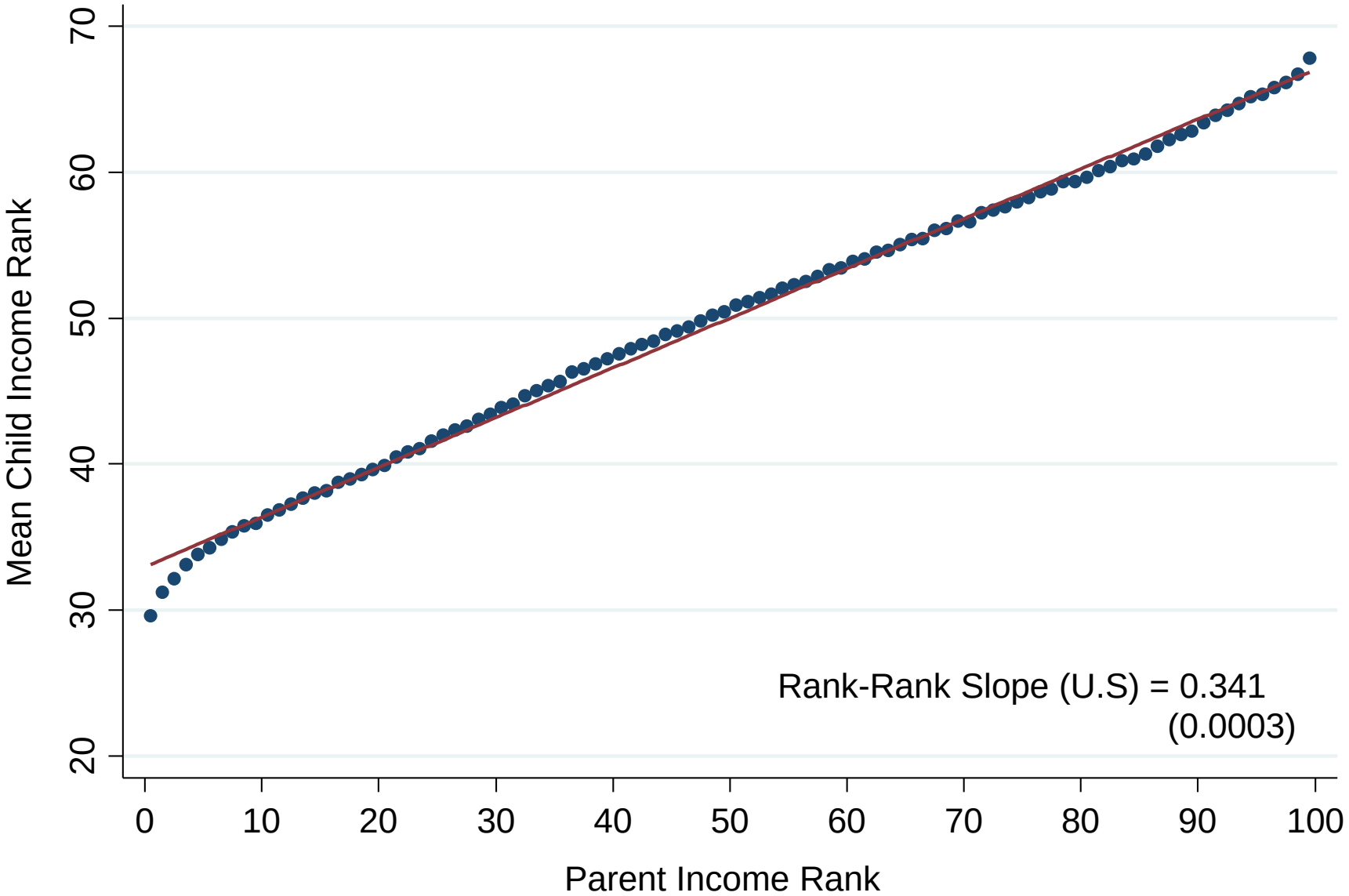
Simple measure: average income rank of children by income rank of parents [Chetty et al. 2014]

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

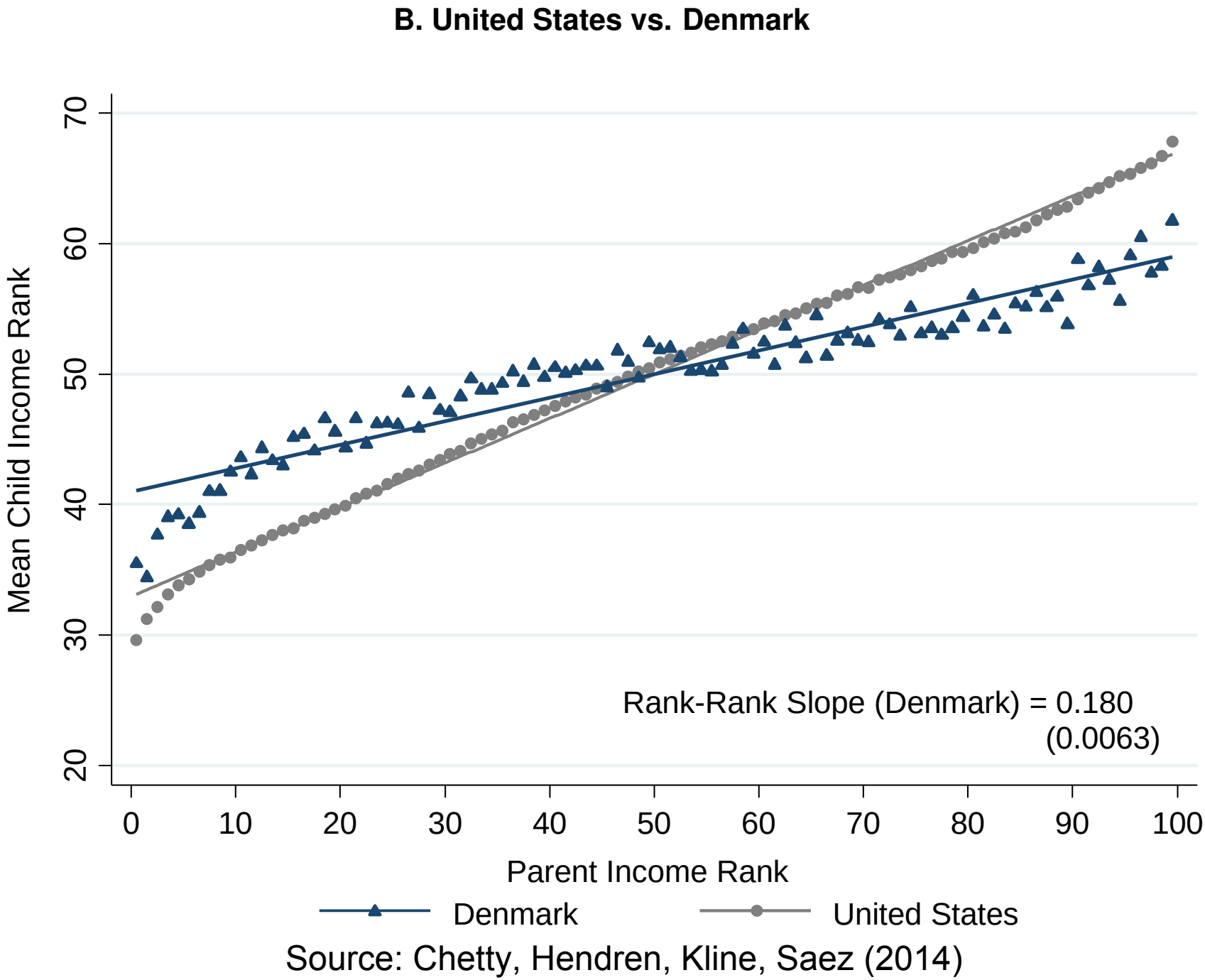
2) Substantial heterogeneity in mobility across cities in the US

3) Places with low race/income segregation, low income inequality, good K-12 schools, high social capital, high family stability tend to have high mobility [these are correlations and do not imply causality]

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



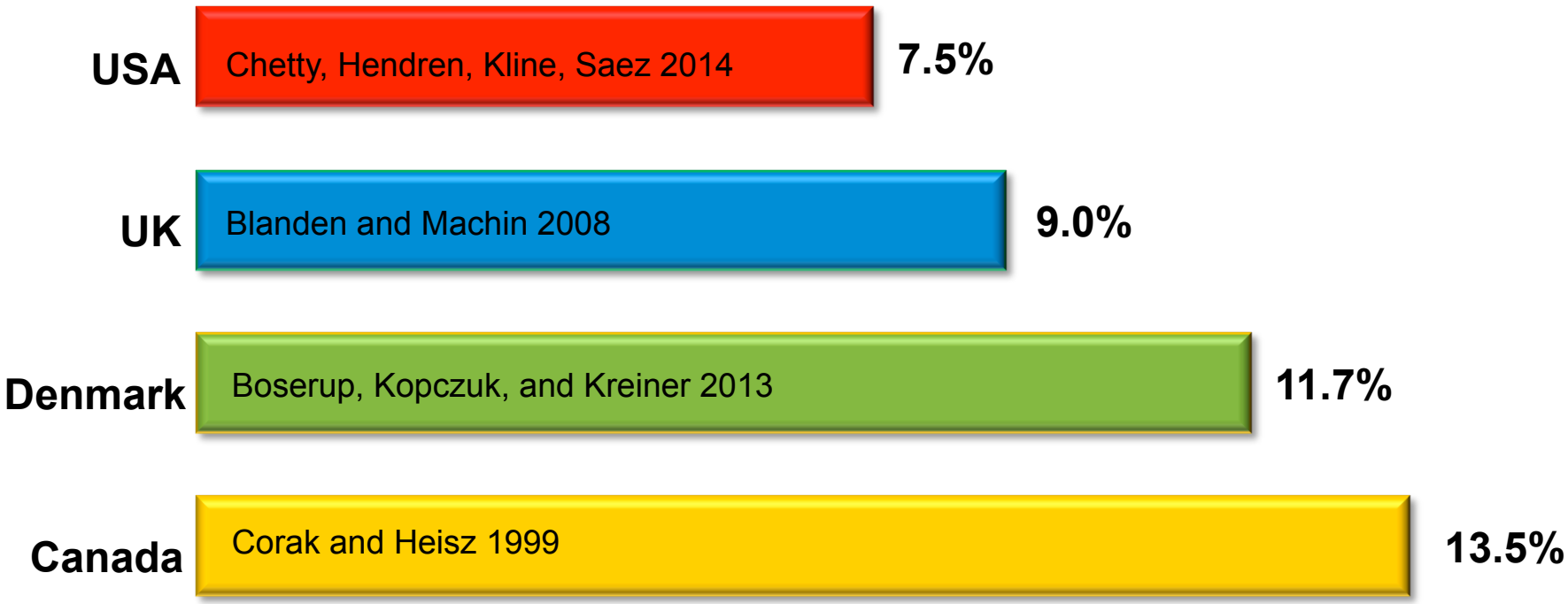
Source: Chetty, Hendren, Kline, Saez (2014)


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)

Source: Chetty et al. (2014)

The American Dream?

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



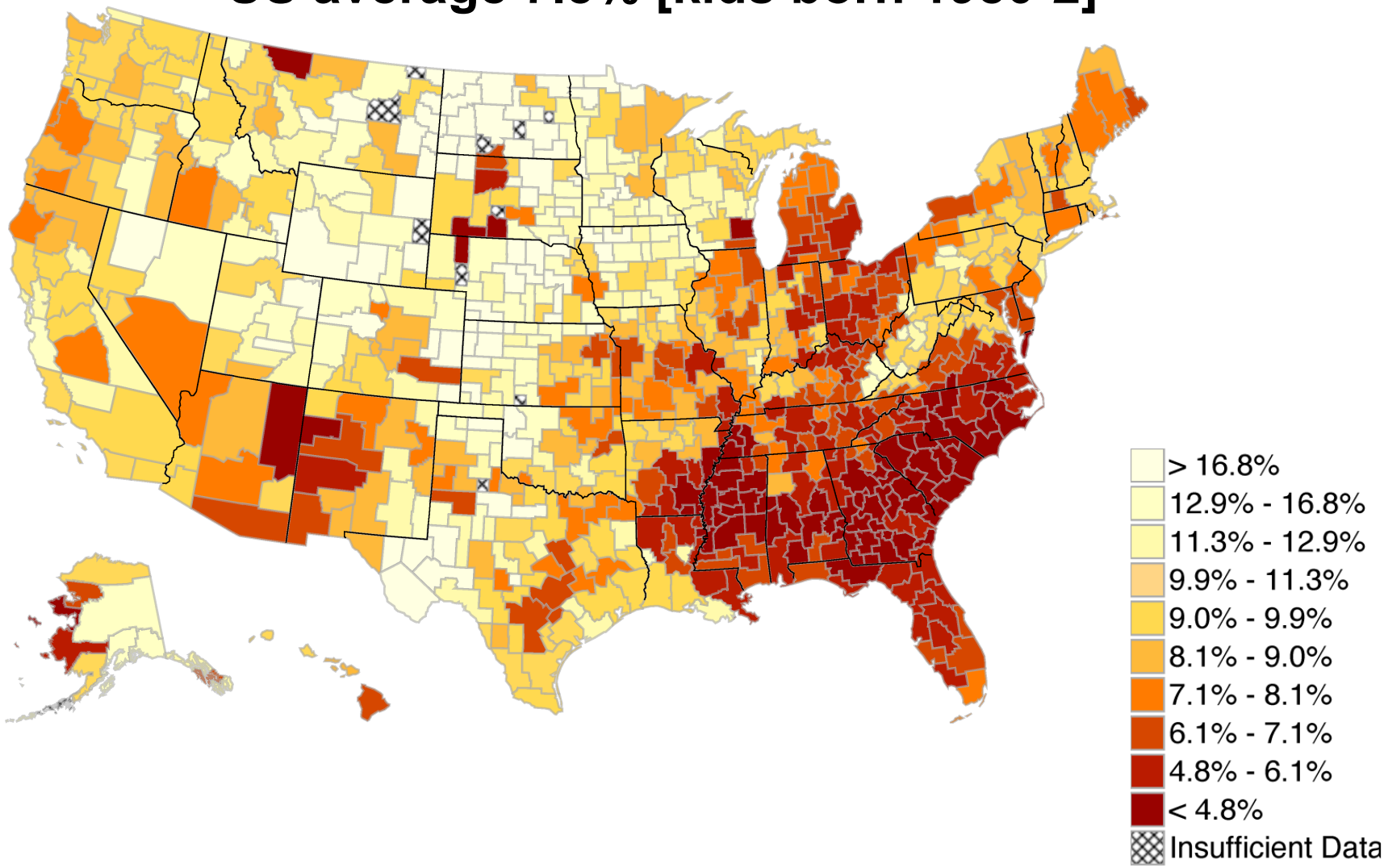
→ Chances of achieving the “American Dream” are almost two times higher in Canada than in the U.S.

Source: Chetty et al. (2014)

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

Source: Chetty et al. (2014)

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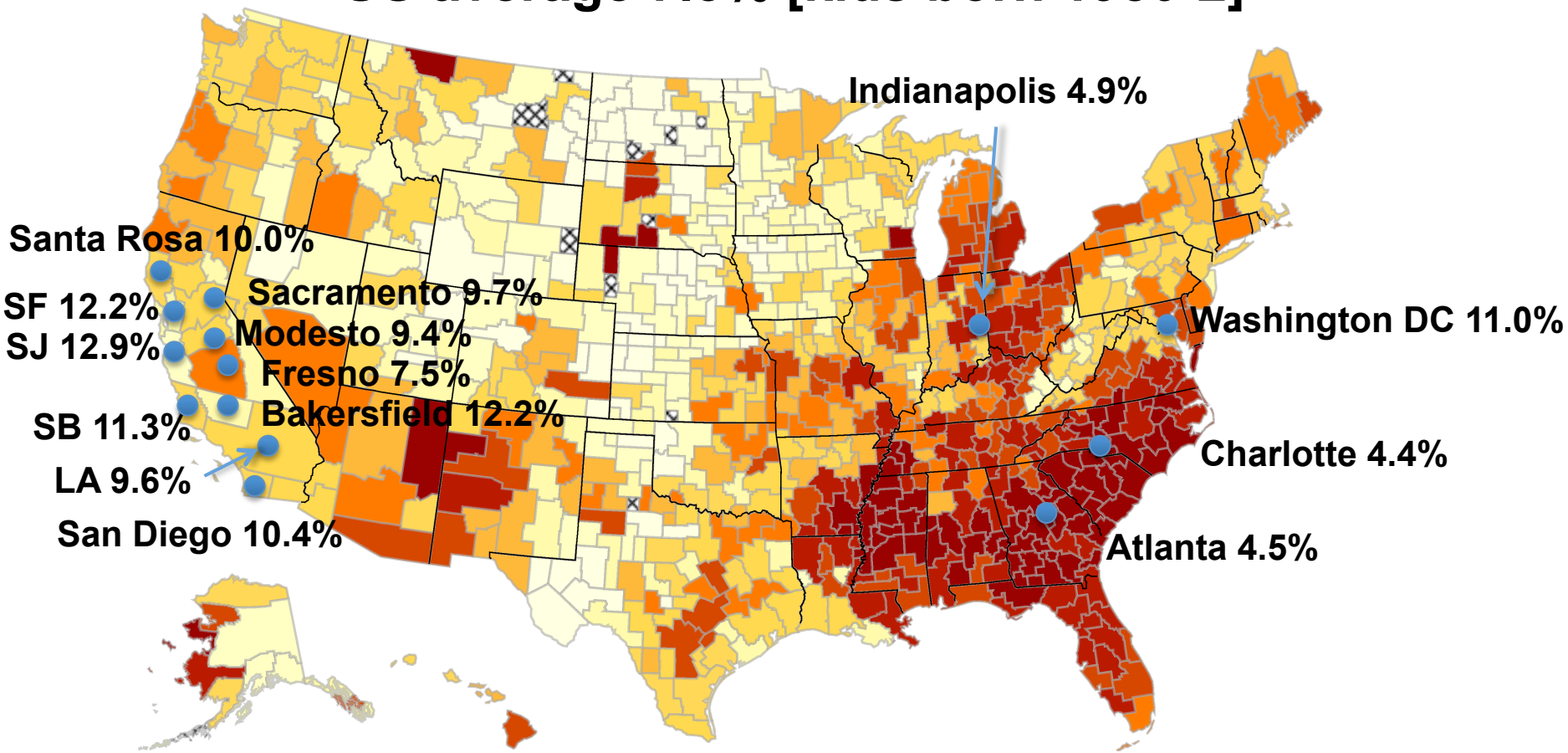

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TABLE 1. Upward Mobility in the 50 Largest Metro Areas: The Top 10 and Bottom 10

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.

Govt Redistribution with Taxes and Transfers

Government 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 (lumpsum) allowance, then tax/transfer system is progressive

c) If $y = z - T$ where T is a uniform tax (poll tax), then tax/transfer system is regressive

Current tax/transfer systems in rich countries look roughly like b)

US Distributional National Accounts

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

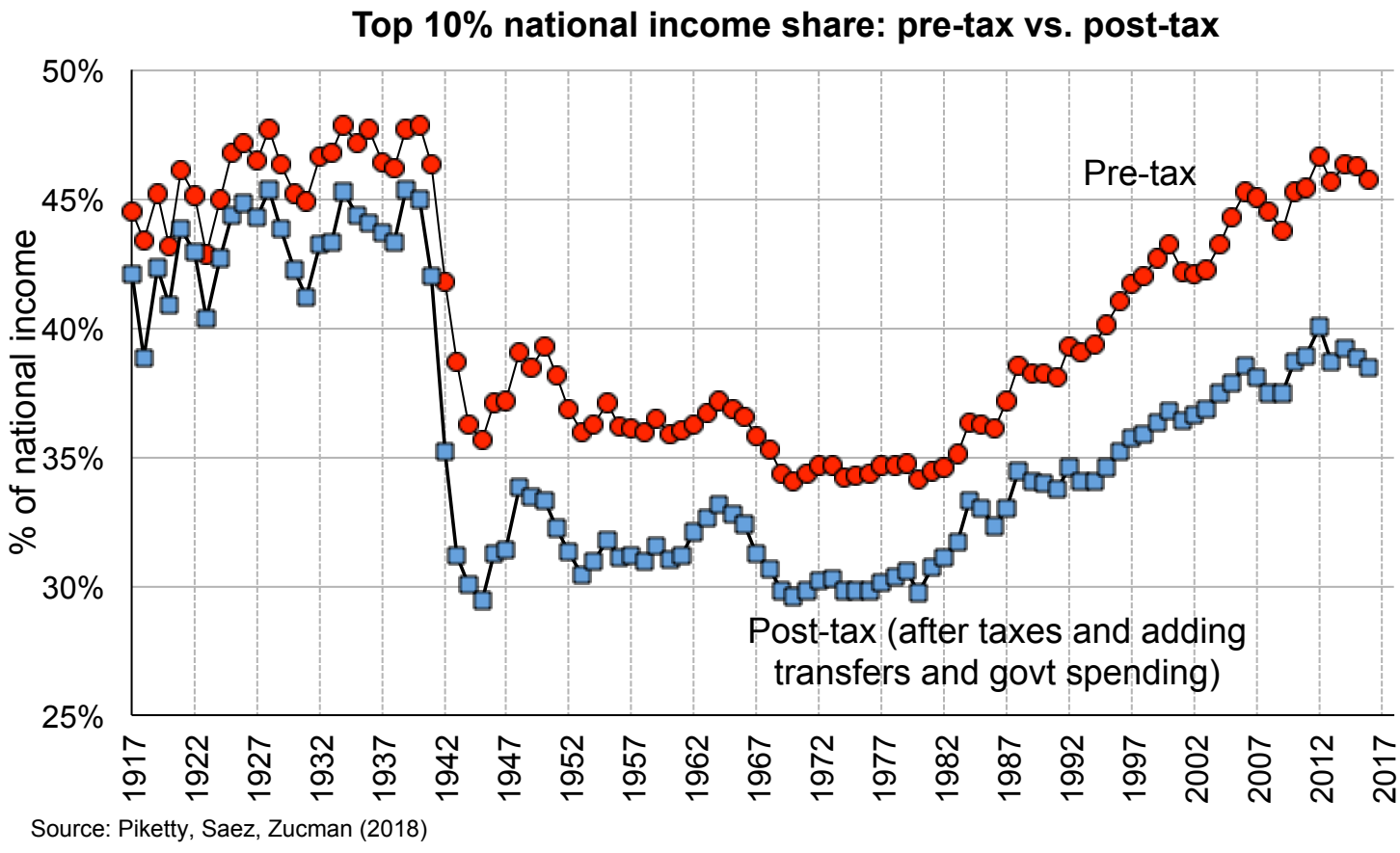
Pre-tax income is income before taxes and transfers

Post-tax income is income net of all taxes and adding all transfers and public good spending

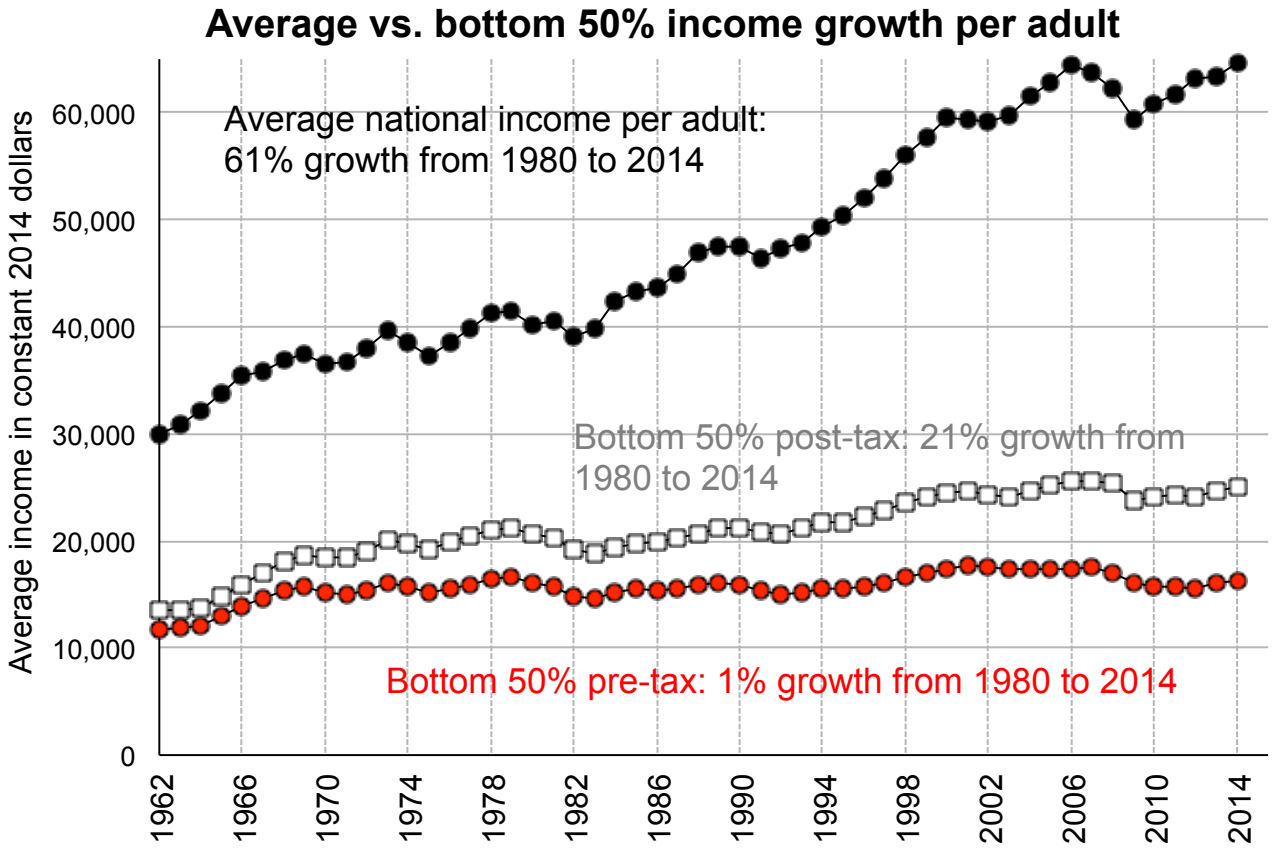
Both concepts add up to national income and provide a comprehensive view of the mechanical impact of government redistribution

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: Piketty, Saez, Zucman (2018)


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

US tax/transfer System: Progressivity and Evolution

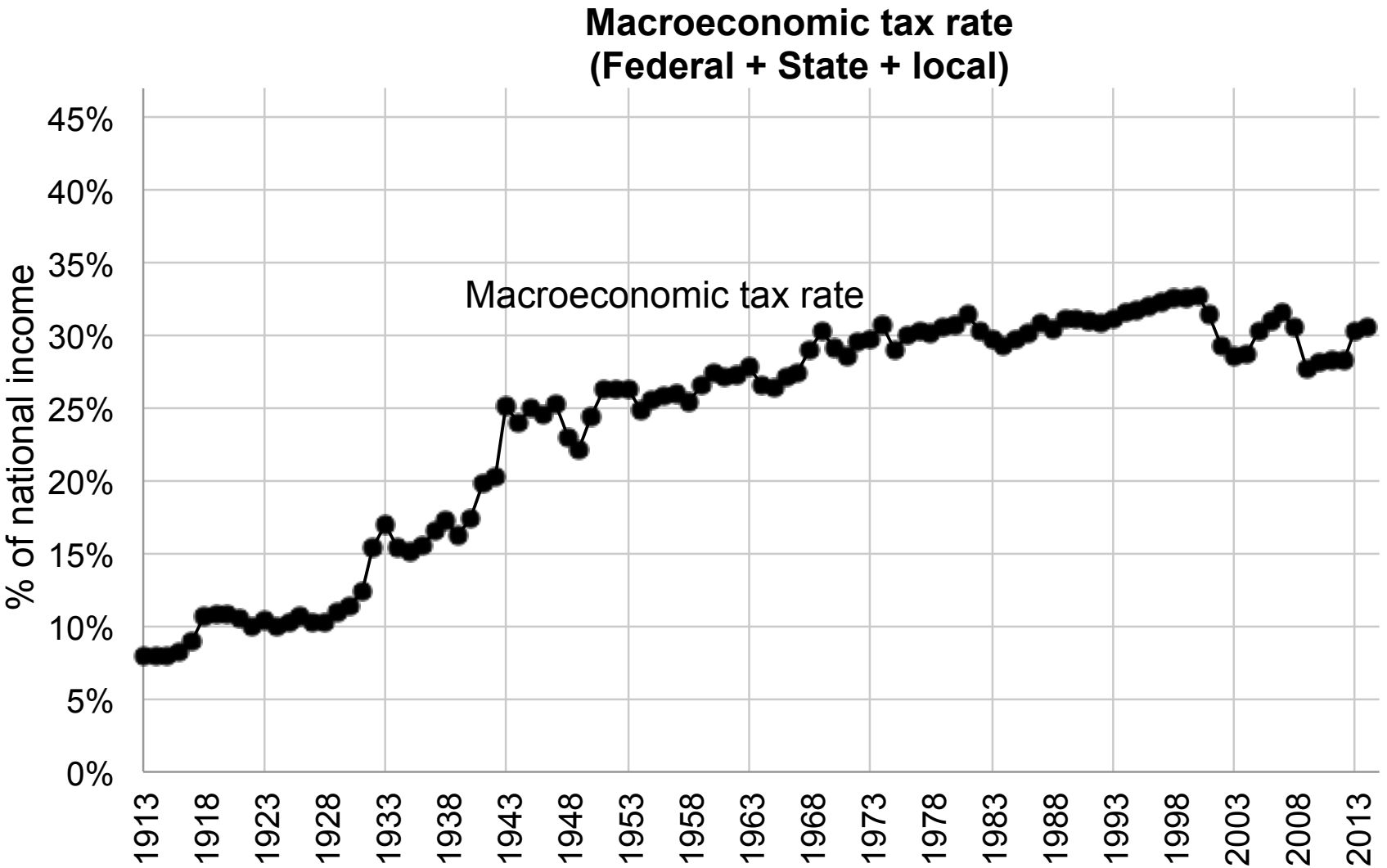
0) US Tax/Transfer system is progressive overall: pre-tax national income is less equally distributed than post-tax/post-transfer national income

1) Medium Term Changes: Federal Tax Progressivity has declined since 1970 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)

http://www.treasury.gov/education/fact-sheets/taxes/ustax.shtml

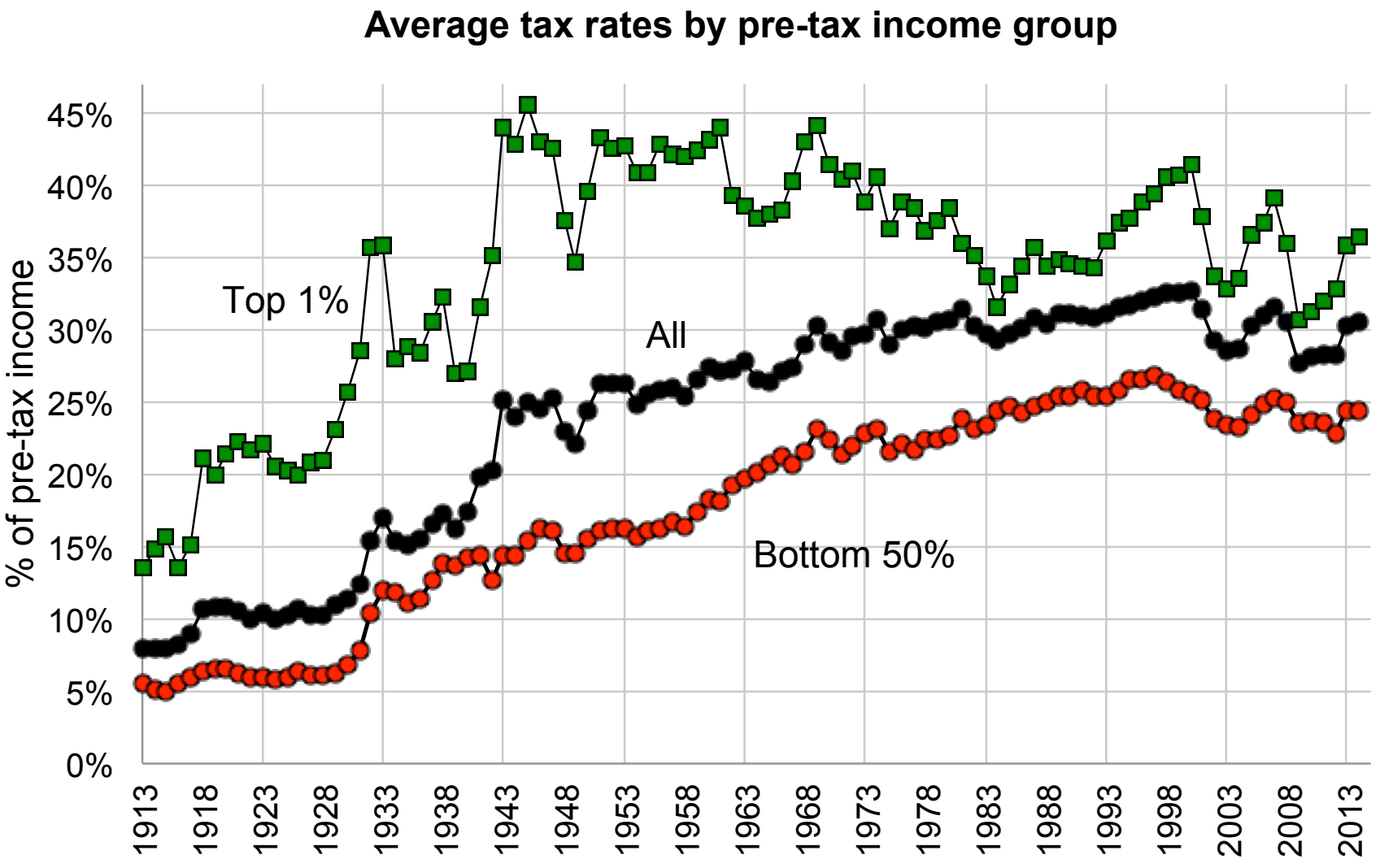
The macro rate of tax rose until the 1960s and has been constant since then



Source: Appendix Table II-G1.

Source: Piketty, Saez, Zucman (2016)

Tax progressivity has declined since the 1960s



Source: Appendix Table II-G1.

Source: Piketty, Saez, Zucman (2016)

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] (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: Overview

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

TAXATION AND REDISTRIBUTION

Key question: Should government reduce inequality using taxes and transfers?

1) Governments use **taxes** to raise revenue

2) This revenue funds **transfer** programs:

a) Universal Transfers: Education, Health Care (only 65+ in the US), Retirement and Disability

b) Means-tested Transfers: In-kind (e.g., public housing, nutrition, Medicaid in the US) and cash

Modern governments raise large fraction of GDP in taxes (30-45%) and spend significant fraction of GDP on transfers

This lecture follows Piketty and Saez '13 **handbook chapter**

GOAL: TAKE A LOOK AT ACTUAL TAX SYSTEM

Sometimes you are an optimal tax theorist and don't know the actual top tax rates – it's weird.

You need to know institutional details. It's not boring. It's crucial.

You should not try to capture all institutional details in your models. But unless you know them, you cannot argue they are second-order.
(Sometimes the devil is in the detail, sometimes not).

The tax system reflects

i) social judgements made by people and policy makers and

ii) lobbying, political economy, interest groups.

Understand the implicit social judgements behind the tax system.

Question them! Which constraints are truly "irremovable"?

FACTS ON US TAXES AND TRANSFERS

References: Comprehensive description in Gruber undergrad textbook (taxes/transfers) and Slemrod-Bakija (taxes)

http://www.taxpolicycenter.org/taxfacts/

A) Taxes: (1) individual income tax (fed+state), (2) payroll taxes on earnings (fed, funds Social Security+Medicare), (3) corporate income tax (fed+state), (4) sales taxes (state)+excise taxes (state+fed), (5) property taxes (state)

B) Means-tested Transfers: (1) refundable tax credits (fed), (2) in-kind transfers (fed+state): Medicaid, public housing, nutrition (SNAP), education (3) cash welfare: TANF for single parents (fed+state), SSI for old/disabled (fed)

FEDERAL US INCOME TAX

US income tax assessed on **annual family** income (not individual) [most other OECD countries have shifted to individual assessment]

Sum all cash income sources from family members (both from labor and capital income sources) = called **Adjusted Gross Income (AGI)**

Main exclusions: fringe benefits (health insurance, pension contributions), imputed rent of homeowners, interest from state+local bonds, unrealized capital gains

FEDERAL US INCOME TAX

Taxable income = AGI - personal exemptions - deduction

personal exemptions = \$4K * # family members (in 2016)

deduction is max of standard deduction or itemized deductions

Standard deduction is a fixed amount depending on family structure (\$12.6K for couple, \$6.3K for single in 2016)

Itemized deductions: (a) state and local taxes paid, (b) mortgage interest payments, (c) charitable giving, various small other items

[about 10% of AGI lost through itemized deductions, called tax expenditures]

FEDERAL US INCOME TAX: TAX BRACKETS

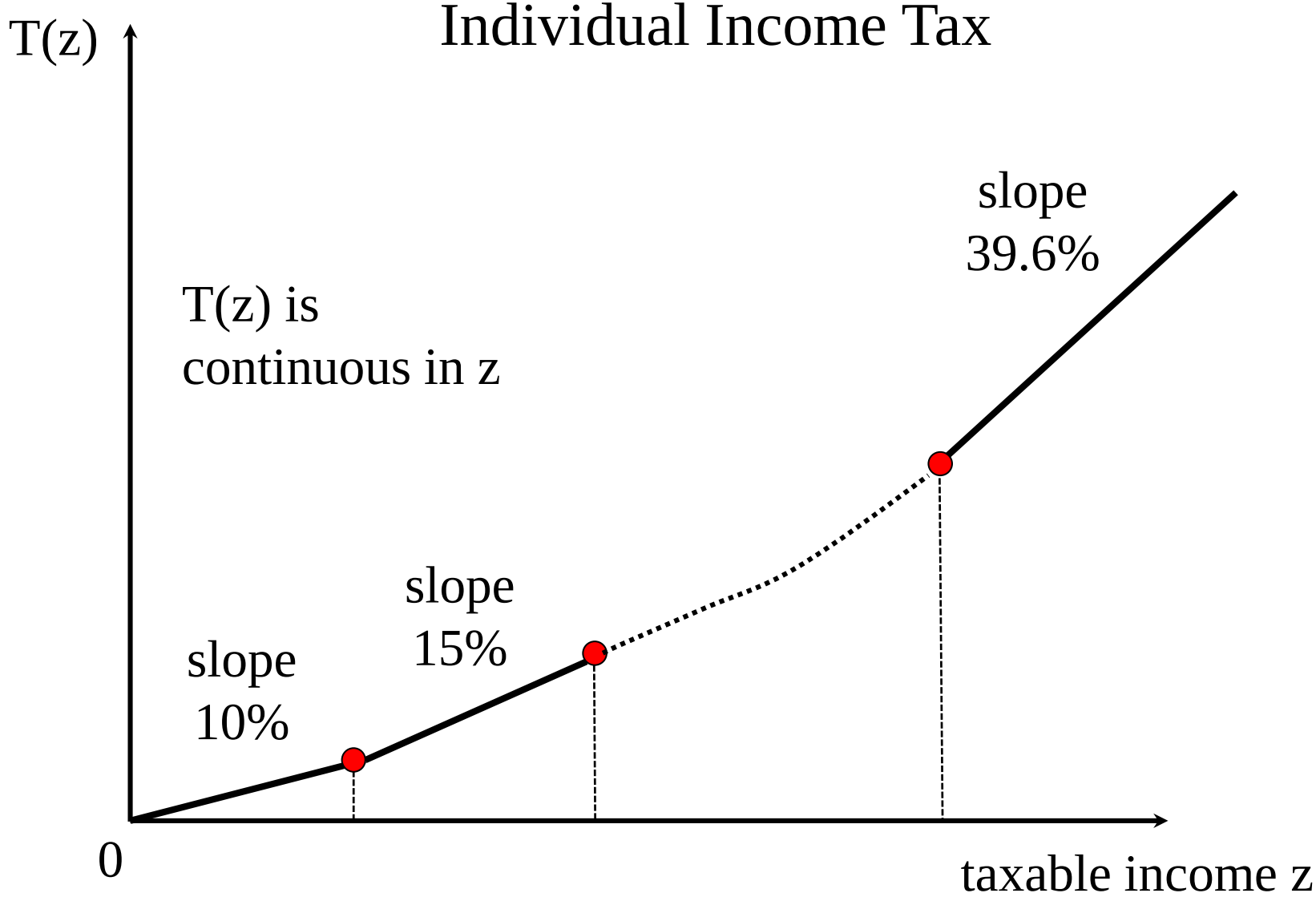
Tax $T(z)$ is piecewise linear and continuous function of taxable income z with constant marginal tax rates (MTR) $T'(z)$ by brackets

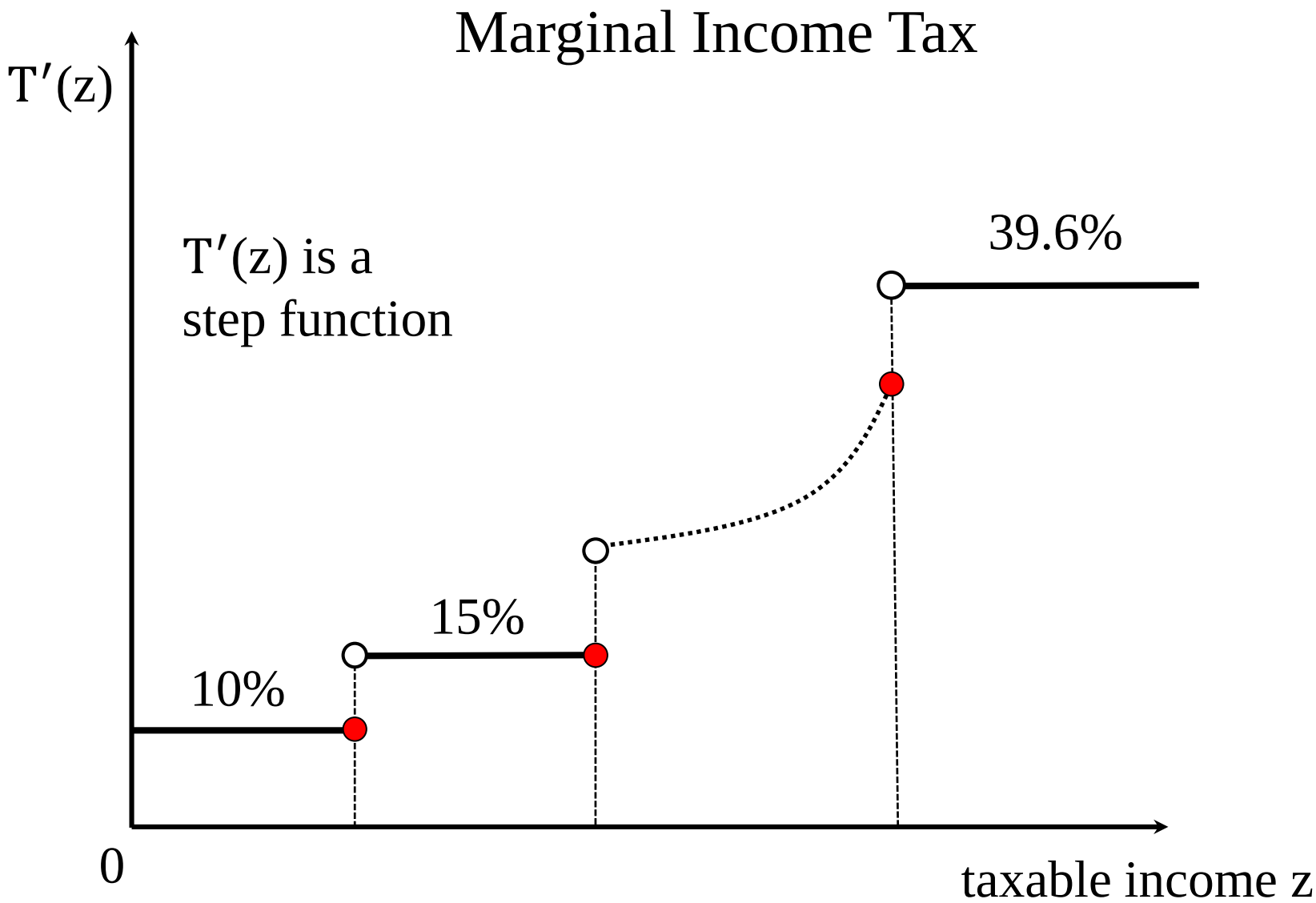
In 2013+, 7 brackets with MTR 10%,15%,25%,28%,33%,35%, 39.6% (top bracket for z above \$470K), indexed on price inflation

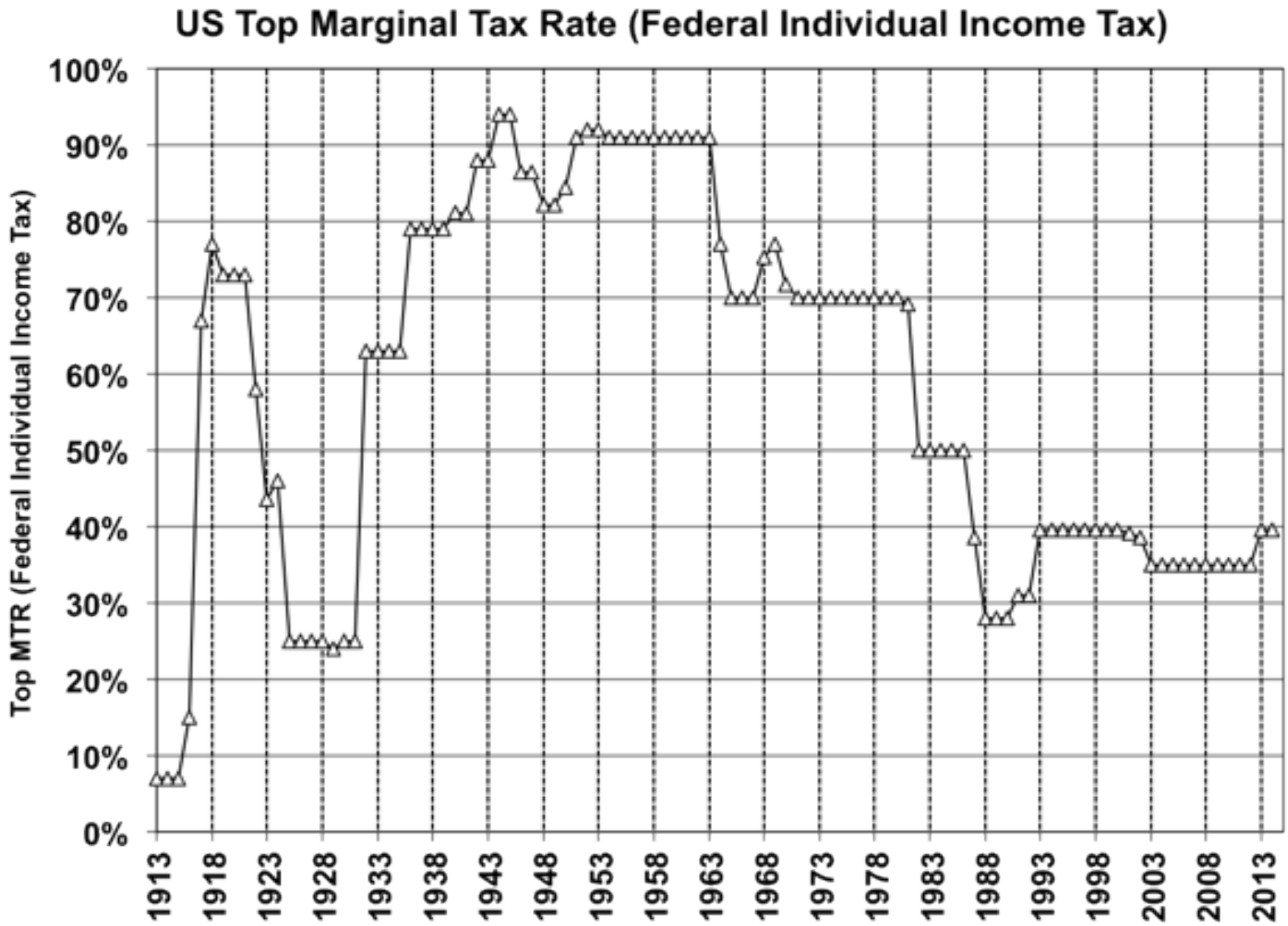
Lower preferential rates (up to a max of 20%) apply to dividends (since 2003) and realized capital gains [in part to offset double taxation of corporate profits]

Tax rates change frequently over time. Top MTRs have declined drastically since 1960s (as in many OECD countries)

Individual Income Tax




Marginal Income Tax
T′(z)
T′(z) is a
step function
39.6%
15%
10%
0
taxable income z



Source: IRS, Statistics of Income Division, Historical Table 23

In practice...

Form **1040** U.S. Individual Income Tax Return **2010** (99) IRS Use Only - Do not write or staple in this space.

OMB No. 1545-0074

For the year Jan. 1-Dec. 31, 2010, or other tax year beginning , 2010, ending , 20

Name, Address, and SSN

PRINT CLEARLY

Your first name and initial: BARACK H. | Last name: OBAMA | Your social security number:

If a joint return, spouse's first name and initial: MICHELLE L. | Last name: OBAMA | Spouse's social security number:

Home address (number and street). If you have a P.O. box, see instructions. | Apt. no.: 1600 PENNSYLVANIA AVENUE, NW | Make sure the SSN(s) above and on line 6c are correct.

City, town or post office, state, and ZIP code: WASHINGTON, DC 20500 | Checking a box below will not change your tax or refund.

See separate instructions.

Presidential Election Campaign ▶ Check here if you, or your spouse if filing jointly, want $3 to go to this fund ▶ [X] You [X] Spouse

Filing Status Check only one box.

1 [ ] Single
2 [X] Married filing jointly (even if only one had income)
3 [ ] Married filing separately. Enter spouse's SSN above and full name here. ▶
4 [ ] Head of household (with qualifying person). If the qualifying person is a child but not your dependent, enter this child's name here. ▶
5 [ ] Qualifying widow(er) with dependent child

Exemptions

6a [X] Yourself. If someone can claim you as a dependent, do not check box 6a
b [X] Spouse

Boxes checked on 6a and 6b: 2

c Dependents:

(1) First name Last name	(2) Dependent's social security number	(3) Dependent's relationship to you	(4) ✓ if child under age 17 qualifying for child tax credit
MALIA A OBAMA		DAUGHTER	X
NATASHA M OBAMA		DAUGHTER	X

No. of children on 6c who:
- lived with you: 2
- did not live with you due to divorce or separation (see instructions):

Dependents on 6c not entered above:

If more than four dependents, see instructions and check here ▶ [ ]

d Total number of exemptions claimed: Add numbers on lines above ▶ 4

Income

Attach Form(s) W-2 here. Also attach Forms W-2G and 1099-R if tax was withheld.

If you did not get a W-2,

7	Wages, salaries, tips, etc. Attach Form(s) W-2	7	395,188.
8a	Taxable interest. Attach Schedule B if required	8a	8,066.
b	Tax-exempt interest. Do not include on line 8a (8b)		
9a	Ordinary dividends. Attach Schedule B if required	9a	9,997.
b	Qualified dividends (9b) 2,159.		
10	Taxable refunds, credits, or offsets of state and local income taxes STMT 2 STMT 3	10	1,151.
11	Alimony received	11	
12	Business income or (loss). Attach Schedule C or C-EZ	12	1,382,889.
13	Capital gain or (loss). Attach Schedule D if required. If not required, check here ▶ [ ]	13	-3,000.

Single:

Taxable Income	Tax Rate
$0 to $9,225	10%
$9,226 to $37,450	$922.50 plus 15% of the amount over $9,225
$37,451 to $90,750	$5,156.25 plus 25% of the amount over $37,450
$90,751 to $189,300	$18,481.25 plus 28% of the amount over $90,750
$189,301 to $411,500	$46,075.25 plus 33% of the amount over $189,300
$411,501 to $413,200	$119,401.25 plus 35% of the amount over $411,500
$413,201 or more	$119,996.25 plus 39.6% of the amount over $413,200

Married Filing Jointly or Qualifying Widow(er):

Taxable Income	Tax Rate
$0 to $18,450	10%
$18,451 to $74,900	$1,845.00 plus 15% of the amount over $18,450
$74,901 to $151,200	$10,312.50 plus 25% of the amount over $74,900
$151,201 to $230,450	$29,387.50 plus 28% of the amount over $151,200
$230,451 to $411,500	$51,577.50 plus 33% of the amount over $230,450
$411,501 to $464,850	$111,324.00 plus 35% of the amount over $411,500
$464,851 or more	$129,996.50 plus 39.6% of the amount over $464,850

Married Filing Separately:

Taxable Income	Tax Rate
$0 to $9,225	10%
$9,226 to $37,450	$922.50 plus 15% of the amount over $9,225
$37,451 to $75,600	$5,156.25 plus 25% of the amount over $37,450
$75,601 to $115,225	$14,693.75 plus 28% of the amount over $75,600
$115,226 to $205,750	$25,788.75 plus 33% of the amount over $115,225
$205,751 to $232,425	$55,662.00 plus 35% of the amount over $205,750
$232,426 or more	$64,998.25 plus 39.6% of the amount over $232,425

FEDERAL US INCOME TAX: AMT AND CREDITS

Alternative minimum tax (AMT) is a parallel tax system (quasi flat tax at 28%) with fewer deductions: actual tax $=\max(T(z), AMT)$ (hits 2-3% of tax filers in upper middle class)

Tax credits: Additional reduction in taxes

(1) **Non refundable** (cannot reduce taxes below zero): foreign tax credit, child care expenses, education credits, energy credits

(2) **Refundable** (can reduce taxes below zero, i.e., be net transfers): EITC (earned income tax credit, up to \$3.4K, \$5.6K, \$6.3K for working families with 1, 2, 3+ kids), Child Tax Credit (\$1K per kid, partly refundable)

FEDERAL US INCOME TAX: TAX FILING

Taxes on year t earnings are withheld on paychecks during year t (pay-as-you-earn) (Why?)

Income tax return filed in Feb-April 15, year $t+1$ [filers use either software or tax preparers, **huge** private industry]

Most tax filers get a tax refund as withholdings $>$ net taxes owed

Payers (employers, banks, etc.) send income information to govt (3rd party reporting)

Information + withholding at source is key for successful enforcement

MAIN MEANS-TESTED TRANSFER PROGRAMS

1) **Traditional transfers:** managed by welfare agencies, paid on monthly basis, high stigma and take-up costs $\Rightarrow$ low take-up rates

Main programs: Medicaid (health insurance for low incomes), Supplemental Nutritional Assistance Program (SNAP, former food stamps), public housing, Temporary Assistance to Needy Families (TANF, traditional welfare), Supplemental Security Income (aged+disabled)

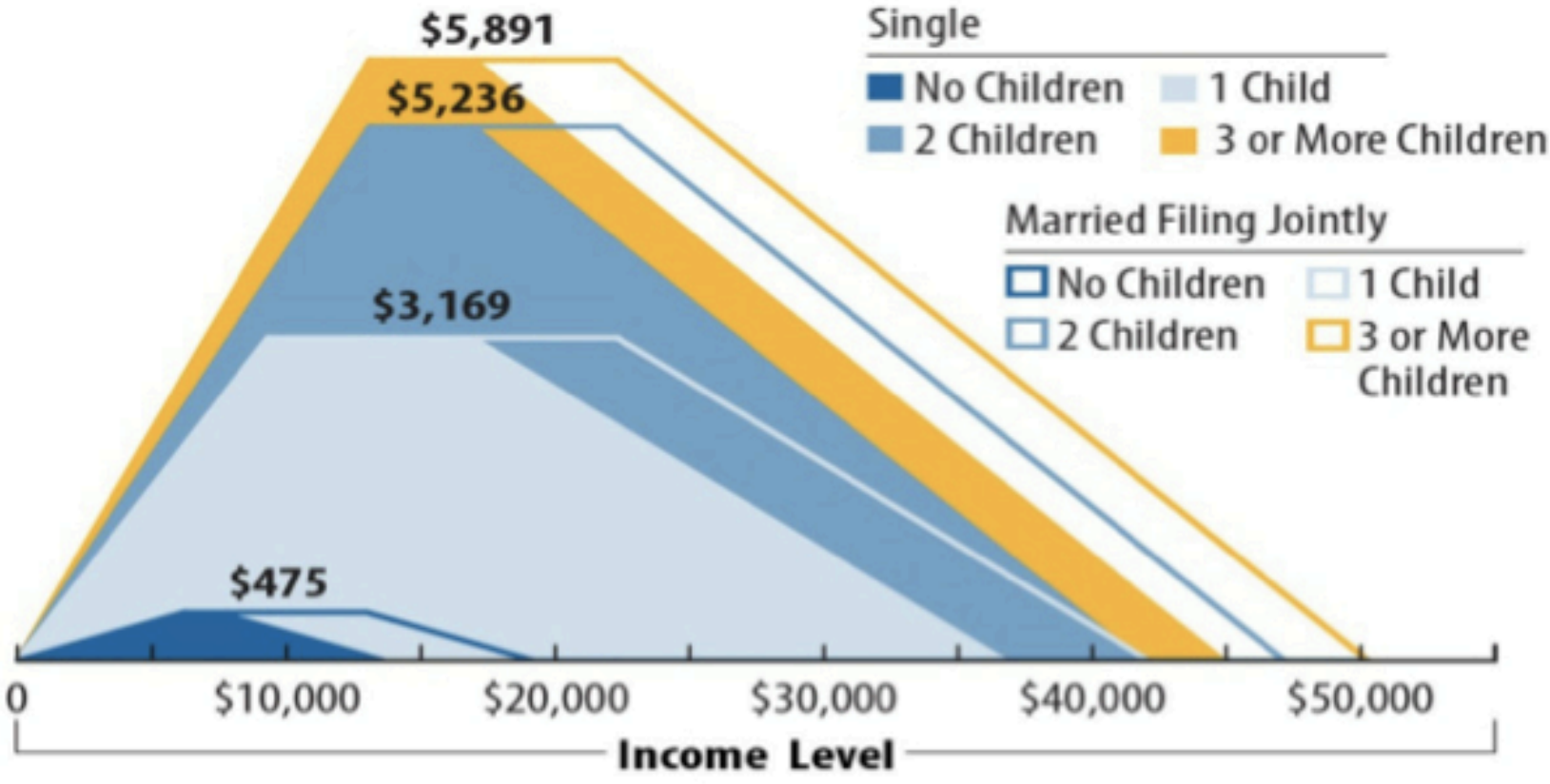
2) **Refundable income tax credits:** managed by tax administration, paid as an annual lumpsum in year $t+1$, low stigma and take-up cost $\Rightarrow$ high take-up rates

Main programs: EITC and Child Tax Credit [large expansion since the 1990s] for low income working families with children

$\rightarrow$ move has been from "support the very poor" to "support working low-income."

Figure 1

EITC refunds by family size and income (CBPP 2013)



Source: Center on Budget and Policy Priorities.

BOTTOM LINE ON ACTUAL TAXES/TRANSFERS

1) Based on current income, family situation, and disability (retirement) status $\Rightarrow$ Strong link with **current ability to pay**

2) Some allowances made to reward / encourage certain behaviors: charitable giving, home ownership, savings, energy conservation, and more recently work (refundable tax credits such as EITC)

Do you think this is the role of the tax system?

3) Provisions pile up overtime making tax/transfer system more and more complex until significant simplifying reform happens (such as US Tax Reform Act of 1986)

Sometimes such simplifications don't happen $\rightarrow$ e.g.: Europe (France). Motto: any vested interest you create will be impossible to remove.

KEY CONCEPTS FOR TAXES/TRANSFERS

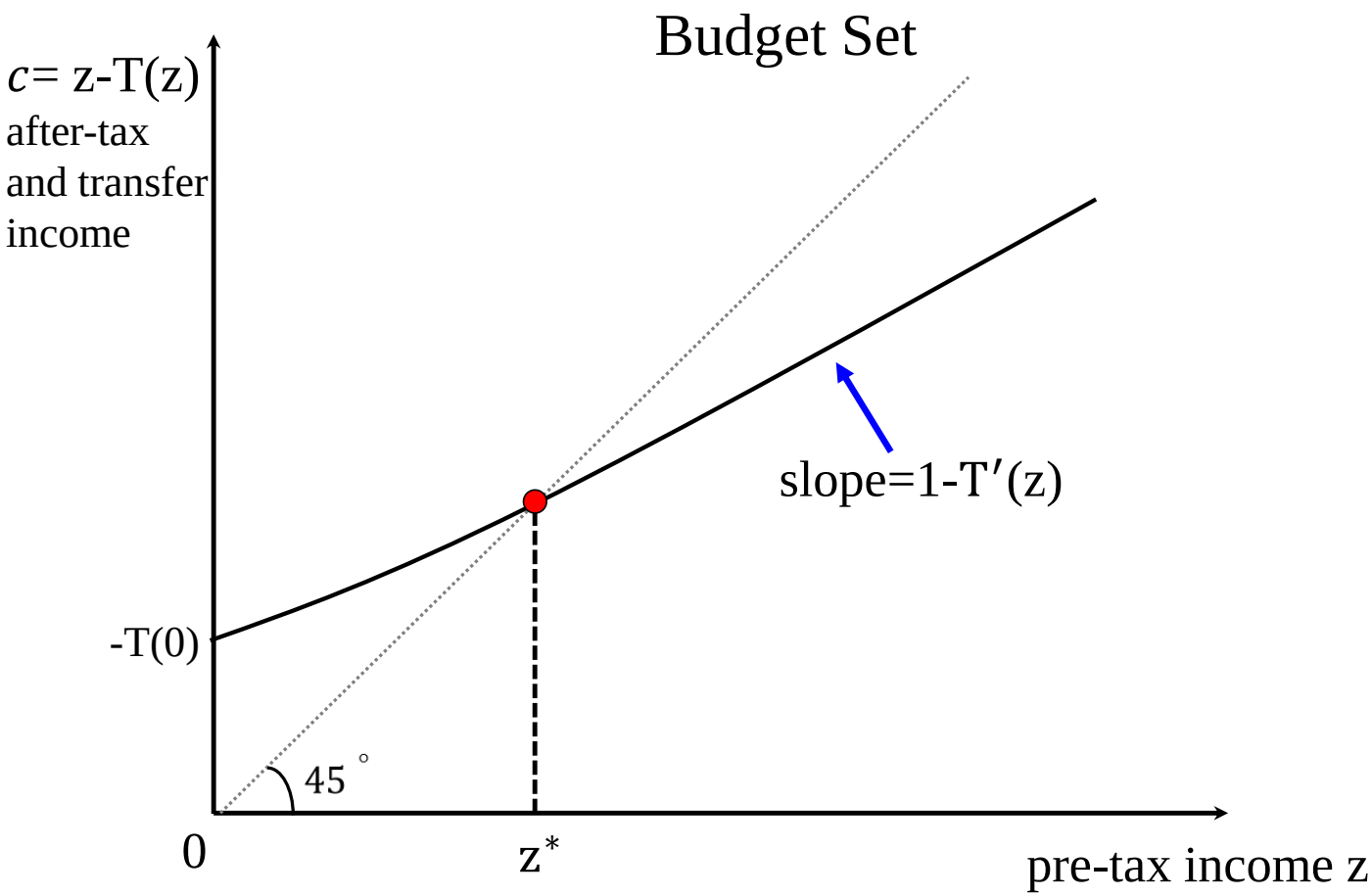
1) Transfer benefit with zero earnings $-T(0)$ [sometimes called demogrant or lumpsum grant]

2) Marginal tax rate (or phasing-out rate) $T'(z)$: individual keeps $1 - T'(z)$ for an additional \$1 of earnings (intensive labor supply response)

3) Participation tax rate $\tau_p = [T(z) - T(0)]/z$: individual keeps fraction $1 - \tau_p$ of earnings when moving from zero earnings to earnings z (extensive labor supply response):

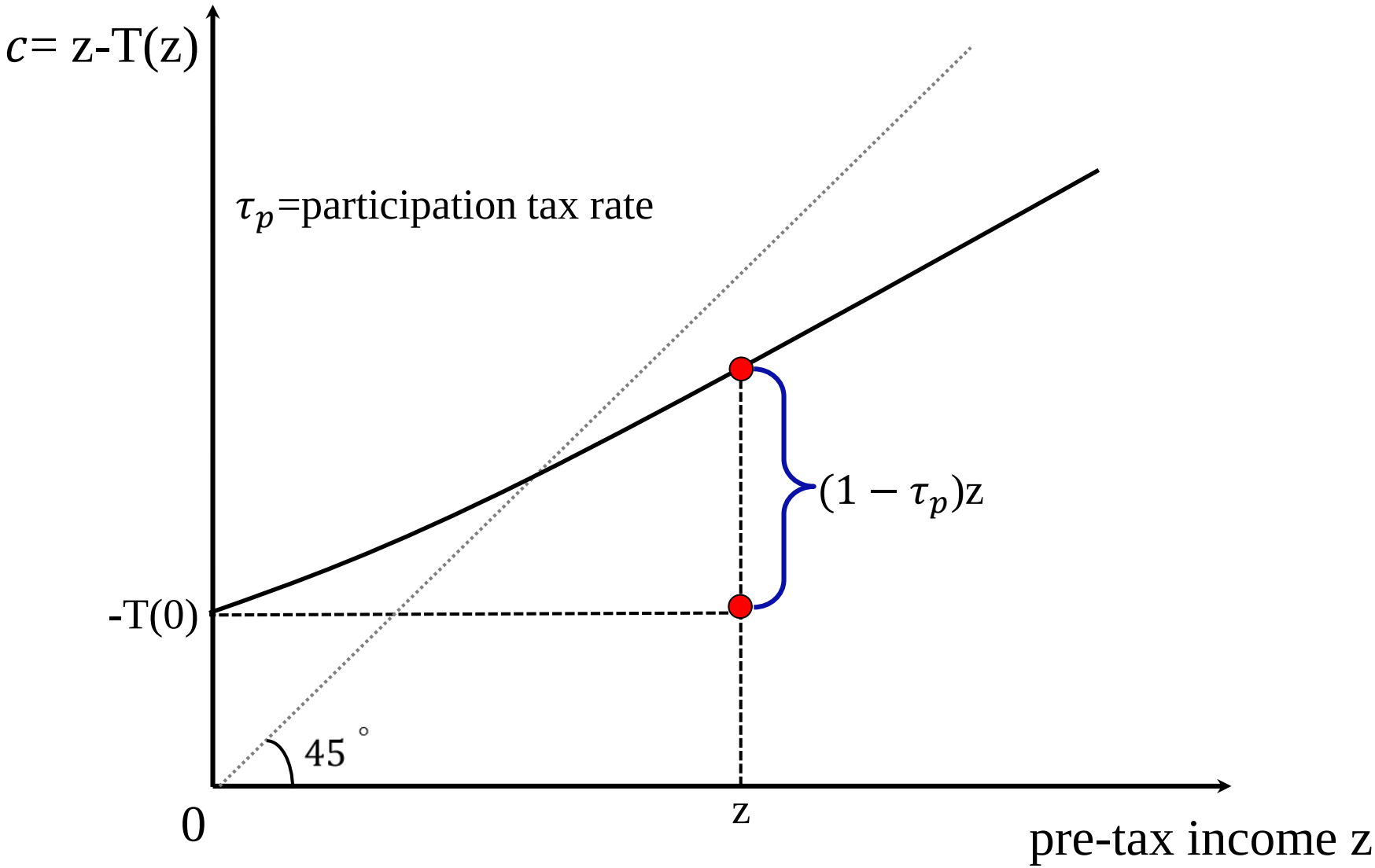
$$z - T(z) = -T(0) + z - [T(z) - T(0)] = -T(0) + z \cdot (1 - \tau_p)$$

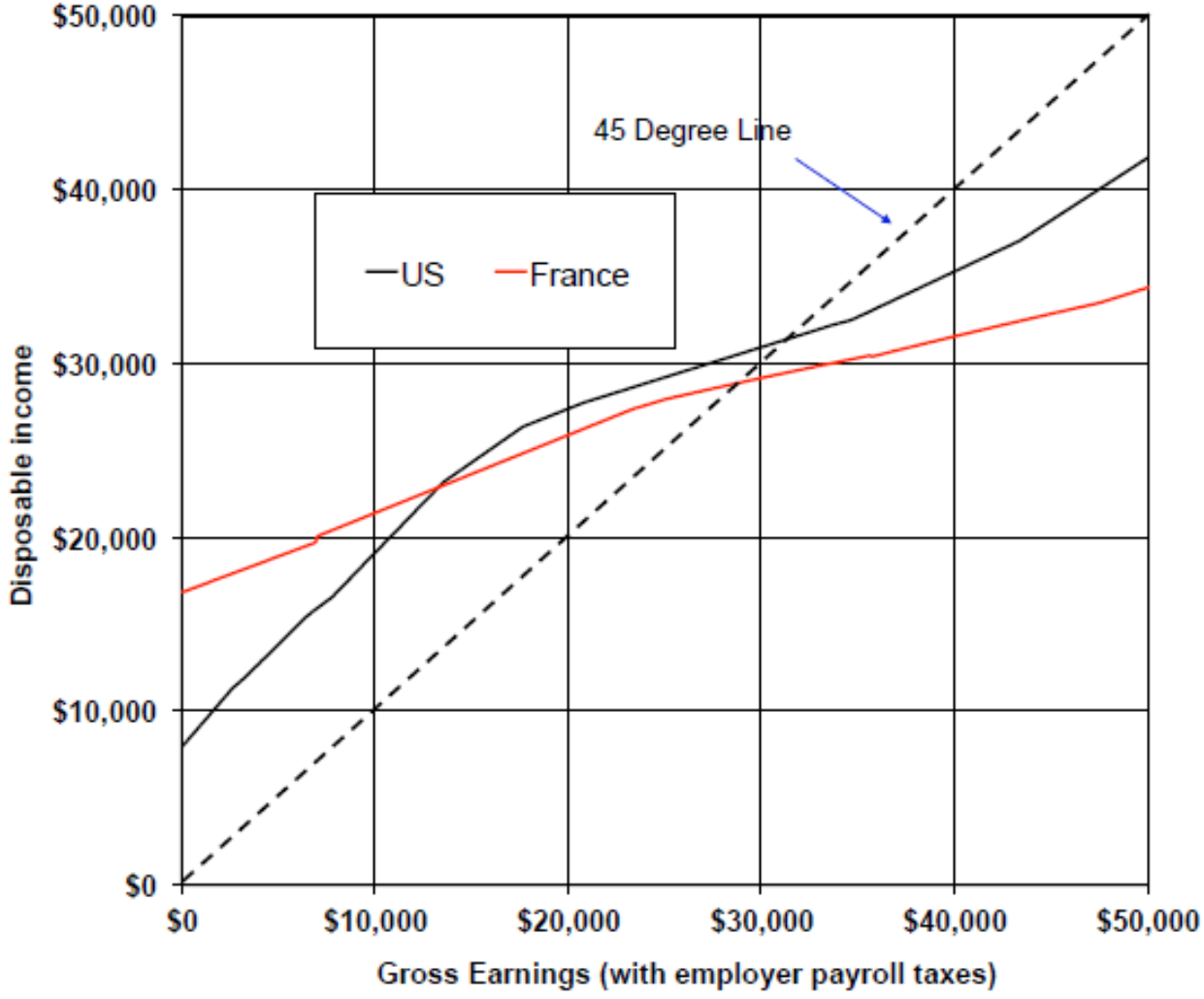
4) Break-even earnings point z^*: point at which $T(z^*) = 0$



If line is steeper is that more or less redistribution?

What is perfect redistribution? What is no redistribution?


c= z-T(z)
τ_p=participation tax rate
$(1-\tau_p)$z
-T(0)
45 °
0
z
pre-tax income z



Source: Piketty, Thomas, and Emmanuel Saez (2012)

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