

Taxes on Capital and Savings

131: Public Economics

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MOTIVATION

1) Capital income is about 25-30% of national income (labor income is 70-75%) but distribution of capital income is much more unequal than labor income

Capital income derives from wealth accumulated from savings but also inheritances received

⇒ Equity suggests it should be taxed more than labor

2) Capital Accumulation correlates strongly with growth [although causality link is not obvious] and capital accumulation might be sensitive to the net-of-tax return.

⇒ Efficiency cost of capital taxation might be high

MOTIVATION

3) Capital more mobile internationally than labor

Key distinction is **residence** vs. **source** base capital taxation:

Residence: Tax based on residence of owner of capital.

Most individual income tax systems are residence based (with credits for taxes paid abroad)

Source: Tax based on location of capital

Real estate property tax and corporate income tax are source based

4) Capital taxation is extremely complex and provides many tax avoidance opportunities particularly for multinational firms

FACTS ABOUT WEALTH

Definition: Capital Income = Income generated by wealth

Wealth arises from expected future income and value of assets

Private wealth includes real estate (land+buildings), corporate and business equity, fixed claimed assets (bonds+deposits), net of debts (mortgage, student loans, consumer credit)

Aggregate US **Private** Wealth $\simeq 6 \times$ Annual National Income
(big increase in recent years)

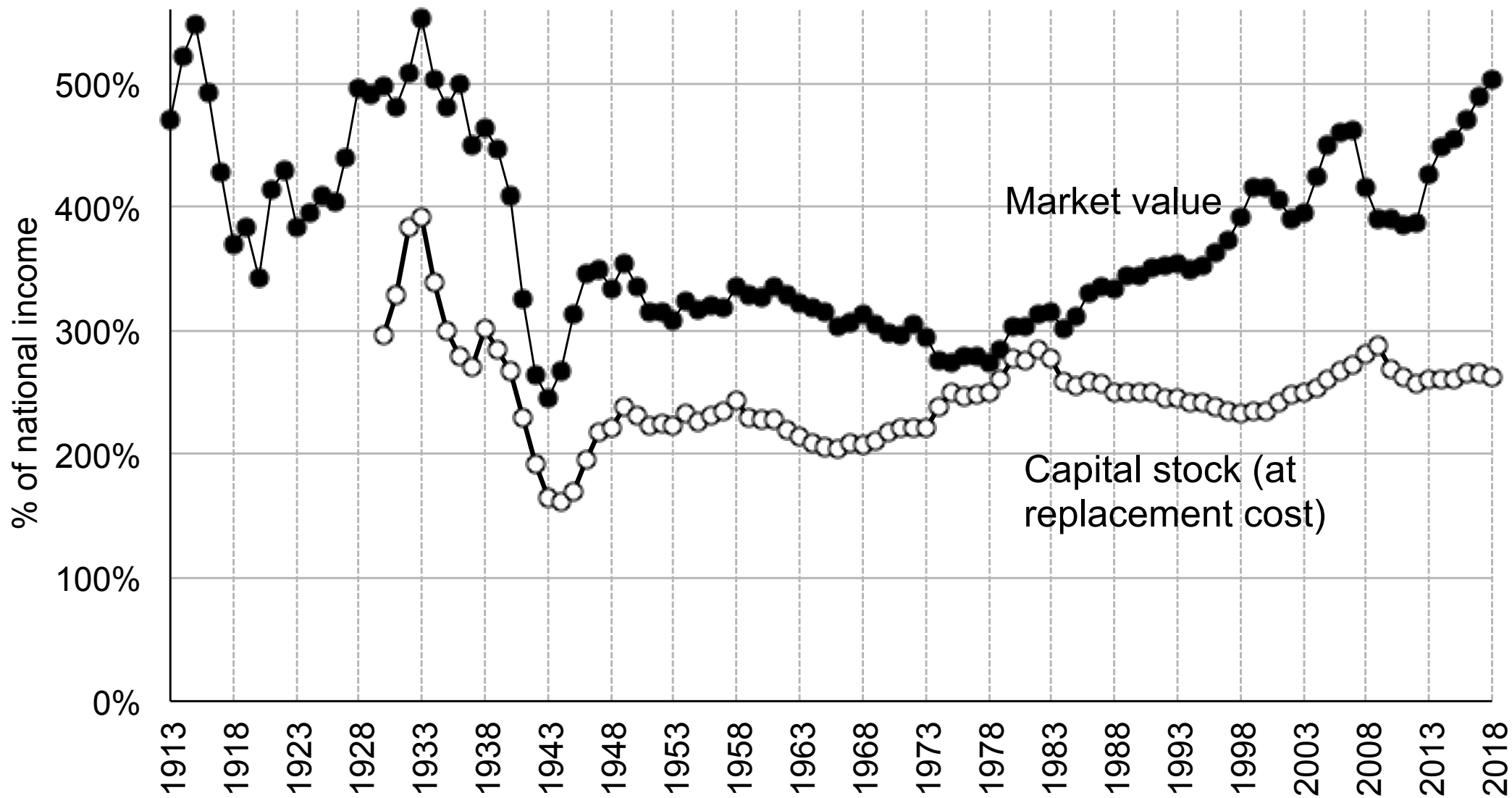
Total wealth reflects both capital stock accumulated through savings and pure price effects

Example 1: house can increase in value because it is improved (capital) or because local prices go up (pure price effect)

Example 2: greater monopoly power makes a business more valuable to owners (but at the expense of consumers)

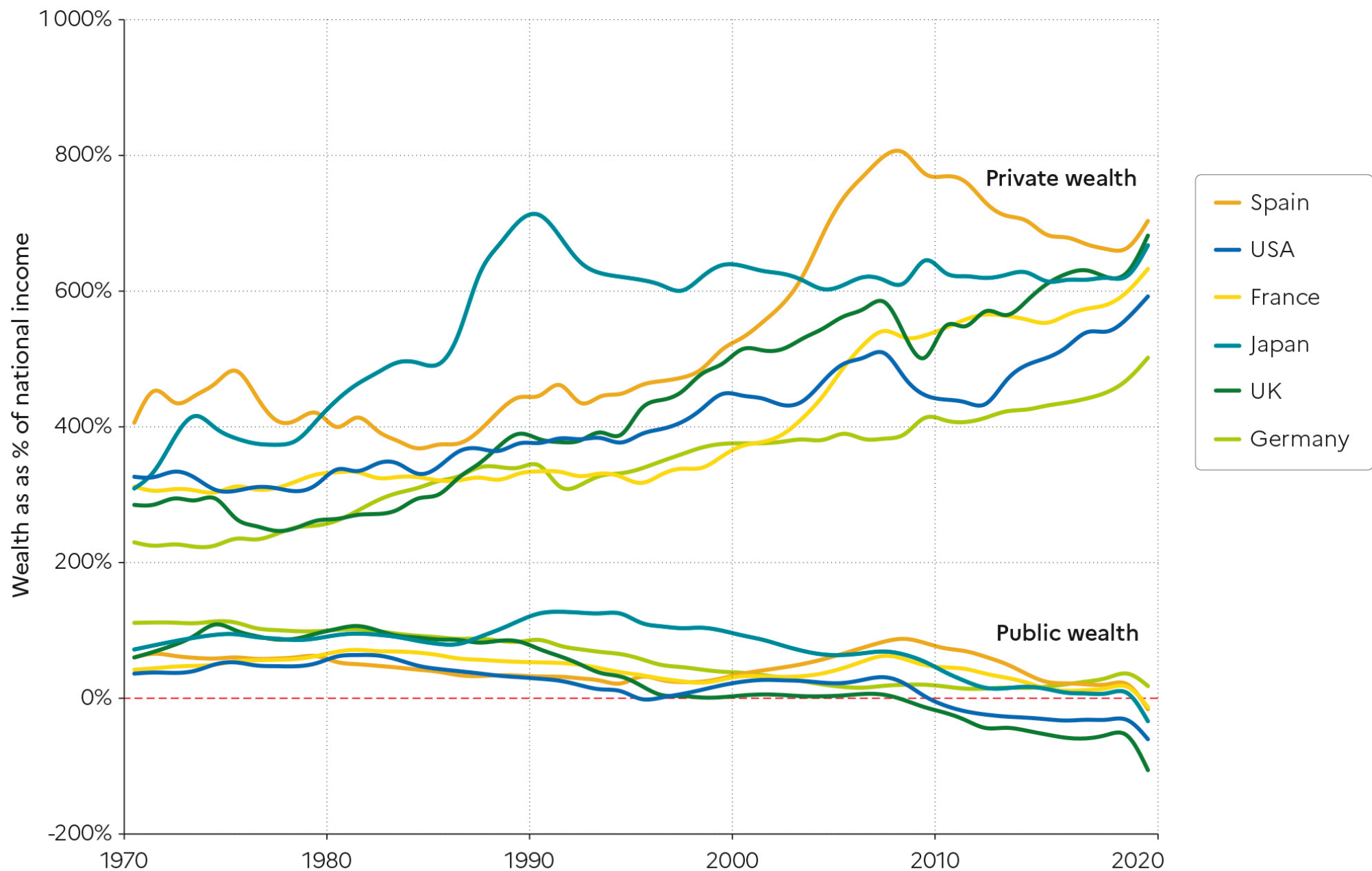
Recent increase in US private wealth mostly due to price effects

Total household wealth (to national income)



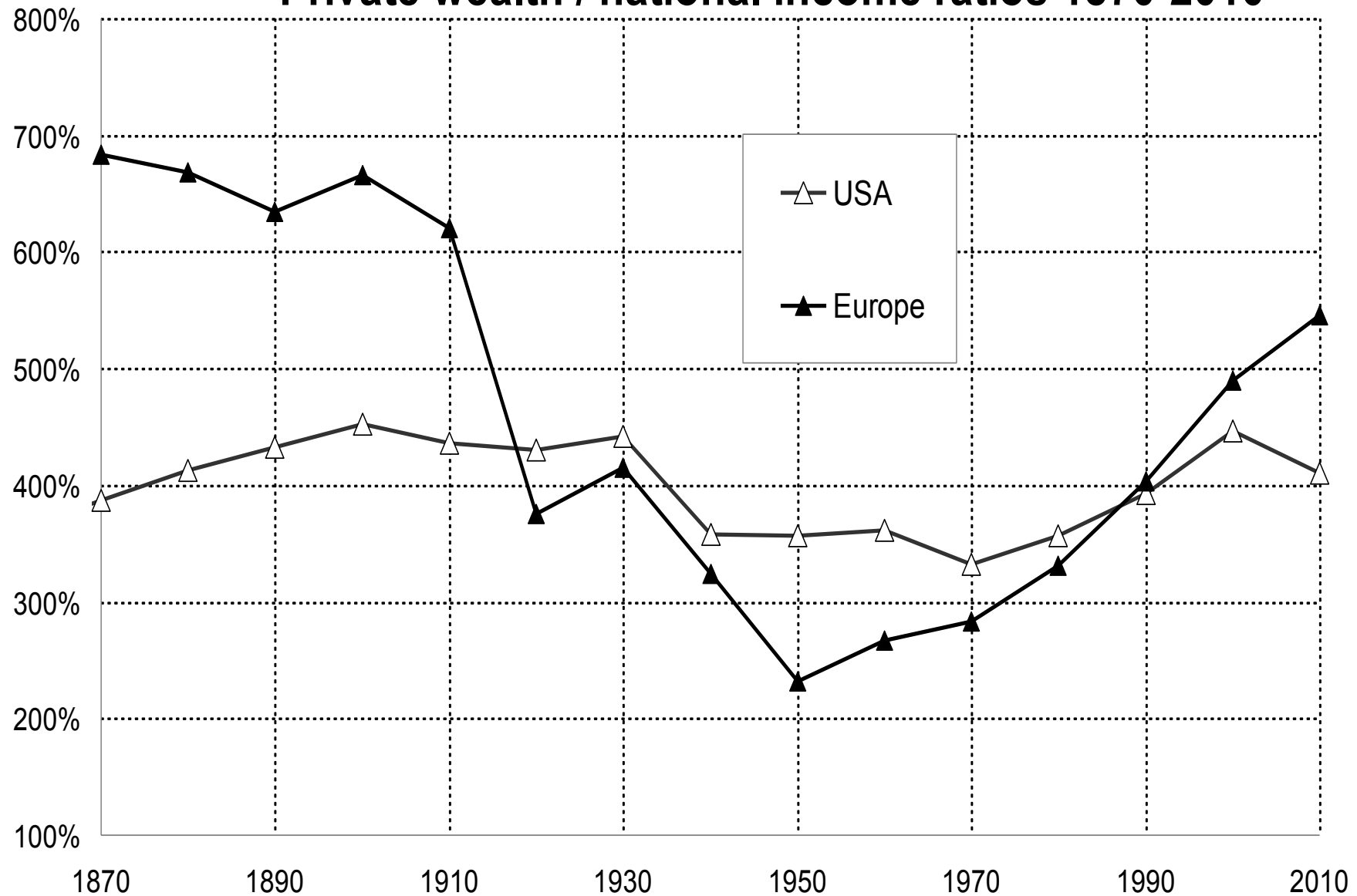
This figure depicts the share of total household wealth relative to national income Source: Piketty, Saez, and Zucman (2018).

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



Interpretation: Public wealth is the sum of all financial and non-financial assets, net of debts, held by governments. Public wealth dropped from 60% of national income in 1970 to -106% in 2020 in the UK. **Sources and series:** wir2022.wid.world/methodology, Bauluz et al. (2021) and updates.

Private wealth / national income ratios 1870-2010



Authors' computations using country national accounts. Private wealth = non-financial assets + financial assets - financial liabilities (household & non-profit sectors)

FACTS ABOUT WEALTH AND CAPITAL INCOME

Wealth = W , Capital Income = rW with r return, Capital gain = qW with q price appreciation. Total wealth return is $r + q$.
(examples: crypto has $r = 0$, savings account has $q = 0$)

$$W_t = W_{t-1} + (r_t + q_t) \cdot W_{t-1} + E_t + I_t - C_t$$

where W_t is wealth at age t , C_t is consumption, E_t labor income earnings (net of taxes), $r_t + q_t$ is the average (net) total rate of return on wealth, and I_t net inheritances (gifts+inheritance received - gifts given).

Differences in Wealth and Capital income due to:

- 1) Age
- 2) past earnings, and past saving behavior $E_t - C_t$ [life cycle wealth]
- 3) Net Inheritances received I_t [transfer wealth]
- 4) Rates of return from income r_t and price appreciation q_t

Wealth Inequality (Saez and Zucman '16)

Wealth inequality is very large (always much higher than income inequality)

In the US in 2021: Top 1% wealthiest households get 40% of total wealth, Next 9% get about 35%, next 40% get 25%, bottom 50% get about 0%

Wealth inequality **decreases** from 1929 to 1980: wealth democratization due to rise in homeownership and pensions

Wealth inequality increases sharply since 1980 fueled by increases in **income** inequality and **savings** inequality [bottom 90% saves zero in net since 1990]

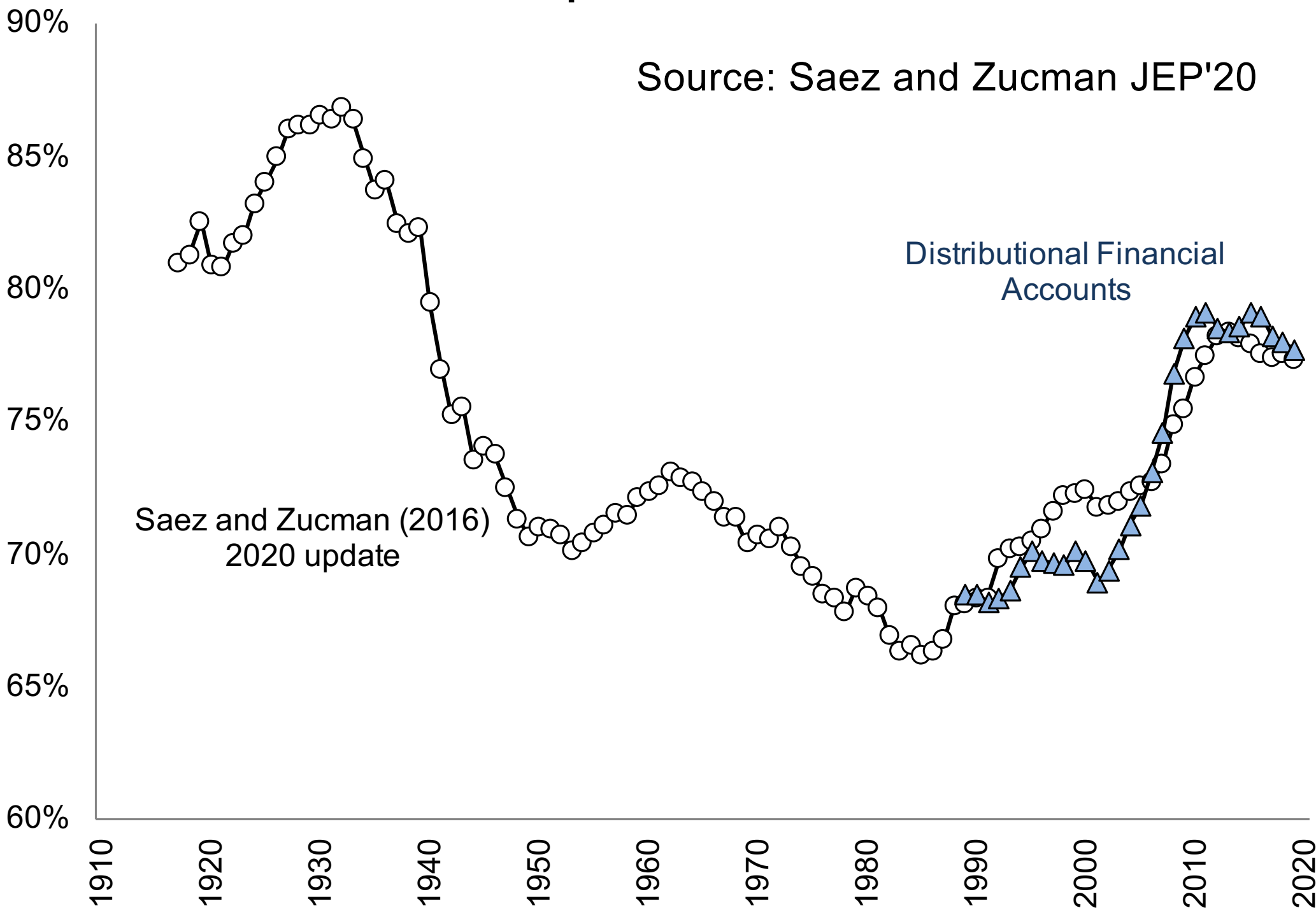
US public underestimates extent of wealth inequality and thinks the ideal wealth distribution should be a lot more equal [Norton-Ariely '11]

Top 10% wealth share

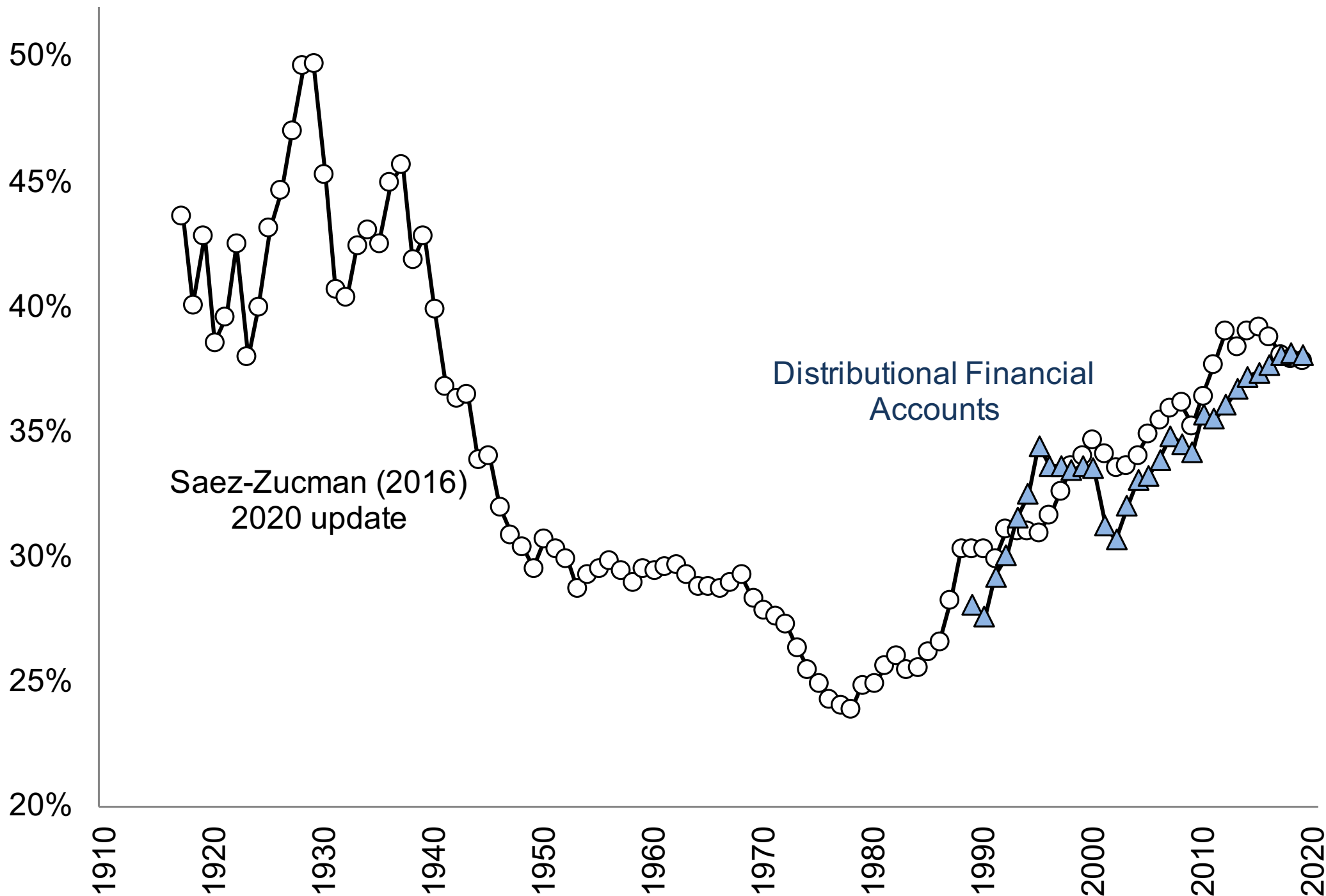
Source: Saez and Zucman JEP'20

Saez and Zucman (2016)
2020 update

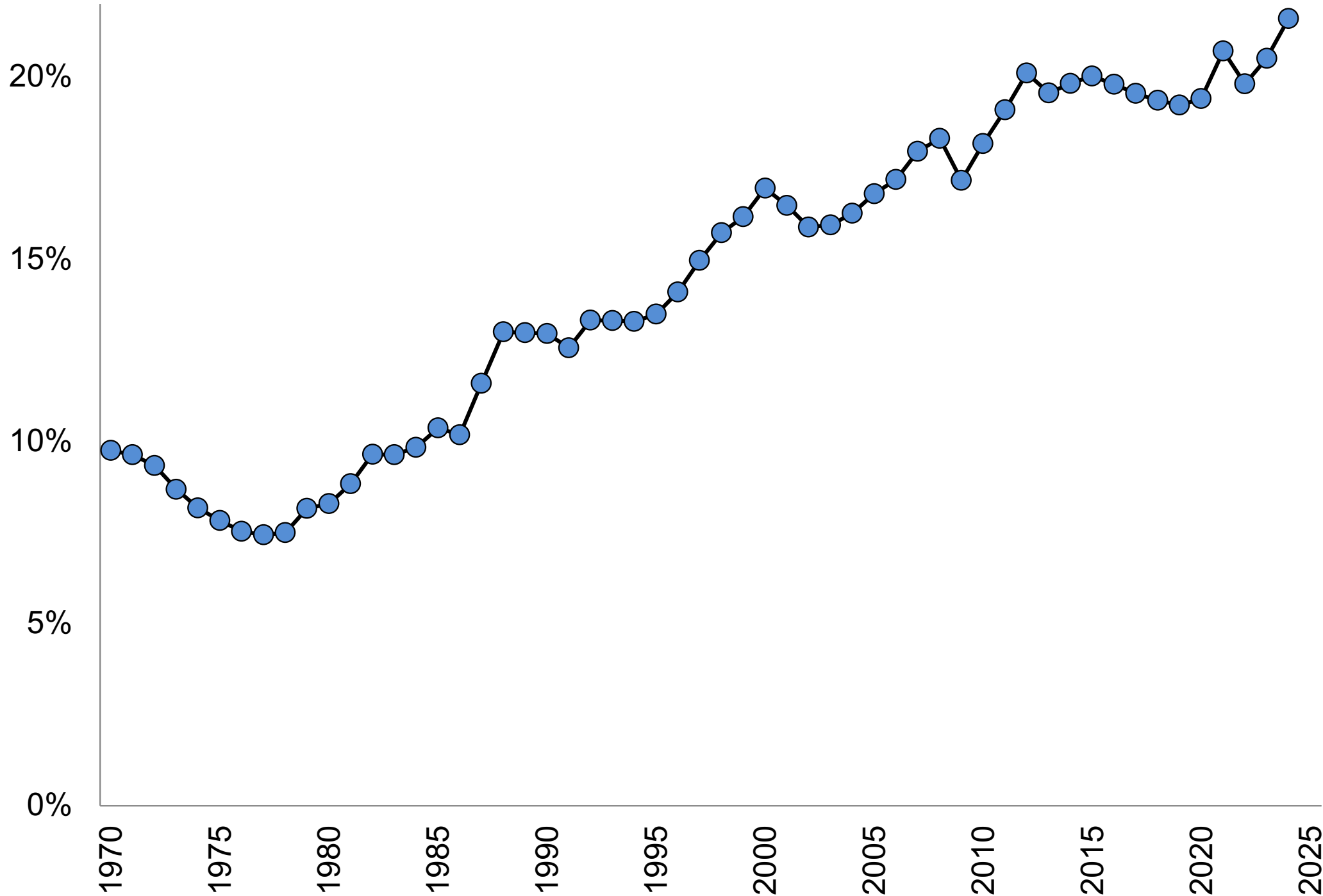
Distributional Financial
Accounts



Top 1% wealth share

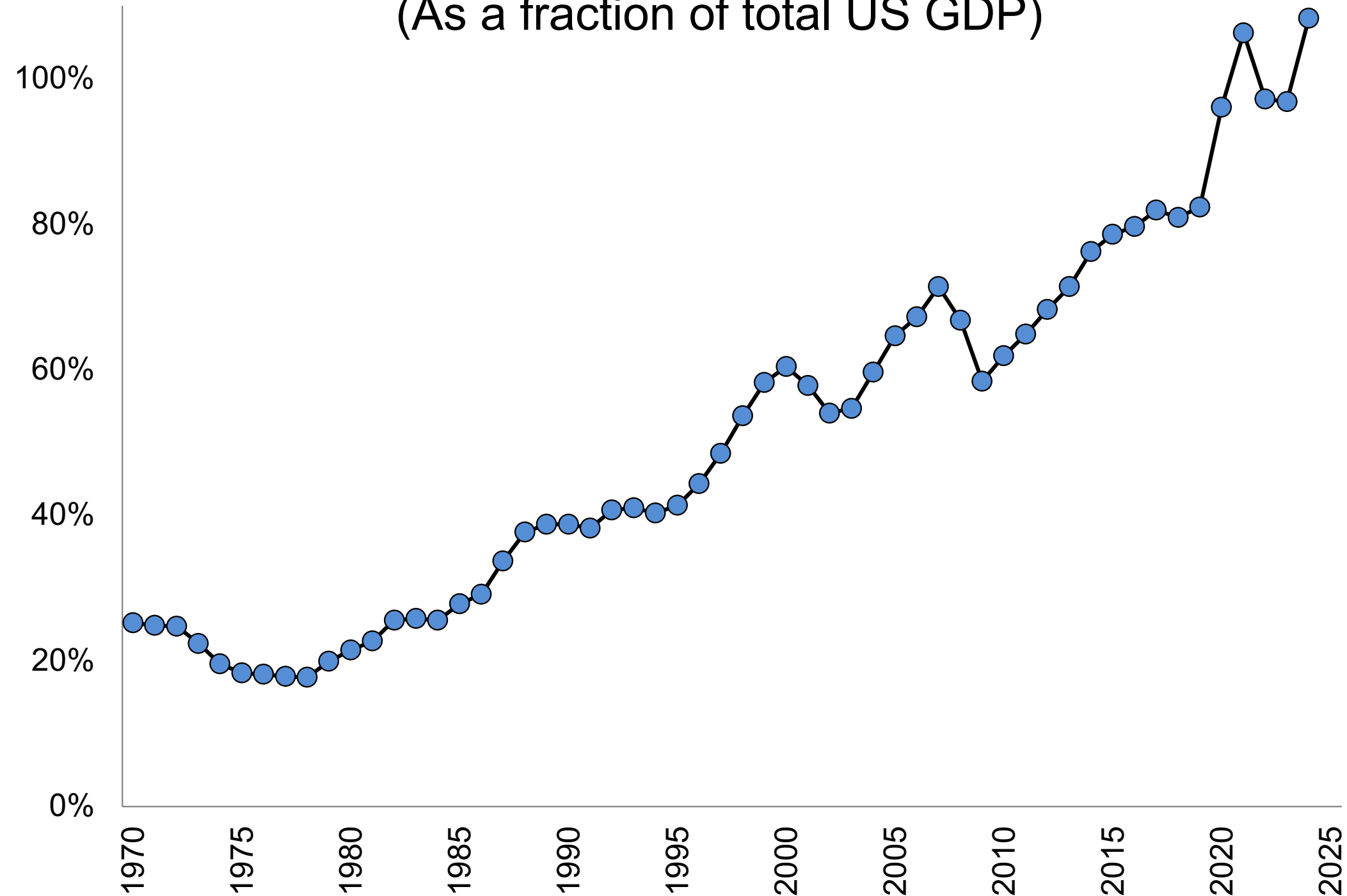


Top 0.1% Wealth Share in the United States

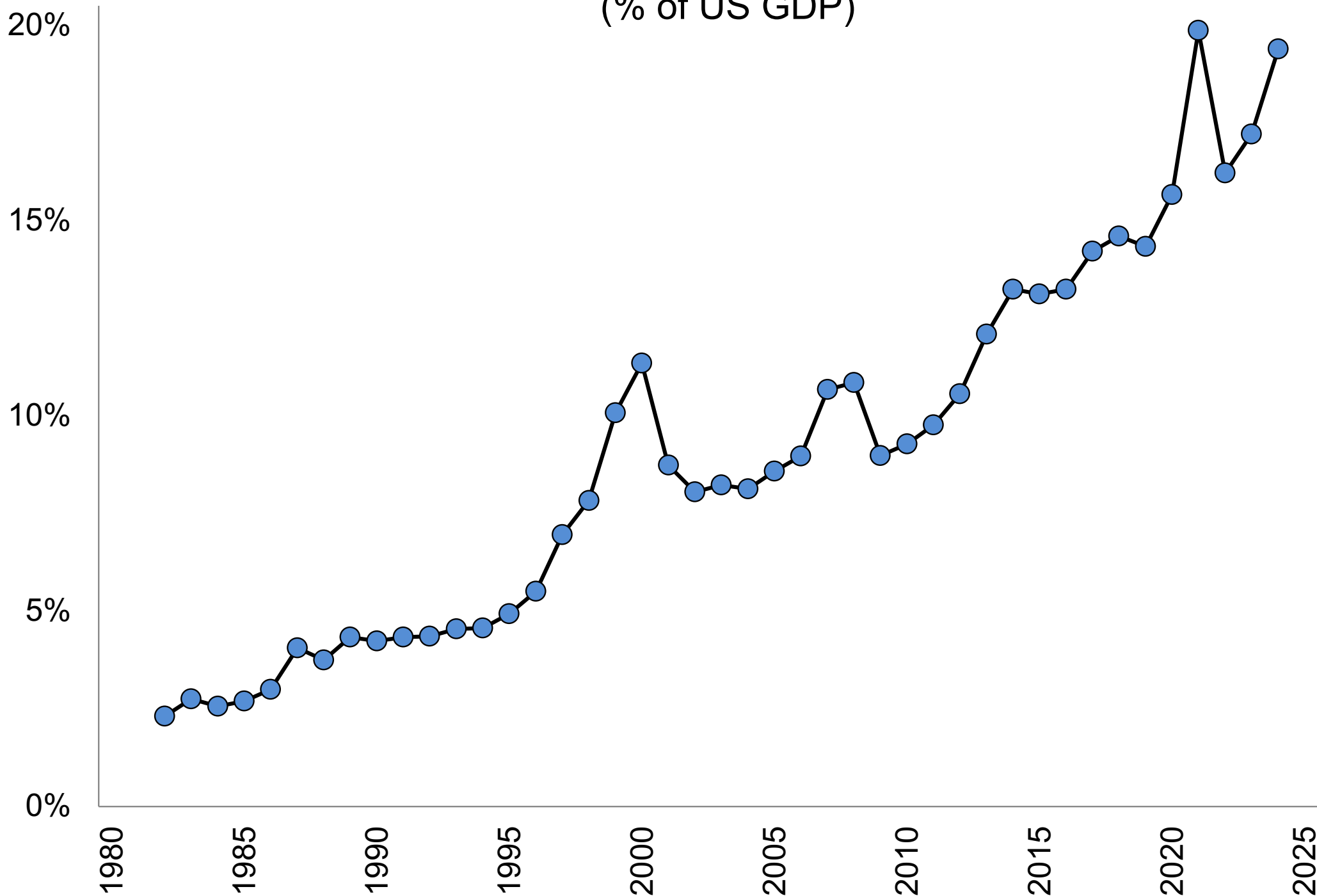


Wealth of the top 0.1% richest

(As a fraction of total US GDP)



Wealth of the top 400 wealthiest Americans (top 0.00025%)
(% of US GDP)



Source: Norton and Ariely 2011

Building a Better America

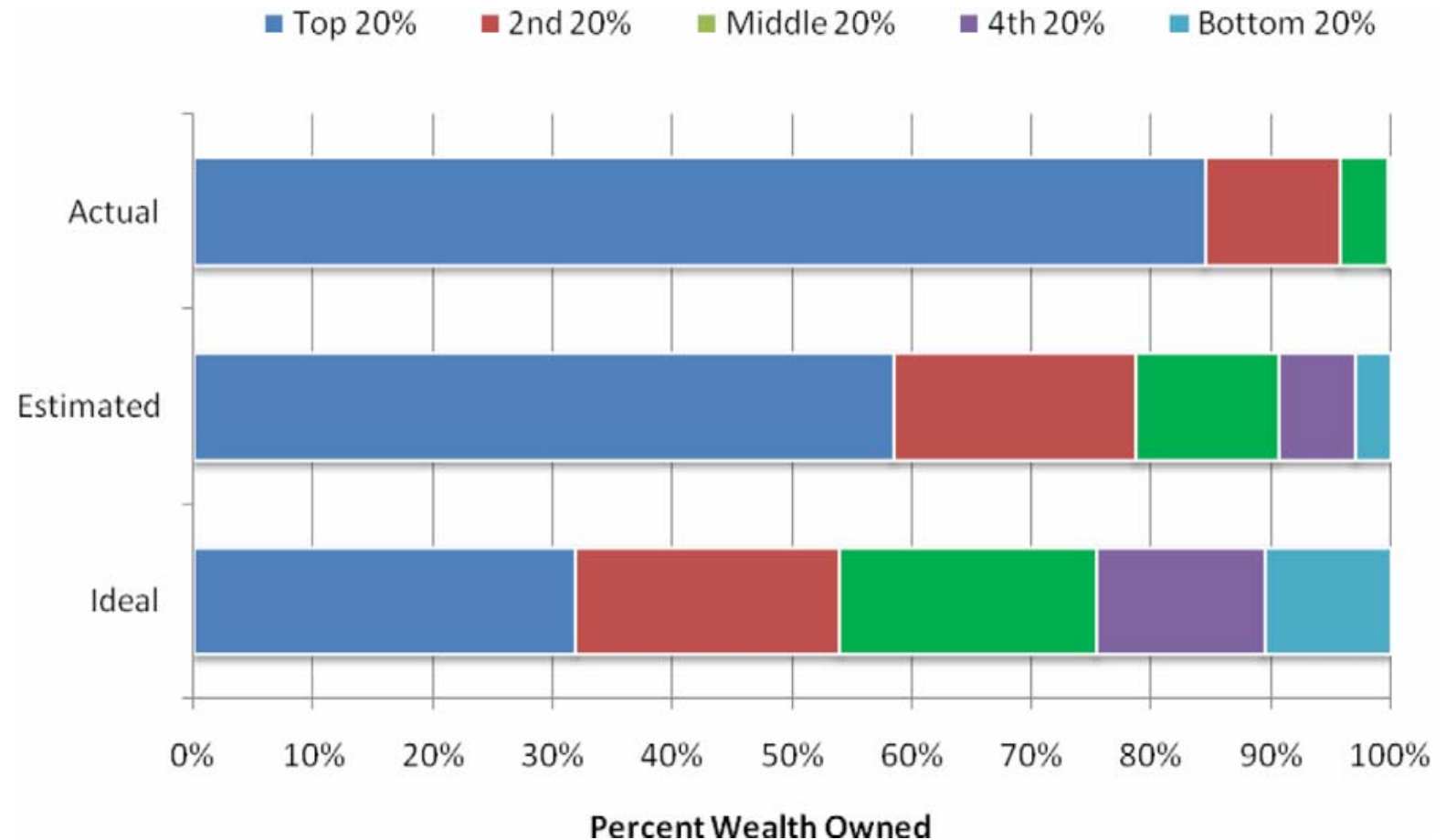


Fig. 2. The actual United States wealth distribution plotted against the estimated and ideal distributions across all respondents. Because of their small percentage share of total wealth, both the “4th 20%” value (0.2%) and the “Bottom 20%” value (0.1%) are not visible in the “Actual” distribution.

FACTS ON US CAPITAL INCOME TAXATION

1) **Corporate Income Tax** (fed+state) on profits of corporations [complex rules with many industry specific provisions]: effective tax rate only 16% of corporate profits in 2018

2) **Individual Income Tax** (fed+state): taxes many forms of capital income

Realized capital gains and dividends receive preferential treatment (to lower double taxation of corporate profits)

Imputed rent of home owners and returns on pension funds are exempt

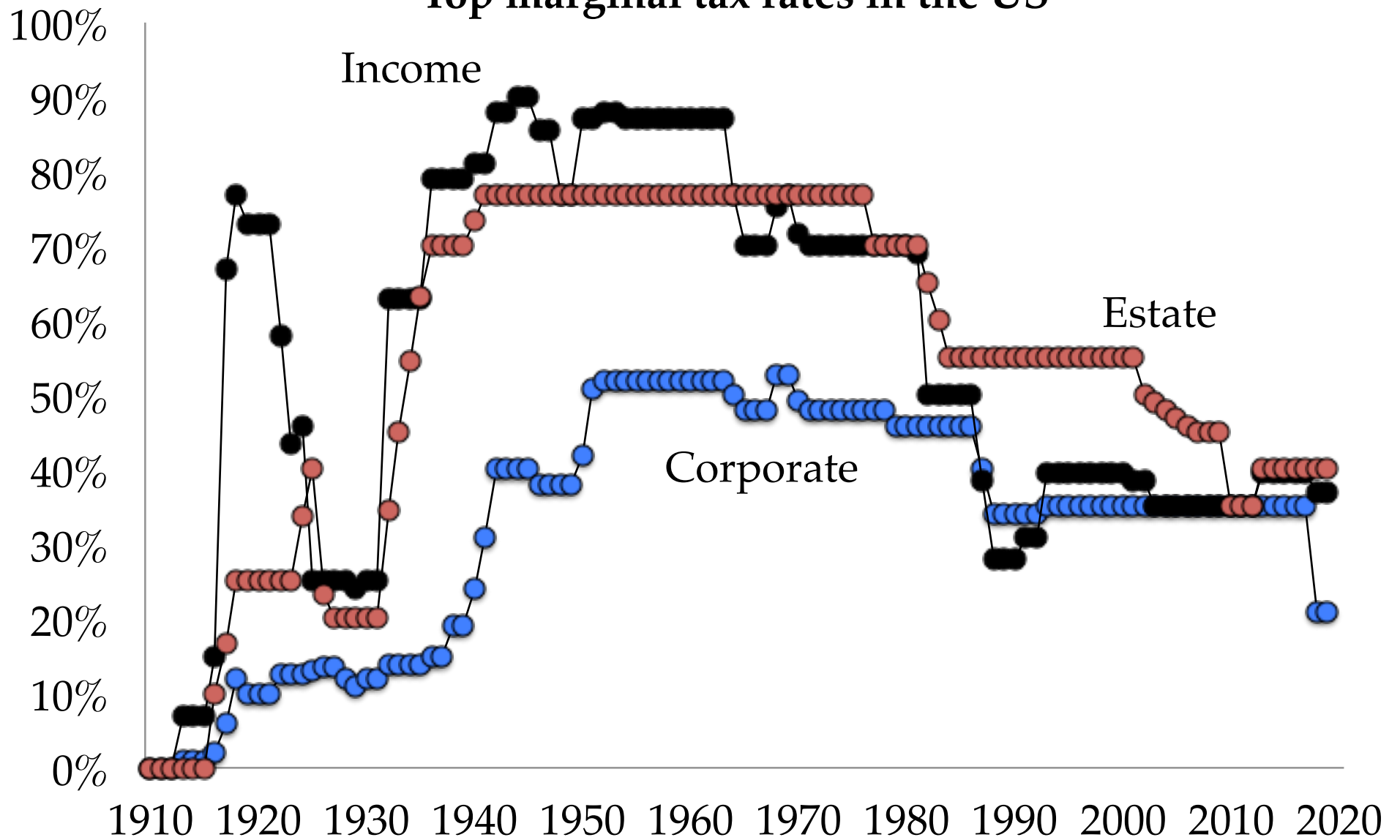
3) **Estate tax**: tax on very large estates (40% tax above \$14m) bequeathed to heirs (small and poorly enforced)

4) **Property taxes** (local) on real estate (old tax):

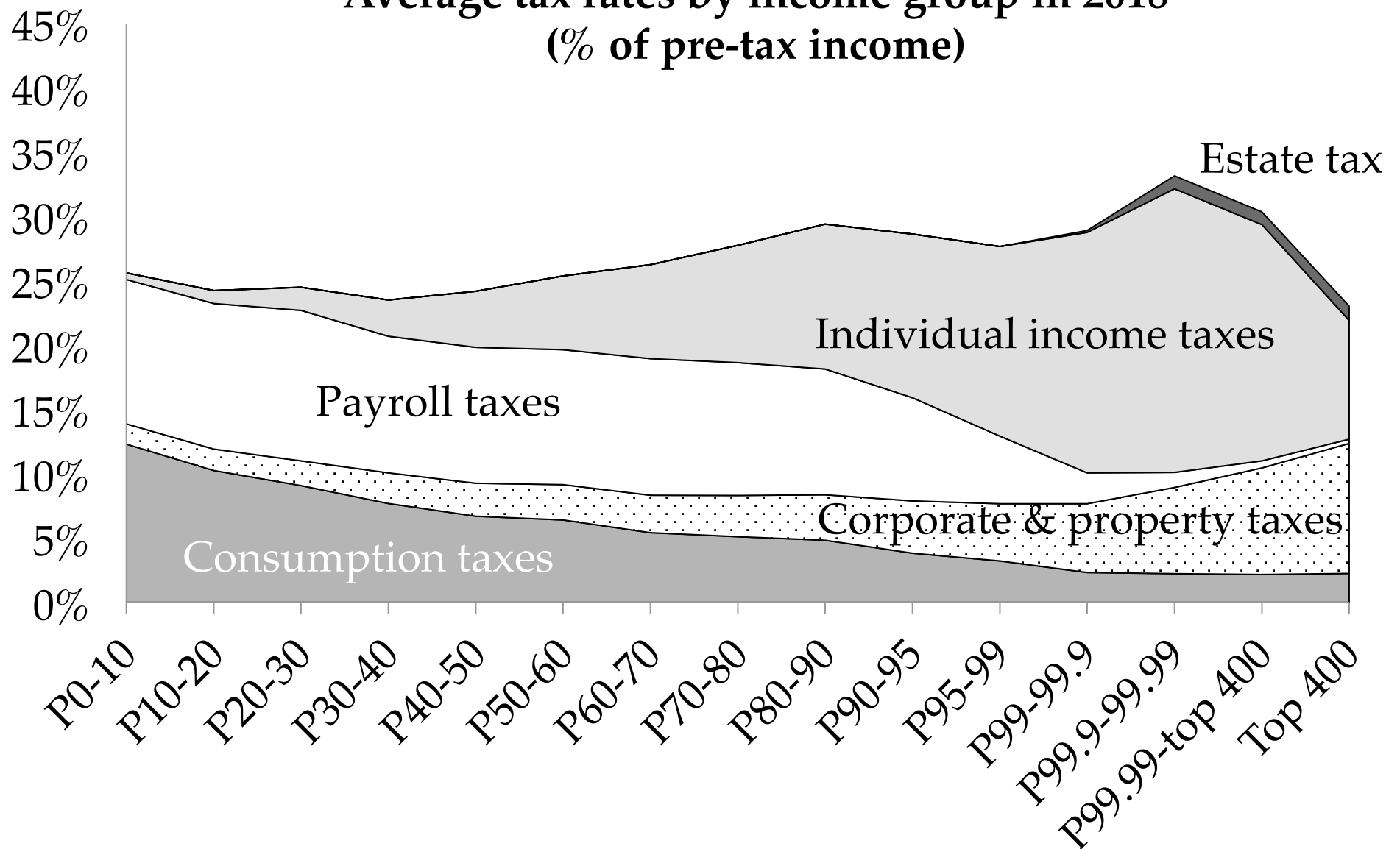
Tax varies across jurisdictions. About 0.5% of market value on average

5) **Wealth tax** on total net worth of rich families (does not currently exist, proposed by Warren and Sanders, and in CA)

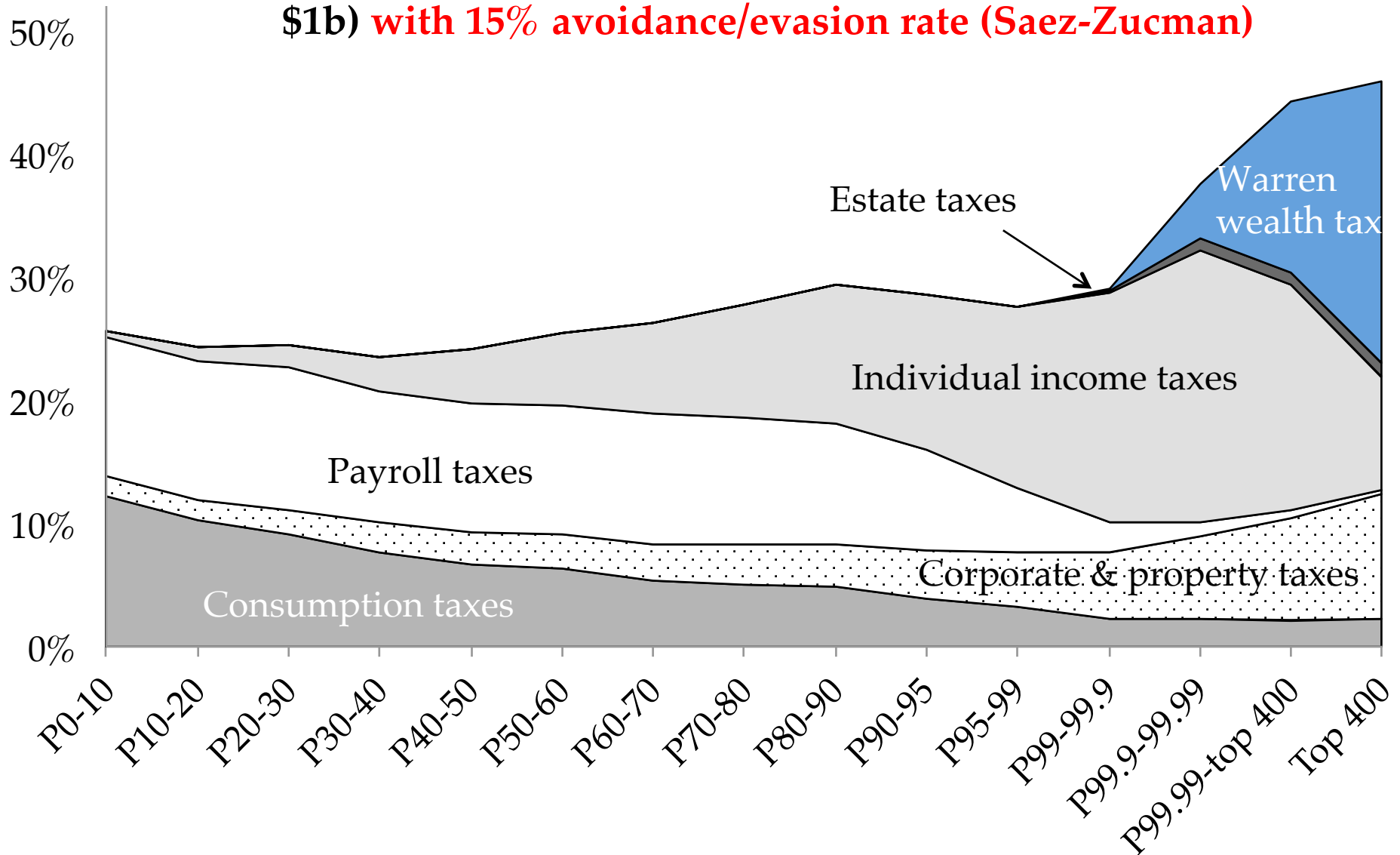
Top marginal tax rates in the US



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



Adding old Warren wealth tax (2% above \$50m, 3% above \$1b) with 15% avoidance/evasion rate (Saez-Zucman)



LIFE CYCLE VS. INHERITED WEALTH

Economists divide existing wealth into 2 categories:

- 1) **Life-cycle wealth** is wealth from savings earlier in your life
- 2) **Inherited wealth** is wealth from inheritances received

Distinction matters for taxation because individuals are responsible for life-cycle wealth but not inherited wealth

Inherited wealth used to be very large in Europe before World-War I, became small in post-World War II period, but is growing in recent decades especially in Europe (Piketty' 14)

Same trend in the US but less pronounced but poor data quality (Alvaredo-Piketty-Garbinti '17)

Piketty '14: return on wealth bigger than growth rate ($r > g$)
⇒ wealth concentration and inherited wealth increases

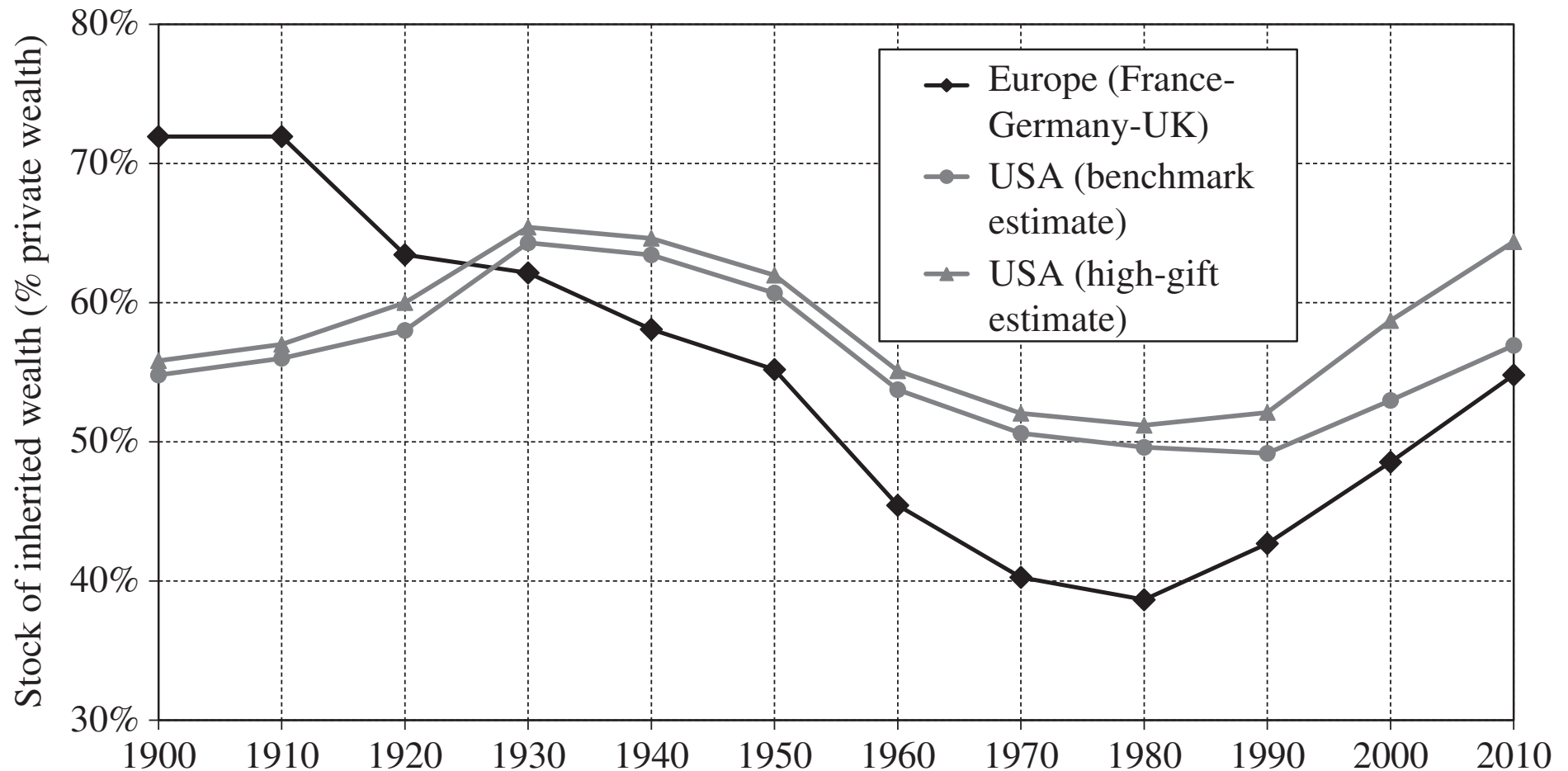


FIGURE 1. Share of inherited wealth, Europe and the USA 1900–2010.

Notes: Simplified definitions using inheritance vs. saving flows; approximate lower-bound estimates. The inheritance share in aggregate wealth accumulation was over 70% in Europe in 1900–10. It fell abruptly following 1914–45 shocks, down to 40% in the 1970–80 period. It was back to about 50–60% (and rising) in 2000–10. The US pattern also appears to be U-shaped but less marked, and with significant uncertainty regarding recent trends, due to data limitations.

Source: Alveredo-Garbinti-Piketty '17

LIFE-CYCLE MODEL

Individual lives for 2 periods, works l , earns wl , consumes c_1 in period 1, consumes c_2 in period 2:

$$U = u(c_1, l) + \delta \cdot v(c_2)$$

Start with case with no taxes

Savings $s = w \cdot l - c_1$, $c_2 = (1 + r) \cdot s$. Capital income $r \cdot s$

$$\text{Intertemporal budget: } c_1 + \frac{c_2}{1 + r} = wl$$

Price of consumption in period 2 is $1/(1 + r)$ “discounted” by rate of return

Present discounted value (PDV) of consumption =
Present discounted value (PDV) of labor earnings

TAXES IN LIFE-CYCLE MODEL

1) Budget with consumption tax at rate t_c :

$$(1 + t_c) \cdot [c_1 + c_2/(1 + r)] = wl$$

2) Budget with labor income tax at rate τ_L :

$$c_1 + c_2/(1 + r) = (1 - \tau_L)wl$$

Consumption and labor income tax are equivalent if

$$1 + t_c = 1/(1 - \tau_L)$$

Both taxes distort only labor supply and not savings

But timing of taxes different: labor taxes are paid early in life while working but consumption taxes paid throughout life

TAXES IN LIFE-CYCLE MODEL

3) With capital income tax at rate τ_K : $c_2 = (1 + r(1 - \tau_K)) \cdot s$

$$\Rightarrow c_1 + c_2 / (1 + r(1 - \tau_K)) = wl$$

τ_K distorts only savings choice (and not labor supply)

4) With comprehensive income tax τ on both labor and capital income: $c_1 = w(1 - \tau)l - s$, $c_2 = (1 + r(1 - \tau))s$

$$c_1 + c_2 / (1 + r(1 - \tau)) = (1 - \tau)wl$$

τ distorts both labor supply and savings

τ imposes “double” tax: on (1) earnings AND on (2) savings

EFFECT OF CAPITAL TAX ON SAVINGS

Consider simpler model (fixed earnings w in period 1)

$$\max_{c_1, c_2} u(c_1) + \delta \cdot u(c_2) \quad \text{subject to} \quad c_1 + \frac{c_2}{1 + r(1 - \tau_K)} = w$$

Recall that $c_1 = w - s$ and $c_2 = [1 + r(1 - \tau_K)] \cdot s$ [draw graph]

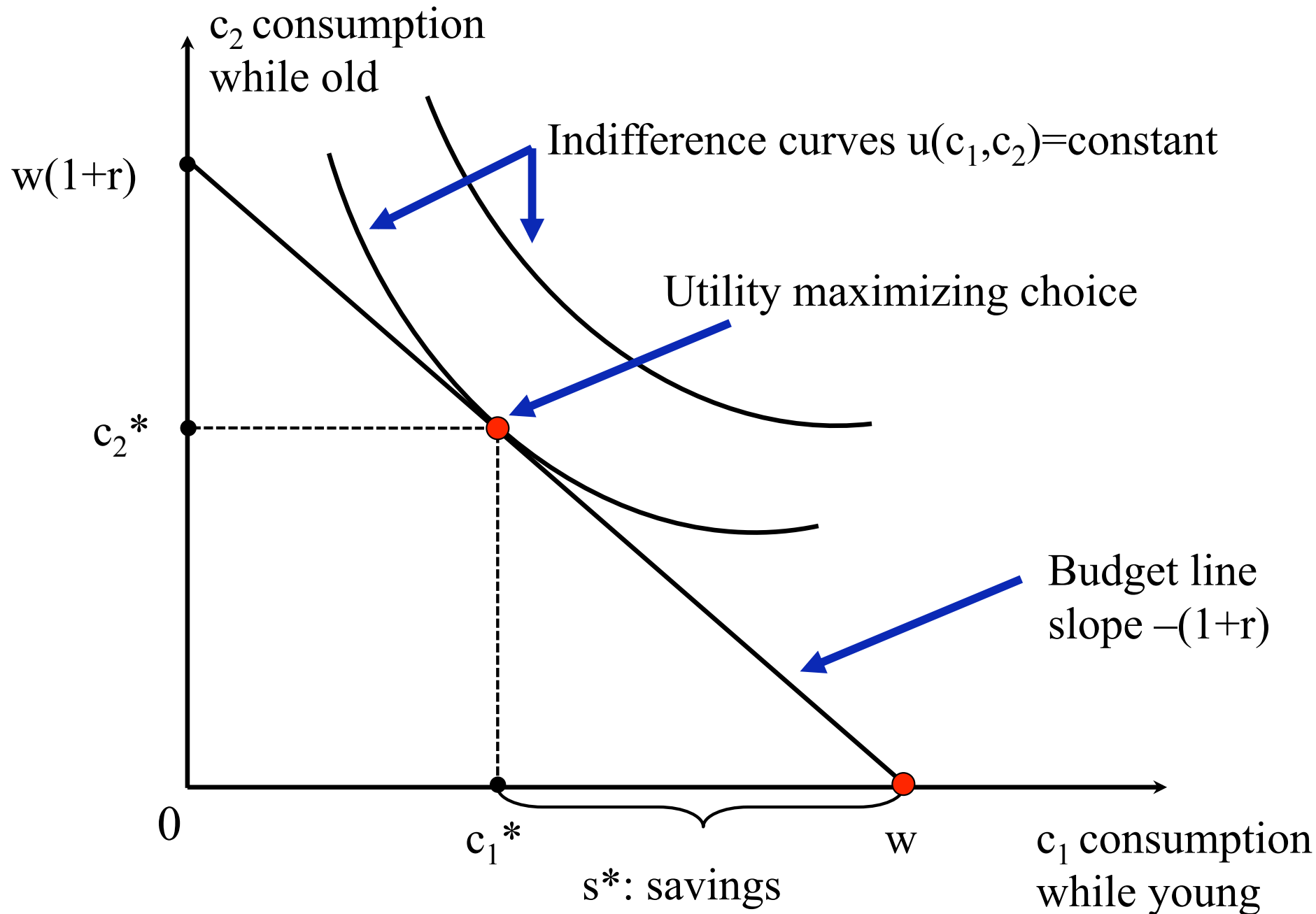
If τ_K increases then $1/[1 + r(1 - \tau_K)]$ (price of c_2) increases

1) Substitution effect: price of c_2 up $\Rightarrow c_2$ decreases, c_1 increases \Rightarrow savings $s = w - c_1$ decrease

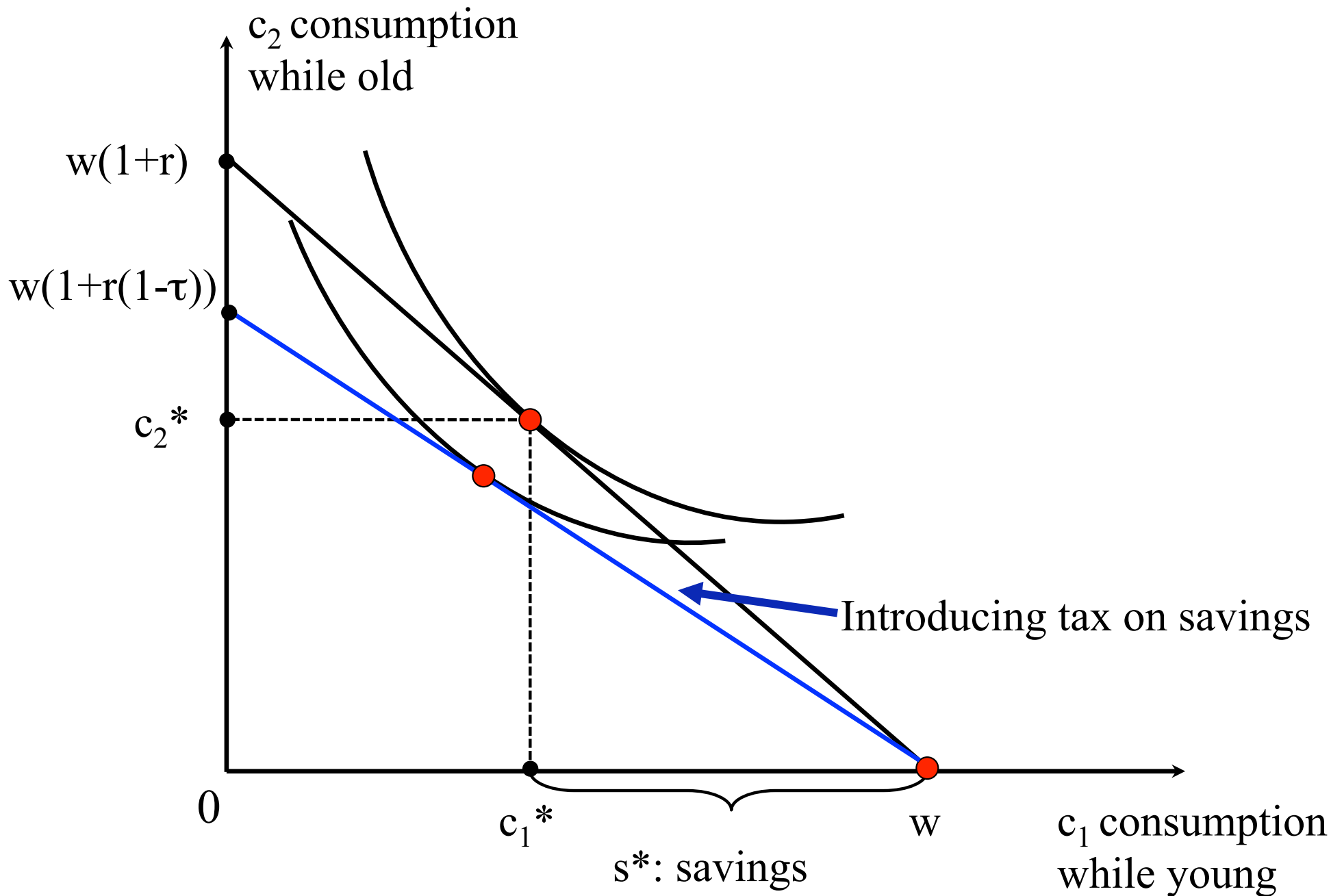
2) Income effect: consumer is poorer \Rightarrow both c_1 and c_2 decrease \Rightarrow savings s increase

Net effect of τ_K on c_2 is negative but ambiguous on c_1 and s

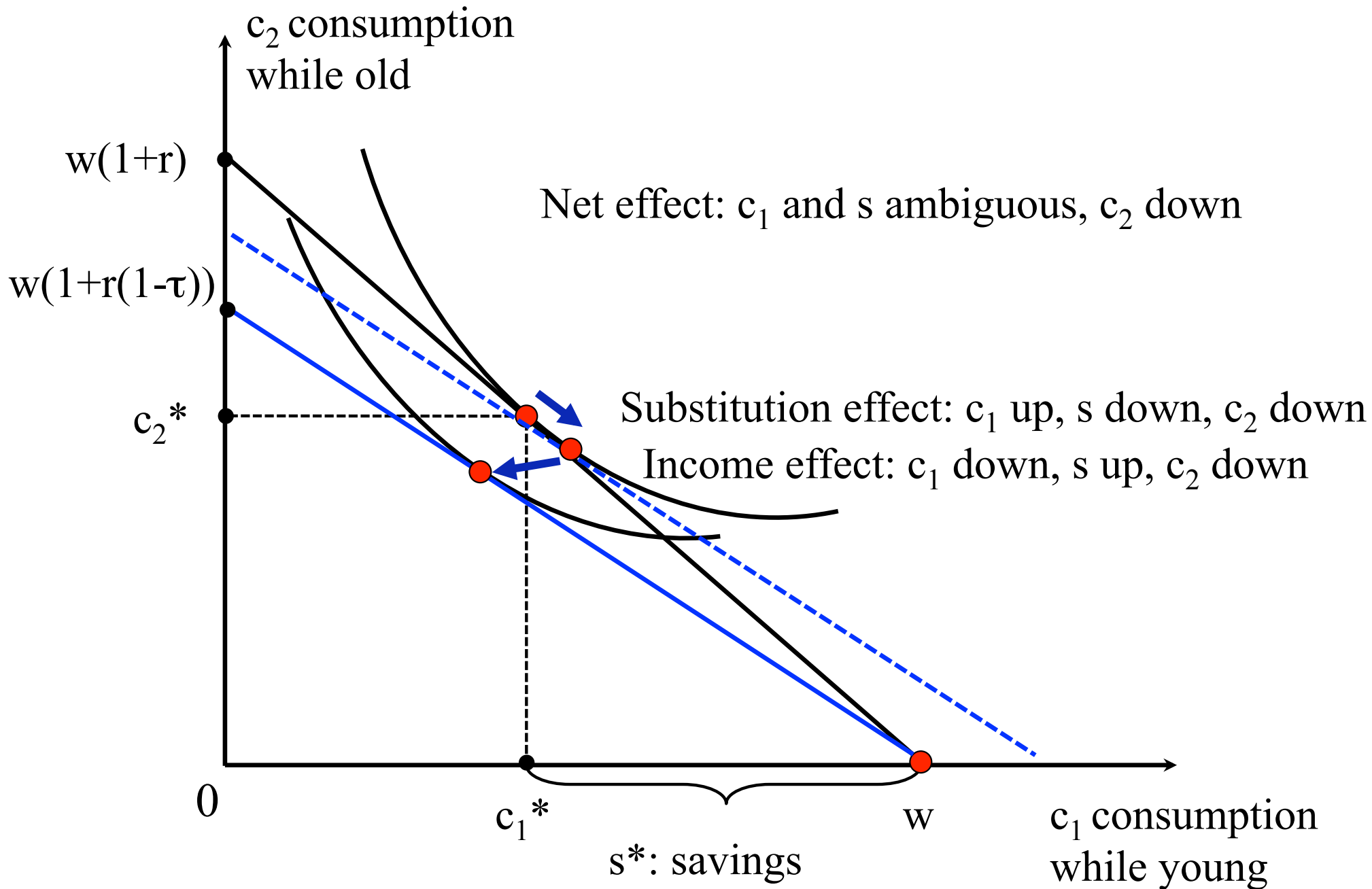
Life cycle savings and taxes theory



Life cycle savings and taxes theory



Life cycle savings and taxes theory



Fundamental tax reform: Shift to consumption taxation

Current US tax system is an income tax taxing both earnings and capital income

Some conservatives advocate shifting to consumption tax

Consumption tax is economically equivalent to taxing only labor earnings

But shift from labor tax to consumption tax generates double taxation of transitional generation (who have paid labor tax when working and need to pay consumption tax when old)

Actual consumption taxes (such as value-added taxes) are regressive on an annual basis as rich save a lot more than the poor (relative to income)

OPTIMAL CAPITAL TAXATION

Two broad types of models:

- 1) Life-cycle models: wealth is due solely to life-cycle savings
- 2) Models with bequests: wealth is due solely to inheritances

Optimal Tax in Life-Cycle model

Government can use both a progressive labor income tax $T(wl)$ and a linear capital income tax τ_K

Individuals live 2 periods, work in period 1, retired in period 2

$$\max_{c_1, c_2, l} u(c_1) - h(l) + \delta u(c_2) \quad \text{s.t.} \quad c_1 + \frac{c_2}{1 + r(1 - \tau_K)} = wl - T(wl)$$

Individuals differ only according to their earning ability w

Government maximizes social welfare function based on individual utilities

Atkinson-Stiglitz JpubE'76 theorem: The optimal tax τ_K on capital income should be zero. Using a labor tax on earnings $T(wl)$ is sufficient.

Optimal Tax in Life-Cycle model

Atkinson-Stiglitz' theorem shows that life-time savings should not be taxed, tax only labor income

Key intuition: in basic life-cycle model, inequality in life-time resources is due solely to differences in earnings ability

⇒ This inequality can be addressed with labor income taxation

⇒ Capital income taxation needlessly distorts saving behavior

From justice view: seems fair to not discriminate against savers if labor earnings is the only source of inequality

LIMITS OF LIFE-CYCLE MODEL

In reality, capital income inequality also due

(1) difference in rates of returns across individuals

(2) inheritances

And distinction between labor income and capital income is hard to make in practice

Fuzzy Frontier between Labor and Capital Income

In practice, difficult to distinguish between capital and labor income [e.g., small business profits, professional traders]

Differential tax treatment can induce shifting

(1) Carried interest in the US: hedge fund and private equity fund managers receive fraction of profits of assets they manage for clients. Those profits are really labor income but are taxed as realized capital gains

(2) Dual income tax system in Finland: taxes separately capital income at preferred rates since 1993: Pirttila and Selin SJE'11 show that it induced shifting from labor to capital income especially among self-employed

With income shifting, taxing capital income becomes desirable to curb this tax avoidance opportunity

Difference in Rates of Returns Across Individuals

Total rate of return on wealth varies significantly over time and across individuals

Example: stock market can gain 30% in some years or lose 20% in others

Specific stocks can increase much faster for successful start-ups (Google) or collapse entirely for bankrupt firms (Enron)

Richer individuals are able to invest in higher return assets due to ability to take risks and scale effects in financial advice

Evidence: large University endowments get a larger return than smaller ones, Piketty 2014, Chapter 12

⇒ Taxing capital income is a way to mitigate such inequality

Inheritance: Estate Taxation in the United States

Estate federal tax imposes a tax on estates above \$14M exemption (less than .1% of deceased liable), tax rate is 40% above exemption (in 2018+)

Charitable and spousal giving are fully exempt from the tax

E.g.: if Bill Gates / Warren Buffet give all their wealth to charity, they won't pay estate tax

Popular support for estate tax is pretty weak ("death tax") but public does not know that estate tax hits only richest

Support for estate tax increase shots up from 17% to 53% when survey respondents are informed that only richest pay it (Kuziemko-Norton-Saez-Stantcheva AER'15 do an online Mturk survey experiment)

Treatment example: Information about the Estate Tax

Besides the income tax, the government can also level the playing field with **the federal estate tax**.

The **Federal Estate Tax** (also known as the **Death Tax**) applies when a deceased person leaves **more than \$5 million** in wealth to his or her heirs. Wealth left to a spouse or charitable organizations is exempt from estate tax.



Only 1 person out of 1000 is wealthy enough to face the estate tax.

Average Americans do not have anything close to \$5 million in wealth, so the estate tax does not affect them and they can pass on their property to their children tax-free.

Eliminating the estate tax would allow the very richest families to pass down all of their wealth to their children tax-free. Hence, children of rich people would also start off very rich themselves.

Increasing the estate tax is a way to level the playing field between the children of wealthy parents and children of middle-class parents.

Taxation of Inheritances: Welfare Effects

Inheritances (or gifts from living parents) raise difficult issues of social justice [see Kaplow 2001]:

(1) Inequality in inheritances contributes to economic inequality and individuals not responsible for inheritances they receive:

⇒ seems fair to redistribute from those who received inheritances to those who did not

(2) However, it seems unfair to tax the parents who worked hard (and already paid tax on income) to pass on wealth to children

Liberals emphasize (1) [taxing heirs] while conservatives emphasize (2) [death tax]

Taxation of Inheritances: Behavioral Responses

Potential behavioral response effects of inheritance tax:

(1) reduces wealth accumulation of altruistic parents (and hence tax base) [Kopczuk-Slemrod 2001, Goupille-Lebret-Infante '18 find small real effects, Lu-Yang '24 finds large tax avoidance effects in Taiwan]

(2) reduces labor supply of altruistic parents (less motivated to work if cannot pass wealth to kids) [no good evidence]

(3) induces inheritors to work more through income effects because they receive smaller inheritances (Carnegie effect, decent evidence from Holtz-Eakin, Joulfaian, Rosen QJE'93)

Critical to understand why there are inheritances for optimal inheritance tax policy. Two models of bequests: (a) accidental, (b) altruistic bequests

(a) ACCIDENTAL BEQUESTS

People die with a stock of wealth they intended to spend on themselves (or that they accumulated out of love for wealth, Carroll '98):

Bequest taxation has no distortionary effect on behavior of parent and can only increase labor supply of inheritors (through income effects) \Rightarrow strong case for taxing bequests heavily

Surveys show that bequest motives are not the main driver of wealth accumulation (Kopczuk-Lupton '07):

Only 1/3 of people surveyed say that the main reason they accumulate wealth is for bequests to their children

(b) ALTRUISTIC BEQUESTS (Piketty and Saez 2013)

Utility $u(c) - h(l) + \delta v(b^{\text{left}})$ where c is own consumption, l is labor supply, and b^{left} is net-of-tax bequests left to next generation and $v(b^{\text{left}})$ is utility of leaving bequests for donor

Individual receives b^{received} , works and earns $wl - T(wl)$, consumes c , saves $s = wl - T(wl) + b^{\text{received}} - c$, which translates into $b^{\text{left}} = s(1 + r)(1 - \tau_B)$ for heir (τ_B is bequest tax rate)

Bequests provide an additional source of life-income:

$$c + \frac{b^{\text{left}}}{(1 - \tau_B)(1 + r)} = wl - T(wl) + b^{\text{received}}$$

In this model, Atkinson-Stiglitz breaks down and using bequest taxation is desirable to supplement labor income taxation

⇒ Two-dimensional inequality (labor, bequests) requires two-dimensional tax policy tool (labor tax, bequest tax)

US WEALTH TAX DEBATE

Recent proposals for progressive wealth tax (Warren, Sanders, CA). Various justifications from center left to radical left:

(1) Revenue: US wealth is top heavy \Rightarrow well enforced wealth tax can raise substantial revenue

(2) Tax fairness: super-rich do not need to “realize” income and hence pay fairly low taxes relative to their true incomes (Saez-Zucman '19, propublica leak)

(3) Oligarchy risk: wealth at the top is power. Evidence from Robber Barons US 19th century and devo countries that entrenched wealth stifles growth (Acemoglu-Robinson '12)

Concerns of opponents: Wealth tax will be easy to avoid/evade. If not, wealth tax will discourage entrepreneurs.

OLIGARCHY RISK AND WEALTH TAXATION

Historically, top wealth and political power are connected

Hunters-gatherers have no wealth and are pretty egalitarian

Despotic regimes arise when wealth (agricultural land) arises and they become dynastic

Western democracies curbed top wealth in 20th century through regulations (monopoly busting) and progressive taxation

Top wealth can buy political influence (Robber Barrons then, Elon Musk today)

Billionaires have 4% of total US wealth but provided 40% of 2024 Trump campaign funds (6% to Harris)

Progressive wealth tax with graduated rates is the most direct and radical tool to curb and check top wealth (Piketty '20).

US WEALTH TAX DEBATE

Politically: wealth tax is easy for public to understand as a tax on the rich (and polls well even among republicans)

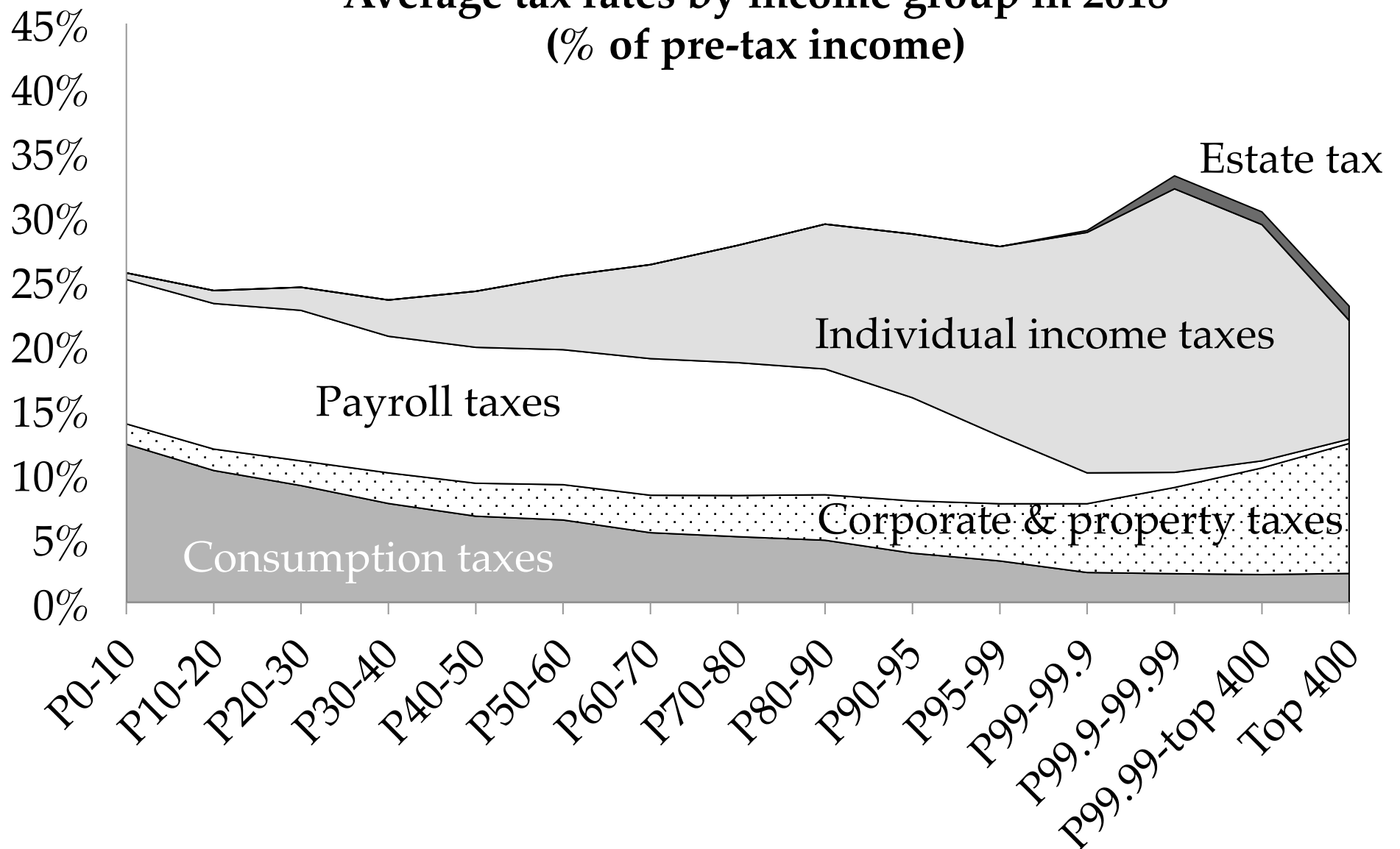
Economically: wealth tax powerful because

(1) wealth tax goes after the stock while capital income tax goes after the flow: e.g. if rate of return is $r = 5\%$, a wealth tax at rate $\tau_W = 5\%$ is like taxing capital income at 100%

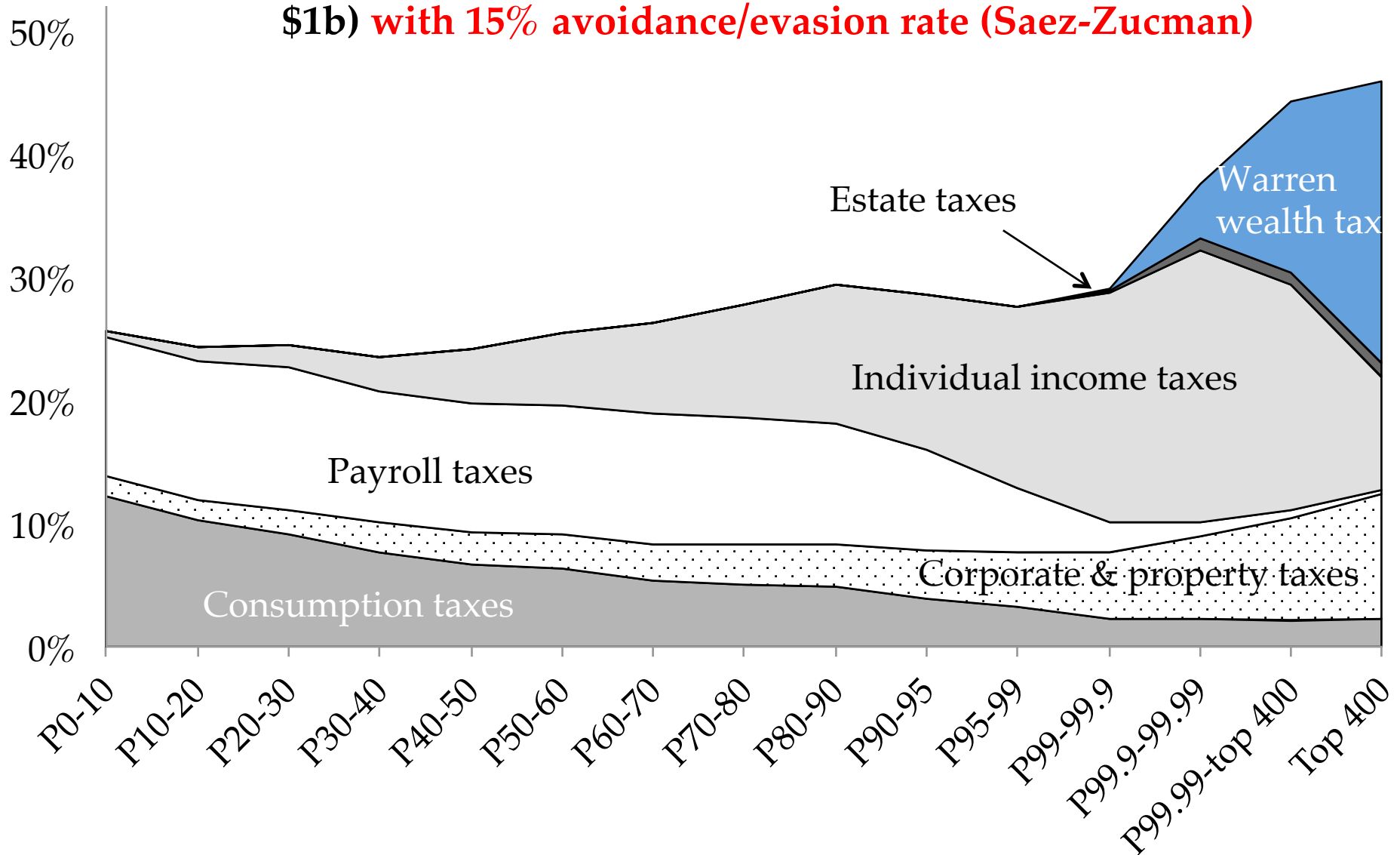
(2) wealth tax builds overtime: for billionaires, wealth tax mechanically reduces wealth by $(1 - \tau_W)$ after 1 year, $(1 - \tau_W)^2$ after 2 years, ..., $(1 - \tau_W)^T$ after T years, etc.

⇒ Billionaires can still arise but don't stay billionaires as long

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



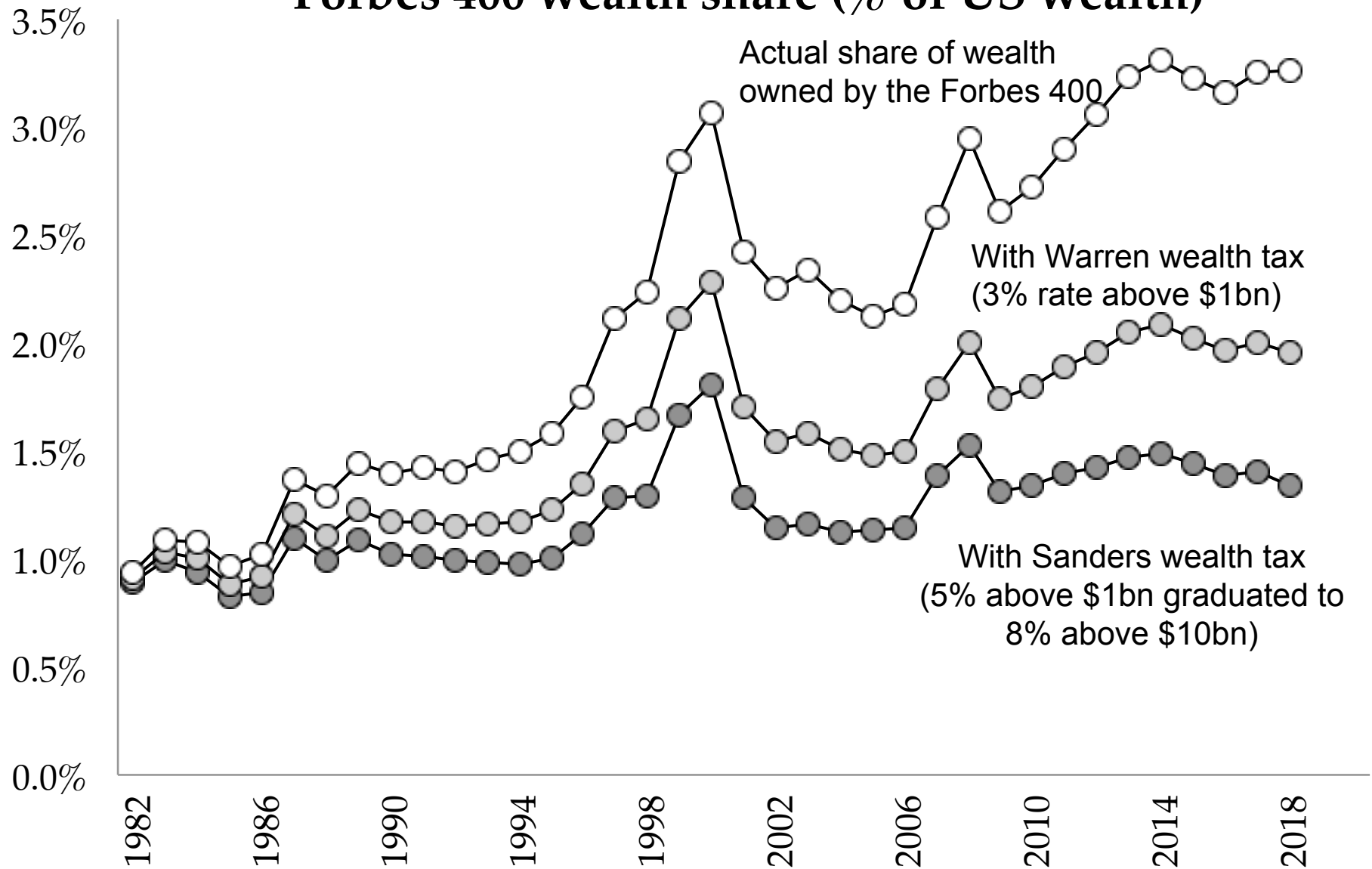
Adding old Warren wealth tax (2% above \$50m, 3% above \$1b) with 15% avoidance/evasion rate (Saez-Zucman)



Long-Term Wealth Taxation and Top Wealth Holders

		Current 2018 wealth (\$ billions)	With Warren wealth tax (3% above \$1b) since 1982	With Sanders wealth tax (5% above \$1b up to 8% above \$10b)
Top Wealth Holder Source				
1. Jeff Bezos	Amazon (founder)	160.0	86.8	43.0
2. Bill Gates	Microsoft (founder)	97.0	36.4	9.9
3. Warren Buffett	Berkshire Hathaway	88.3	29.6	8.2
4. Mark Zuckerberg	Facebook (founder)	61.0	44.2	28.6
5. Larry Ellison	Oracle (founder)	58.4	23.5	8.5
6. Larry Page	Google (founder)	53.8	35.3	19.5
7. David Koch	Koch industries	53.5	18.9	8.0
8. Charles Koch	Koch industries	53.5	18.9	8.0
9. Sergey Brin	Google (founder)	52.4	34.4	19.0
10. M. Bloomberg	Bloomberg LP (f.)	51.8	24.2	11.3
11. Jim Walton	Walmart (heir)	45.2	15.1	5.0
...				
Total top 15		942.5	433.9	195.7

Forbes 400 wealth share (% of US wealth)



COULD A WEALTH TAX BE ENFORCED?

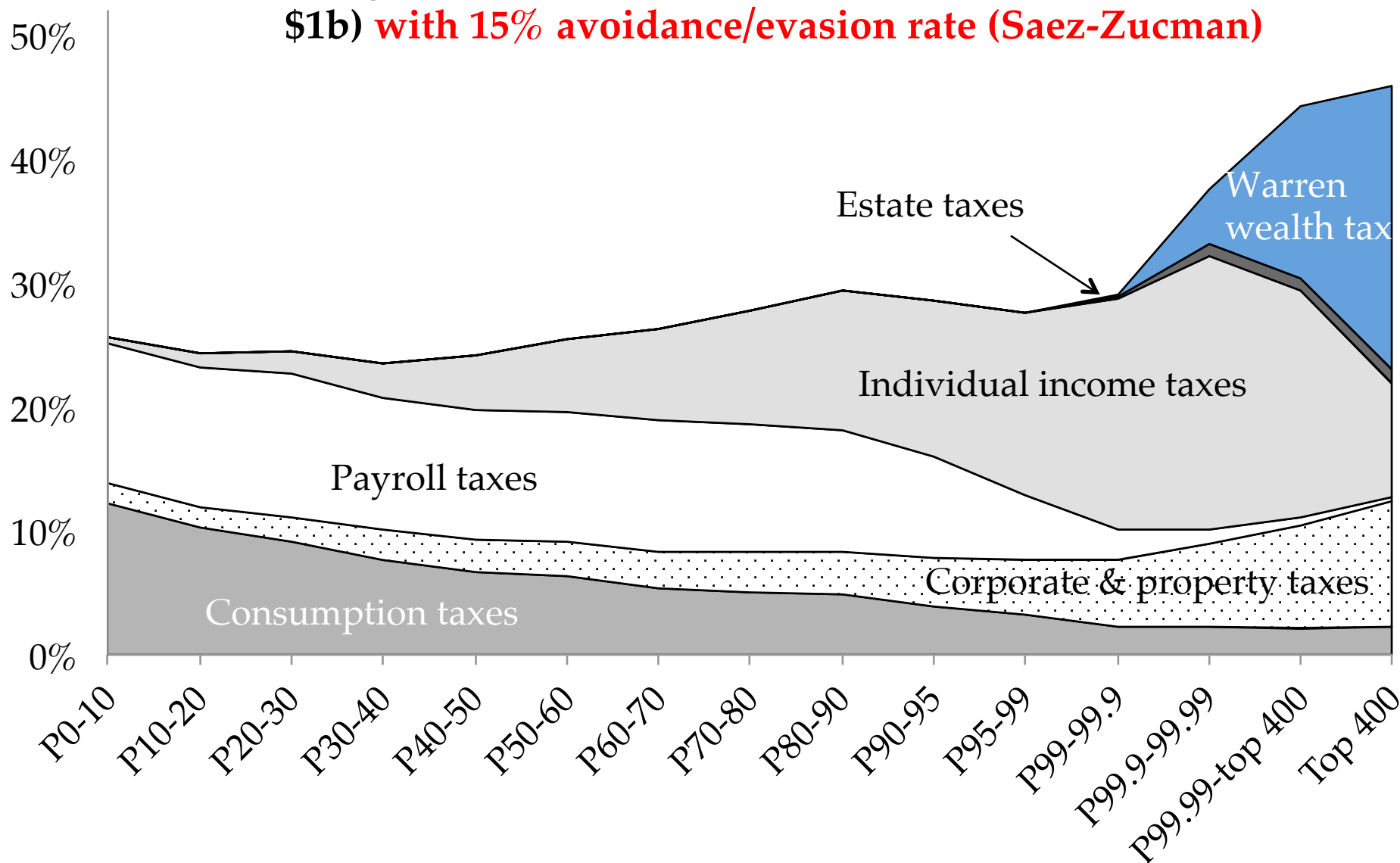
Wealth taxes have been used in Europe but most repealed (and never raised much revenue, except Switzerland). Suffered from 2 issues:

- 1) Tax competition concerns through offshore tax evasion and mobility of the rich: could evade easily or move out to avoid
- 2) Exemption threshold too low (like \$1m) creating hardship for illiquid millionaires (led to inefficient illiquid asset exemptions or tax limits based on reported income)

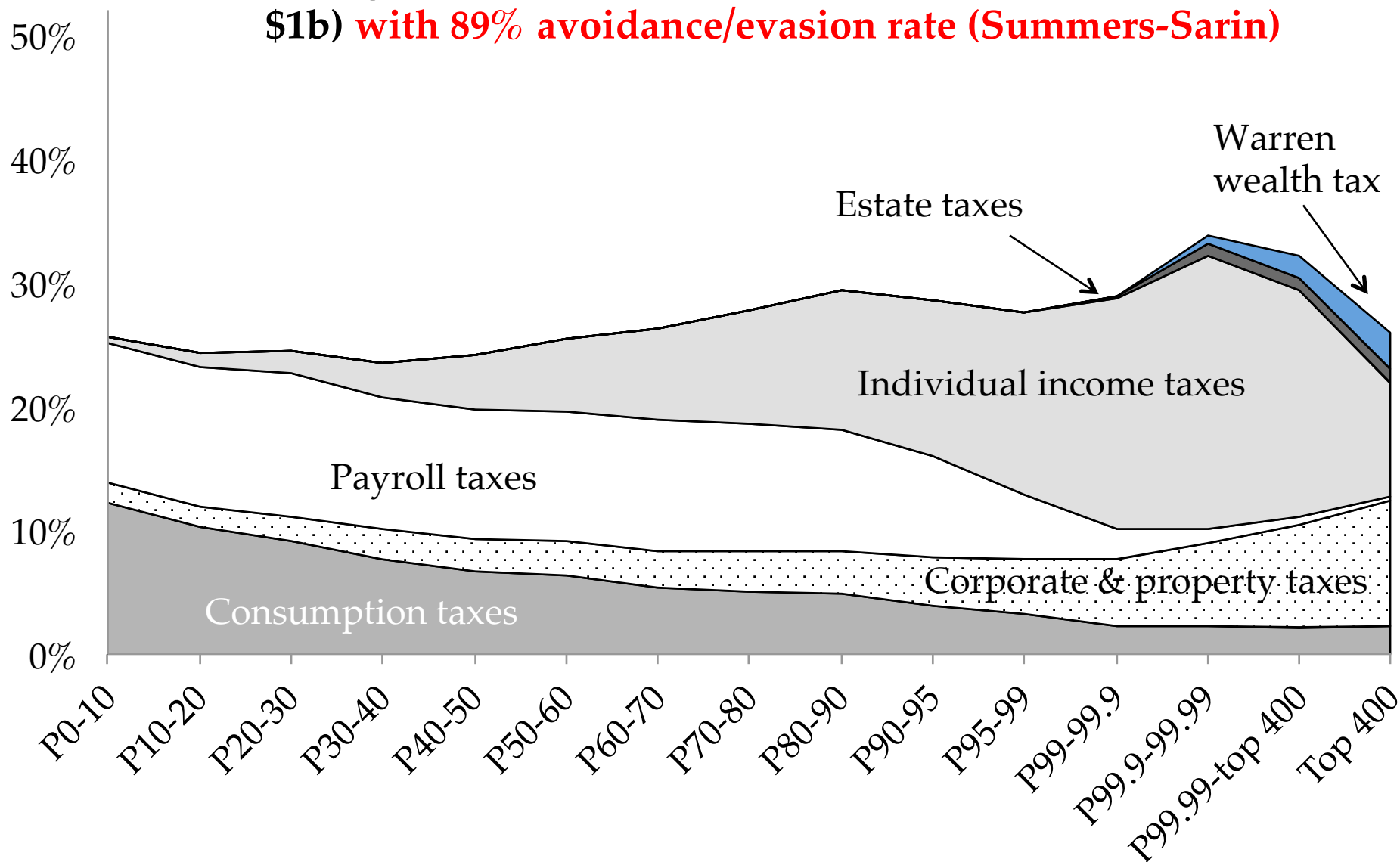
Both weaknesses could be remedied:

- 1) Fight offshore tax evasion (FATCA) and tax expatriates
- 2) Set high exemption threshold (\$50m rather than \$1m)

Adding old Warren wealth tax (2% above \$50m, 3% above \$1b) with 15% avoidance/evasion rate (Saez-Zucman)



Adding old Warren wealth tax (2% above \$50m, 3% above \$1b) with 89% avoidance/evasion rate (Summers-Sarin)



WEALTH IN TAX HAVENS

Official statistics substantially underestimate the net foreign asset positions of rich countries because they do not capture most of the assets held by households in off-shore tax havens

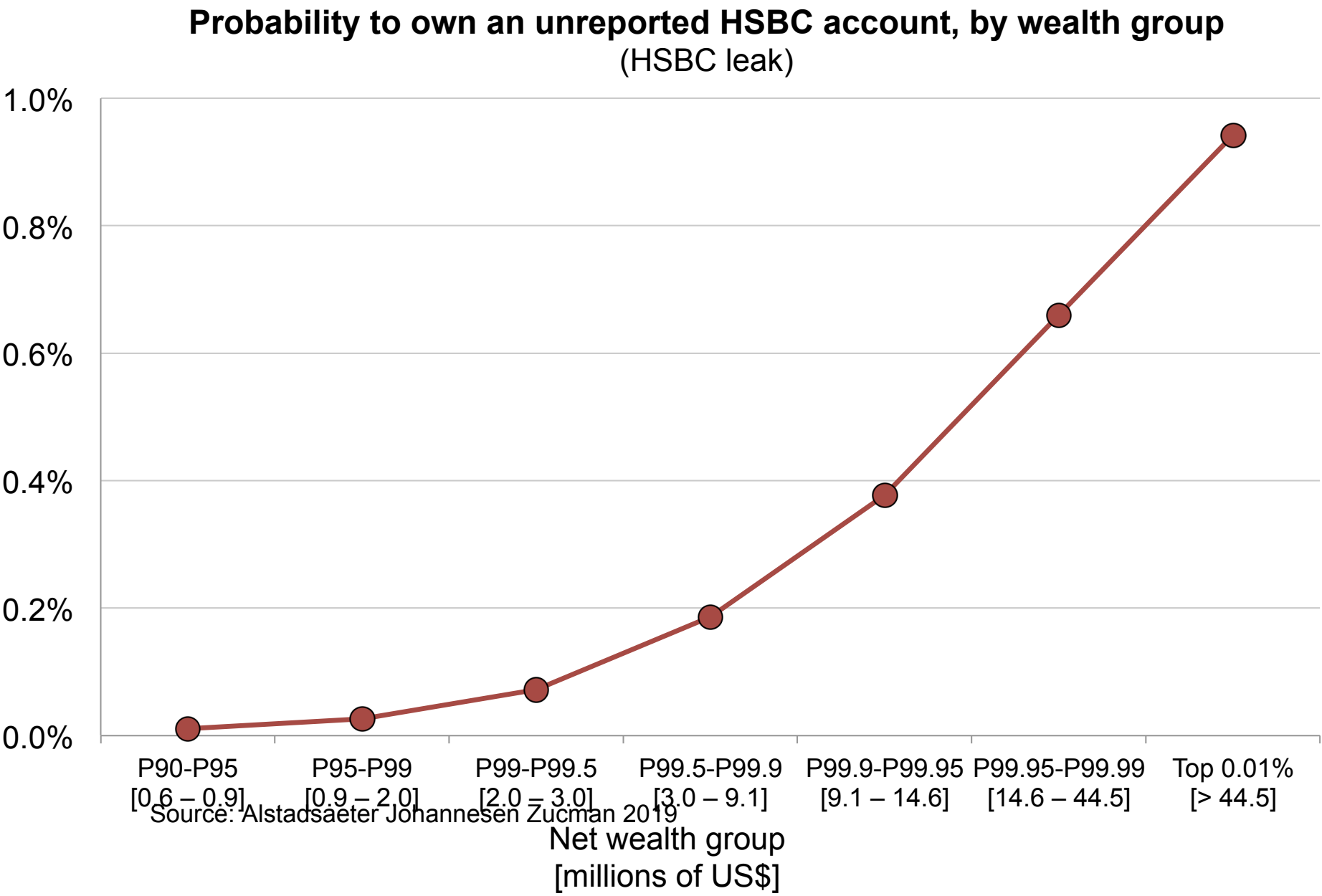
⇒ Total world liabilities are larger than world total assets

Zucman QJE'13 compiles international financial stats and estimates that around 8% of the global financial wealth of households is held in tax havens (3/4 of which is unrecorded = 6%)

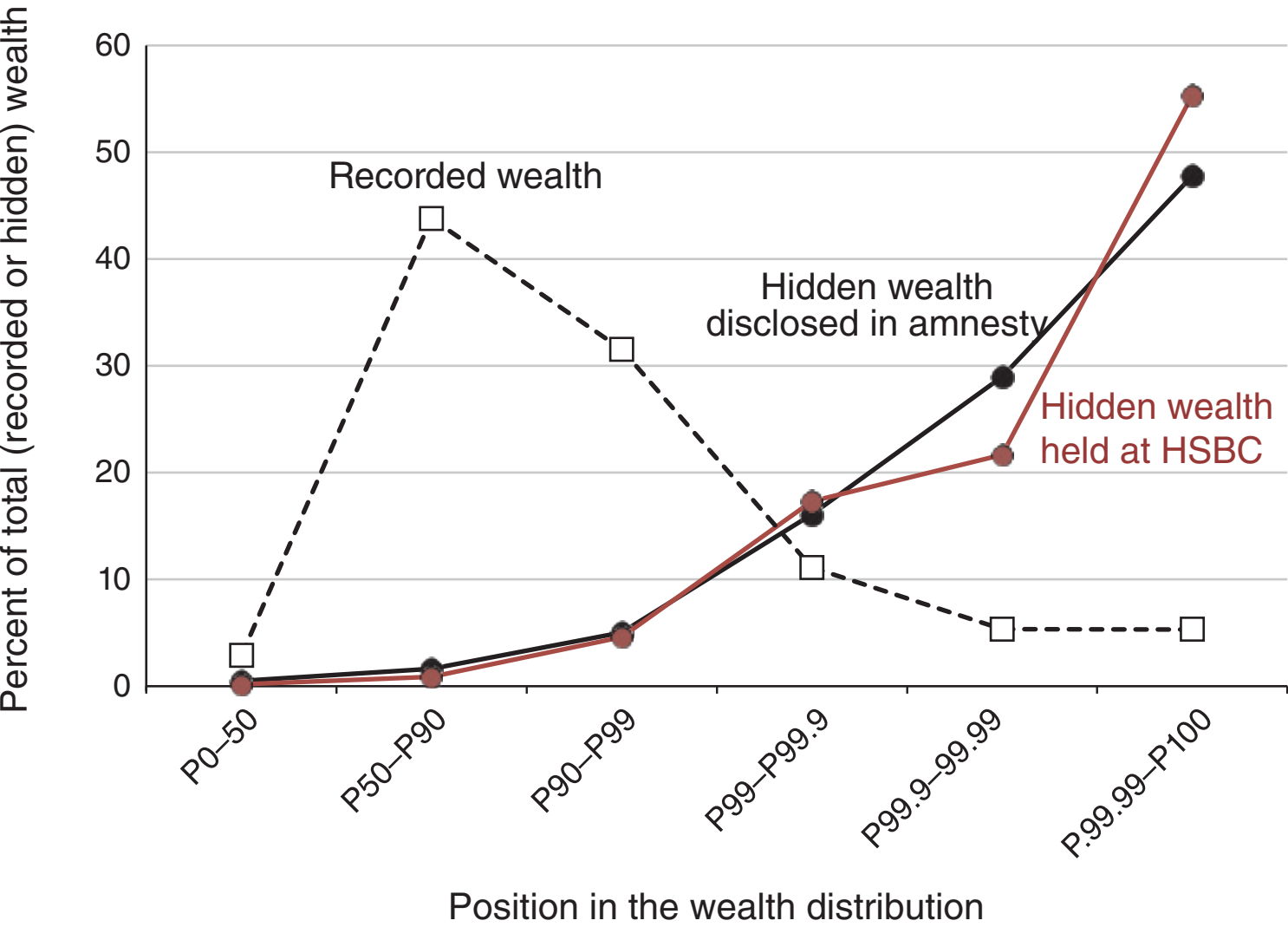
Alstadsaeter-Johannesen-Zucman '19 link data from HSBC leak of accounts to Norwegian tax data

⇒ offshore evasion super concentrated among wealthy and pretty large at the very top even in Norway

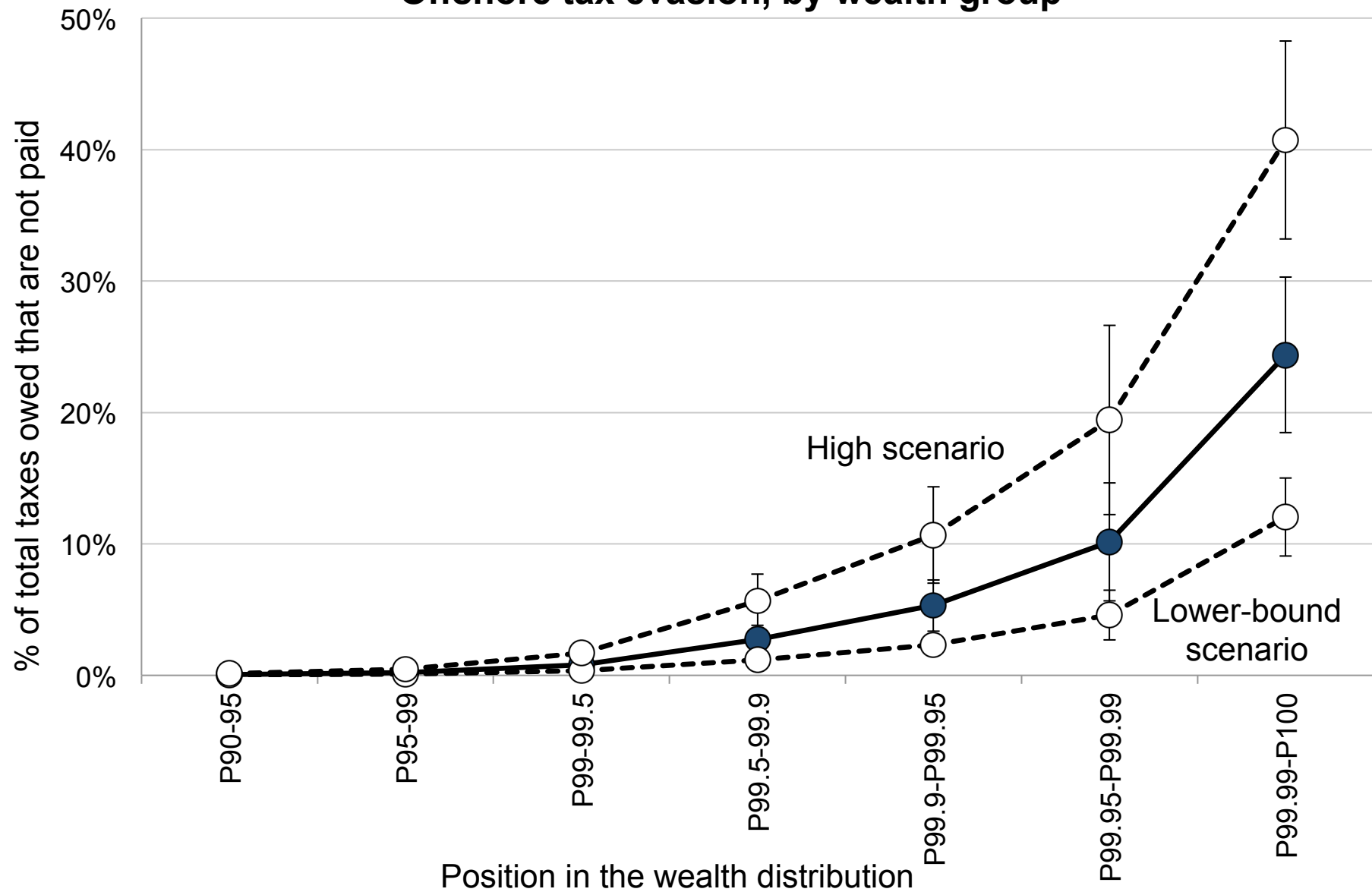
Figure 2: Tax evasion at HSBC: intensive vs. extensive margin



Panel A. Distribution of wealth: recorded versus hidden



Offshore tax evasion, by wealth group



Offshore Tax Evasion of Individuals

Rich individuals can evade taxes on wealth and capital income using offshore accounts in tax havens with bank secrecy

US passed FATCA in 2010: requires foreign banks to report accounts owned by US persons to IRS or face stiff penalties

⇒ Almost all banks complied (Panama papers leak risk)

⇒ Extended to all OECD+G20 countries in 2014: **Common Reporting Standard**

⇒ Boas et al. 2024 show it closed 70% of offshore tax gap in Denmark'

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