The Future of Fiscal Policy:
American Economic Policy Debates in the 21st Century
Taxation of Wealth and Investment Income

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Week 2

Thanks to Emmanuel Saez and Gabriel Zucman for posting notes/slides, some of which are reproduced here.
Outline

1 Wealth and Capital Income
   - Definitions and types of wealth and capital income
   - Distribution of wealth and capital income
   - Sources of top wealth

2 Policy: Taxation of Wealth and Capital Income
   - Current Tax Policy
   - A Progressive Wealth Tax
   - Other proposals

3 Effects of Taxes on Wealth and Capital Income
   - Mechanical and Behavioral Effects
   - Optimal capital taxation
Equity
- Distribution of capital income is much more unequal than labor income
- Capital income inequality is due to differences in savings behavior but also inheritances received
  ⇒ Equity suggests it should be taxed more than labor

Efficiency
- Capital Accumulation correlates strongly with growth
- Capital accumulation might be sensitive to the net-of-tax return.
  ⇒ Efficiency cost of capital taxation might be high
1. **Wealth and Capital Income**
   - Definitions and types of wealth and capital income
   - Distribution of wealth and capital income
   - Sources of top wealth

2. **Policy: Taxation of Wealth and Capital Income**
   - Current Tax Policy
   - A Progressive Wealth Tax
   - Other proposals

3. **Effects of Taxes on Wealth and Capital Income**
   - Mechanical and Behavioral Effects
   - Optimal capital taxation
Macro framework

Constant return to scale aggregate production:

- \( Y = F(K, L) = rK + wL = \text{output} = \text{income} \)
- \( rK = \text{capital income}, \ wL = \text{labor income} \)
- \( r = \text{rate of return on capital}, \ w = \text{wage rate} \)
- \( K = \text{capital stock (wealth)}, \ L = \text{labor input} \)

How large is capital income and wealth as a share of national income?

- \( \alpha = \frac{rK}{Y} = \text{capital income share} \) (constant \( \alpha \) when \( F(K, L) = K^\alpha L^{1-\alpha} \) Cobb-Douglas), \( \alpha \simeq 30\% \)
- \( \beta = \frac{K}{Y} = \text{wealth to annual income ratio}, \ \beta \simeq 5 - 6 \)
- \( r = \left(\frac{rK}{Y}\right) \cdot \left(\frac{Y}{K}\right) = \frac{\alpha}{\beta}, \ r = 5 - 6\% \)
Types of wealth and capital income

**Definition:** Capital Income = Returns from Wealth Holdings

- **Aggregate US Private Wealth** $\approx 4 \times$ Annual National Income
- **Housing:** residential real estate (land + buildings) [income = rents] net of mortgage debt
- **Unincorporated business assets:** value of sole proprietorships and partnerships [income = individual business profits]
- **Corporate equities:** Value of corporate stock [income = dividends + retained earnings]
- **Fixed claim assets:** Currency, deposits, bonds [income = interest income] minus debts [credit card, student loans]
- **Pension funds:** Substantial amount of equities and fixed claim assets held indirectly through pension funds
Aggregate Household Wealth

Total household wealth (to national income)

Market value

Capital stock (at replacement cost)

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

Source: Saez Zucman (2019)
Components of Aggregate Household Wealth

A. Components of Aggregate Household Wealth

Source: Smith Zidar Zwick (2019)
Components of Aggregate Fiscal Capital Income

B. Components of Aggregate Fiscal Capital Income

Future of Fiscal Policy (Econ 593i)
Piketty Saez Zucman (2018)’s capital income by type

Source: Piketty Saez Zucman (2018)
Piketty Saez Zucman (2018)’s labor income by type

Source: Piketty Saez Zucman (2018)

Wages and self-employment income
on tax returns

Employer fringe benefits & payroll taxes

Tax evasion & other

Non-filers

% of national income
0% 10% 20% 30% 40% 50% 60% 70%

Source: Appendix Table I-S.A8b.
Distribution of wealth and capital income
Methods to estimate wealth distribution

In the US, wealth distribution much less well measured than income distribution because no systematic administrative source (no federal wealth tax).

1. **Surveys:** US Survey of Consumer Finances (SCF)
   - Problems: small sample size, measurement error, only every 3 years, starts in 1989

2. **Estate multiplier method:** use annual estate tax statistics and re-weights individual estates by inverse of death probability \([\text{based on age} \times \text{gender} \times \text{social class}]\)
   - Kopczuk-Saez NTJ’04 create series 1916-2000
   - Problems: social class effect on mortality not well known, significant estate tax avoidance, noisy measure of “young wealth”, estates cover only the super rich (top .1% in recent years)

3. **Capitalization method:** use capital income from individuals tax statistics and estimates rates of returns by asset class to infer wealth
   - Saez Zucman (2016) and indirectly Piketty Saez Zucman (2018)
   - Smith Zidar Zwick (2019)
How concentrated is wealth in the United States?

Top 0.1% Share of Total Household Wealth

Baseline Saez and Zucman (2016)
Estate tax data (Kopczuk and Saez, 2004)
Raw SCF
Raw SCF + Forbes 400

Future of Fiscal Policy (Econ 593i)
Taxation of Wealth and Investment Income
Week 2
Capitalizing Income to Measure Top Wealth
Overview of capitalization method

**Goal:** Use observed income $y$ to estimate wealth $W$

$$y = rW$$

$$\Rightarrow W = y \times \frac{1}{r}$$

**Need:** Rate of return $r$
Baseline approach: Compute aggregate return as ratio of $y$ to $W$ by component

1. **Income** ($y$) by component from de-identified Treasury tax files
   - Stratified samples used in Piketty Saez (2003), SZ, PSZ (2018)

2. **Wealth** ($W$) by component from US Financial Accounts
   - Total assets minus liabilities of households at market value
   - Follow SZ in excluding durables, unfunded DB pensions, and non-profits
   - Cf. measures from Survey of Consumer Finances
### Components of Aggregate Fiscal Capital Income

<table>
<thead>
<tr>
<th>Year</th>
<th>Interest</th>
<th>Dividends</th>
<th>Capital Gains</th>
<th>Pass Throughs</th>
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<tbody>
<tr>
<td>1965</td>
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**Future of Fiscal Policy (Econ 593i)**

Taxation of Wealth and Investment Income

Week 2
Using the capitalization method to estimate wealth components by group

**Goal:** Estimate fixed income wealth for top $W_{fix}^T$ and bottom $W_{fix}^B$

\[
y_{fix}^T = r_{fix}^T \times W_{fix}^T \quad (1)
\]
\[
y_{fix}^B = r_{fix}^B \times W_{fix}^B \quad (2)
\]
\[
W_{fix} = W_{fix}^T + W_{fix}^B \quad (3)
\]

where
- $y_{fix}^T$, $y_{fix}^B$ interest income of $T$ and $B$
- $W_{fix}$ total fixed income wealth

**Need:** $r_{fix}^T$ and $r_{fix}^B$
Comparing alternative approaches

### Equal returns

**Assumption:** Aggregate yield for all

$$r_{fix}^T = r_{fix}^B = \bar{r}_{fix}$$

where

$$\bar{r}_{fix} = \frac{y_{fix}}{W_{fix}}$$

**Results:**

$$\hat{W}_{fix}^T = y_{fix}^T \times \frac{1}{\bar{r}_{fix}}$$

$$\hat{W}_{fix}^B = y_{fix}^B \times \frac{1}{\bar{r}_{fix}}$$

### Heterogeneous returns

**Assumption:** Top get higher yield

$$r_{fix}^T = r_{high}$$

where

$$r_{high} \in \{ r_{UST}, r_{Aaa}, r_{Baa}, r_{SCF} \}$$

**Results:**

$$\hat{W}_{fix}^T = y_{fix}^T \times \frac{1}{r_{UST10}}$$

$$\hat{W}_{fix}^B = W_{fix} - y_{fix}^T \times \frac{1}{r_{UST10}}$$
Comparing alternative approaches

Example with 2014 data, where $T$ denotes top 0.1%

<table>
<thead>
<tr>
<th>Equal returns</th>
<th>Heterogeneous returns</th>
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</thead>
<tbody>
<tr>
<td><strong>Assumption:</strong> Aggregate yield for all</td>
<td><strong>Assumption:</strong> Top get higher yield</td>
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<tr>
<td>$r_{fix}^T = r_{fix}^B = \left( \frac{98B}{11.1T} \right) = 0.89%$</td>
<td>$r_{fix}^T = r_{Aaa} = 4.16%$</td>
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<tr>
<td><strong>Results:</strong></td>
<td><strong>Results:</strong></td>
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<tr>
<td>$\hat{W}_{fix}^T = 42B \times \left( \frac{1}{0.89%} \right) = 4.7T$ (Cap factor=113)</td>
<td>$\hat{W}_{fix}^T = 42B \times \left( \frac{1}{4.16%} \right) = 1.0T$ (Cap factor=24)</td>
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<tr>
<td>$\hat{W}_{fix}^B = 56B \times \left( \frac{1}{0.89%} \right) = 6.4T$</td>
<td>$\hat{W}_{fix}^B = 11.1T - 1.0T = 10.1T$</td>
</tr>
</tbody>
</table>
Under equal returns, wealth estimate is proportional to income share

\[ \hat{W}_{fix}^T = y_{fix}^T \times \frac{1}{\bar{r}_{fix}} = y_{fix} \times \frac{1}{\frac{y_{fix}}{W_{fix}}} = y_{fix}^T \times \frac{y_{fix}}{W_{fix}} \times W_{fix} \]

- Income share
- Total fixed income wealth
Concentration of fiscal capital income over time

Top Interest Income Shares (%)

Top Property Tax Shares (%)

Top Dividend Share (%)

Capital Gains Income Share (%)
1. Fixed Income Wealth with Heterogeneous Returns
Box 1 is to:

*include interest on bank deposits, accumulated dividends paid by a life insurance company, indebtedness (including bonds, debentures, notes, and certificates other than those of the U.S. Treasury)*

**Main point:** Taxable interest income is a broad bucket that comprises many different categories of assets delivering fixed income to owners.
Evaluating the equal returns assumption for fixed income

Fixed Income Portfolio Composition in the SCF

Rates of Return for Fixed Income Assets

Future of Fiscal Policy (Econ 593i)

Taxation of Wealth and Investment Income

Week 2
Alternative capitalization factors over time

Fixed income rates of return, $r_{fix}$

Capitalization factor, $1/r_{fix}$

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Taxation of Wealth and Investment Income
Top 0.1% fixed income wealth under alternative assumptions

Levels in 2014

Relative to Total Wealth (1980–2014)
2. Public Equity Wealth with Less Weight on Capital Gains
Generalized C-corporation equity wealth estimate

\[ \hat{W}_{c-corp}^T = \frac{y_{divs}^T + \alpha y_{capgains}^T}{y_{divs} + \alpha y_{capgains}} \times W_{c-corp} \]

where

- \( \alpha \in [0, 1] \) is the share of cap gains used to allocate ownership
- \( \hat{W}_{c-corp}^T \) is estimated top C-corporation equity wealth
- \( y_{divs}, y_{capgains} \) are fiscal dividends and realized capital gains income, respectively
- \( W_{c-corp} \) is aggregate household C-corporation equity wealth
Generalized C-corporation equity wealth estimate

\[ \hat{W}^{T}_{c-corp} = \frac{y^{T}_{divs} + \alpha y^{T}_{capgains}}{y^{T}_{divs} + \alpha y^{T}_{capgains}} \times W_{c-corp} \]

Motivating facts:

1. Capital gains is a broad category, only 20–30% from C-corporation stock sales

2. $50–100B (≈ 1/3 top gains) per year in 2012–2016 is “carried interest”
   - Correlated with wealth rank \( \rightarrow \) bias in estimated concentration
   - 25% of top cap gains recipients recorded as general partners
Fact: Rise of top wealth shares in 1990s driven by stocks, specifically capital gains
3. Pass-Through Equity Wealth with Unequal Returns
Motivation:

1. Private biz largest source of disagreement between Financial Accounts and SCF
2. Getting valuations right is critical for enforcement of wealth and estate tax
3. Financial Account aggregates likely understated due to incomplete data
4. Inconsistent role of pass-through income for top income vs. wealth
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How?

1. Market-based models akin to capitalization and what practitioners do
2. Correct for avoidance/accounting issues through model averaging
Adjusting private business for heterogeneous returns and mismeasurement

How?

1. Market-based models akin to capitalization and what practitioners do
2. Correct for avoidance/accounting issues through model averaging

\[
\hat{W}_{\text{Pthru}}^T = \sum_I 1/3 \left( M_{Sales,I} \times y_{Sales,I}^T + M_{Assets,I} \times y_{Assets,I}^T + M_{Profits,I} \times y_{Profits,I}^T \right)
\]

- \(I\) denotes NAICS 4-digit industry
- \(M_{X,I}\) denotes the valuation multiple from Compustat for factor \(X \in \{\text{Sales, Assets, Profits}\}\) for industry \(I\)
- \(y_{X,I}^T\) is the top wealth group’s aggregate pass-through factor \(X\) for industry \(I\)
Example: All S-corporation auto dealers (NAICS 4411)

Using sales, capital, and EBITD multiples, respectively

\[
\hat{W}_{Pthru}^T = \sum_{i} 1/3 (0.4 \times 580B + 3.5 \times 13B + 8.7 \times 12B)
\]

\[
= 130B \text{ or } 4M \text{ per firm}
\]
Industry variation in the returns to private business equity

Industry Return Heterogeneity (2014)

Aggregate Private Business across Data Source

S-corporation Return Distribution by Year

Future of Fiscal Policy (Econ 593i)

Taxation of Wealth and Investment Income
4. Housing Wealth with Unequal Property Tax Rates
Property Tax Rates Vary Substantially ($\mu = 1.14, \sigma = 0.53$)

Median state property tax rate in 2012 is 0.98, P05=0.48, P10=0.58, P90=2.02, P95=2.19

Future of Fiscal Policy (Econ 593i)
Key results:

1. California goes from 10% to 25% of total housing wealth
2. High tax states have less wealth (e.g., NY, IL, NJ)
New Wealth Estimates: Level, Composition, and Growth
Wealth shares of the bottom 90%, P90-99%, and top 1%

![Graph showing wealth shares of different percentiles from 1965 to 2015.](image)
Top wealth composition in 2013 across estimation methods

**Top 1%**

- **Fixed Income**: 7.2, 4.0, 3.4, 0.3, 3.1, 5.0, 4.6, 4.1, 0.3, 4.9, 4.6, 7.2
- **Public Equity**: 4.2, 1.3, 1.3, 0.3, 3.4, 2.9, 1.8, 0.3, 2.5, 4.3, 4.1

**Top 0.1%**

- **Fixed Income**: 4.2, 1.3, 1.3, 0.3, 3.4, 2.9, 1.8, 0.3, 2.5, 4.3, 4.1
- **Public Equity**: 4.2, 1.3, 1.3, 0.3, 3.4, 2.9, 1.8, 0.3, 2.5, 4.3, 4.1

**Note:** Includes estimate that 20% of C-corporation wealth is private
Top wealth composition in 2013 across estimation methods

- **Baseline**
  - Fixed Income: 39.7%
  - Public Equity: 29.6%
  - Private Business: 21.7%
  - Housing Net of Mortgages: 3.9%
  - Pensions & Other: 5.2%

- **Preferred Estimate**
  - Fixed Income: 14.8%
  - Public Equity: 31.0%
  - Private Business: 42.2%
  - Housing Net of Mortgages: 5.4%
  - Pensions & Other: 6.5%

- **Raw SCF**
  - Fixed Income: 15.7%
  - Public Equity: 21.2%
  - Private Business: 47.6%
  - Housing Net of Mortgages: 8.8%
  - Pensions & Other: 6.7%

- **Raw SCF + Forbes 400**
  - Fixed Income: 15.6%
  - Public Equity: 21.7%
  - Private Business: 48.8%
  - Housing Net of Mortgages: 7.7%
  - Pensions & Other: 6.2%

- **Estate Tax Returns**
  - Fixed Income: 24.0%
  - Public Equity: 20.5%
  - Private Business: 33.4%
  - Housing Net of Mortgages: 15.7%
  - Pensions & Other: 6.4%
Top shares grew by half as much
Saez Zucman (2019)’s updated series

This figure depicts the share of total household wealth owned by the top 0.1% of families (tax units) from various data sources.

Source: Saez Zucman (BPEA, 2019)
Saez Zucman (2019)’s series with partial adjustment

(a) Top 0.1% wealth share

Source: Saez Zucman (BPEA, 2019)
Saez Zucman (2019)’s estate tax update

(a) Male mortality rate differentials by income percentiles in 2012-4

Source: Saez Zucman (BPEA, 2019)

Source: Saez Zucman (BPEA, 2019)
Saez Zucman (2019)’s estate tax update

(b) Correcting estate multiplier estimates

Source: Saez Zucman (BPEA, 2019)
Sources of top wealth
Sources of wealth and capital income

Wealth $= W$, Return $= r$, Capital Income $= rW$

$$W_t = W_{t-1} + r_t W_{t-1} + E_t + I_t - C_t$$

where $W_t$ is wealth at age $t$, $C_t$ is consumption, $E_t$ labor income earnings (net of taxes), $r_t$ is the average (net) rate of return on investments and $I_t$ net inheritances (gifts received and bequests - 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 $r_t$
Wealth over the lifecycle

Life Cycle Model

Earnings → Wealth → Consumption

savings

dissaving

0: work starts → R: retirement → T: death

time
Life cycle wealth versus Inherited wealth

1. **Life-cycle wealth** is wealth from savings earlier in your life
   - (e.g., pension contributions out of earnings, paying down a home mortgage, etc.)

2. **Inherited wealth** is wealth from inheritances received
   - (e.g., receiving a house or a trust fund from parents)

- Distinction matters for taxation because individuals are responsible for life-cycle wealth but not inherited wealth [meritocracy vs. aristocracy]
- 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 (2014)
Analyzes income, wealth, inheritance data over the long-run:

- **Growth rate** \( g = \text{population growth} + \text{growth per capita} \). Population growth will converge to zero, growth per capita for frontier economies is modest (1-1.5%) \( \Rightarrow \) long-run \( g \approx 1 - 1.5\% \)

- **Long-run aggregate wealth to income ratio** \( (\beta) = \frac{\text{savings rate}}{\text{annual growth}} (s / g) \): Proof: \( W_{t+1} = (1 + g) \cdot W_t = W_t + s \cdot Y_t \Rightarrow \frac{W_t}{Y_t} = \frac{s}{g} \)
  With \( s = 8\% \) and \( g = 2\% \), \( \beta = 400\% \) but with \( s = 8\% \) and \( g = 1\% \), \( \beta = 800\% \) \( \Rightarrow \)
  Wealth will become important
Rate of return on wealth $r \approx 5\%$ significantly larger than $g$ [except exceptional period of 1940s-1960s]

With $r >> g$, role of inheritance in wealth grows and wealth inequality increases [past swallows the future]

   Explanation: Rentier who saves all her return on wealth accumulates wealth at rate $r$ bigger than $g$ and hence her wealth grows relative to the size of the economy. The bigger $r - g$, the easier it is for wealth to “snowball”: fortunes are created faster and last longer

   $\Rightarrow$ Capital income taxation reduces $r$ to $r \cdot (1 - \tau_K)$  $\Rightarrow$ reduces wealth concentration and relative weight of inherited wealth
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3. Effects of Taxes on Wealth and Capital Income
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Overview of taxation of capital income

1. **Corporate Income Tax** (fed+state): 21% Federal tax rate on profits of corporations [complex rules with many industry specific provisions]: effective tax rate lower. Will discuss next week.

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
   - Will discuss more week after next

3. **Estate tax**: tax on very large estates (40% tax above $11m) bequeathed to heirs (now very 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
   - Won’t be able to discuss land taxation or housing subsidies, but big deal/important area [see Henry George’s Progress and Poverty, which sold millions of copies (second only to Bible in 1890s) and helped spark Progressive Era].
Quick aside on progress and poverty

*Monopoly’s Inventor: The Progressive Who Didn’t Pass ‘Go’*

The Landlord's Game, which became Monopoly, was created by Elizabeth Magie Phillips. The Strong

Current taxation of wealth and capital income

1. Wealth
   - Estate tax on inheritances
   - Local property tax

2. Capital income
   - Corporate tax
   - Individual income tax

But some cite concerns:
   - Estate tax avoidance concerns, property tax not very progressive
   - Low corporate tax rate (21%) and lack of integration ⇒ Rich will incorporate and accumulate within corporations
   - Realized capital gains tax partly retained earnings and pure K gains but with loopholes (deferral and step-up of basis after transfer/inheritance)
Recall estimated progressivity of US tax system in 2018

Total Tax rates, 2018 (by pre-tax national income)

Source: Saez Zucman (2019)
Recall estimated progressivity of US tax system in 1962

**Total Tax rates, 1962 (by pre-tax national income)**

- **Sales taxes**
- **Payroll taxes**
- **Corporate & property taxes**
- **Individual income taxes**
- **Estate tax**

Source: Saez Zucman (2019)
Democrats’ Emerging Tax Idea: Look Beyond Income, Target Wealth

Lawmakers and 2020 candidates offer a range of options focused on capturing some of the trillions of dollars in assets belonging to the nation’s richest

A Progressive Wealth Tax
Ultra-millionaire wealth tax proposal and mechanical tax base in 2014

Warren Ultra-Millionaire Wealth Tax:
1. 2% tax on wealth above $50M
2. Additional 1% tax on wealth above $1B

Under equal returns (2014):
- 52,000 $50+ millionaires, 930 billionaires
- Mechanical tax revenue:

\[
0.02 \times (9.1T - 52000 \times 50M) + 0.01 \times (2.4T - 930 \times 1B) = 146B
\]
Ultra-millionaire wealth tax proposal and mechanical tax base in 2014

**Warren Ultra-Millionaire Wealth Tax:**
1. 2% tax on wealth above $50M
2. Additional 1% tax on wealth above $1B

**Under equal returns (2014):**
- 52,000 $50+ millionaires, 930 billionaires
- Mechanical tax revenue: $146B

**Under Moody’s Aaa, 25% KG (2014):**
- 32,650 $50+ millionaires, 436 billionaires
- Mechanical tax revenue: $76B

\[
\begin{align*}
\text{Non-taxable } & 50+M \text{ wealth } \\
\text{Non-taxable } & 1B \text{ wealth }
\end{align*}
\]

\[
\begin{align*}
.02 \times \left( \frac{5.1T}{50M} \right) & - \left( 32650 \times \frac{50M}{50M} \right) + \\
.01 \times \left( \frac{1.1T}{1B} \right) & - \left( 436 \times \frac{1B}{1B} \right) = 76B
\end{align*}
\]
Warren Ultra-Millionaire Wealth Tax:
1. 2% tax on wealth above $50M
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- 32,650 $50+ millionaires, 436 billionaires
- Mechanical tax revenue: $76B

Takeaway: ↓ ultra-millionaire threshold to $11M to raise revenue target of $146B
2019 tax base estimates

Tax base = total wealth × top wealth share × (1-evasion rate)

Table 2: Wealth Tax Base Estimates, 2019

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<thead>
<tr>
<th></th>
<th>Top 1% cut-off</th>
<th>Top .1% cut-off</th>
<th>Top .01% cut-off</th>
<th>$50 million cut-off</th>
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<tr>
<td><strong>Capitalized incomes</strong></td>
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<tr>
<td>Threshold ($m)</td>
<td>5.9</td>
<td>30.8</td>
<td>171.8</td>
<td>50.0</td>
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<td>Base above threshold ($tr)</td>
<td>25.9</td>
<td>13.0</td>
<td>6.3</td>
<td>10.9</td>
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<td><strong>SCF+Forbes 400</strong></td>
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<tr>
<td>Threshold ($m)</td>
<td>9.0</td>
<td>40.6</td>
<td>172.3</td>
<td>50.0</td>
</tr>
<tr>
<td>Base above threshold ($tr)</td>
<td>27.5</td>
<td>11.5</td>
<td>5.5</td>
<td>9.7</td>
</tr>
<tr>
<td><strong>Estates with multiplier</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threshold ($m)</td>
<td>25.5</td>
<td>123.6</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>Base above threshold ($tr)</td>
<td>8.9</td>
<td>4.3</td>
<td>6.8</td>
<td></td>
</tr>
<tr>
<td>Estate tax implied evasion</td>
<td>31.6%</td>
<td>32.2%</td>
<td>37.8%</td>
<td></td>
</tr>
</tbody>
</table>

Tax base by source assuming no extra tax evasion (over and beyond what’s already in the source). Tax assessed on family tax units.

Source: Saez Zucman (BPEA, 2019)
A related proposal of accrual taxation

- **Mark-to-market**: tax gains as they accrue. Assets valued every year, and taxpayers pay taxes on the gain or deduct the loss.

- **Retroactive accrual**: tax gains upon sale. Minimize benefit of deferring sale by including deferral charge equivalent to back taxes due with interest.

- **Combination approach**: mark-to-market for publicly traded assets and retroactive accrual for non-publicly traded assets (harder to price annually).
Proposed accrual tax plans

**Sen. Ron Wyden**
- Combination approach: mark-to-market and retroactive accrual
- Applied only to top earners (≥ $1 million in annual income) and top wealth-holders (≥ $10 million in assets for three consecutive years, with some exemptions)
- Use ordinary-income tax rates, no specified top rate
- Use revenues to fund Social Security

**Joe Biden**
- Tax unrealized gains at death, abolishing stepped-up basis
- Double income-tax rate on capital gains (currently 20%) for taxpayers with income ≥ $1 million
- Revenues delayed relative to other plans
A range of proposals
Note that these plans treat “buy, borrow, die” strategy differently

Rethinking Capital Gains Taxation

Democrats are looking at major changes to the way capital gains taxation works. The effects of their tax proposals would depend on each taxpayer’s circumstances and on market performance.

**CURRENT LAW**
Assets can appreciate without capital gains taxes and heirs pay taxes only on gains in value after the original owner’s death.

**BIDEN PLAN**
Death would be considered a realization event, triggering capital gains taxes on appreciated assets, paid at ordinary income tax rates.

**WYDEN PLAN**
Each year, investors would pay income taxes on the gain in their assets. This is called a mark-to-market system.

**WARREN PLAN**
Net worth above $50 million subject to a 2% annual tax, plus a 1% tax on net worth above $1 billion.

Example one: Asset value begins at $40 million, 5% growth until person dies in year 25

Total taxes taken under law/plans:

- $0
- $35.6 million
- $21.4 million
- $11.9 million

Example two: Asset value begins at $200 million, 7% growth until year 12, person dies in year 25

Total taxes taken under law/plans:

- $0
- $88.4 million
- $58.3 million
- $121.2 million

Outline

1. **Wealth and Capital Income**
   - Definitions and types of wealth and capital income
   - Distribution of wealth and capital income
   - Sources of top wealth

2. **Policy: Taxation of Wealth and Capital Income**
   - Current Tax Policy
   - A Progressive Wealth Tax
   - Other proposals

3. **Effects of Taxes on Wealth and Capital Income**
   - Mechanical and Behavioral Effects
   - Optimal capital taxation
Effects of Taxes on Wealth and Capital Income

Several considerations

- Mechanical effects (how big is the tax base)
- Behavioral responses, avoidance, effects on asset prices (and thus tax base)
- Taxing wealth versus capital income
Mechanical effects

As we saw, some uncertainty of how large the top wealth base is

- Smith Zidar Zwick (2019) considerations but 2014 data
- Large growth in aggregate wealth since 2014
Behavioral effects

- Changes in savings behavior (and labor supply)
- Changes in bequests
- Avoidance and evasion
- Also business creation, innovation, capital mobility across countries
Behavioral effects in life-cycle model

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

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

Start with case with no taxes

Savings $s = wl - c_1$, $c_2 = (1 + r)s$. Capital income $rs$

Intertemporal budget:

$$c_1 + \frac{c_2}{1 + r} \leq wl$$

First order condition labor Supply:

$$w \frac{\partial u}{\partial c_1} + \frac{\partial u}{\partial l} = 0$$

First order condition savings:

$$\frac{\partial u}{\partial c_1} = \delta \cdot (1 + r) \frac{\partial v}{\partial c_2}$$
Taxes in the life-cycle model

- Budget with consumption tax at rate $t_c$:

$$\left(1 + t_c\right)[c_1 + c_2/(1 + r)] \leq wl$$

- Budget with labor income tax at rate $\tau_L$:

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

- Consumption and labor income tax are equivalent if

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

Both taxes distort only labor supply and not savings
Taxes in the life-cycle model

- Budget with capital income tax at rate $\tau_K$: $c_2 = (1 + r(1 - \tau_K)) \cdot s \Rightarrow$
  
  $c_1 + c_2/(1 + r(1 - \tau_K)) \leq wl$

$\tau_K$ distorts only savings choice (and not labor supply)

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

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

$\tau$ distorts both labor supply and savings

$\tau$ imposes “double” tax: on (1) earnings AND on (2) savings
Consider simpler model (fixed earnings $w$ in period 1)

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

- Recall that $c_1 = w - s$ and $c_2 = [1 + r(1 - \tau_K)] \cdot s$
- Suppose $\tau_K$ increases and hence $1/[1 + r(1 - \tau_K)] \uparrow$
  - **Substitution effect:** price of $c_2 \uparrow \Rightarrow c_2 \downarrow$, $c_1 \uparrow \Rightarrow$ savings $s = w - c_1$ decrease
  - **Income effect:** consumer is poorer $\Rightarrow$ both $c_1$ and $c_2 \downarrow \Rightarrow$ savings $s$ increase
- Total net effect is theoretically ambiguous $\Rightarrow \tau_K$ has ambiguous effects on $s$
Life cycle savings and taxes theory

- Indifference curves $u(c_1, c_2) =$ constant
- Utility maximizing choice
- Budget line slope $-(1+r)$

Graph showing:
- $c_2$ consumption while old
- $w(1+r)$ income
- $c_2^*$ consumption
- $s^*$: savings
- $w$: wealth
- $c_1$ consumption while young
Life cycle savings and taxes theory

\[ w(1+r) \]

\[ w(1+r(1-\tau)) \]

\[ c_2^* \]

\[ c_1^* \]

\[ s^* : \text{savings} \]

\[ w \]

\[ c_1 \text{ consumption while young} \]

Introducing tax on savings
Life cycle savings and taxes theory

Net effect: $c_1$ and $s$ ambiguous, $c_2$ down

Substitution effect: $c_1$ up, $s$ down, $c_2$ down

Income effect: $c_1$ down, $s$ up, $c_2$ down

$c_2$ consumption while old

$w(1+r)$

$w(1+r(1-\tau))$

$c_2^*$

$0$

$c_1^*$

'$w$'

$c_1$ consumption while young

$s^*$: savings
Overview of optimal capital tax

The equity-efficiency trade-off is often obscured in complex models

- Broadly two main types of models:
  - Life-cycle models: wealth is due solely to life-cycle savings
  - Models with bequests: wealth is due solely to inheritances

- Classic Results
  - Chamley-Judd: zero capital taxes because capital supply is infinitely elastic
  - Atkinson-Stiglitz: zero capital taxes because, conditional on labor income, there is no heterogeneity in wealth
  - NDPF: small capital taxes due to uncertainty/insurance

- Recent work
  - Saez-Stantcheva: heterogeneous preferences for wealth → optimal tax depends on a finite capital supply elasticity
  - Jakobsen Jakobsen Kleven Zucman (2019) provide estimates that can help quantify this (long-run) elasticity
Optimal Tax in Life-Cycle model

- Government can use both a progressive labor income tax $T(wl)$ and a linear capital income tax $\tau_K$
- Individuals live 2 periods, earn in period 1, retired in period 2

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

- 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 $\tau_K$ on capital income should be zero. Using a labor tax on earnings $T(wl)$ is sufficient.
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.
In reality, capital income inequality also due to:

1. difference in rates of returns across individuals
2. shifting of labor income into capital income
3. inheritances
4. tax evasion through off-shore accounts
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).

In general, richer individuals are able to invest in higher return assets due to ability to take risks and scale effects in financial advice [e.g., large University endowments get a larger return than smaller ones, Piketty 2014, Chapter 12].

Taxing capital income is a way to mitigate such inequality.

(Aside: note contrast to equal returns assumption fixed income capitalization factor)
## Use it or Lose it: Taxing wealth versus capital income

**TABLE I – Summary of the Illustrative Example**

<table>
<thead>
<tr>
<th></th>
<th>Capital Income Tax</th>
<th>Wealth Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( r_F = 0% )</td>
<td>( r_M = 20% )</td>
</tr>
<tr>
<td>Wealth</td>
<td>$1,000</td>
<td>$1,000</td>
</tr>
<tr>
<td>Pre-tax income</td>
<td>$0</td>
<td>$200</td>
</tr>
<tr>
<td>Tax rate</td>
<td>( \tau_k = \frac{$50}{$200} = 0.25 )</td>
<td>( \tau_a = \frac{$50}{$2,200} = 2.27% )</td>
</tr>
<tr>
<td>Tax liability</td>
<td>$0</td>
<td>$50</td>
</tr>
<tr>
<td>After-tax rate of return</td>
<td>( \frac{$200-$50}{$1,000} = 15% )</td>
<td>( \frac{-$23}{$1,000} = -2.3% )</td>
</tr>
<tr>
<td>After-tax wealth ratio</td>
<td>( \frac{W_M}{W_F} = \frac{$1,150}{$1,000} = 1.15 )</td>
<td>( \frac{W_M}{W_F} = \frac{$1,173}{$977} = 1.20 )</td>
</tr>
</tbody>
</table>

Notes: The subscripts \( F \) and \( M \) refer to Fredo and Michael’s variables, respectively. See the text for further details.

Source: Guvenen, Kambourov, Kuruscu, Ocampo, Chen (2019)
Shifting of labor/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
  - 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
  - Finnish Dual income tax system: 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
Inheritance: Estate Taxation in the United States

- Estate federal tax imposes a tax on estates above $11M 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 affects 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)
Inheritances (or gifts from living parents) raise difficult issues of social justice [see Kaplow 2001]:
  - 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
  - However, it seems unfair to tax the parents who worked hard (and already paid tax on income) to pass on wealth to children
Potential behavioral response effects of inheritance tax:

1. reduces wealth accumulation of altruistic parents (and hence tax base) [no very good empirical evidence, Kopczuk-Slemrod 2001 suggest small effects]

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. 3 models of bequests: (a) accidental, (b) altruistic bequests, (c) social/family pressure
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) ⇒ 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.
Utility $u(c) - h(l) + \delta v(b^{\text{left}})$ where $c$ is own consumption, $l$ is labor supply, and $b^{\text{left}}$ is net-of-tax bequests left to next generation and $v(b^{\text{left}})$ is utility of leaving bequests for donor.

Individual receives $b^{\text{received}}$, 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 ($\tau_B$ 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.

$\Rightarrow$ Two-dimensional inequality (labor, bequests) requires two-dimensional tax policy tool (labor tax, bequest tax)
Parents may not want to leave bequests but feel compelled to by pressure of heirs or society: bargaining between parents and children

With estate tax, parents do not feel like they need to give as much $\Rightarrow$ parents are made better-off by the estate tax $\Rightarrow$ Case for estate taxation stronger

Empirical evidence:

Aura JpubE’05: reform of private pension annuities in the US in 1984 requiring both spouses signatures when worker decides to get a single annuity or couple annuity: reform increases sharply couple annuities choice

Equal division of estates [Wilhelm AER’96, Light-McGarry ’04]: estates are very often divided equally probably to avoid conflicts [gifts before death are not as equally split]
Coming back to the Wealth tax debate

The case:
- Efficiency: wealth concentration is bad per se (excessive economic and political power to the wealth). Evidence from Robber Barons US 19th century and devo countries that entrenched wealth stifles growth (Acemoglu-Robinson '10)
- Tax fairness: super-rich do not need to “realize” income and hence pay fairly small income tax relative to their true incomes (Warren Buffett example)

Concerns:
- can a wealth tax be properly enforced? [offshore evasion and valuation of businesses]
- will it induce rich people to leave the US?
- will it discourage entrepreneurs?
- hasn’t it failed in other countries?
Evasion depends on enforcement

Clear evidence of behavioral responses to wealth taxes whenever avoidance opportunities exist:

1) Offshore tax evasion is large and concentrated (60% comes from top .1%, Zucman et al.) but can be curbed by leaks risk, cracking down on tax havens or their banks (FATCA)

2) Mobility is a serious threat if moving is easy and tax advantageous (Kleven-Kreiner-Saez '13 on EU football players, Moretti-Wilson '19 on Forbes 400 and state inheritance taxes)

3) Asset class exemptions can lead to massive shifting (Alvaredo-Saez '09 on Spain with stock exemption for owners managers)

4) Valuation discounts can reduce wealth by creating artificial illiquidity if such schemes allowed (US estate tax)

Source: Saez Zucman (2019)
WHY DID WEALTH TAXES FAIL IN EUROPE?

1) Tax competition concerns through offshore tax evasion and mobility of the rich

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)

3) Reliance on self-assessment (making enforcement hard)

All 3 weaknesses could be remedied:

1) Fight offshore tax evasion (FATCA) and tax expatriates

2) Set high exemption threshold ($50m rather than $1m)

3) Develop systematic information reporting

Source: Saez Zucman (2019)
KEY ENFORCEMENT ASPECTS

1) Use a comprehensive tax base with no asset class exemption

2) Use information reporting (publicly traded stocks, fixed claim assets, mutual + pension funds, real estate, and debts)

3) Closely held stock ($\approx$ 30% of top .1% wealth) toughest:
   a) Large: pay tax in stock and create missing market
   b) Small/medium: use valuation formula based on profits/capital stock/sales (as in Switzerland)

4) Always value underlying assets when assets held through intermediaries (pension and mutual funds, trusts, businesses)

5) Clear rules to assign shared assets (such as trusts)

⇒ with good enforcement, evasion rate of 15-20% possible

Source: Saez Zucman (2019)
ECONOMIC EFFECTS OF WEALTH TAXATION

Wealth concentration: well enforced wealth tax reduces wealth concentration (consensus)

Capital stock: Any reduction in saving from the wealthy could be compensated by higher public savings or higher middle class saving (pension, mortgage, debt regulations)

Entrepreneurship/innovation: No good empirical evidence. Wealth tax comes late. Early interventions (education / immigration / peers) might be more impactful. Founders may lose control sooner but could be hired as CEOs

Giving: Wealth tax could accelerate giving to charities and heirs. Socially desirable as long as they are not “straws”

Source: Saez Zucman (2019)
Some evidence from Denmark shows non-trivial long-run effects
Long-run elasticity of taxable wealth with respect to the net-of-tax return is sizable at top of distribution

Source: Jakobsen Jakobsen Kleven Zucman (2019)
GE effects are uncertain as are asset price (tax base) effects

To further focus the argument, consider a simple security – a riskless stock that pays $4/year in dividends forever. Suppose the wealth tax is a surprise, and before the tax is announced, the stock sells for $100, so the equilibrium (market clearing) rate of return is 4%. Suppose the wealth tax is 2% of the price of the bond at the beginning of each year, to be paid at the end of the year when the $4 dividend is received.

What happens to the price of the stock when the wealth tax is announced? The dividend is $4/year forever, so the new price that clears the market doesn’t change thereafter. Thus, after the initial price change in response to the tax, there are no further capital gains or losses.

The new price has to keep the post-tax return at 4%. Since the post-tax price, $P$, is constant, the post-tax return, every year, is the end-of-year dividend ($4) minus the tax ($0.02P$) all divided by the beginning-of-year price, $P$. The post-tax return, $R$, must be 0.04,

\[ R = \frac{4 - 0.02P}{P} = 0.04, \]

so,

\[ P = \frac{4}{0.06} = 66.67. \]

The wealth tax, which is only 2%, causes the stock price to fall by 1/3rd. The reason? The tax is small as a fraction of wealth, but it is paid annually, and it is large relative to the annual dividend, which means it has a big effect on the stock price. The

Source: Fama “Wealth Taxes” (2019). N.b. not all stocks would face tax so smaller aggregate effects.