The macroeconomic and distributional effects of progressive wealth taxes

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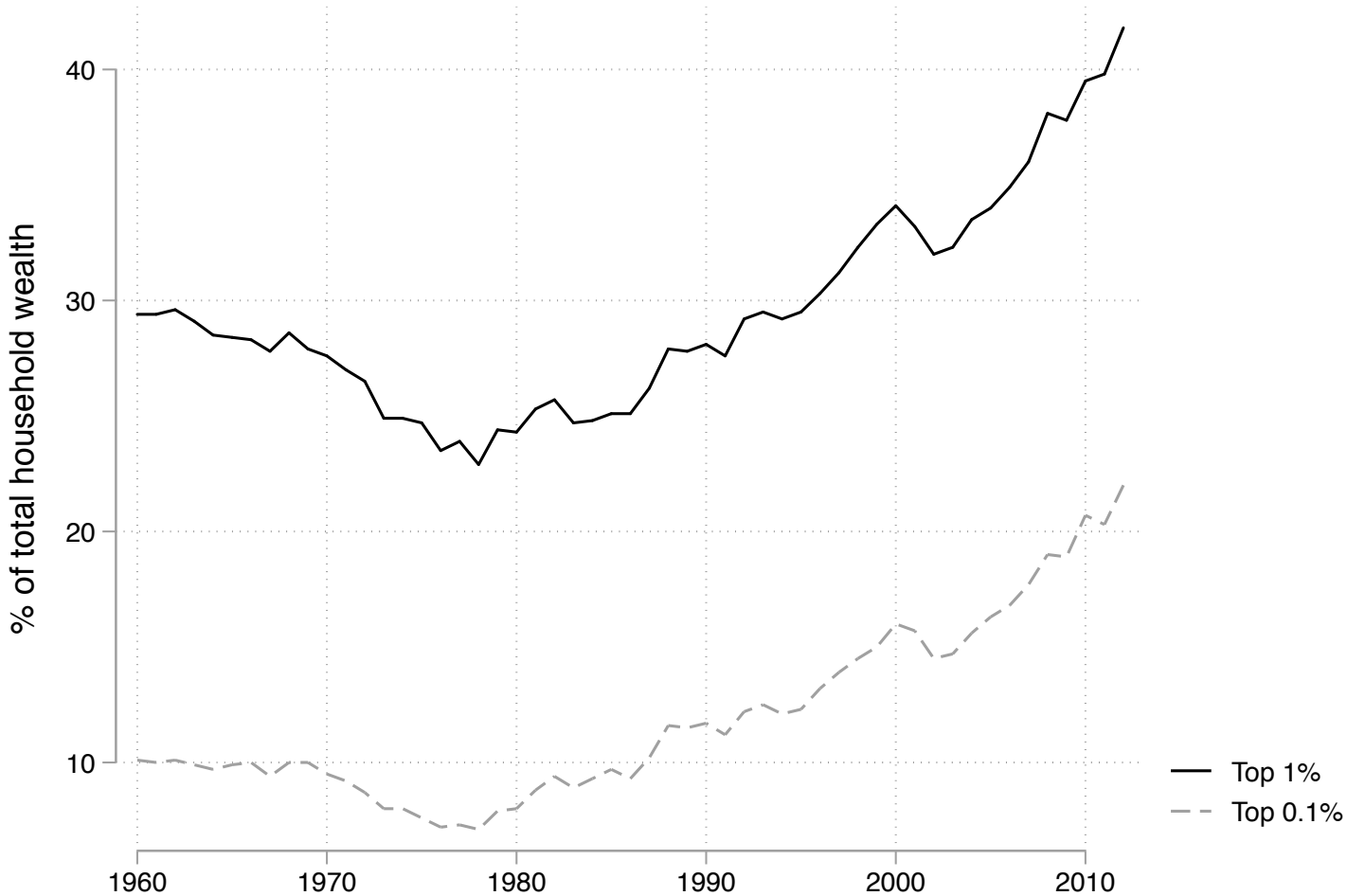
Top wealth shares in the United States



Source: Saez and Zucman, *QJE* 2015

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Inequality is the root of social evil.

Obama 2013: Inequality "is the defining challenge of our time."

Can and should policy react?

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Can and should policy react?

Piketty's Wealth Tax Proposal

Net Worth (euros) From	To	Tax Rate (%)	Percentile*
0	1,000,000	0	
1,000,000	5,000,000	1	4.0 - 0.4
5,000,000	and over	2	<0.4

* assuming a Pareto distribution with a tail index of 1.4.

- "Piketty tax" has received a lot of attention
- Similar tax proposals from others and in other countries

Pros and Cons of Wealth Taxation

Proponents

- Equality, social equity and peace
- Efficient allocation of capital (Guvenen 2015)

Opponents

- Lower capital accumulation, output and growth
- Tax avoidance and capital flight
- Administrative burden
- Liquidity issues

This paper:

Evaluate effects of progressive wealth taxes, ignoring downsides 2-4.

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Methodological Approach

- Build a quantitative model of an economy with realistic earnings and wealth inequality
- Calibrate the model economy to the U.S. economy in 2010
- Simulate the effects of Piketty's wealth tax proposal
- Form predictions of short-run and long-run distributions of welfare
- Simulate effects of other, related tax proposals

Model

Aiyagari-Bewley-Huggett *à la* Castañeda et al., *JPE* 2003

- Life-Cycle and Intergenerational Income Risk
- Retirement
- Superstars ("awesome state")

$\Rightarrow$ Matches income and wealth inequality well

Institutions:

- Social security
- Corporate, Estate, Income and Sales Taxation
- Exogenous government expenditures
- Progressive wealth taxes

Households

- value consumption c and dislike working
- are perfectly altruistic towards their children
- have heterogeneous productivity z
- decide how much to consume, work and invest in capital
- take prices w, r, taxes and transfers as given

Households face risks

- workers ($\mathcal{R} = 0$) retire with a constant probability μ_r
- retirees
  - cannot work, but receive a pension
  - die with a constant probability μ_d
  - leave a bequest upon death
- z may change, for workers every period, for retirees upon death
  - $\Rightarrow$ wage dynamics/imperfect transmission of human capital
  - $\Rightarrow$ households differ in productivity and wealth ($\Gamma(k, z)$)
- three saving motives
  - life cycle (because of retirement)
  - bequest
  - precautionary (because z can change within and between generations)

Household's Problem

$$V(k,z,\mathcal{R}) = \max_{c,x\geq 0,\ h\in[0,1]} \left\{ \frac{c^{1-\sigma}}{1-\sigma} - \theta \frac{h^{1+\epsilon}}{1+\epsilon} + \beta \mathbb{E}[V(k',z',\mathcal{R}')|z] \right\}$$

subject to

$$\begin{aligned} c(1+\tau_s) + x &= y^d(wzh, rk, \omega(z,\mathcal{R})) + k - \tau_P(k), \\ k' &= x - E(x,\mathcal{R},\mathcal{R}') \\ x &\geq 0 \end{aligned}$$

Income Tax System and Disposable Income

- Taxation of Corporate Income:

$$\tau_c \max(rk - d_c, 0)$$

- Adjusted Gross Income:

$$y_{agi} = wzh + \min(rk, d_c) + \omega(z, \mathcal{R})$$

- Taxation of Personal Income:

$$y_{agi} - \lambda y_{agi}^{1-\tau_l}$$

  - $0 \leq \tau_l \leq 1$ measures the degree of progressivity.
  - Permits net transfers (e.g. EITC).

- Taxation of Estates: $E(x)$ piecewise linear as in the law. ▸ $E(\cdot)$

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  - $0 \leq \tau_l \leq 1$ measures the degree of progressivity.
  - Permits net transfers (e.g. EITC).
  - $\tau_{\max}$ is the top MTR, applicable for $y > y_b$.
- Taxation of Estates: $E(x)$ piecewise linear as in the law. ▸ $E(\cdot)$

Closing the Model

- Firms

$$\begin{aligned} r &= F_K(K,N) - \delta \\ w &= F_N(K,N) \end{aligned}$$

- Markets Clear
- Government

Corporate Tax + Income Tax + Estate Tax + Sales Tax + Wealth Tax
= Transfers + G

Quantitative Exercise

- Calibrate the model to match the 2010 economy *(preliminary)*.
- Introduce Piketty's progressive wealth tax.
- Analyze welfare implications at the steady-state and along the transition.

Results: Income Process

Π_{WW} :

$z_W \backslash z_W$	**4.3**	**15.3**	**16.7**	**60.2**	**196.4**	**2881**
4.3	0.967	0.009	0	0	0.002	0
15.3	0.006	0.970	0	0	0.002	0
16.7	0	0	0.967	0.009	0.002	0
60.2	0	0	0.006	0.970	0.002	0
196.4	0.035	0.035	0.035	0.035	0.826	0.011
2881	0	0	0	0	0.391	0.587

Top 1% earnings dynamics:	model	data
persistence	0.74	ca. 0.75
std. dev. of log earnings growth	1.43	1.1
skewness of log earnings growth	-2.00	-1.26
kurtosis of log earnings growth	10	18

▸ Π_{RW}

Income and Wealth Inequality in 2010

	Top Percentile							
	0.5%	1%	5%	10%	20%	40%	60%	Gini
Wealth Share (Data)	**0.31**	**0.40**	n/a	0.74	0.83	0.95	0.99	**0.82**
Wealth Share (Model)	**0.32**	**0.41**	0.69	0.84	0.98	1.00	1.00	**0.91**
Income Share (Data)	**0.16**	**0.20**	0.35	0.46	0.62	0.82	0.94	**0.43**
Income Share (Model)	**0.14**	**0.20**	0.34	0.45	0.56	0.75	0.88	**0.43**
Earnings Share (Data)	0.12	0.16	0.33	0.47				0.42
Earnings Share (Model)	0.15	0.21	0.34	0.47				0.43

Benchmark Average Tax Rates by Income Group

	Corporate Tax			Estate Tax			Income Tax		
	1%	99%	R/Y	1%	99%	R/Y	1%	99%	R/Y
Data	5.1	1.9	1.9	2.2	0	0.3	25.8	19.4	23
Model	4.6	1.7	1.9	2.5	0.3	0.7	27.6	22.7	24

Note.– R/Y stands for revenue as a fraction of GDP. The data values come from NIPA and from Joulfaian (2013). The data values for the top 1% and 99% are taken from Piketty and Saez (2007).

Other relevant outcomes in the benchmark economy

Statistic	Model	Data
Fraction of top 1% income from labor	0.84	0.82
Wealth share of top 1% incomes	0.24	0.26
Wealth share of top 5% incomes	0.49	0.49
Wealth share of top 10% incomes	0.58	0.60
elasticity(1% income share, top 1% average MTR)	0.23-0.28	0.2-0.4

Model matches evolution of wealth inequality from 1960 to 2010 well (Kaymak and Poschke, *JME* 2016).

Quantitative exercise

Piketty's progressive wealth tax proposal:

- "basic proposal":
  - tax net worth of 1-5 million euros at 1%
  - tax net worth above 5 million euros at 2%
- rebate revenue via lower income taxes (higher λ)

Alternative scenarios:

- flat wealth tax
- rebate via lower corporate income taxes
- rebate via lump sum transfers
- more progressive income taxes

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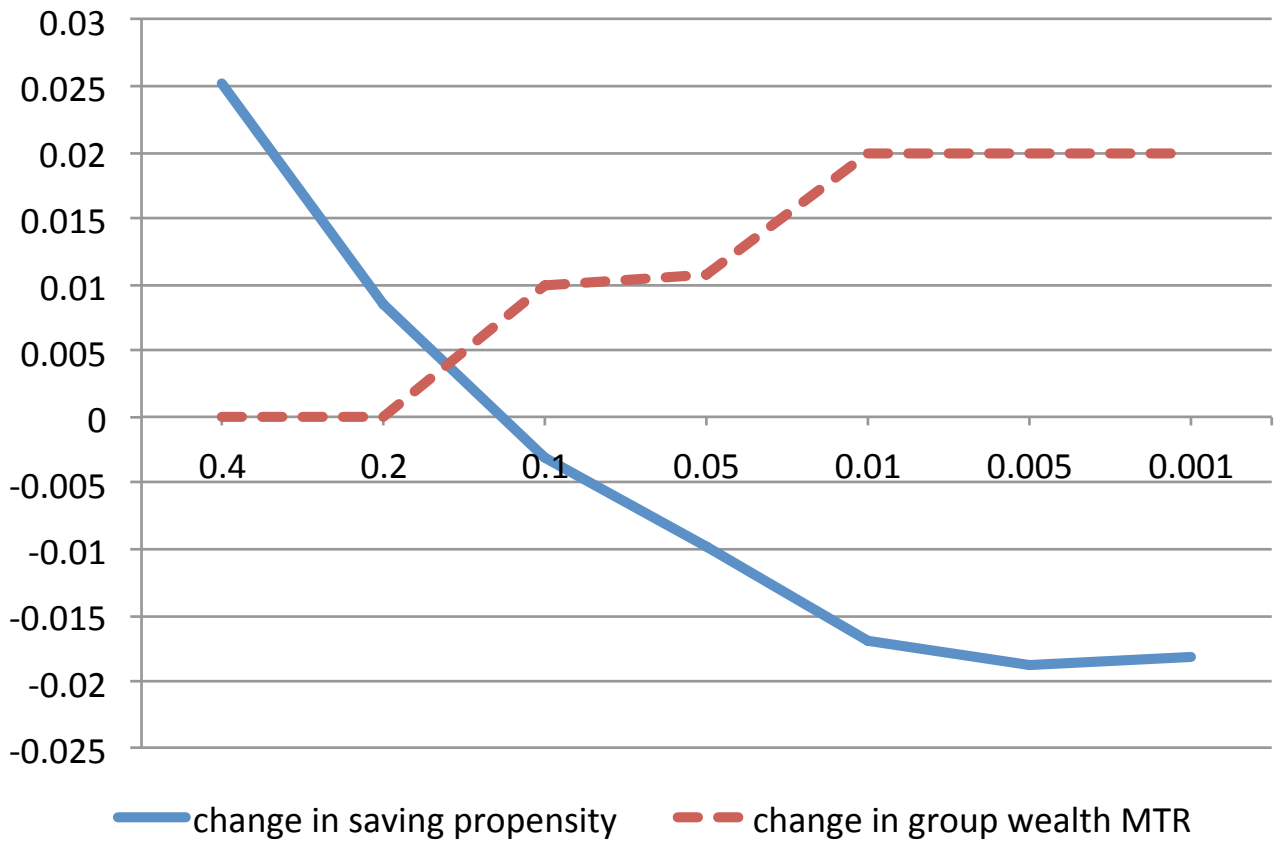
Savings response to progressive wealth taxes



Note: The saving propensity is defined as $k' / (k + y^d)$.

Aggregate implications of progressive wealth taxes

Scenario	K	N	Y	C	w	r (%)	ATY (%)
benchmark	100	100	100	100	100	4.1	25.5
wealth taxes:							
basic progressive	88.7	99.2	95.2	97.3	95.9	5.0	22.6

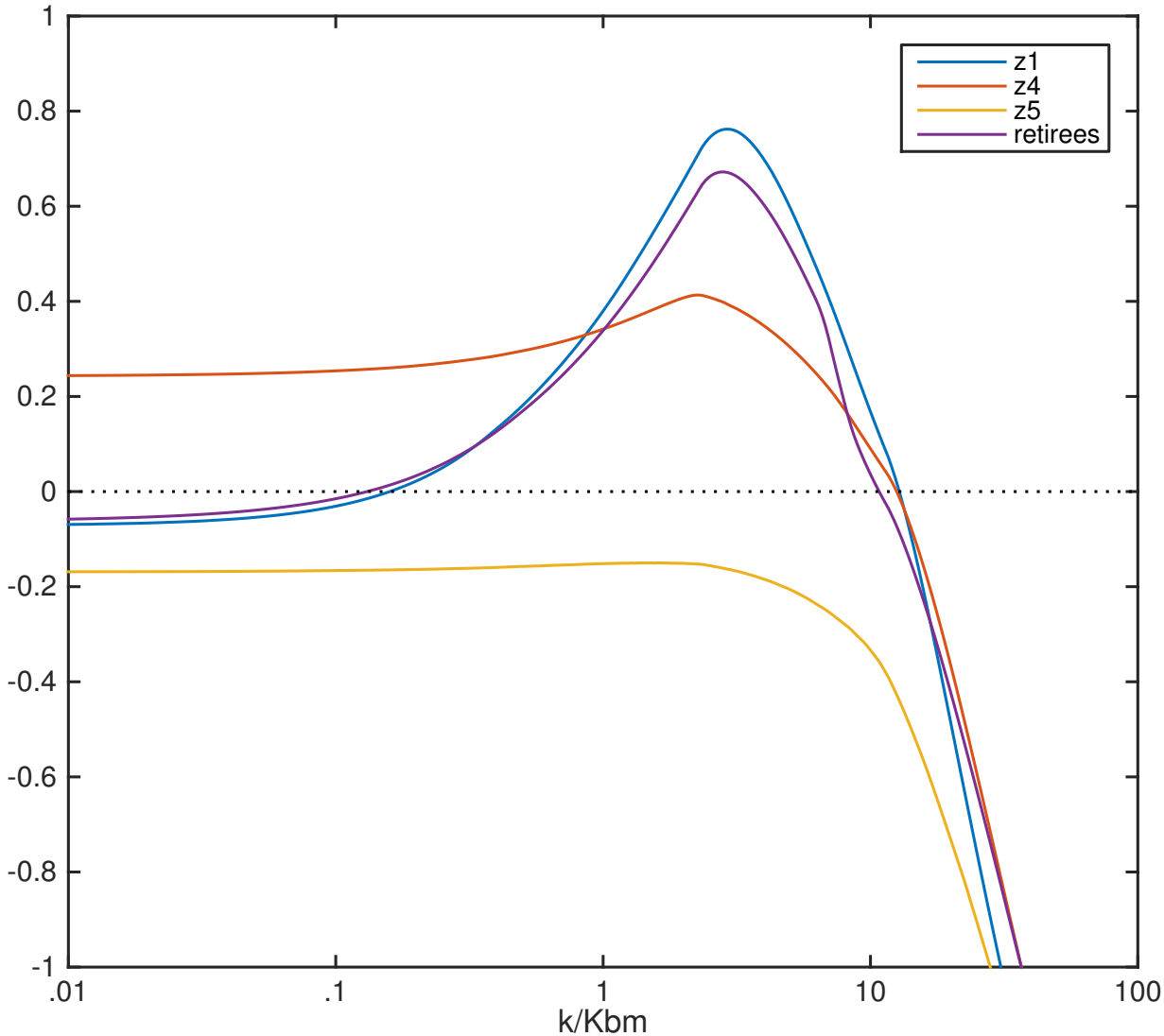
Revenue raised: 2% of GDP (comparable to revenue from corporate income tax).

Distribution of key variables: steady-state comparison

Scenario	Top wealth/income group				Gini coefficient
	Top 1%	Top 5%	Top 10%	Top 20%	
Wealth (by wealth):					
benchmark	41.1	69.2	83.4	97.9	0.911
prog. wealth tax	34.3	59.6	75.4	93.9	0.875

- Top 1% wealth share declines by 7 percentage points.
- Concentration of income, disposable income and consumption does not change much.

$V_{\text{progressive wealth tax}} - V_{\text{benchmark}}$, selected productivity levels



Welfare effects: steady-state comparison

Scenario	Change in aggregate welfare rel. to bm (c units, %)	Poor losers (% of all)	Rich losers (% of all)
prog. wealth tax	1.2	75	2.1

- The k-rich lose due to the wealth tax.
- The poor lose slightly due to lower after-tax wages, compounded by lower transfers (linked to Y).
- The middle class below the wealth tax threshold gain a lot as lower taxes almost compensate for lower w, and they benefit from higher r.
- Aggregate welfare outcomes depend on welfare weights.

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Summary of mechanisms at work

1. Price Externalities ($w \searrow \quad r \nearrow$)
   - asset poor salaried are hurt.
   - benefits upper middle class who have some assets, but are not touched by the wealth tax.
2. Fiscal Externalities
   - drop in income taxes: benefits all, especially the income-poor workers offsetting the decline in pre-tax earnings.
   - less output and earnings: crowds-out existing transfer schemes, e.g. pensions.
3. Transitional Dynamics
   - wealthy eat their wealth away.
   - retirees and middle class react to higher r by saving more.
   - middle class always gain, poor lose only in long run.

Results up to here

Piketty's proposal results in

1. substantial revenue (ca 2% of GDP, comparable to the corporate income tax)
2. large long-run output losses (ca 5%)
3. lower concentration of wealth (top 1% share drops 7pts), but not of other key variables
4. substantial welfare gains to the middle-class due to lower income taxes and a higher return to saving
5. small welfare losses for a large group of poor households due to lower wages and transfers indexed to output (e.g. pensions).

Next:

- What drives these results?
- Alternative scenarios

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Alternative scenarios

Piketty's proposal:

1. shifts burden of taxation from labor to capital
2. makes tax system more progressive

Which one of these drives results?

Separate the two components:

1. flat wealth tax (0.69%), reduce income tax
2. progressive wealth tax, reduce corporate income tax to 4.5%

Other redistributive policies:

3. Piketty's proposal, use revenue for lump-sum transfer (2% of Y)
4. make *income taxes* more progressive: eliminate $\tau_{\max}$ ($\Rightarrow$ endogenous top MTR: 56%) and raise τ_l from 0.08 to 0.0862

Aggregate implications of alternative scenarios

Scenario	K	N	Y	C	w	r (%)
benchmark	100	100	100	100	100	4.1
wealth taxes:						
progressive	88.7	99.2	95.2	97.3	95.9	5.0
flat	91.7	100.2	97.1	98.7	96.8	4.8
reduce τ_c	97.7	99.1	98.6	98.9	99.4	4.2
redistr. lumpsum	87.1	98.4	94.1	96.3	95.6	5.1
raise τ_l	95.2	98.8	97.5	98.2	98.6	4.4

- Both shift of tax base to K and progressivity reduce saving.
- So do more progressive income taxes.

Wealth concentration and welfare: alternative scenarios

Scenario	Change in top 1% wealth share	Change in agg. welfare rel. to bm (c units, %)	Poor losers (% of all)	Rich losers
wealth taxes:				
progressive	-6.8	1.2	75	2
flat	1.2	-0.2	0	6
reduce τ_c	-7.6	1.2	80	1
redistr. lumpsum	-6.0	4.1	0	1
raise τ_l	-5.8	1.7	0	5

- Flat wealth taxes do not reduce wealth concentration.
- Progressive wealth taxes benefit the middle class and hurt the poor.
- The poor can be helped via additional redistribution.
- Progressive income taxes also reduce wealth concentration, and affect K and Y less.

Conclusion/Discussion

Progressive wealth taxes result in ...

- ... substantial tax revenue: ca. 2% of GDP.
- ... large output losses in the long-run: ca. 5%.
- ... a substantial reduction in wealth concentration.
- ... substantial welfare gains to the middle class, and losses to the poor.

Important further insights:

- How to redistribute revenue is a key consideration.
- More progressive income taxes also reduce wealth concentration, and affect K and Y less.