Use it or lose it: Efficiency and redistributional effects of wealth taxation
By Fatih Guvenen, Gueorgui Kambourov, Burhan Kuruscu, Sergio Ocampo and Dahpne Chen

Marius Grünewald[1]

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[1]European University Institute

Wealth Taxation vs. Capital Income Taxation

How does wealth taxation differ from capital income taxation?

1) Contrary to standard model wealth taxation and capital income taxation have different implications for efficiency and inequality.

2) Wealth taxation is independent of productivity; capital income taxation directly taxes productivity.

3) Replacing the capital income tax with wealth tax leads to welfare gains.

4) Optimal wealth tax $>$ 0 $>$ optimal capital income tax.

Wealth Taxation vs. Capital Income Taxation

Wealth Taxation vs. Capital Income Taxation

Why do we care?

- Heterogeneity in returns matter.
- Governments are chronically in need of funding.
- What are efficient ways to get there?

Overview

Intuition

The Economy

Tax Reform

Optimal Taxation

Extensions and Limitations

Conclusion

Intuition

Definition

- Capital Income Tax (CIT): $a_i^{\text{net}} = a_i + (1 - \tau_k) r a_i$
- Wealth Tax (WT): $a_i^{\text{net}} = (1 - \tau_a) a_i + r a_i$

  If just one asset: $\tau_k r = \tau_a$
- Assume two agents with equal wealth (1000). One unproductive ($r^1 = 0$) the other super ($r^2 = 0.1$). $\tau_k = \tau_a = 0.1$. Lump sum transfer.
- WT: $\implies$ both contribute 100 $\implies$ $a'_{r^1} = 1000; a'_{r^2} = 1100$
- CIT: $\implies$ $ar^1\tau_k = 0; ar^2\tau_k = 10 \implies a'_{r^1} = 1005; a'_{r^2} = 1095$

The Economy

Households

1. Life Cycle Model with mortality risk.
2. Choices are
   a) Labour vs. Leisure, retire at $R < H$
   b) Consumption vs. Savings
   c) Entrepreneurial Effort
   d) $\mathbf{E_0}\left(\sum_{h=0} \beta^{h-1} \left[\phi_h u(c_h, 1 - l_h) + (1 - \phi_h) v(b) \right] \right)$
3. Each HH, has two productivities: Worker and Entrepreneur.
4. Each innate productivity is imperfectly transmitted across generations. (Stochastic Process)

Entrepreneurial Productivity - z_{ih}

1. Innate Component (fixed), $\bar{z}$
2. Life-Cycle Component (stochastic) - High (above median), Low, Retired; **I**

Entrepreneurs maximize k (scale of entrepreneurial effort):

$$\pi(a, z) = \max_{k \leq \vartheta(z)a} \{p(zk) \times zk - (r + \delta)k\} \tag{1}$$

Worker Productivity

1. Innate Component (fixed)
2. Life-Cycle Component (Age polynomial)
3. AR(1) (income uncertainty)

Recursive Formulation with $\mathbf{S} = (\bar{z}, \mathbf{I}, e, \kappa)$

$$V_h(a; \mathbf{S}) = \max_{c,l,a'} u(c, 1-l) + \beta\left[s_{h+1}\mathbf{E}\left(V_{h+1}(a'; \mathbf{S}')|\mathbf{S}\right) + (1 - s_{h+1})v(b)\right]$$

s.t.

CTI: $(1+\tau_c)c + a' = a + (\pi(a,z) + ra)(1-\tau_k) + (1-\tau_l)\bar{\omega}\omega(\kappa, e)l$

WT: $(1+\tau_c)c + a' = a(1-\tau_a) + (\pi(a,z) + ra) + (1-\tau_l)\bar{\omega}\omega(\kappa, e)l$

$b = (1-\tau_b)a'$ and $a' \geq 0$

Production Technology

Entrepreneurs produce differentiated goods x, final goods Y from competitive markets.

1. Entrepreneur Technology: $x_i = z_i k_i$, k_i capital
2. Final Good: $Y = Q^{\alpha} L^{1-\alpha}$
3. $Q = \left(\int x_i^{\mu} di \right)^{\frac{1}{\mu}}$
4. $TFPQ = \frac{Q}{\int k_i di}$ (Measure of Misallocation)

$$\max_{\{x_i,\},L} Q^{\alpha} L^{1-\alpha} - \int (p(x_i) \times x_i) di - \bar{w} L$$

Financial Markets and Government

Financial Markets:

1. Borrowing only for entrepreneurial activity
2. No uncertainty around borrowing/lending - z_i realized before decision.
3. Borrowing constraint $k_i \leq \vartheta(\bar{z}_i) \times a_i$

Government:

1. Taxes on: Labour, Consumption, Bequests and Wealth or Capital Income
2. Balanced budget via pension scheme (tied to median income, $\bar{y}$).

Tax Reform

Setting

Baseline $\tau_k = 25\%$

- Replace τ_k with a flat τ_a, c.p.
- Revenue neutrality
- No social planner involved
- Other taxes being held equal

Slight complication: $\Delta\tau \implies \Delta\bar{y} \implies \Delta$ Pension scheme.

Results

Baseline $\tau_k = 25\%$

1. Keep pension scheme fixed and let τ_a fluctuate. (RN)
   - $\tau_a = 1.19\%$
2. Let pensions fluctuate and fix τ_a. (BB)
   - $\tau_a = 1.67\%$

Figure 1: Results of Tax Reform

TABLE V

TAX REFORM: CHANGE IN MACRO VARIABLES FROM CURRENT U.S. BENCHMARK

	Quantities (% change)						Prices (change)			
	K	Q	TFP_Q	L	Y	C	$\overline{w}$	$\overline{w}$ (net)	$\Delta r^{\dagger}$	$\Delta r^{\dagger}$ (net)
RN reform	16.4	22.6	5.3	1.2	9.2	9.5	8.0	8.0	0.21	–0.36
BB reform	9.2	16.0	6.2	1.2	6.9	7.7	5.6	5.6	0.67	–0.38

Notes. RN and BB refer to the revenue-neutral and balanced-budget reforms, respectively. Percentage changes are computed with respect to the benchmark economy, which has $\tau_k = 25\%$ and $\tau_a = 0\%$. †Changes in the interest rate are reported in percentage points. The net wage is defined as $(1 - \tau_\ell)w$, and the net interest rate is defined as $(1 - \tau_k)r$ or $r - \tau_a$, depending on the model. The TFP variable is measured in the intermediate-goods market.

Inequality rises in both cases

Welfare Analysis

Figure 2: Results of Tax Reform

TABLE VI

AVERAGE WELFARE GAIN FROM TAX REFORM

	RN reform	BB reform	RN reform (L-INEQ)
$\overline{CE}_1$	6.8	4.8	4.9
$\overline{CE}_2$	7.2	4.3	4.8
% with welfare gain	67.5	94.4	63.8

Notes. The welfare figures report the percentage gain in consumption-equivalent terms from each tax reform relative to the current U.S. benchmark economy. All numbers reported in the table are in percentage points.

- $\overline{CE}_1$ = Fixed proportional consumption transfer at every future age and state
- $\overline{CE}_2$ = Fixed proportional consumption transfer for all newborns

Distributional Aspects

Figure 3: Results of Tax Reform

TABLE VII

WELFARE GAIN/LOSS BY AGE GROUP AND ENTREPRENEURIAL ABILITY

	Entrepreneurial ability groups ($\bar{z}_i$ pctiles)					
Age groups	0–40	40–80	80–90	90–99	99–99.9	99.9+
Panel A: RN reform						
20 (newborn)	6.7	6.3	6.8	8.5	11.5	13.4
21–34	6.3	5.5	5.5	6.5	8.5	9.7
35–49	4.9	3.8	3.3	3.3	3.1	2.8
50–64	2.2	1.5	1.1	0.9	0.4	–0.2
65+	–0.2	–0.3	–0.4	–0.4	–0.7	–1.0
Panel B: BB reform (SS pensions adjusted)						
20 (newborn)	4.7	4.2	4.8	6.7	10.3	12.5
21–34	4.5	3.7	3.7	5.2	8.0	9.6
35–49	4.2	3.0	2.6	2.9	3.1	2.9
50–64	4.6	3.8	3.2	2.9	2.0	1.1
65+	6.2	5.8	5.4	4.7	3.4	2.3

Notes. Each entry reports the average welfare gain or loss (CE_1) from the RN and BB wealth tax reforms relative to the current U.S. benchmark for individuals in each age and entrepreneurial ability group. Averages are computed with respect to the U.S. benchmark distribution.

Younger people have fewer accumulated wealth but better chances of being an entrepreneur.

With fixed pensions, older people lose out (declining productivity and higher wealth).

Optimal Taxation

Optimal Taxation Results

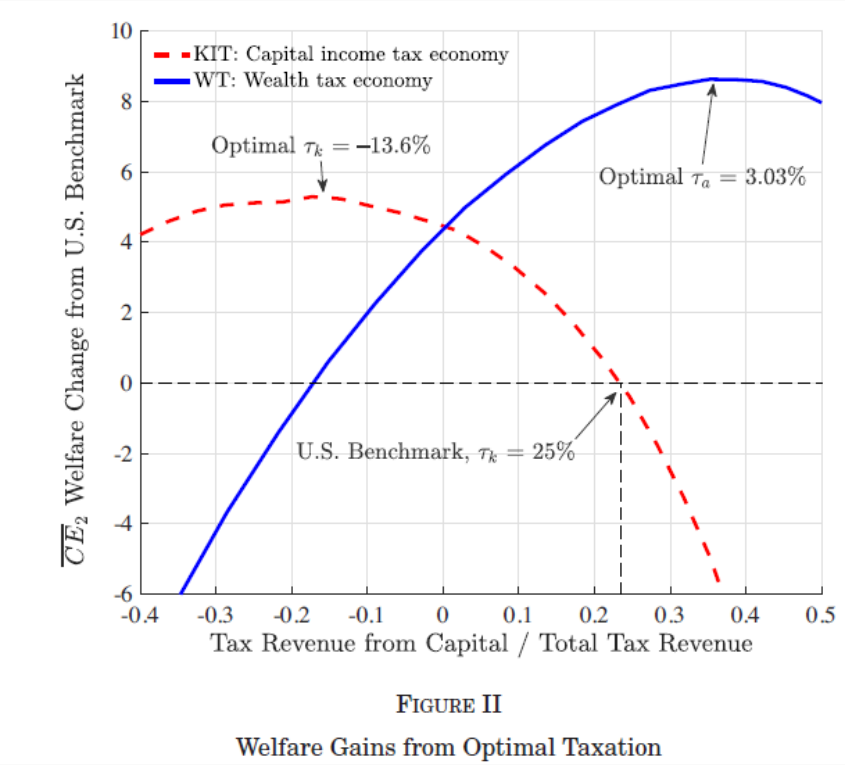

FIGURE II

Welfare Gains from Optimal Taxation

Figure 4: Optimal Taxation Schedules

More details...

Figure 5: Optimal taxation across regimes

TABLE VIII

OPTIMAL TAXATION: TAX RATES AND AVERAGE WELFARE EFFECTS

	Benchmark U.S. economy	RN reform (1)	OWT (2)	OWT L-INEQ (3)	OWT-X (4)	WTE-X (5)	OKIT (6)
Tax rates							
τ_k	25.0	—	—	—	—	—	–13.6
τ_a	—	1.19	3.03	2.54	3.80†	3.30	—
τ_ℓ	22.4	22.4	15.4	18.1	14.4	17.7	31.2
ΔWelfare							
$\overline{CE}_1$	—	6.8	9.0	6.0	9.1	8.4	4.2
$\overline{CE}_2$	—	7.2	8.7	5.2	8.8	8.6	5.1

Notes. Percentage changes are computed with respect to the U.S. benchmark economy calibrated in Section IV. †The optimal wealth threshold, a^*_{ex}—below which $\tau_a = 0$—is equal to $0.3 \times \bar{y}$. In experiment WTE-X, we set the exemption level to 100% of $\bar{y}$. Gains for the whole population are as follows: $CE_2(pop)$: 4.77, 4.31, 2.11, 4.68, 6.18, 4.50.

- Labour tax equilibrates to balance the budget.
- Wealth tax less distorting, entrepreneurial capital K declining less with equal revenue.
- Q declines less with equal revenue
- Essentially: Tax owners or earners?

Extensions and Limitations

Some food for thought

- Higher returns not necessarily sign of productivity.
- Access to markets and interpretation of inequality?
- Housing

Conclusion

Key take-aways

- Convincing evidence that wealth tax should be preferred over capital income tax.
- Welfare gains substantial.
- Optimal wealth tax, for US, not too far off other existing wealth taxes.
- Why don't countries switch?