Inequality, Household Behavior and the Macroeconomy
(Wealth Taxation and MPCs)

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Last time

- Optimal taxation in a representative agent economy
  - Taxes introduce distortions $\Rightarrow$ non-trivial trade-offs
  - Capital income taxes are usually bad
- Optimal taxation in heterogeneous agent settings
  - Distributional effects matter for welfare
  - Very different quantitative results from representative agent framework

Ignored the difference between capital and wealth taxes.

Today

- When is wealth tax different from capital income tax? Guvenen et al (2023)

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- Talk about MPC [marginal propensity to consume] and why it is important

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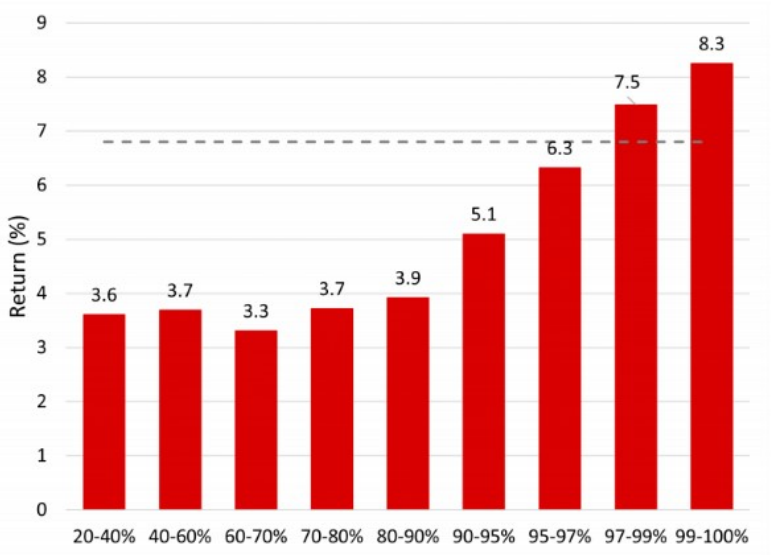
Average return on wealth by percentile of wealth, USA (SCF data)



Reminder: When are capital income and wealth taxes equivalent?

As long as a tax is proportional to savings, it does not matter if it is written as a

- capital income tax: $\tau_t^a r_{i,t} a_{i,t}$
- or before-return wealth tax $\tau_t^w a_{i,t}$
- or after-return wealth tax $\hat{\tau}_t^w (1 + r_{i,t}) a_{i,t}$

as long as **everybody earns the same return**, so $r_{i,t}$ is constant in i.

For example, given τ_t^a, replacing capital income tax with a before-return wealth tax equal to $\tau_t^w = \tau_t^a r_t$ results in identical allocations.

This is **not** true if people earn different returns! More on this next lecture. Today we skip wealth taxes.

Return Heterogeneity: A Simple Example

- One-period model.
- Government taxes to finance $G = \$50$.
- Two brothers, Fredo and Mike, each with \$1000 of wealth.
- Key heterogeneity: investment/entrepreneurial ability.
  - (Fredo) Low ability: earns $r_f = 0\%$ net return.
  - (Mike) High ability: earns $r_m = 20\%$ net return.

Capital Income vs. Wealth Tax

	Capital income tax		**Wealth tax (on book value!)**	
	$a_{i,\text{after-tax}} = a_i + (1-\tau_k) r_i a_i$		$a_{i,\text{after-tax}} = (1-\tau_a) a_i + r_i a_i$	
	Fredo ($r_f = 0\%$)	Mike ($r_m = 20\%$)	Fredo ($r_f = 0\%$)	Mike ($r_m = 20\%$)
Wealth	\$1000	\$1000	**\$1000**	**\$1000**
Before-tax Income	0	**\$200**	0	\$200
	$\tau_k = 25\%$ $(= \frac{50}{200})$		$\tau_a = 2.5\%$ $(= \frac{50}{2000})$	
Tax liability	0	\$50	\$25	\$25
After-tax return	0%	15% $(= \frac{200-50}{1000})$	-2.5% $(= \frac{0-25}{1000})$	17.5% $(= \frac{200-25}{1000})$
After-tax wealth ratio	1.15 $(= 1150/1000)$		1.20 $(\approx 1175/975)$	

Replacing τ_k with $\tau_a \rightarrow$ reallocates capital to more productive agents + increases dispersion in after-tax returns ($\rightarrow$ endogenous savings response in a dynamic model).

Guvenen et al. (2023)

Using an estimated model similar (but more elaborated) to Cagetti and De Nardi (2006). Key differences:

- Much more elaborate process for entrepreneurial talent - more than one non-zero level
- Entrepreneurial and corporate sectors are not so detached (more efficient entrepreneurs means higher wages)
- Labor supply

Note: credit constraints and positive autocorrelation in returns to wealth (within and across generations) are essential to these results.

Results

Replacing the capital income tax with a wealth tax in a revenue-neutral fashion

- delivers a significantly higher average lifetime utility to a newborn (about 7.5% in consumption-equivalent terms).
- more productive entrepreneurs have more wealth!
- but more dispersion!
- Lower tax burden on the wealthy: less incentive to hide wealth

Results - OWT

Compute optimal wealth tax and labor income tax

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- capital stock is barely lower

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Results - OKIT

Compute optimal capital income tax and labor income tax

- 13.6% capital income **subsidy** is optimal
- Contrasts Domeij and Heathcote! Due to return heterogeneity!
- In this framework, capital income is more distortive, since it makes capital allocation more inefficient

Compare welfare

OWT wins

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- Both higher consumption and output

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- result survives in transition

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What do you think?

- Capital flight (efficient for more people than with capital income tax?)
- Different tax rates on different kinds of wealth? $\rightarrow$ suboptimal asset allocation
- On book value or market value?

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Macroeconomic policy - big picture

Why do governments care about economic policy?

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- The need for financing government expenditures
- The desire to redistribute wealth across agents in the economy

That's not all!

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Why do governments care about economic policy?

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- The need for financing government expenditures
- The desire to redistribute wealth across agents in the economy

That's not all!

We are missing stabilization! Why haven't we talked about this? Solving models with aggregate shocks AND heterogeneity is super hard.

Countercyclical policy

The idea is that business cycles are costly.

$\Rightarrow$ The government tries to dampen the effects! In bad times give money to households and firms.

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Why to give money to households?

1. Help them avoid too low consumption levels

2. Encourage consumption $\rightarrow$ feedback effects (to firm revenues and labor earnings)

Shouldn't give money if people don't spend it: would lead to inflation with no benefit.

Countercyclical policy

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How to think about these aims in our framework?

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Countercyclical policy

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1. Pretty obvious: giving money to the most vulnarable has even more positive welfare effects than usually
2. Depends on how households react to receiving extra wealth $\Rightarrow$ **Let's take a look at this!**

MPC

MPC = marginal propensity to consume: Getting a unit of extra income, which fraction of it you spend now (in the current period)?

$$MPC = \frac{C(coh + extra) - C(coh)}{extra}$$

having cash-on-hand = coh before the intervention, consumption grows by $C(coh + extra) - C(coh)$ as a result of getting *extra* as additional income

MPC depends on:

- length of time-period considered (usually people care about yearly or quarterly figures)
- size of *extra* (taking the limit $extra \to 0$ defines MPC as a derivative)

MPC - empirics

Can we measure the MPC?

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- Expected changes are no good, since households might react beforehand
- An example is Bush's tax rebate (2001). He just gave money to people to get reelected. (Was sufficiently unexpected)
- Evidence is noisy, but estimates are usually around 20-50%

MPC - theory

First lecture: optimal consumption with no borrowing limits or uncertainty:

$$c_t = \tilde{R}\left[w_0 + \sum_{s=0}^{T} \frac{y_s}{(1+r)^s}\right] \quad \forall t \in \{0, 1, 2, \ldots, T\}$$

where

$$\frac{1}{\tilde{R}} = \sum_{s=0}^{T} \frac{1}{(1+r)^s} = \frac{1 - (\frac{1}{1+r})^{T+1}}{1 - \frac{1}{1+r}}$$

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If T is large (young agent or cares about child), then

$$\tilde{R} \approx r$$

and hence

$$MPC \approx r$$

This is a magnitude lower than empirical estimates! But this is what any representative agent model would give us!

MPC under incomplete markets

Do income risk and borrowing limits help match empirical estimates? Yes!

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- This works for the very poor only... Still not enough to match data.
- Solution: Rich hand-to-mouth: Lots of assets are illiquid (you don't always sell your house if you are fired) Kaplan, Moll, Violante (2014)

Conclusion

We have seen that incomplete markets and idiosyncratic risk enable us to discuss

- inequality
- welfare effects of income redistribution

In addition, we cannot even get the effect of helicopter money right in a representative agent economy!