Wealth Taxation versus Capital Income Taxation

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Introduction Motivation

Taxing the flow vs. taxing the stock

- In capital income tax regime: $a_i + ra_i \cdot (1 - \tau_k)$
- In wealth tax regime: $(1 + r)a_i \cdot (1 - \tau_a)$

$$\Longrightarrow \tau_a = \frac{r\tau_k}{1 + r}$$

But!

The equivalence depends on homogeneous return rates.

Introduction Simple example

	Capital Income Tax		Wealth Tax	
	Fred	Mike	Fred	Mike
	$r_F = 0.2$	$r_M = 0$	$r_F = 0.2$	$r_M = 0$
Wealth	€1000	€1000	€1000	€1000
Income	€200	€0	€200	€0
Tax rate	$\tau_k = \frac{€50}{€200} = 25\%$		$\tau_a = \frac{€50}{€2200} = 2.3\%$	
Tax liability	€50	€0	€27	€23
Net return	15%	0%	17.3%	−2.3%
Wealth ratio	$\frac{€1150}{€1000} = 1.15$		$\frac{€1173}{€977} = 1.20$	

Introduction Research questions

1. What are the effects of a small change in capital income tax rate or wealth tax rate in a general equilibrium setting?

2. What happens if a government decides to completely switch the way it taxes capital?

Outline

Introduction

Model

Incidence of taxes

Numerical simulation

Model Demographics

Overlapping generations model with 2 periods

- Young supply one unit of labor inelastically.
  - Labor productivity, θ_i
- Old produce differentiated intermediate goods.
  - Entrepreneurial productivity, z_i

Lifetime utility: $u(c_1) + \beta u(c_2)$

Model Production

Intermediate production . . .

- uses capital;
- depends on entrepreneurial productivity.

$$x_i = z_i k^{\gamma}$$

Quality capital: $Q = \left(\int_{\mathcal{I}} x_i^{\mu} di \right)^{1/\mu}$

Final production . . .

- uses quality capital and labor;
- is competitive.

$$Y = Q^{\alpha} L^{1-\alpha}$$

Model Bond market

Intra-period borrowing and lending

- Lending by less productive
- Borrowing by more productive

Endogenous interest rate

$$\int_{\mathcal{I}} k_i(r)di = \int_{\mathcal{I}} a_i(r)di$$

Model Equilibrium

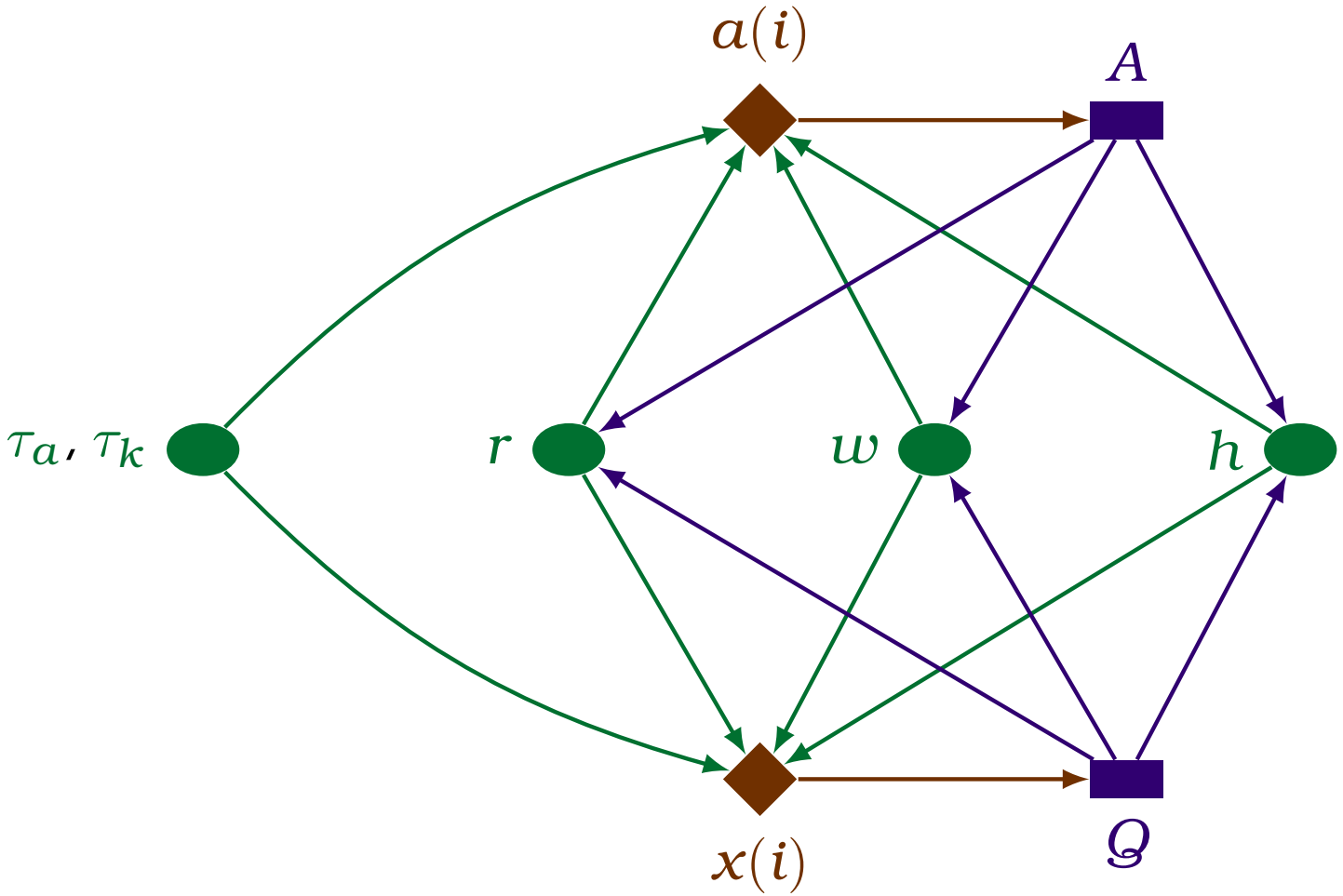
Individuals make two decisions:

1. Portfolio choice
2. Savings choice

An equilibrium is reached when ...

- individuals maximize their lifetime utility;
- final good market clears;
- bond market clears.

Incidence of taxes General equilibrium



▸ Integral equations

Incidence of taxes Solution

Proposition

If the cross elasticities are small enough, the changes in individual behavior in response to a small change in tax rates are given by

$$d\hat{a}(i) = \sum_{n=0}^{\infty} d\widehat{a_n}(i) \qquad d\hat{x}(i) = \sum_{n=0}^{\infty} d\widehat{x_n}(i)$$

- $d\widehat{a_0}(i)$ and $d\widehat{x_0}(i)$ are partial equilibrium effects.
- Further terms correspond to a longer channel.

▸ Illustration

Numerical simulation Aggregate outcomes

- A revenue neutral switch from capital income taxation to wealth taxation

▸ Parameters

		Baseline	Experiment
Wealth tax	τ_a	—	19.9%
Capital income tax	τ_k	25.0%	—
Total savings	A	0.060	0.060
Quality capital	Q	0.080	0.079

Numerical simulation Welfare(I)

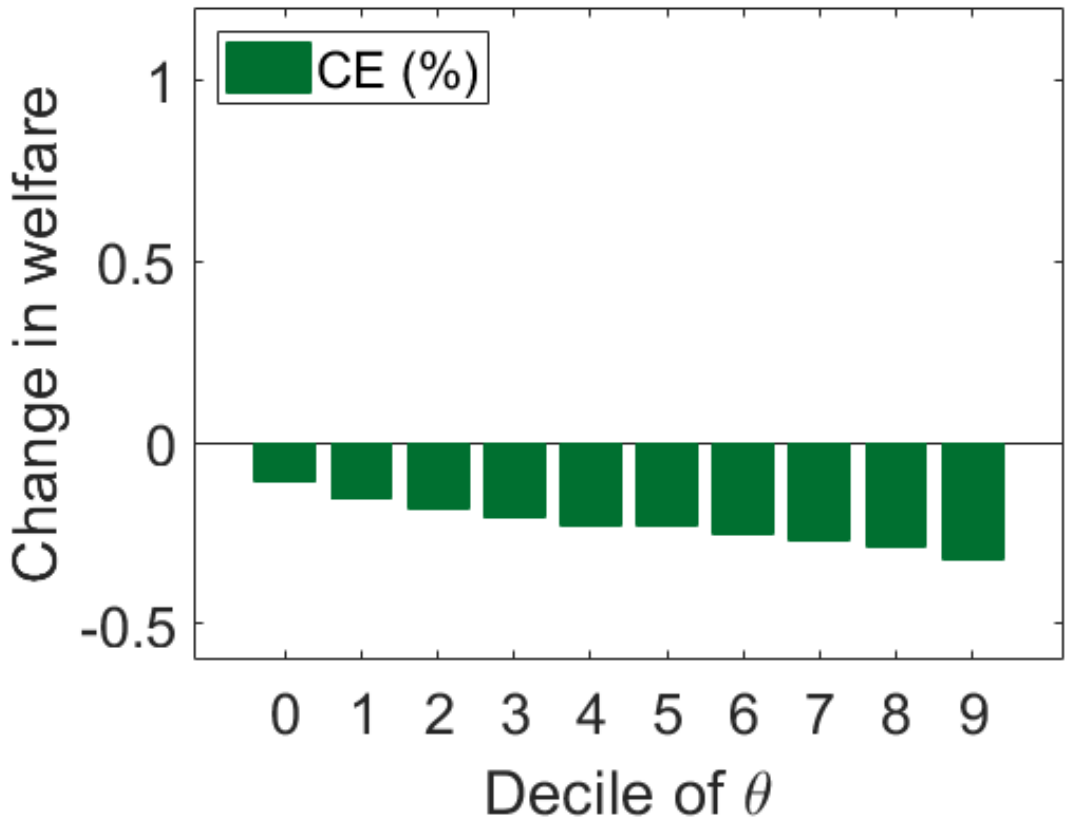


Figure: Change in welfare along labor productivity

Numerical simulation Welfare(II)

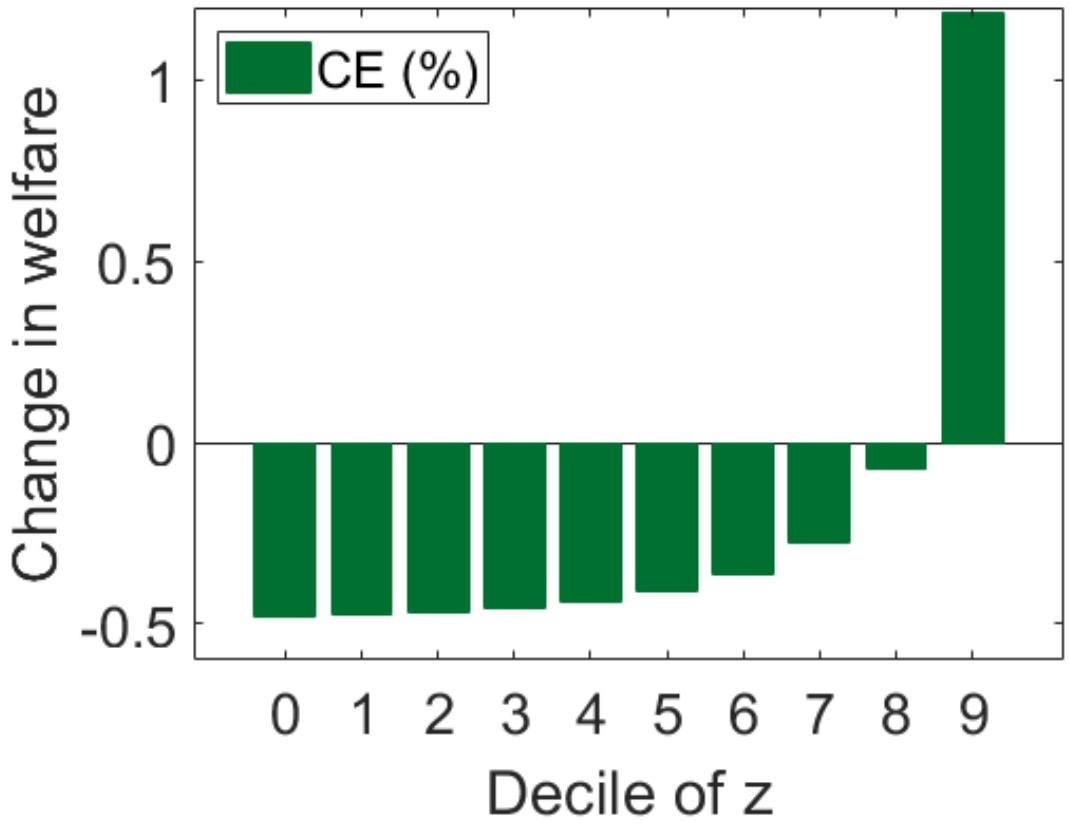


Figure: Change in welfare along entrepreneurial productivity

Conclusion

- Capital income taxation is **not the only way** of taxing capital.
- Replacing capital income taxation with wealth taxation **increases inequality**.
- **Borrowing constraints** are crucial in determining efficiency gains of wealth taxation.

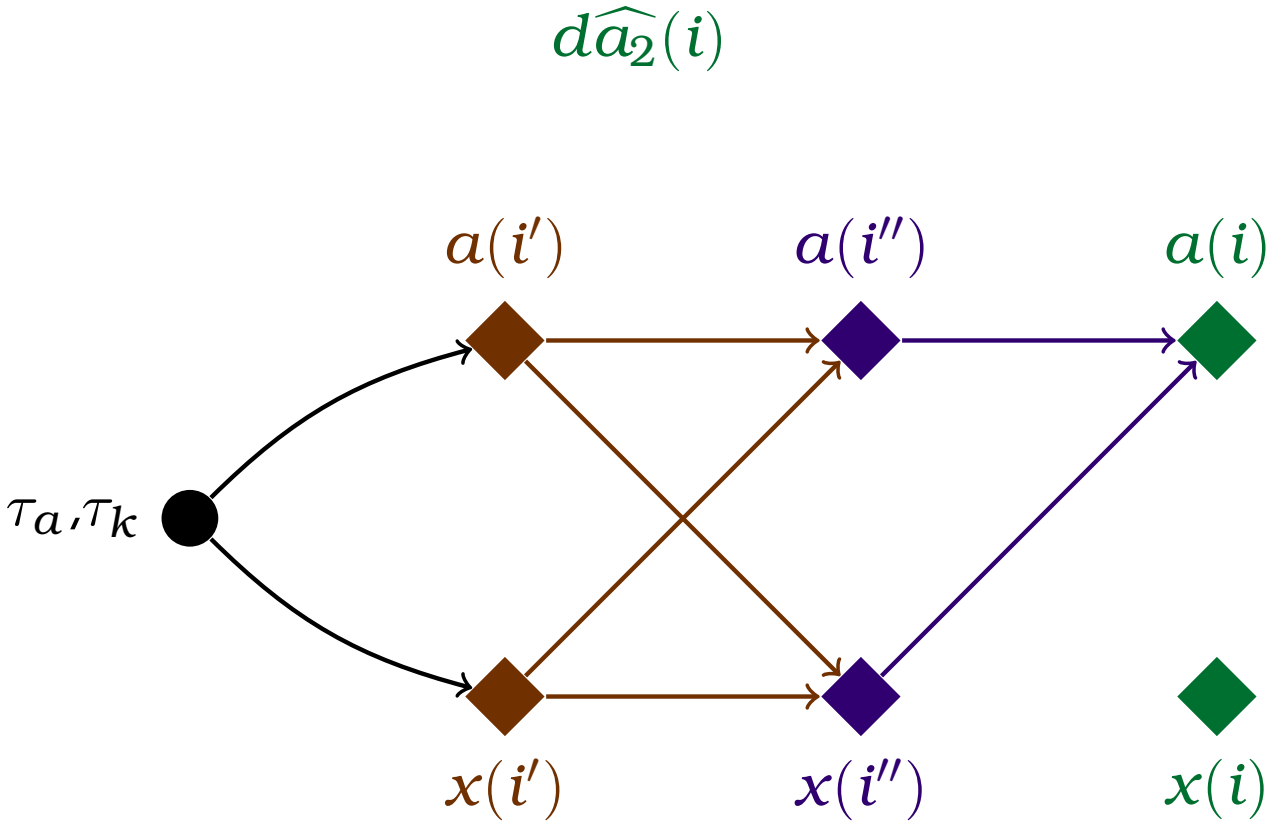
Incidence of taxes Integral equations

$$d\hat{a}(i) = \varepsilon_{a,1-\tau_a}(i)d(\widehat{1-\tau_a}) + \xi_{a,A}(i)\int_{\mathcal{I}}\frac{a(i')}{A}d\hat{a}(i')di' + \xi_{a,Q}(i)\int_{\mathcal{I}}\left(\frac{x(i')}{Q}\right)^{\mu}d\hat{x}(i')di'$$

$$d\hat{x}(i) = \varepsilon_{x,1-\tau_a}(i)d(\widehat{1-\tau_a}) + \xi_{x,A}(i)\int_{\mathcal{I}}\frac{a(i')}{A}d\hat{a}(i')di' + \xi_{x,Q}(i)\int_{\mathcal{I}}\left(\frac{x(i')}{Q}\right)^{\mu}d\hat{x}(i')di'$$

◂ Back

Incidence of taxes Higher order effects



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Numerical simulation Parameters

Parameter		Value
Quality capital share in final production	α	0.40^{*}
Elasticity of intermediate production	γ	$0.88^{\dagger}$
Curvature parameter of quality capital	μ	0.90^{*}
Discount rate	β	$0.87^{\dagger}$
Elasticity of intertemporal substitution	σ	$0.66^{\dagger}$
Labor income tax rate	τ_l	$22.4\%^{\ddagger}$
Capital income tax rate	τ_k	$25.0\%^{\ddagger}$

* Guvenen et al. (2018), † Cagetti and De Nardi (2006), ‡ McDaniel (2007)

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