Julius-Maximilians-
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Taxation and Intra/Intergenerational Equity

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- Elimination of capital income tax (consumption tax);
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$\Rightarrow$ **Redistribution towards rich future cohorts optimal!**

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- compare distortion cost and insurance benefits from government programs;
- consider alternative risk-sharing mechanisms (human capital investment, family insurance).

$\rightarrow$ Policy recommendations are different!

Structure of Stochastic OLG Model

Households

→ belong to specific skill class within a cohort;

→ work for 45 years, retire at age 65;

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Incomplete market structure No insurance markets.

Should capital income be taxed?

Lucas (1990): Supply-Side Economics

"Capital income taxation will initially be high, imitating a capital levy on the initial stock. If the system converges to a balanced growth path, capital taxation will converge to zero."

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Conesa/Kitao/Krueger (2009):

Optimal long-run income tax structure:

- flat income tax with 23% tax rate and basic allowance of 7200$
- capital income tax rate 36%

Explanation: Insurance benefits dominate distortions!

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Why is this optimal?

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Simulation methodology:

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- κ_2 balances intertemporal budget
- Debt balances periodic budget

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- One-time, unannounced change in income tax policy ($\tau_k, \kappa_0, \kappa_1$)
- κ_2 balances intertemporal budget
- Debt balances periodic budget
- Transition path and new long-run equilibrium
- Calculate welfare effects for different generations
- Determine efficiency effects of the income tax policy

Should capital income be taxed?

Simulation results: Long-run welfare

	Conesa et al. (2009)	optimal scheme
τ_k	0.36	0.43
κ_0	0.23	0.20
κ_1	7	∞
κ_2	34711	12108
Hours worked	-0.66	0.69
Labor supply N	-0.18	1.18
Capital stock K	-6.50	-8.16
Debt B/Y	0.00	0.00
Output Y	-2.50	-2.29
Consumption C	-1.45	-0.34
Long run CEV	**1.31**	**1.48**

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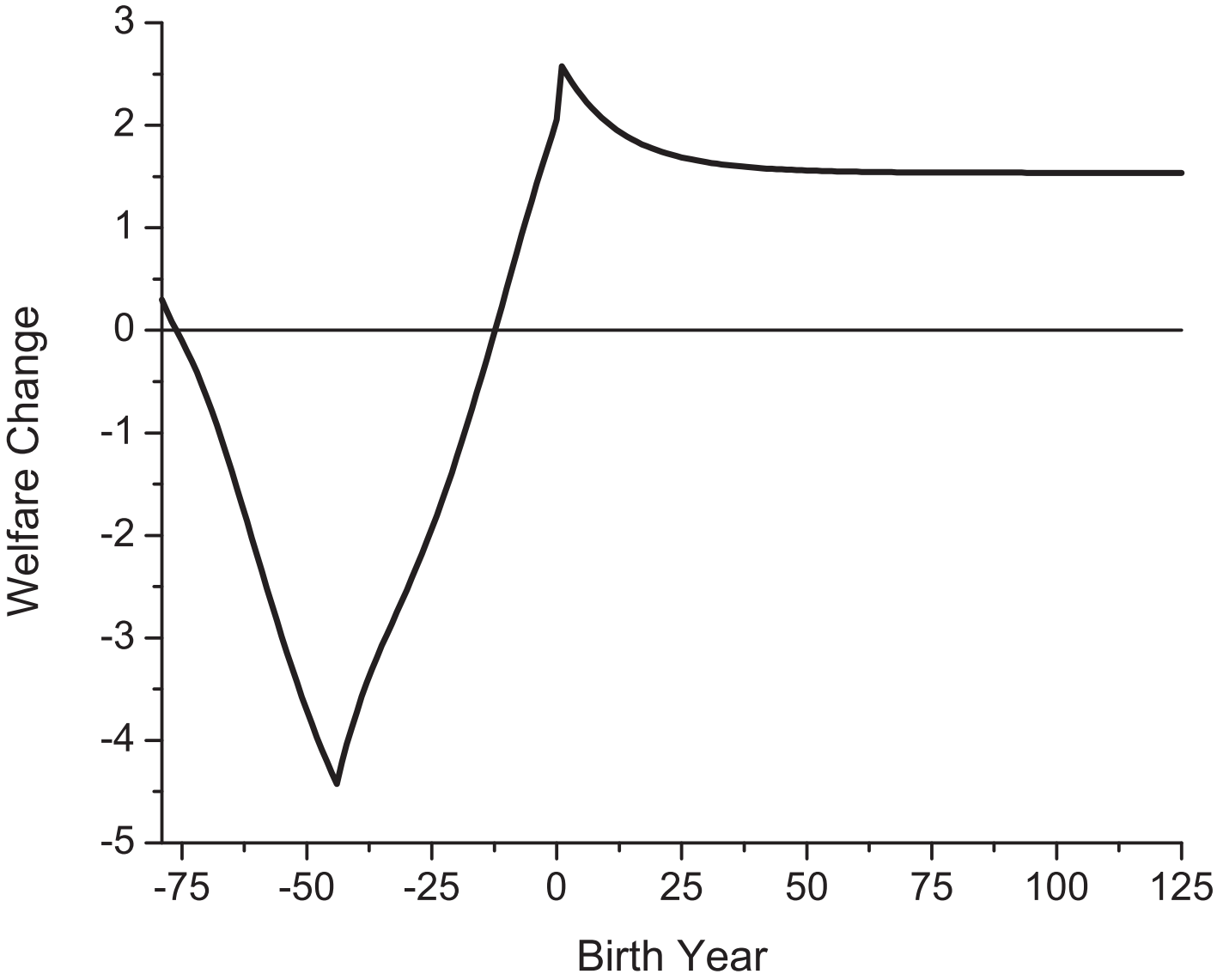

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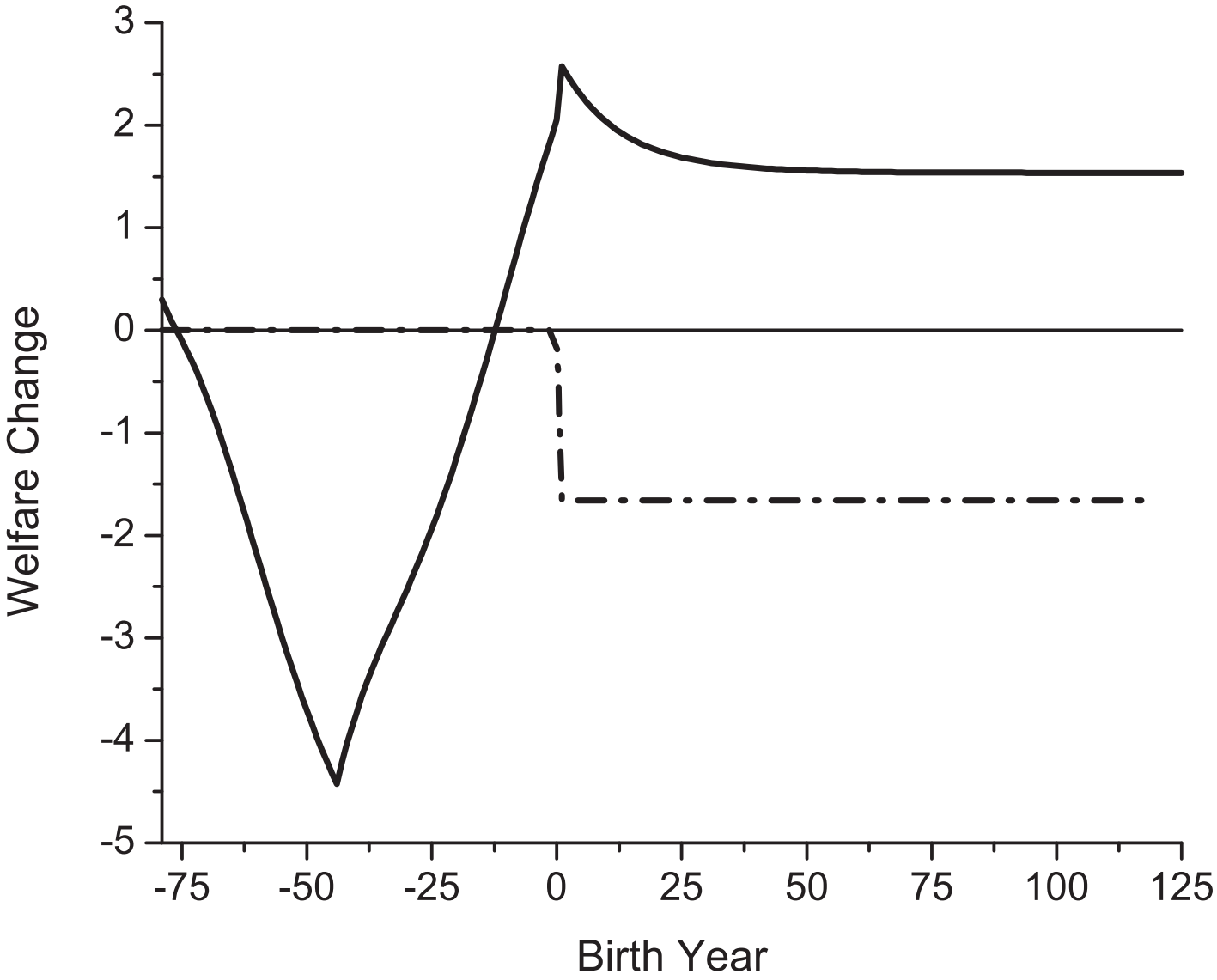

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	Long-run welfare		aggregate efficiency	
	Conesa et al. (2009)	optimal scheme	base case	optimal scheme
τ_k	0.36	0.43	0.43	0.14
κ_0	0.23	0.20	0.20	0.17
κ_1	7	∞	∞	0
κ_2	34711	12108	12195	712
Hours worked	-0.66	0.69	0.72	5.84
Labor supply N	-0.18	1.18	1.19	5.04
Capital stock K	-6.50	-8.16	-8.02	11.14
Debt B/Y	0.00	0.00	-0.72	2.98
Output Y	-2.50	-2.29	-2.23	7.20
Consumption C	-1.45	-0.34	-0.30	7.59
Long run CEV	**1.31**	**1.48**	1.54	-0.66
CEV^c (g.e.)			**-1.66**	**1.07**

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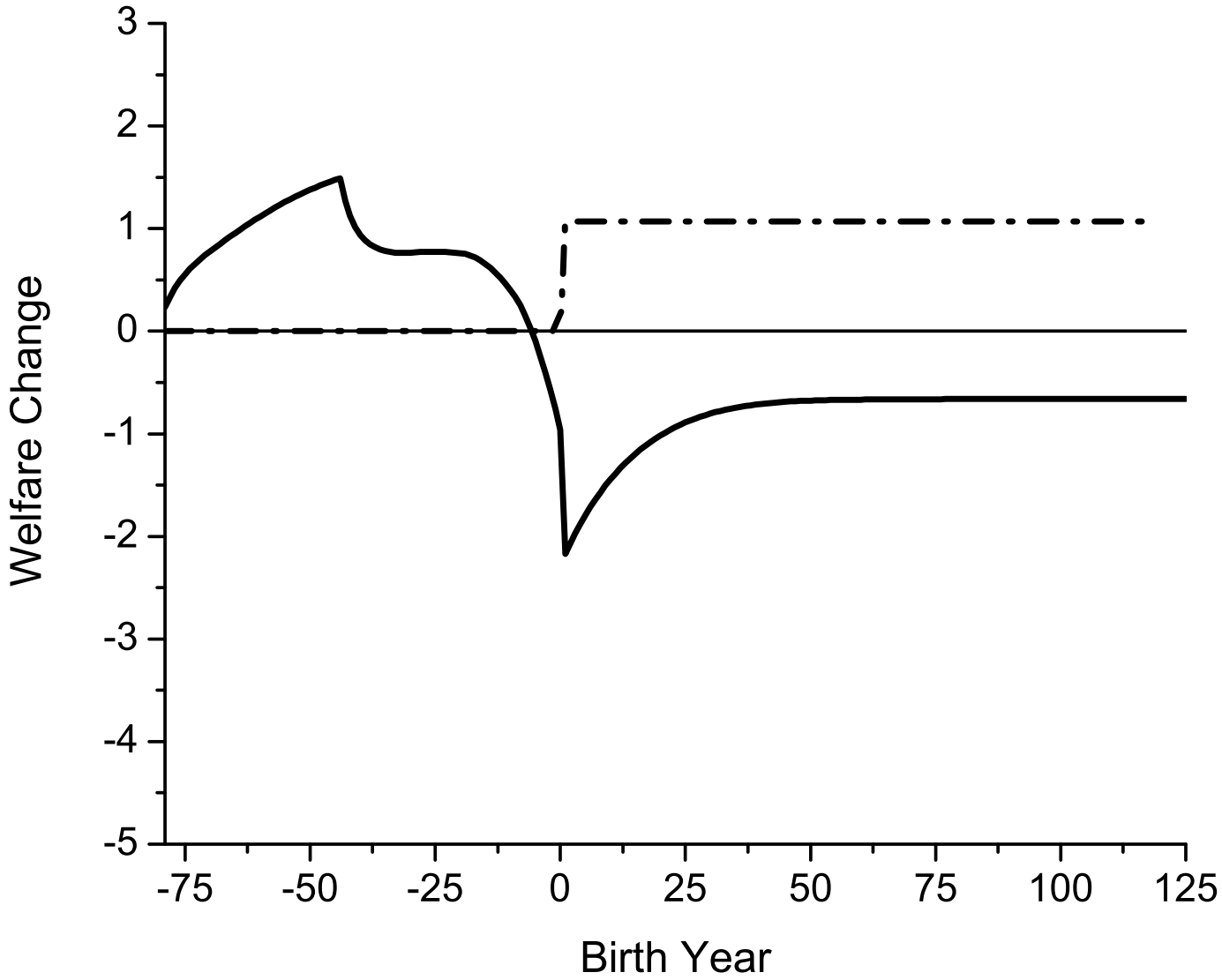

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- Optimal capital income tax rate:
  - 14 percent in closed economy
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- High capital income taxation burdens current generations
- Efficiency perspective $\rightarrow$ still optimal to tax capital income, but at much lower rates
- Optimal capital income tax rate:
  - 14 percent in closed economy
  - 6 percent in open economy
- Low interest elasticity of precautionary savings
  $\rightarrow$ the smaller the share of precautionary savings, the lower the interest rate tax

Should pensions be progressive?

Pension reforms in recent years have mainly focused on labor market distortions

- Tax-benefit linkage increased;
- Progressivity of pension benefits decreased;
  (OECD progressivity index (average) in 2002: 51.5 in 2006: 39.8);
- The objective to prevent poverty in old-age received less weight.

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Why Germany? Expected increase in old-age poverty!

Should pensions be progressive?

Government structure

Tax System

- consumption, (progressive) labor and capital income taxes, public debt
- consumption tax rate is used to balance budget

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Pension System

- pays old-age benefits and disability benefits
- $p_j = AF(j_R) \times ep_{j_R} \times APA$
- $ep_{j+1} = ep_j + \left[(1-\lambda)\frac{y_j}{\bar{y}} + \lambda\right]$

  $\lambda = 0 \quad \Rightarrow \quad$ perfectly earnings related
  $\lambda = 1 \quad \Rightarrow \quad$ perfectly flat

Should pensions be progressive?

Table: Macroeconomic effects of flat pensions (base model)

Year	2009	2020	2030	2050	∞
Macroeconomic aggregates					
Labor input	-5.6	-4.9	-4.8	-4.7	-4.7
Capital	0.0	-2.2	-2.8	-3.0	-3.0
Prices					
Wage	2.1	0.9	0.5	0.4	0.4
Interest rate	-0.3	-0.1	-0.1	-0.1	-0.1
Consumption tax rate	1.6	2.0	2.2	2.4	2.4
Pension system					
Expenditure (in % of GDP)	-0.1	0.1	0.4	0.5	0.5
Contribution rate	0.5	0.8	1.2	1.3	1.4

Should pensions be progressive?

Table: Welfare effects of flat pensions (base model)*

Birth year	Age in 2009	without LSRA						with LSRA
		by skill level			by productivity			
Retirees		*low*	*mid*	*high*				
1920	89	-2.44	-2.32	-2.08				0.00
1940	69	-2.22	-2.09	-1.87				0.00
Workers		*low*	*mid*	*high*	*low*	*mid*	*high*	
1960	49	0.93	0.23	-0.63	2.50	-0.15	-1.18	0.00
1980	29	1.03	0.50	-0.58	2.07	0.21	-0.77	0.00
Future Generations								
2000	9		0.35					-0.46
2020	–		0.18					-0.46
2060	–		0.22					-0.46
∞	–		0.20					-0.46

*In percent of initial resources.

Should pensions be progressive?

Table: Aggregate efficiency of alternative progressivity levels*

model version	λ 0.10	0.20	0.30	0.40	0.50	...	0.90	1.00
base	0.05	**0.08**	0.06	0.04	-0.00	...	-0.33	-0.46
+ disability	0.18	0.31	**0.35**	0.32	0.22	...	-0.45	-0.60
+ retirement	0.17	0.31	**0.37**	0.34	0.23	...	-0.43	-0.58

*In percent of initial resources.

Should pensions be progressive?

- Positive insurance effect is stronger than the efficiency losses from labor supply distortions for a wide range of parameter combinations;
- Pensions should be more progressive at least in Germany;
- International trend towards less pension progressivity might be suboptimal;

Conclusions and Outlook

Central result of stochastic life-cycle models:

- Social security and progressive tax systems offer substantial insurance gains;
- Public policy has focussed too much on labor market and savings distortions!
- Trade-off between equity and efficiency might be overstated!

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Future work:

- Modelling institutional features such as housing and families;
- Modelling other sources of risk (aggregate risk) and intergenerational risk-sharing;