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Tax Incentives for Annuitization – Direct and Indirect Effects

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Agenda

- **Tax Incentives for Annuitization in Germany**
- Methodology
- Results
  - Results from an individual‘s perspective
  - Results for a pool of insured
  - Results for a pool of insured when enhanced annuities are present
- Summary

Tax incentives for annuitization in Germany

- 2005: Change of Tax Regime → Stronger incentives for annuitization
- Overview over taxation of life insurance contracts

	Before 2005	After 2005
Lump sum (non privileged)	All earnings taxable	All earnings taxable
Lump sum (privileged)	Completely tax free	50% of earnings taxable
Annuitization	Taxable portion on annuity payments	Taxable portion on annuity payments

- Taxable Portion = Approximation for earnings after annuitization
  - Earnings from accumulation phase tax free → Incentive for annuitization
- Target of this paper: Analyze effects of these tax incentives
  - Note: Although we consider the German environment in our model, similar results should hold wherever tax incentives for annuitization are present

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Methodology

- Assume that different individuals can be in different states of health
  - Frailty model (Vaupel et al (1979))

  ➔ Mortality probability of individual = average mortality probability multiplied by an individual frailty factor *d*
- When looking at a population, we assume the frailty factor in the population to be Gamma-distributed (Vaupel et al. (1979); parameters as proposed by Hörmann and Russ (2008))
- We assume that clients have saved money within an insurance contract and have the choice between taking a lump sum benefit and annuitization

Methodology

- We analyze…
  - … which decision is preferable for an individual under the old and new tax regime, respectively depending on the state of health
  - … the effect of the tax change on an insurer's profitability if all individuals act rational
  - … how the results change in a market where enhanced annuities are offered
    - Annuities where the annuity paid is the higher, the shorter the insured's life expectancy
    - Result of underwriting (i.e. insurer's estimate for the individual's frailty factor) is modeled as a random variable that is positively correlated with the actual frailty factor
    - Result of underwriting determines amount of annuity paid

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Results from an individual‘s perspective

- Critical frailty factor:
  - If individual’s frailty factor is below the critical frailty factor, then annuitization is preferable
- Under the old tax regime:
  - Critical frailty factors > 1
    - Taxable portions too low (Richter and Russ (2002))
  - Critical frailty factors increase under risk aversion and decrease in tax rate
    - taxable portion to be taxed at individual’s personal tax rate
    - alternative investments to be taxed at flat rate tax of 25%
- Under the new tax regime:
  - Critical frailty factors increase significantly
  - Increase is the stronger, the more earnings have been made in the accumulation phase

Results from an individual‘s perspective

- Consequences
  - Under tax incentives for annuitization indeed more people should annuitize
  - Annuitization is preferable even if the insured is in rather poor health
  - At first glance, the tax incentives do work

- However:
  - Insured in rather poor health get a bad value for money
    - They can only expect comparatively few annuity payments.
  - For those insured, a significant portion of the tax benefit is taken away, because the product has a bad value for money.
  - A portion of the tax benefit goes to the insurer since the pool of insured contains more good risks (i.e. people with short life expectancy).

  ➔ Analyze effects on a pool of insured

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Results for a pool of insured

- Monte Carlo Simulation
  - Draw 10,000 insured from the described Gamma-distribution
  - Each insured annuitizes if individual frailty factor is below the critical frailty factor
- Under the old tax regime:

	Percentage of insured who annuitize	Average d
Tax rate 25%	80.46%	0.86
Tax rate 35%	75.30%	0.84
Tax rate 45%	67.92%	0.81

- Under the new tax regime (assuming 50% earnings during accumulation):

	Percentage of insured who annuitize	Average d	Increase in insurer's profitability
Tax rate 25%	92.77%	0.94	1.49%
Tax rate 35%	93.83%	0.94	2.20%
Tax rate 45%	94.55%	0.95	3.09%

Results for a pool of insured

- Consequences
  - Ratio of people who should annuitize rather high even under the old tax regime (annuity puzzle)
  - Significantly more people should annuitize under the new tax regime
    - ➔ Primary goal has been reached
  - The pool of insured consists of significantly better risks from an insurer's perspective
    - ➔ Significantly less effects of adverse selection
    - ➔ Desired by insurers (increased profitability)
  - <u>But:</u> The heterogeneity of the value for money increases
    - Healthy insured profit from the good value for money <u>and</u> the tax benefit
    - For insured in a poor state of health, a significant portion of the tax benefit is eaten up by the bad value for money of the annuity product that is calculated assuming average mortatlity
    - ➔ This is probably undesired
- ➔ Next: Can enhanced annuities solve this problem?

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Results for a pool of insured when enhanced annuities are present

- We first assume perfect underwriting, i.e. the estimated frailty factor always coincides with the actual frailty factor
- Under the old tax regime:

	Percentage of insured who annuitize	Average d
Tax rate 25%	100.00%	1.00
Tax rate 35%	100.00%	1.00
Tax rate 45%	98.93%	0.99

- Under the new tax regime (assuming 50% earnings during accumulation):

	Percentage of insured who annuitize	Average d
Tax rate 25%	100.00%	1.00
Tax rate 35%	100.00%	1.00
Tax rate 45%	100.00%	1.00

Results for a pool of insured when enhanced annuities are present

- Consequences
  - In a market with enhanced annuities virtually everybody should annuitize under both tax regimes
    - ➔ Introducing enhanced annuities (with good quality of underwriting) provides a better incentive to annuitize than tax incentives
  - Selection effects are removed entirely
    - ➔ Desired by insurers (increased profitability)
  - Everybody basically gets the same value for money

➔ The two positive effects of tax incentives can also be achieved with enhanced annuities but we get the additional effect that everybody is treated “equally fair” from an actuarial perspective.

Results for a pool of insured when enhanced annuities are present

- Final comments
  - If the quality of underwriting decreases, the portion of insured who should annuitize decreases.
  - However, even for a rather poor quality of underwriting (correlation 0.5 – 0.75)…
    - … the portion of insured who should annuitize is about as high as with tax incentives and without enhanced annuities
    - … selection effects are reduced
    - … the homogeneity of value for money is increased

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Summary

	Increase portion of individuals who annuitize	Decrease effects of adverse selection	Fairness (same value for money for everybody)
Tax incentives	Good	Good	Very bad
Enhanced annuities (poor underwriting)	Good	Good	Good
Enhanced annuities (good underwriting)	Very good	Very good	Very good

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