Demand for Tailor Made LTC Insurance
Preliminary Research Findings

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Overview

- Research questions
- Review of past research activity
- An over-simplified assessment of demand
- Outlook: An economic approach to modelling tailor made LTCI
- Conclusion and Summary of Findings

Research Questions

- The U.K. market for private LTCI is virtually non-existent. Why?
  - Public crowding out
  - Lack of suitable products

- Research objectives:
  - Derive potential demand for tailor made LTCI products
  - Analyse how public support system (i.e. means testing) could be changed to allow for vibrant market in the U.K. (while avoiding adverse social effects)

Previous Research: LTC cost projections
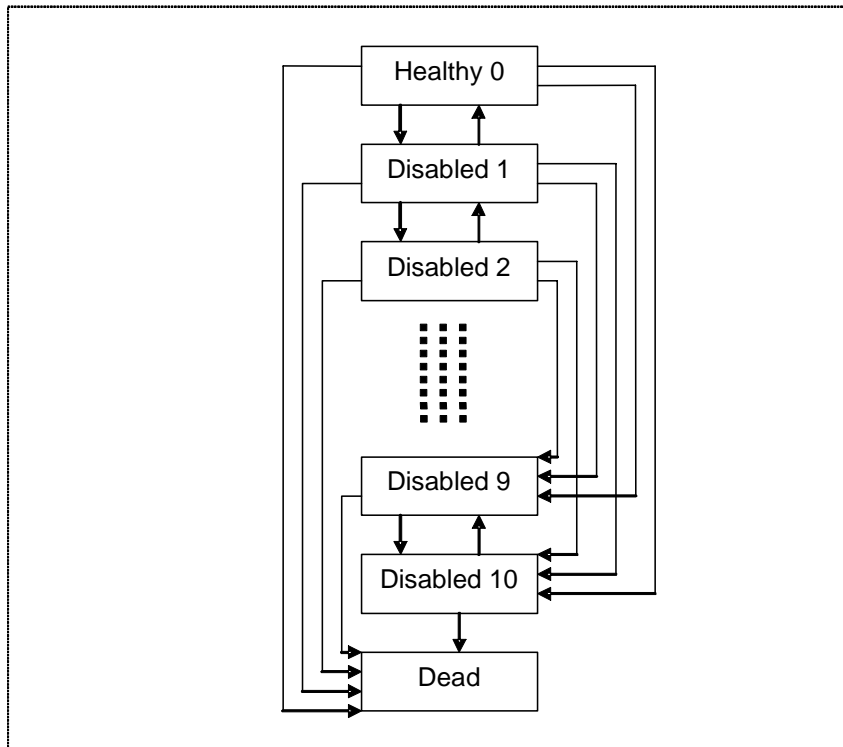
- Partition of elderly population by disability (Rickayzen & Walsh model)
- Mapping from disability to care setting
- Assume relationship remain constant
- Calculate implied tax rate
- Assess potential deficit of informal care

Projection Results
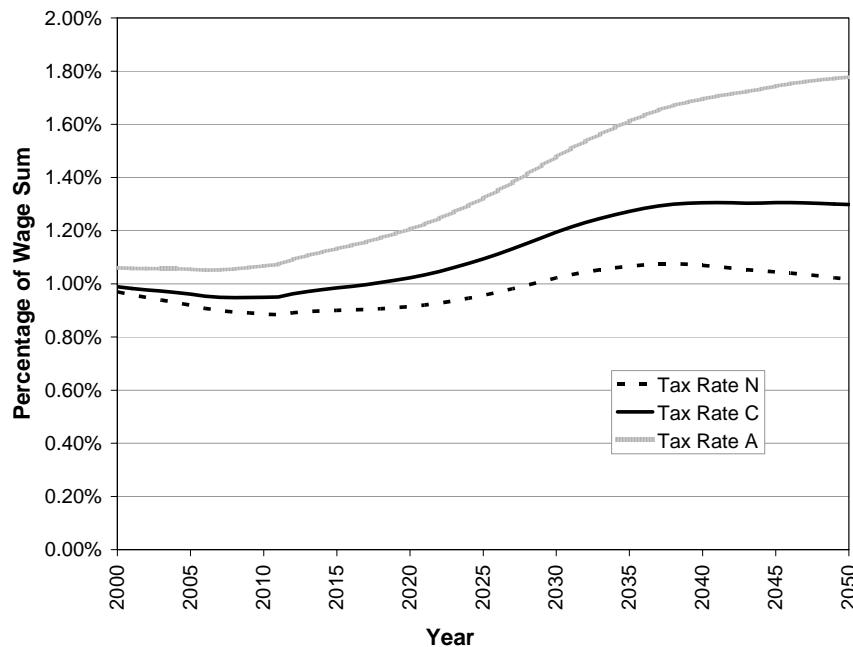
- No. of older people increases continuously until mid-21st century
- Largest increase in people receiving informal care
- Institutions: up 30 % in 3-4 decades; formal home care up 50 per cent.
- Public spending on LTC sensitive to health scenario:
    - Constant in optimistic case
    - Up from 1 % to 1.3 % in baseline case
    - Up from 1 % to 1.8 % in pessimistic case

Chart: Percentage of Wage Sum vs Year (2000–2050), y-axis 0.00% to 2.00%. Legend: Tax Rate N (dashed), Tax Rate C (solid), Tax Rate A (gray).

Previous Research: LTC in four OECD countries

- Purpose: Analyse fiscal burden and distributive effects of various LTC funding regimes

- Using Rickayzen & Walsh model, lifetime contributions and benefits from public LTC systems were compared

- Countries included are UK, Sweden, Germany, Japan

- Assumption of no behavioural response to changes in funding regime is crucial
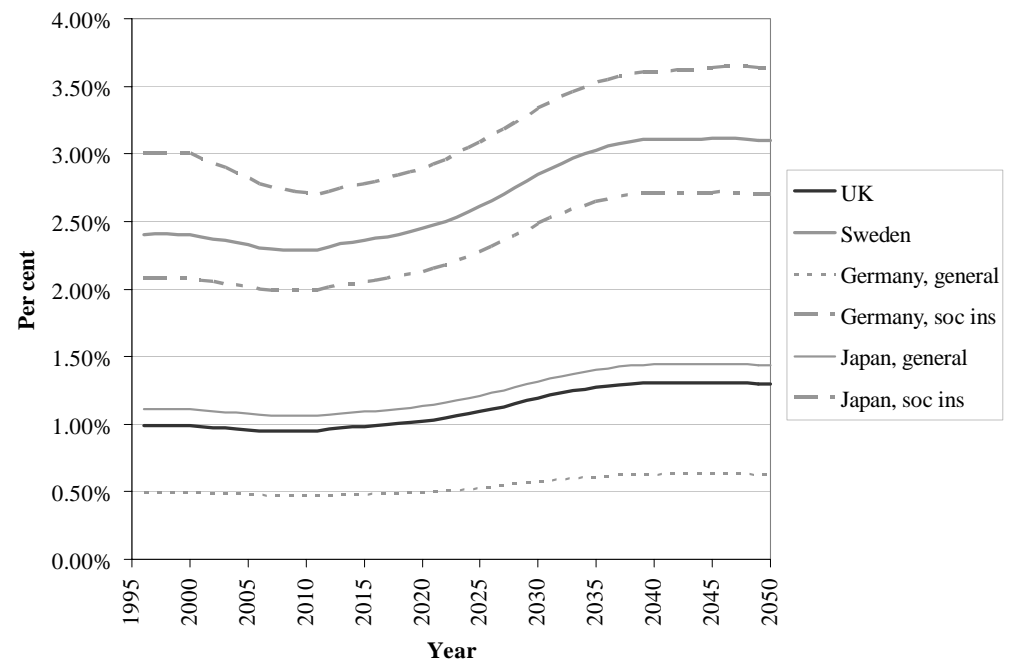
LTC in four OECD countries

| Gender	Age	Income	Germany	Japan	Sweden
Female	20	Low	-2,443	8,095	10,226
		Medium	-5,537	4,079	5,590
		High	-3,608	1,455	2,388
	40	Low	884	10,308	15,407
		Medium	-314	6,990	13,169
		High	-4,109	5,251	12,618
	60	Low	4,131	15,760	19,445
		Medium	4,847	15,734	19,688
		High	-7,362	17,334	21,584
	80	Low	3,042	10,845	12,900
		Medium	3,810	11,380	13,479
		High	-7,086	12,985	15,144
Male	20	Low	-4,182	-3,351	-10,826
		Medium	3,026	-8,159	-19,153
		High	11,053	-12,667	-13,575
	40	Low	-3,801	-5,047	-1,559
		Medium	369	-10,313	-5,466
		High	3,181	-15,666	-9,404
	60	Low	134	1,601	3,391
		Medium	-2,818	316	2,486
		High	-798	-989	1,610
	80	Low	700	2,185	3,007
		Medium	802	2,042	2,945
		High	-3,239	1,939	2,952

- Increases in tax rates roughly proportional, except for Japan
- Systems are all favourable to women: lifetime redistribution between £3,000 and £13,000, but countries differ substantially in this respect.
- This result is mainly driven by differences in longevity and disability and to a lesser extent by differences in income
- Germany and the UK are particularly favourable to young males
- Swedish system better for old

A simplified model of LTCI

- Needs for LTC do not only depend on disability
- Socioeconomic characteristics matter, such as
  - Marital status/cohabitation
  - Income
  - House ownership
- Just as the occurrence of disability, future realisations of these are unpredictable to individuals, which provides rationale for insurance
- If individuals want to protect their assets, an insurance benefit that tops up income might be useful

- Such an insurance would face serious problems, however:
  - *Moral hazard*: Income, marital status and disability do, in varying degrees, depend on the individual's own choices
  - *Adverse selection*: Individuals have better info of their likely future characteristics than insurers
  - *Correlation of risks*: Low-income people are more likely to be disabled.
- For now: all these problems are ignored… just to provide a very stylised assessment.
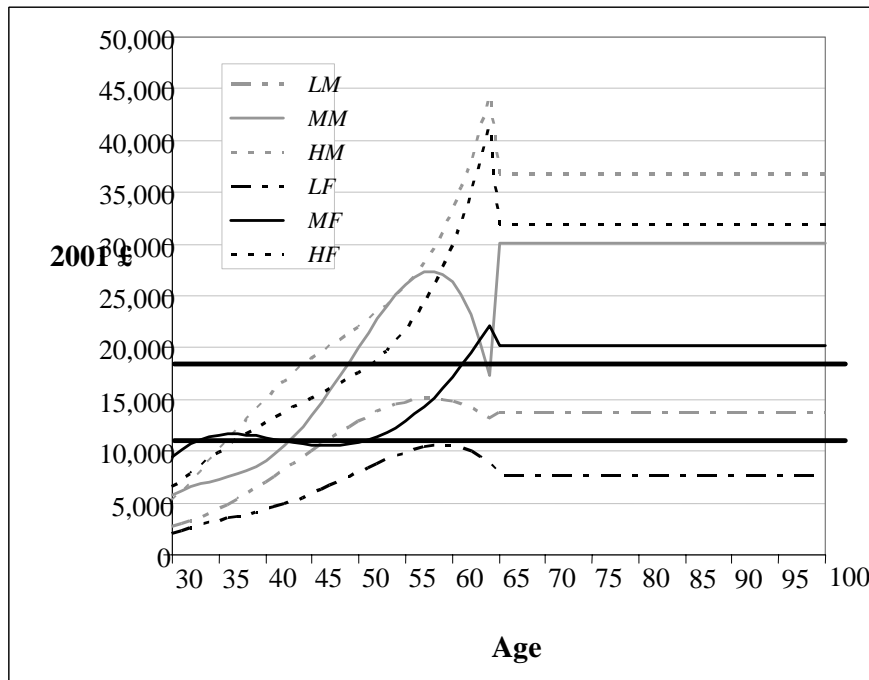
Income Profiles
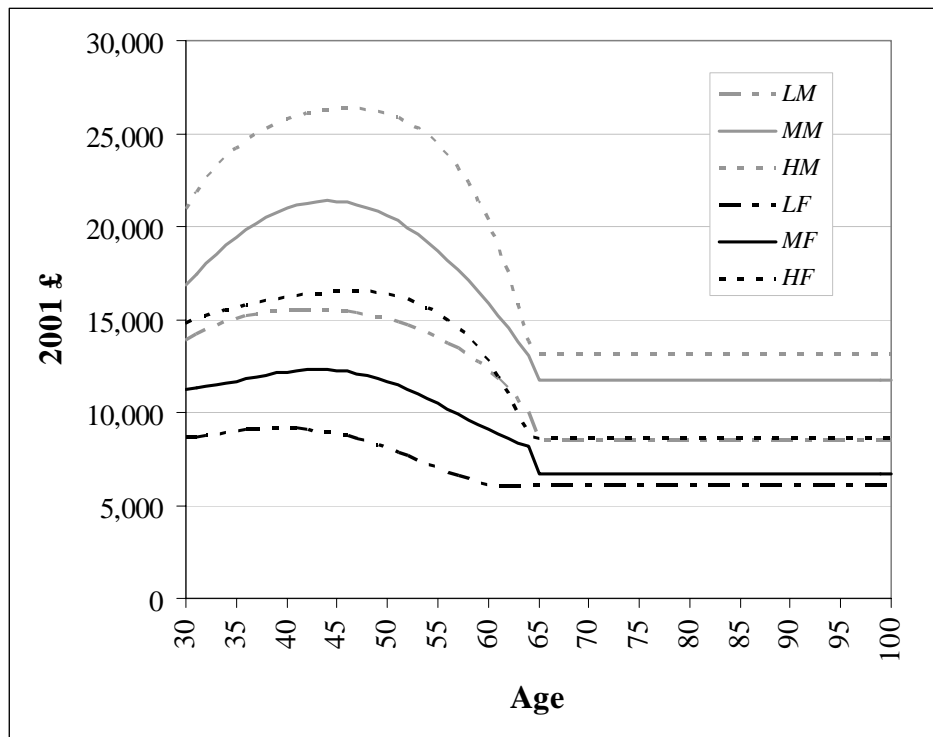
- We estimated detrended earnings functions by gender and education
- Peak of salary occurs between 45-50
- Strongly significant gender and education differences
- Hence, if demand for LTCI is motivated by protecting assets, taking income into account might provide more efficient insurance

Asset profiles

- People seem to accumulate assets throughout life

- Mainly it is males and females with university degrees (and low incomes) that have strong incentives to purchase topup insurance

- However, correlation between income and assets only partially controlled for by taking age and education into account

Asset Profiles II
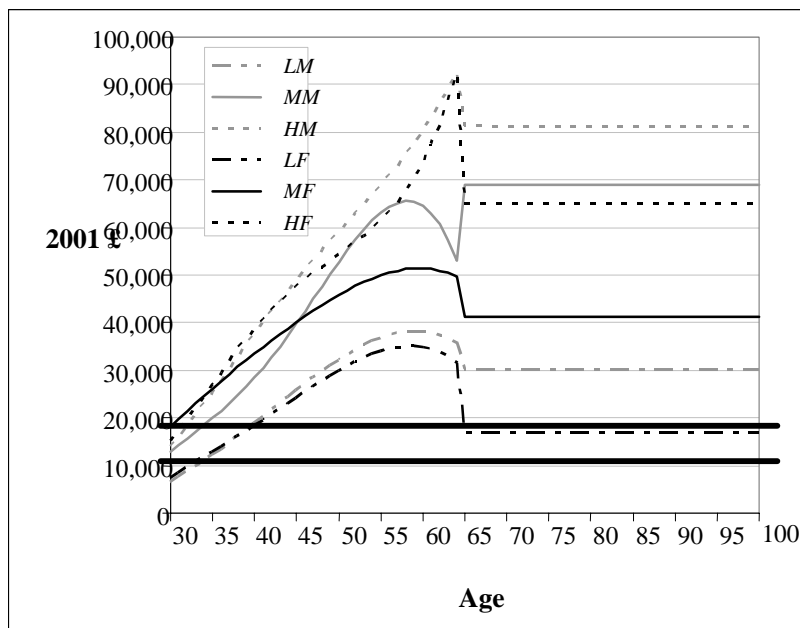
- Taking value of home into account, all classes have at least weak incentive to top up.

- Only non-educated females have weak incentives (on average!)

- During working life, incentives are generally stronger (ages 50-65).

Cohabitation
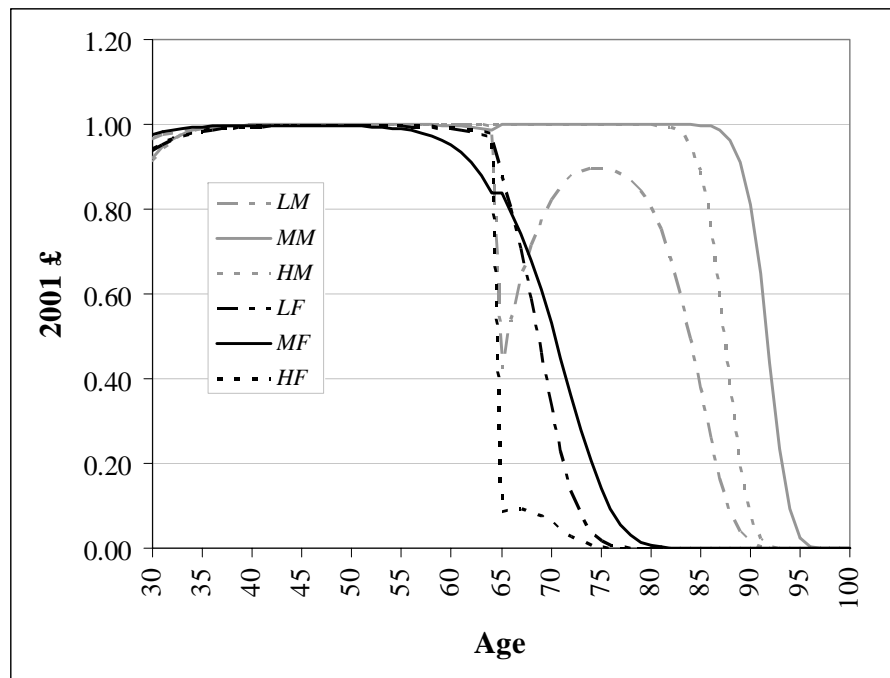
- Cohabitation: Striking gender difference: females more likely to be single.
- Class differences somewhat smaller: individuals with some education tend to be cohabiting at older ages than others
- Females with high education more likely to be single at old age.

Premium Rates
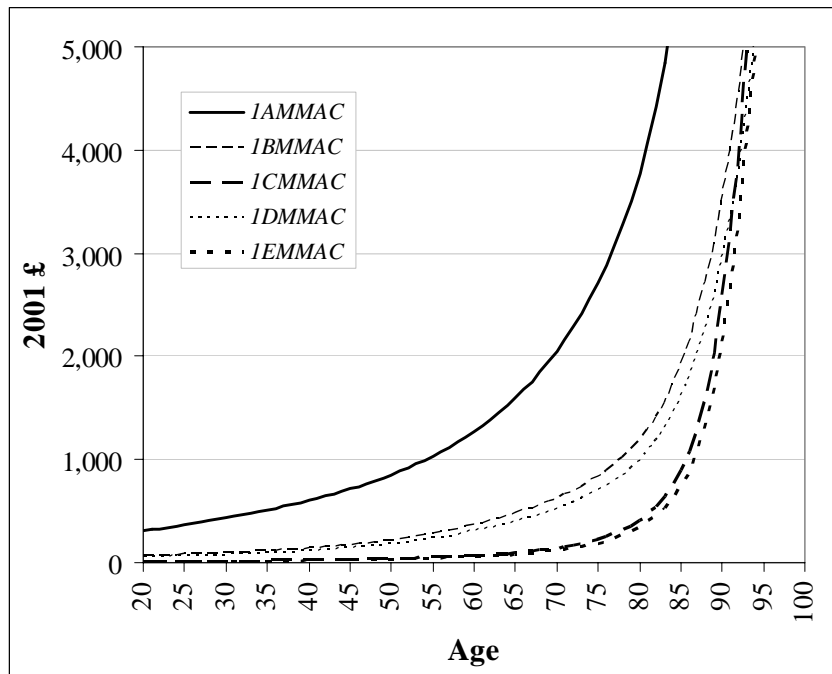
- With all these simplifications: what about premium rates?
- Considerable reduction in premium rates when income taken into account
- Further reduction when spouse accounted for
- Much weaker impact of spouse on female premium rates

Conclusions I

- There seem to be systematic differences between different socioeconomic groups concerning life cycle trajectories of variables relevant for LTC need
- These differences in LTC risk imply that tailor made insurance products could potentially offer better insurance than traditional LTCI alone.
- Taking income and spouse into account would potentially reduce premium rates quite significantly

- A more rigorous approach is needed to asses potential demand for these products
- In particular, we need
  - An economic model of individual behaviour, allowing for
    - Varying degrees of risk aversion
    - Time preferences
    - Uncertainty: health deterioration, income and marital status are unpredictable
  - Information on correlation between disability, socioeconomic characteristics, and marital status
  - Individual heterogeneity: even controlling for age, gender and education: people are different, so potential adverse selection problems.

# Building an economic model for LTCI: Preliminary results

- In order to model individual demand we need information on the correlation between disability, marital status and socioeconomic characteristics
- Using the BHPS, we compile a dataset with info on disability:
  - Healthy
  - Moderate
  - Severe
  - Dead

- …and on education level
  - None
  - Some
  - Uni
- …and on cohabitation status
  - Single
  - Cohabiting
- Transition rates estimated using multinomial logit model.

Findings

- Gender and education strongly affect the need for LTC.

- Disability and cohabitation state are highly persistent

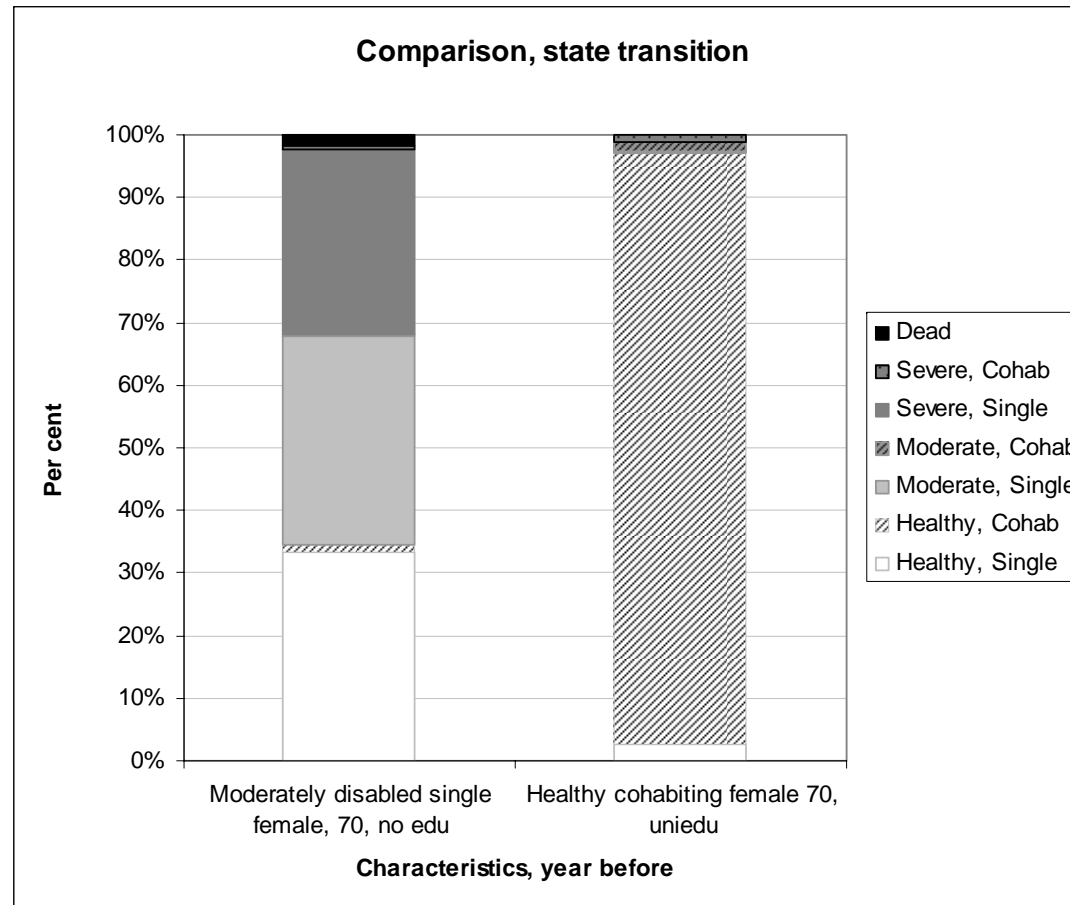- Data problem: mortality rates are seemingly underestimated

Transition rate model: Example 1

Comparison, state transition

Transition rate model: Example 2

Comparison, state transition
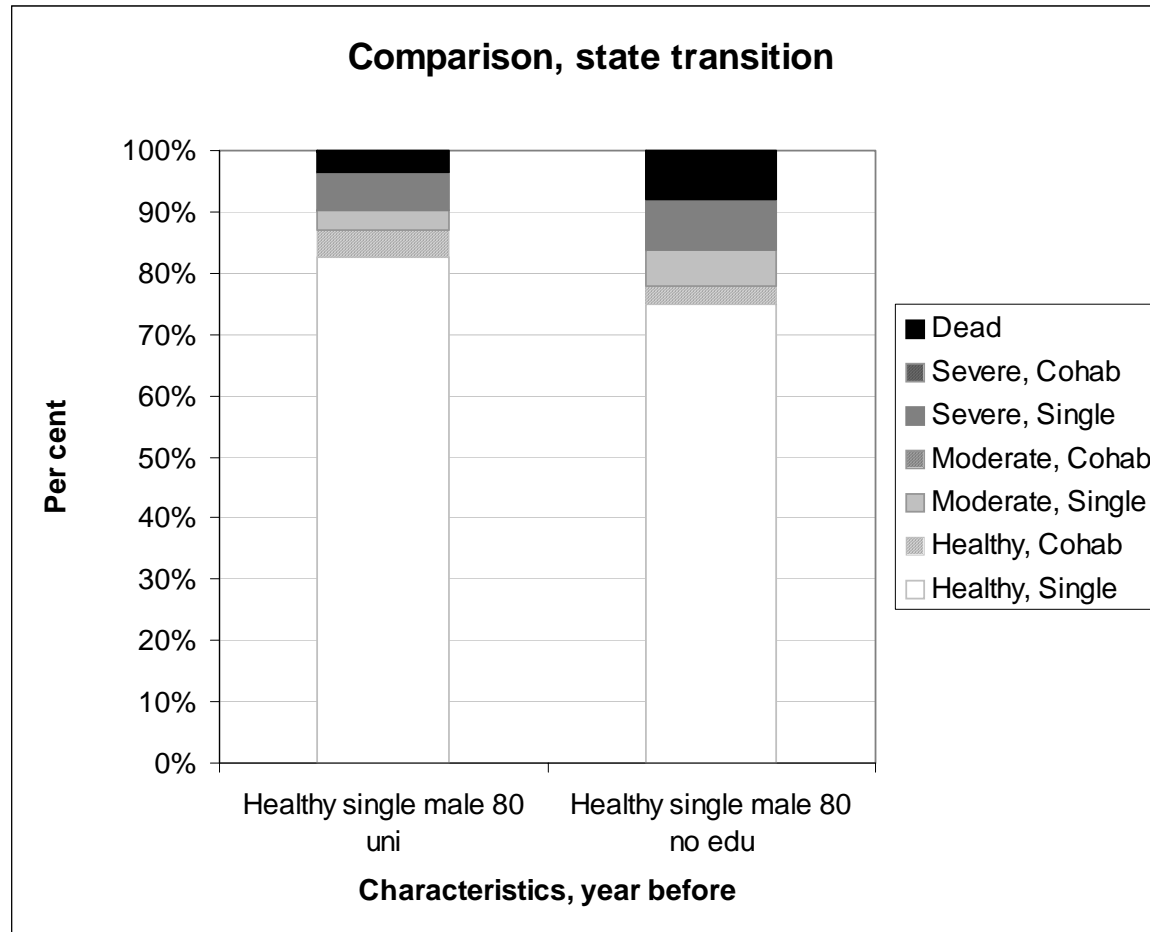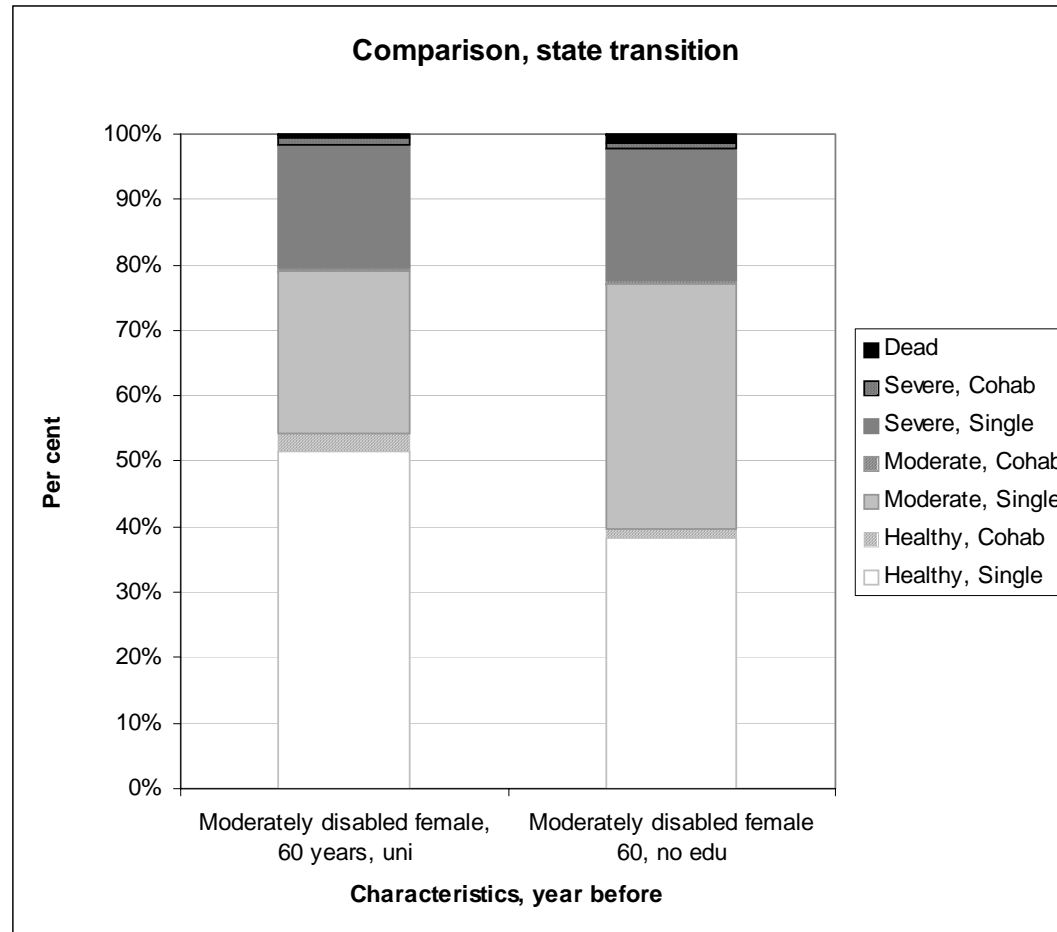
Transition rate model: Example 3

Conclusions II

- Individuals with higher education have substantial advantages in terms of
  - Mortality rate
  - Prevalence of disability
  - Probabilities of improving/deteriorating health
- This should be taken into account when premium rates are calculated
- It is also highly relevant for the design of new LTCI products