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# The Economics of Frailty

*Disability and Long-Term Care Systems*

**Hitachi Forum: Ageing Society and Technology**

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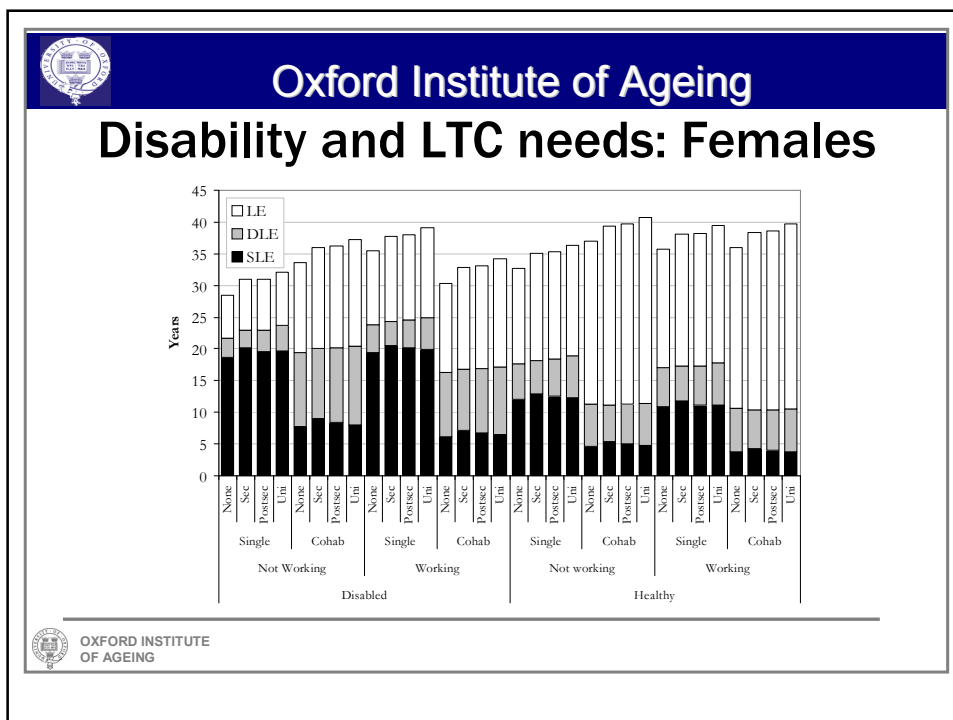
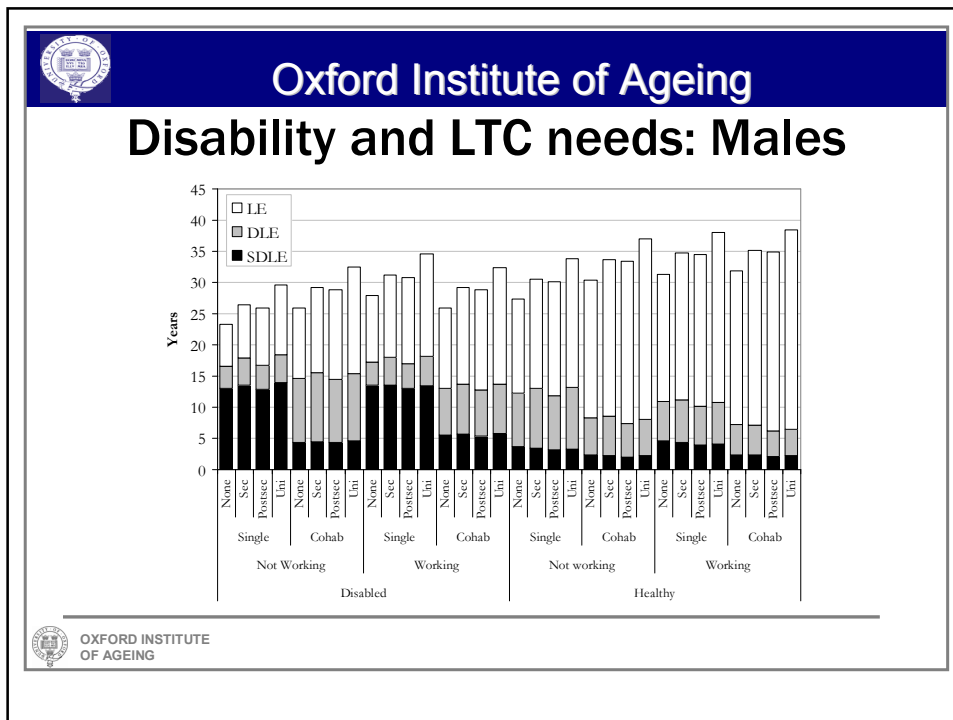
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## Outline

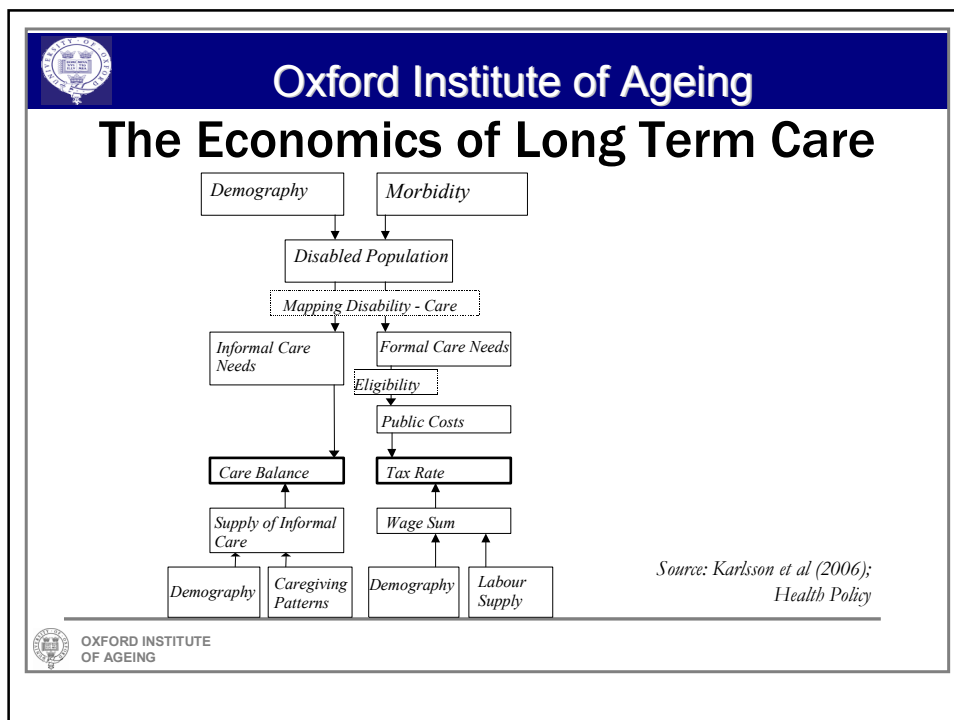
- Background: Disability and LTC needs
- Long-term care systems: theory and practice
- Bundling of risks: disability, mortality and bereavement
- Conclusions and outlook



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- ## Political Parameters of LTC Systems
- | System Parameters  | Funding Parameters   |
|--|--|
| <ul style="list-style-type: none"> <li>• The boundary between LTC and health care</li> <li>• The role of the family in provision and financing of LTC</li> <li>• The balance between residential and home-based services</li> <li>• The provider roles of public and private bodies</li> <li>• The form of the public subsidy</li> </ul> | <ol style="list-style-type: none"> <li>1. Private savings</li> <li>2. Private insurance</li> <li>3. Private insurance with public-sector support</li> <li>4. Public sector tax-based support</li> <li>5. Social insurance</li> </ol> |
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## LTC in four OECD Countries

Country	Financing	Predominant Provider Type	Means-Testing	Level of Responsibility	Benefits	Costs (GDP)
Germany	Social Insurance, Taxes	Private, non-profit	No	National	In-kind, Cash	~1.0
Japan	Social Insurance & Taxes	Private, non-profit	No	Local	In-kind	~1.5
Sweden	Taxes	Public	No	Local	In-kind	~3
United Kingdom	Taxes	-	Yes	Local (National)	In-kind	~1 %

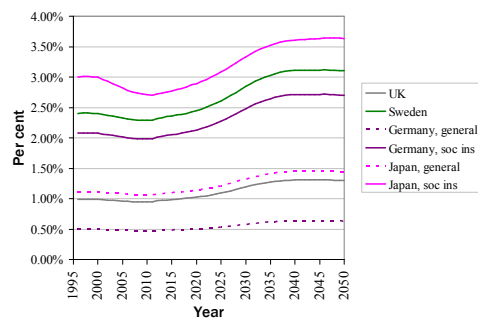
Source: Karlsson et al (2007); Health Policy



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## LTC in four OECD Countries: Costs

- The British system is by far the 'cheapest' (1 %), whereas the Swedish one is the most expensive (2.4 %)
- However, Japanese taxpayers end up paying more from the age of 40 onwards
- The required contribution rates move more or less proportionately over the projection period



Source: Karlsson et al (2007); Health Policy





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### LTC in four OECD Countries: Redistribution

- 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

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

Source: Karlsson et al (2006);  
Health Policy



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### Private LTC Insurance: Market failure?

- Individuals might be able to influence the risk of disability (*ex ante* **moral hazard**)...
  - ...and they might seek to maximise the benefits once disability has occurred (*ex post* **moral hazard**)
  - Future costs of long-term care are **unpredictable** and might not be insurable
  - **Misconceptions of consumers?**
  - **Supply side failures** (loaded premiums: 51 cent per dollar)
  - **Crowding out** from the public sector.
  - Asymmetric information and **adverse selection**: individuals know more than insurance companies.
- ... Can these problems be alleviating by *bundling of risks?*



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## Disability linked annuities

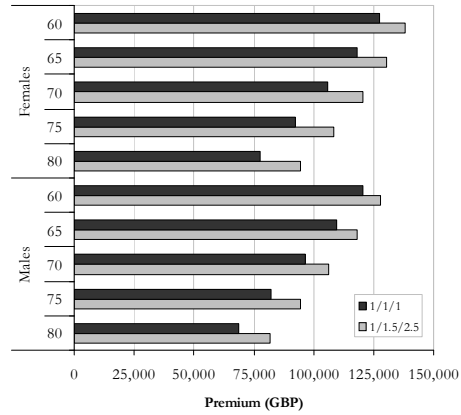
Frail individuals are

- Bad risks for LTC insurance
- Good risks in the annuity market

...so what if **longevity** and **disability** risks are bundled?

Rickayzen (2007) shows that

- Adding disability bonus to annuity hardly changes premium
- Such products are much less sensitive to uncertainty in trends

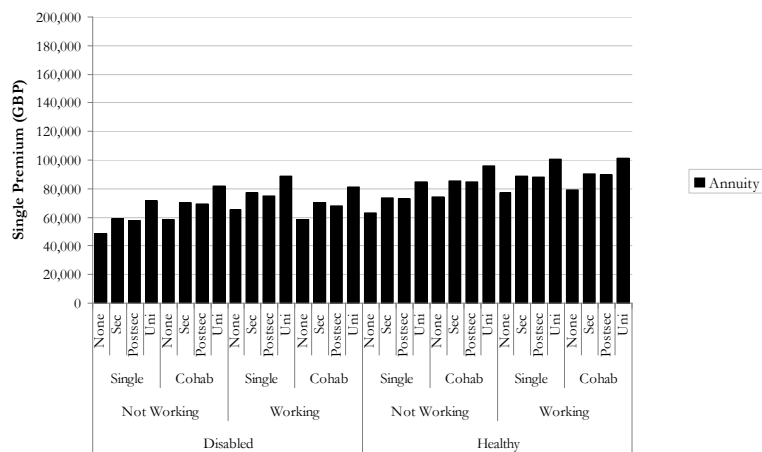


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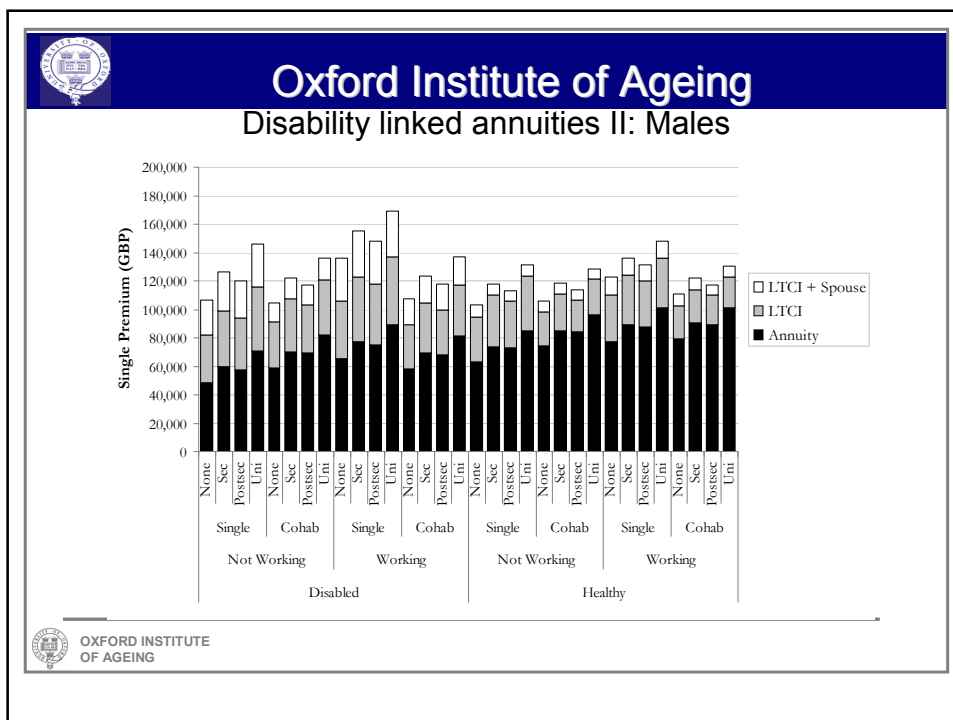
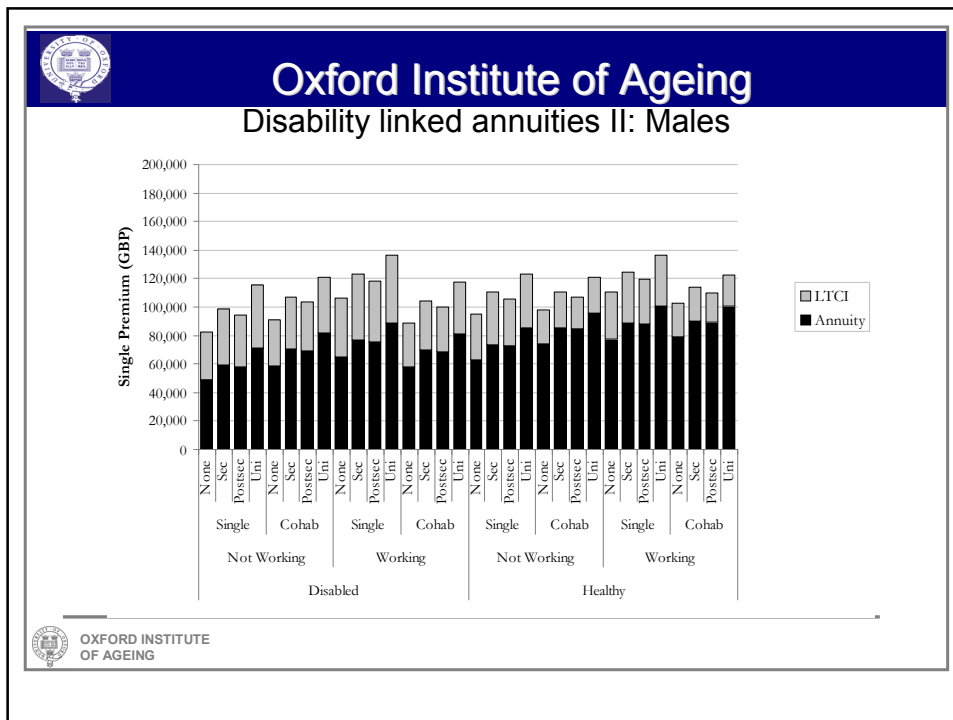
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## Disability linked annuities II: Males

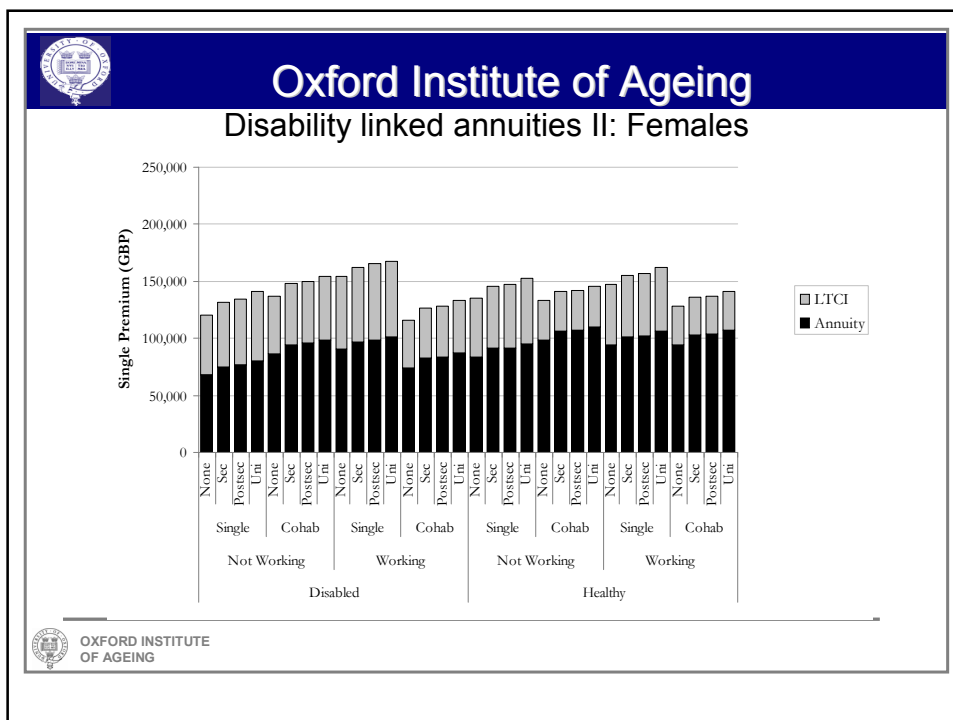
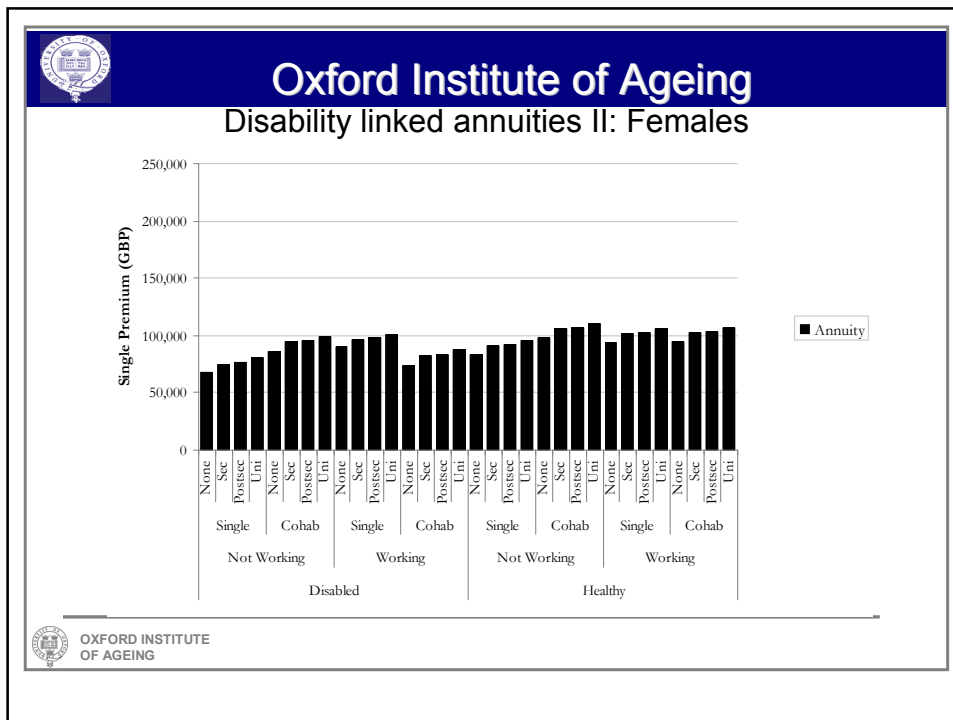


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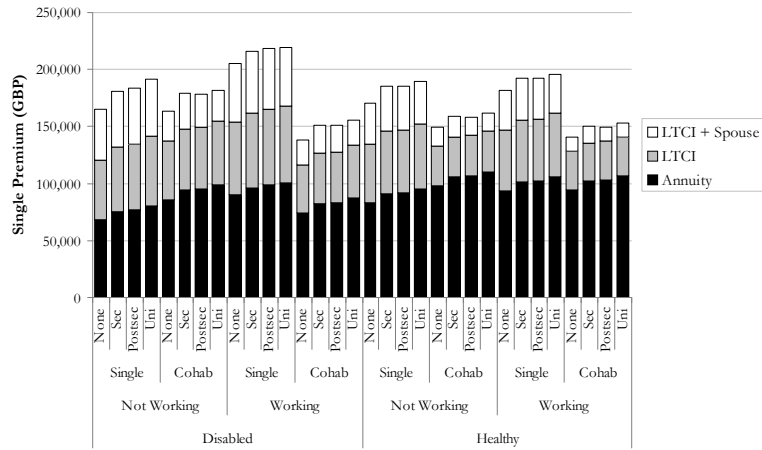
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## Oxford Institute of Ageing Disability linked annuities II: Females



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Thank you for listening!