

Pensions, Risks and Capital Markets

Adair Turner

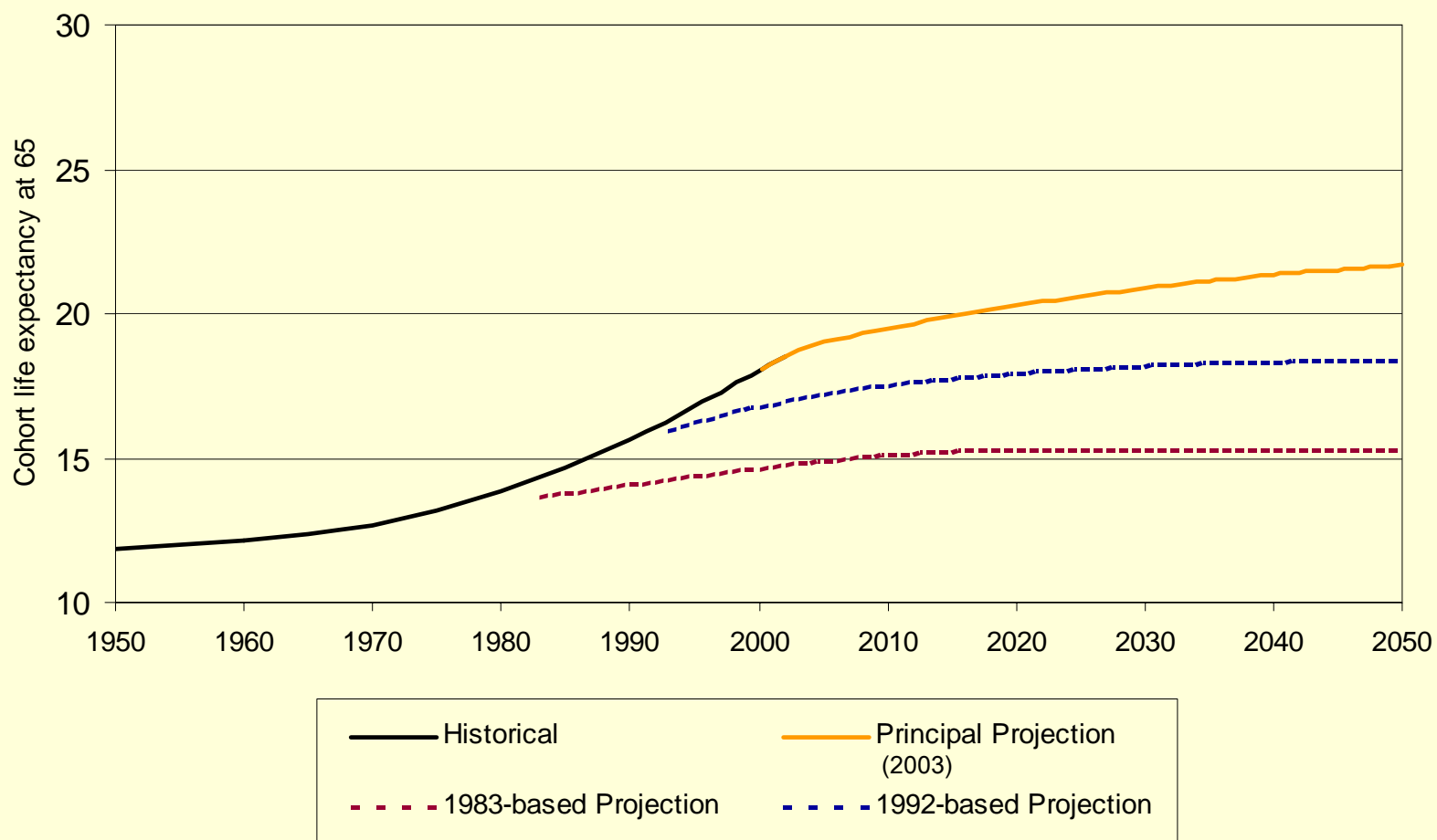
Chicago 24th April 2006

Longevity risks issues

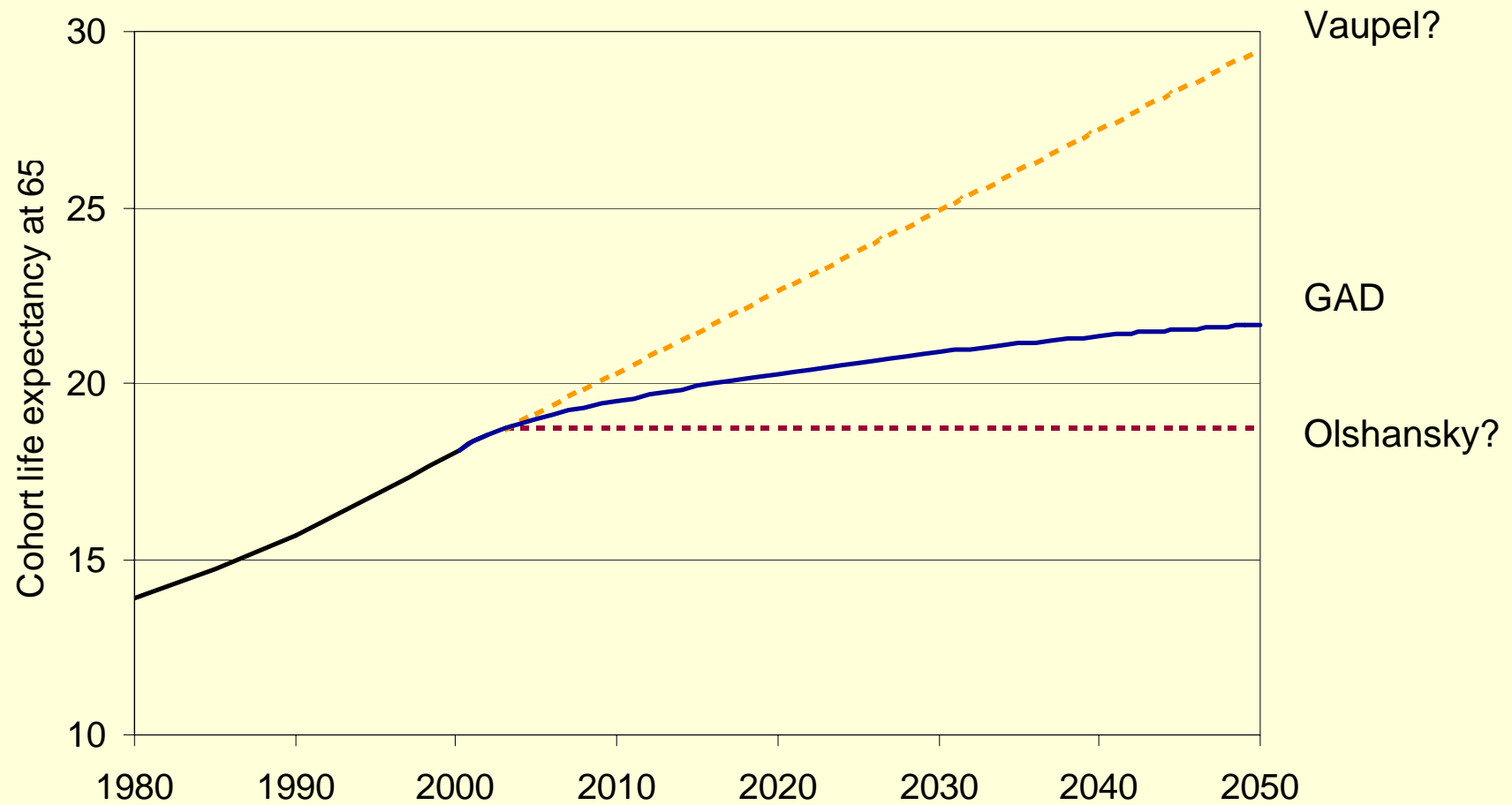
- How great is uncertainty?
- How much longevity risk absorbed today?
- Prospects for risks absorption, capacity and price
- Who should bear longevity risk?

Estimates of Cohort Life Expectancy: Male at 65

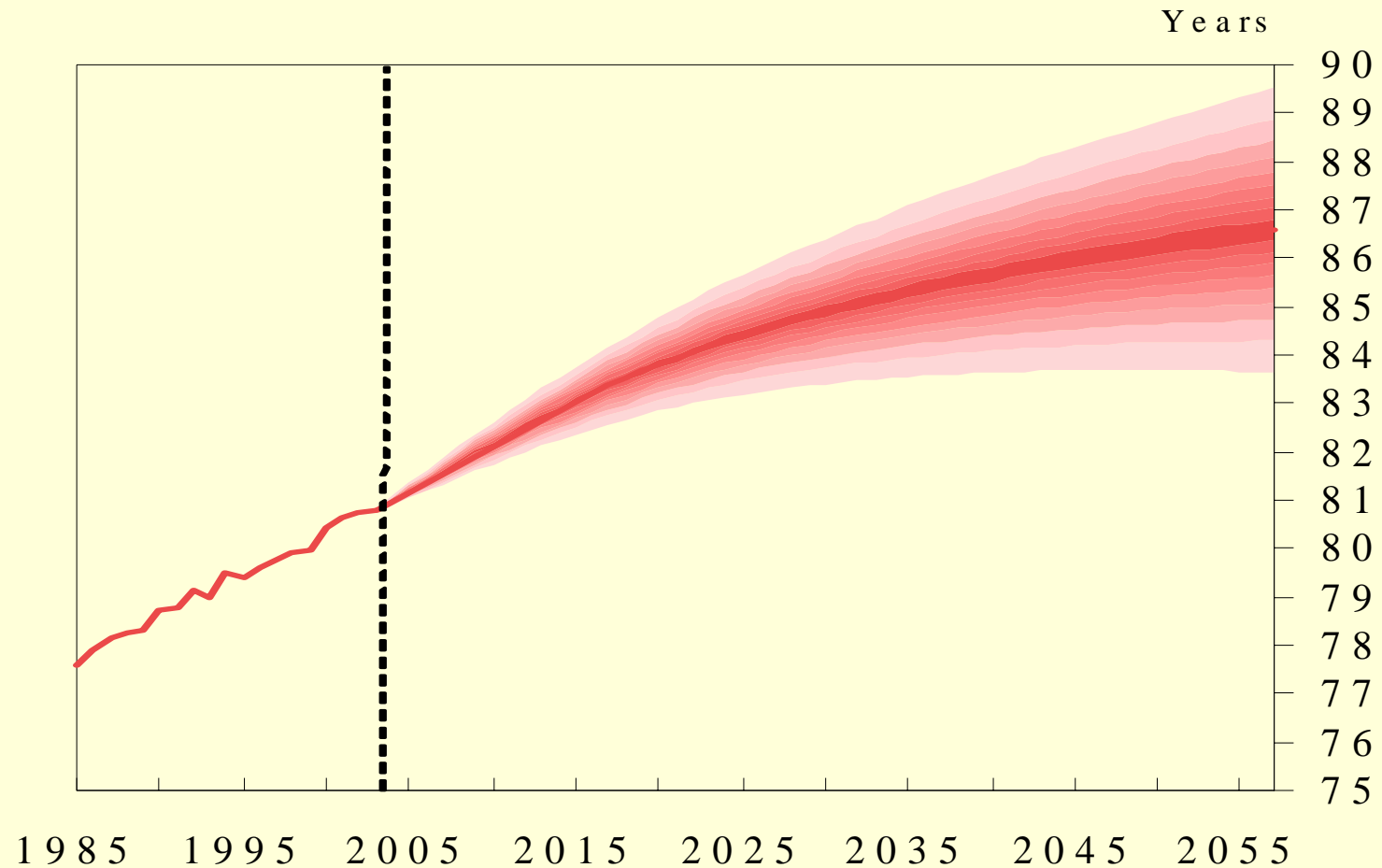
UK Government Actuary's Principal Projections



Life Expectancy Debate - Optimists & Pessimists

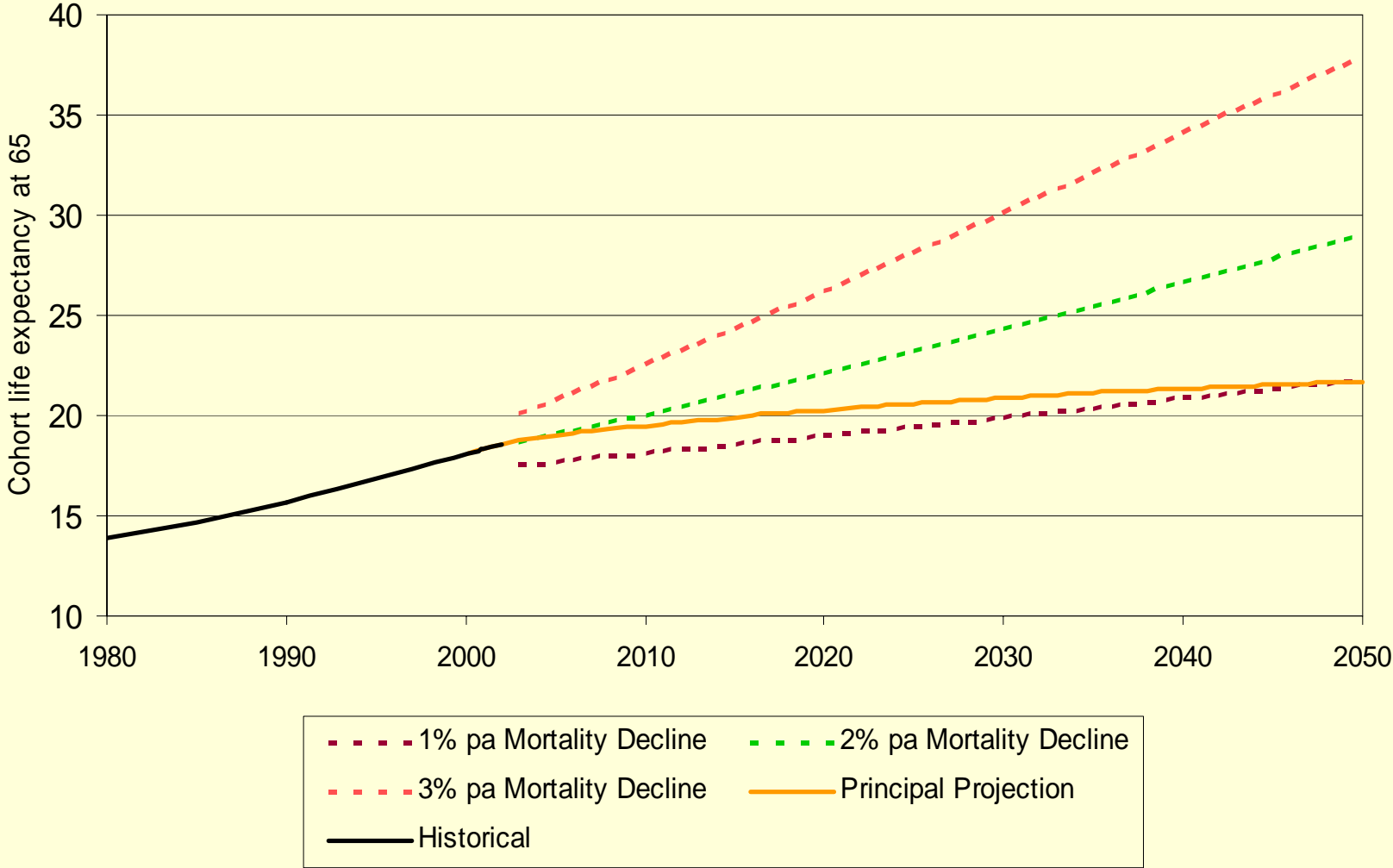


Life Expectancy Fan Chart? – From ‘What Fates Impose’



Source: *What Fates Impose*, lecture by Mervyn King, British Academy, 2004

Mortality Rate Declines & UK G.A. Principal 2003 Projection



Actual Past Differences in Mortality Rate Forecasts: Male at 65

Mortality rates measured / forecast in year

1984 1985 1986 1994

Actual vs 1983 forecast

2004 2014

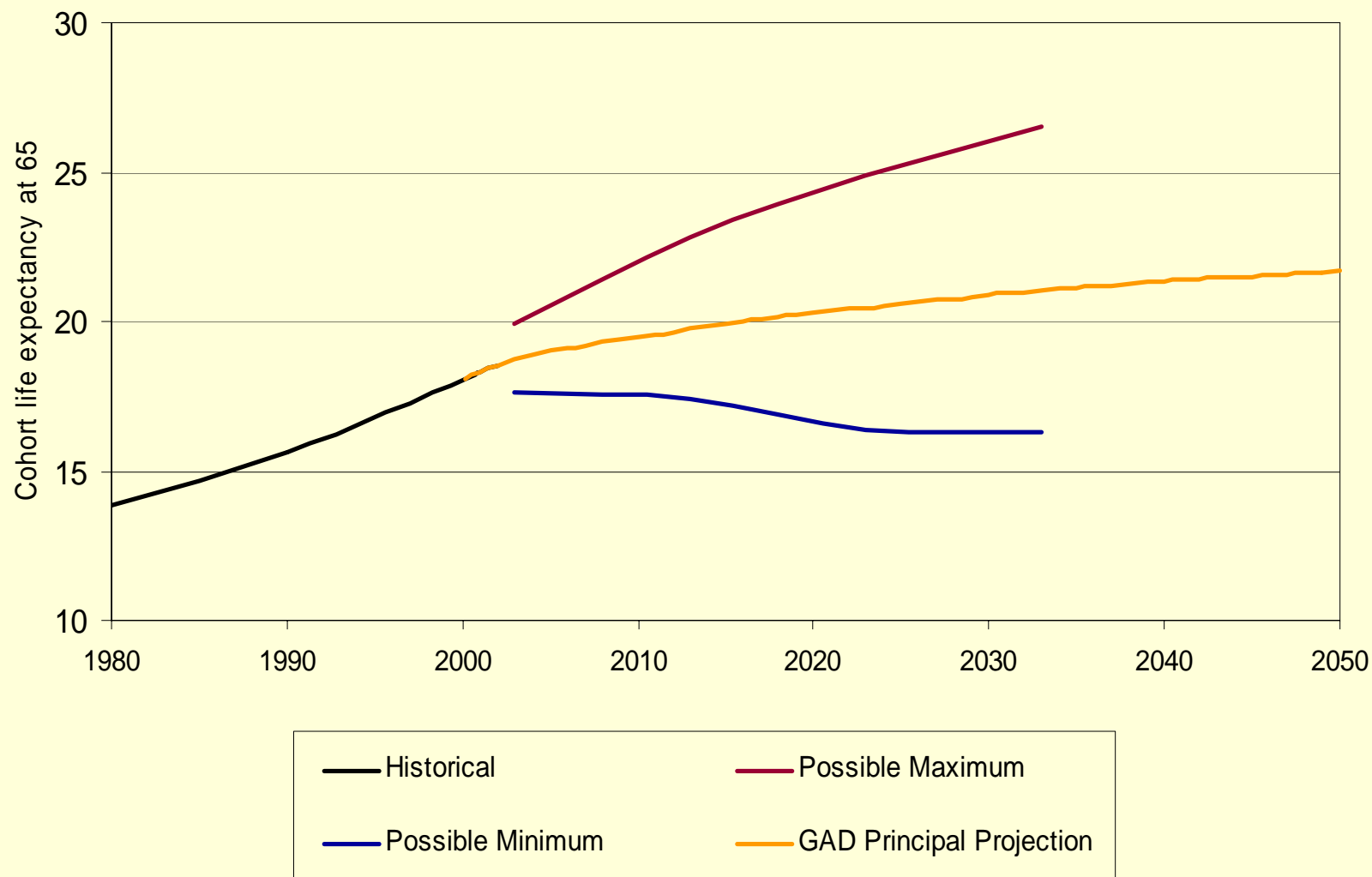
2003 forecast vs 1983 forecast

Male at
age 65

-8% -0% -3% -17% -41% -46%

Male cohort life expectancy at 65

Uncertainty in 2003 forecasts if already apparent 1983 errors/changes are the maximum possible and if error potential is symmetrical

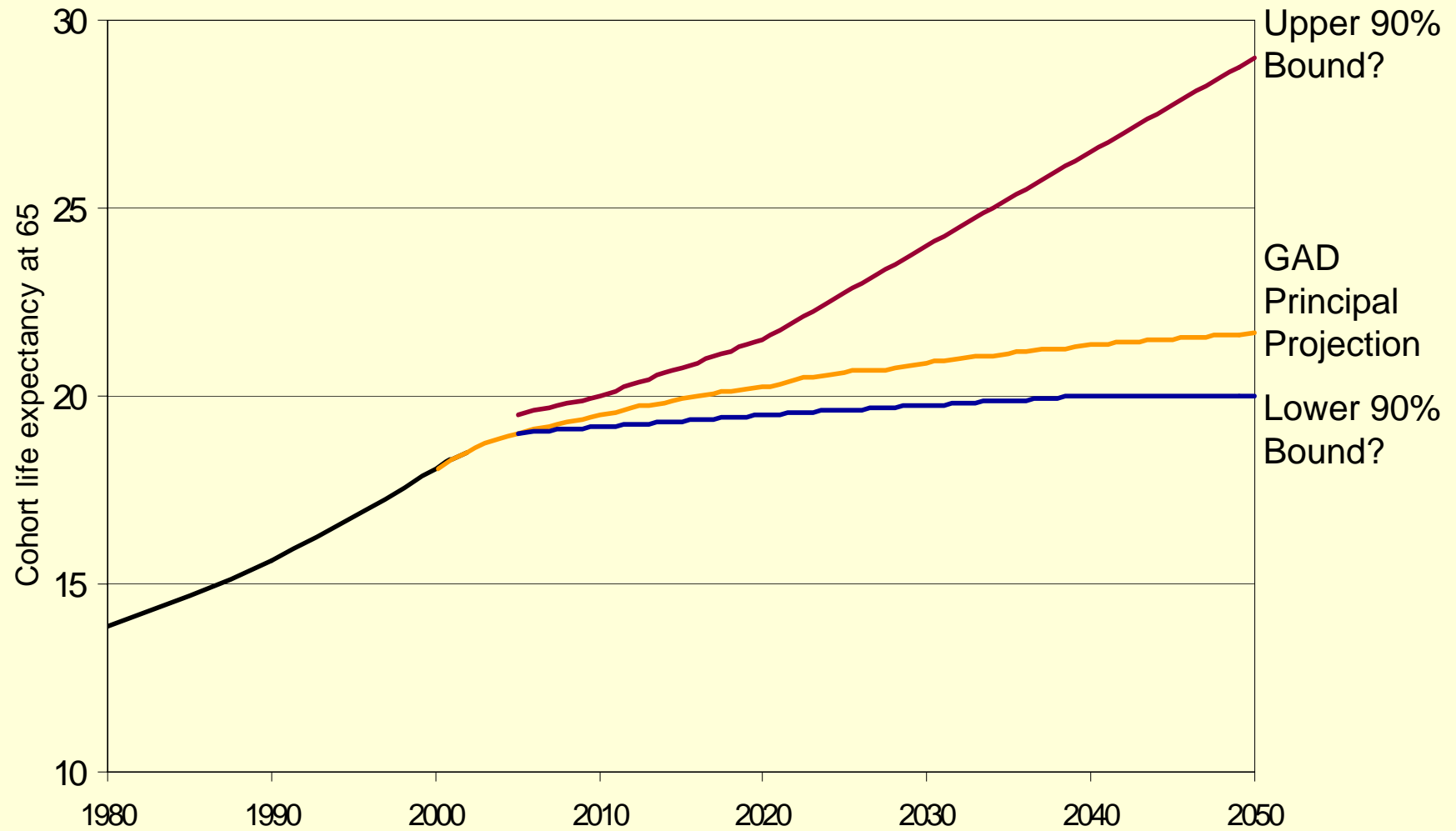


Interpreting the Range of Uncertainty

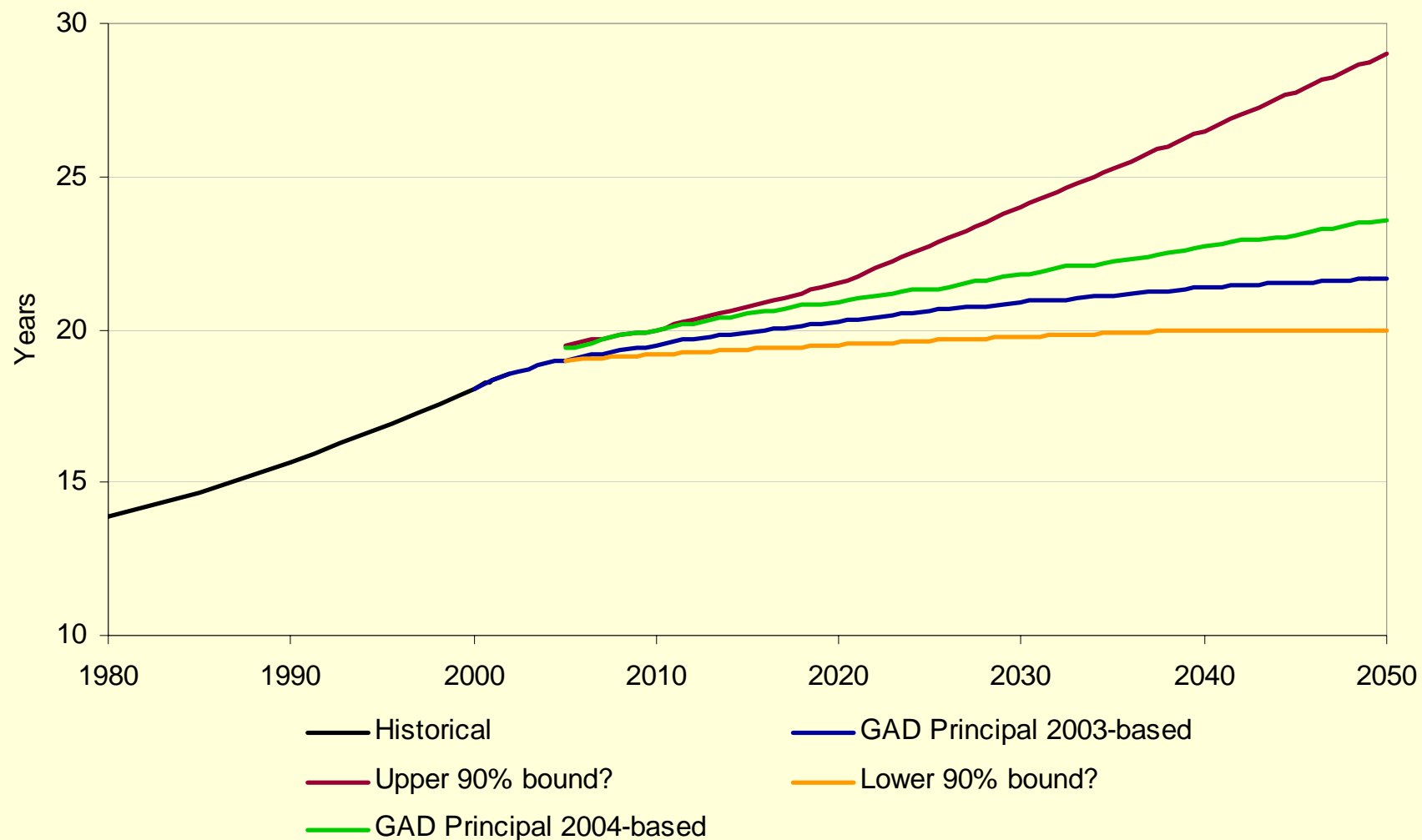
- Inherent uncertainty not quantifiable risk
- Total error potential unclear from 2003 vs 1983 comparison
- Are the uncertainties symmetric?
- Are future potential error rates likely to be as high as 2003 vs 1983 comparison?

Reasonable Judgement on Uncertainty?

Male cohort life expectancy at 65



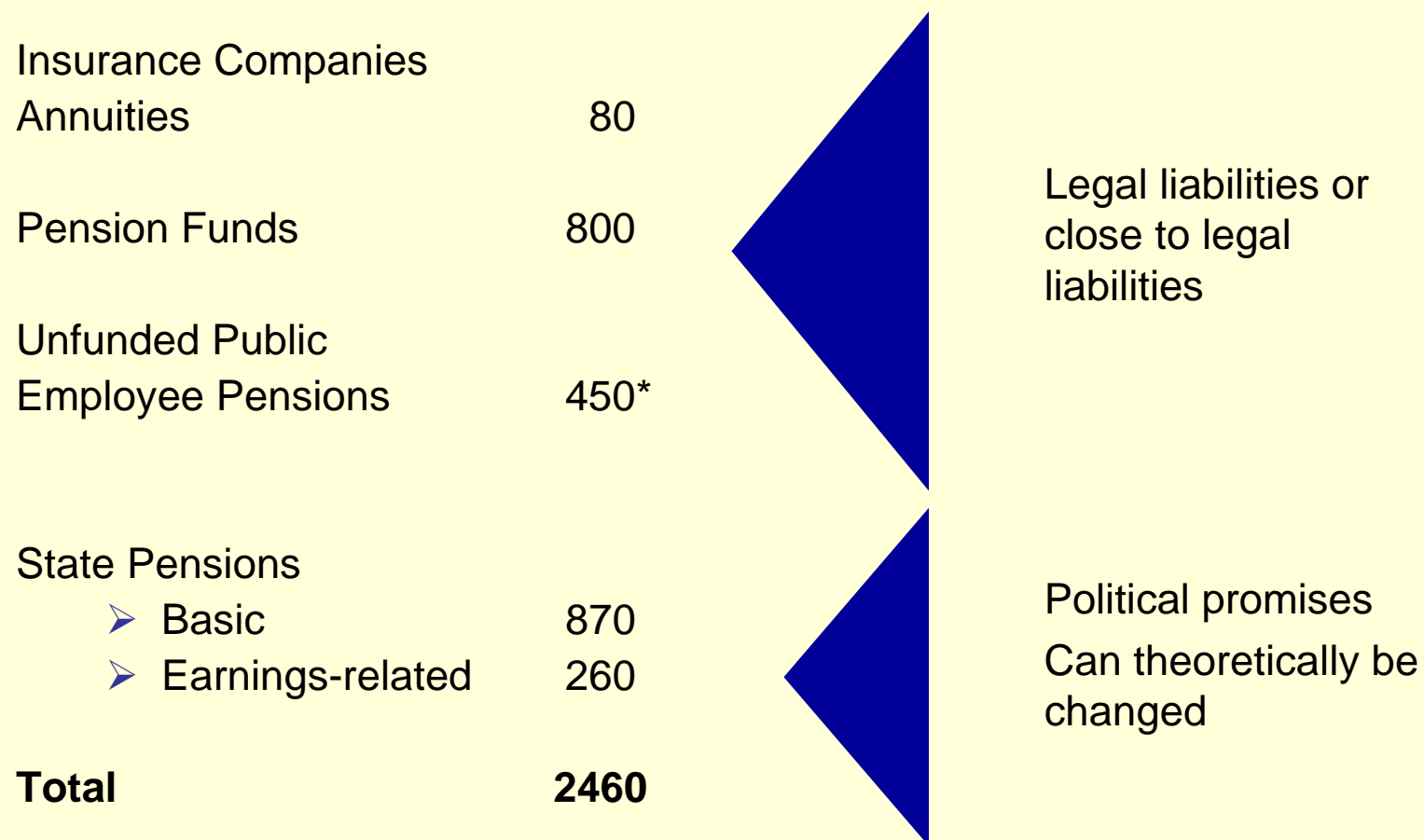
Male cohort life expectancy at 65: range of possible uncertainty around 2004 - based principal projection



Source: Government Actuaries Department (GAD) and Pensions Commission estimates, UK

Longevity Risk in UK Pension Provision

£bn of total liabilities – broad estimates at April 2005



* Latest figures (2006) suggest unfunded public employee liabilities now about £550bn

Longevity Risk in UK Pension Provision

£bn of total liabilities – broad estimates at April 2005

	Pre-retirement	Post-retirement
Insurance Companies	10?	70?
Pension Funds	400?	400?
Unfunded Public Employee Pensions	260	190
State Pensions		
▪ Basic	490	380
▪ Earnings-related	170	90
Total	1330	1130

Three Factors Driving Increased Overt Annuitisation

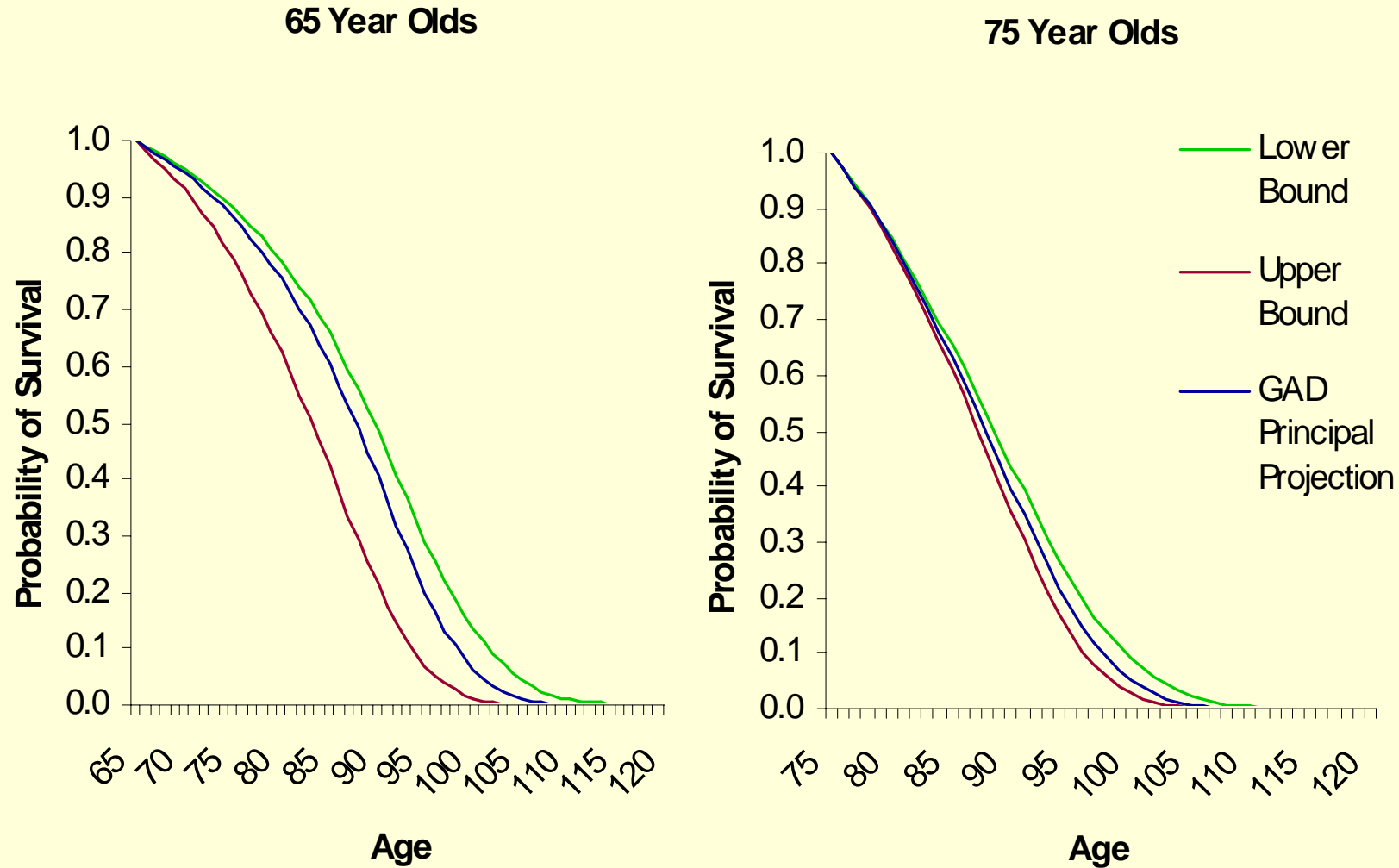
- DB → DC shift
- DB legacy risk management
 - Bulk buyouts
 - Latent demand for longevity bonds
- Declining generosity of state PAYG → demand for post-retirement annuities if private savings rise.

Possible Long-term Annuity or Longevity Bonds Stock?

Present Stock £bn

	Overt Annuities (Life Companies)	Annuity Promises (DB Pension Fund)	Total	
Post Retirement	70	400?	470	← Required stock to replicate annuity promises given by final salary schemes
Pre Retirement	10	400?	410	← Required to manage legacy DB promises

Probability of Survival of 65 & 75 Year Old Females with Modelled Variations around GAD Principal Projections*

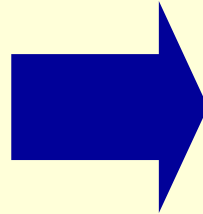


* Model assumes error rates increasing by 1% each year, as per modelled scenario

Who Should Bear Cohort Longevity Risk?

Post-retirement:

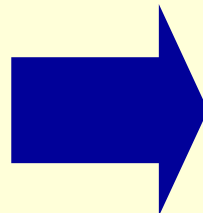
e.g. the risk that the cohort of 65 year olds living in 2005 will live for 20 years not current estimate of 19 years



- Social interest in a fairly priced annuity market
- Longevity uncertainties moderate

Long-Term pre-retirement:

i.e. the risk that the cohort of 35 years old living in 2005 will live for 25 years after reaching 65 in 2035 rather than the current estimate of 21.2 years



- Natural offset exists in human capital / later retirement
- Longevity uncertainties huge.

Government Role in Longevity Bonds: an Optimal Approach?

IF, BUT ONLY IF

Government reduces exposure to long-term pre-retirement longevity risk via:

- Public employee pension reform
- Long-term formula link for State Pension Age
- Move to notional defined contribution approach

THEN?

Useful role in fostering the growth of the market via fairly priced benchmark issues

...and perhaps absorbing (at fair price) very long-term post-retirement survival risk (e.g. survivor risk from 90 on)