

Appreciating longevity diversity

How can multi-employer plans of all shapes and sizes set appropriate longevity assumptions?

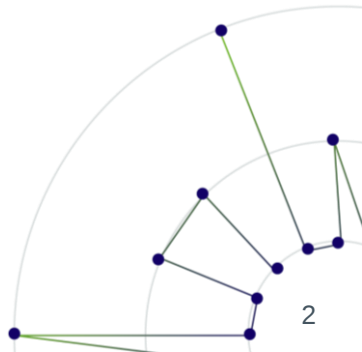
Douglas Anderson, Actuary & Founder of Club Vita

24 September 2018

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Appreciating longevity diversity

1. Between plans
2. Between places
3. Between people
4. Over time
5. So what?

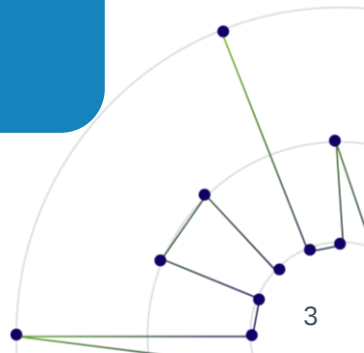


Club Vita

Proper noun, [kluhb vee-tuh], \ 'kləb vē-tə

1. Centre of excellence for improving understanding of human longevity.
2. Community of organisations with a shared interest in longevity and belief that the 'bigger' the data, the lower the (statistical) noise.
3. Provider of longevity risk informatics to support pension plans' risk management strategies and enable market innovation.

Club Vita is an independent data utility, supporting pension plans, advisors, insurers & asset managers





Records for over **2.9 million** UK pensioners

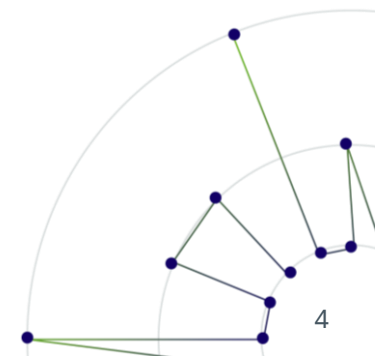
equivalent to **1 in 4** DB pensioners

Relationships with over **220** large pension schemes

with over **£300 billion** of liabilities

Over **1.4m** death records stretching back **25+ years**

Supporting **9 out of 10** longevity reinsurers that help to make UK plans' promises secure

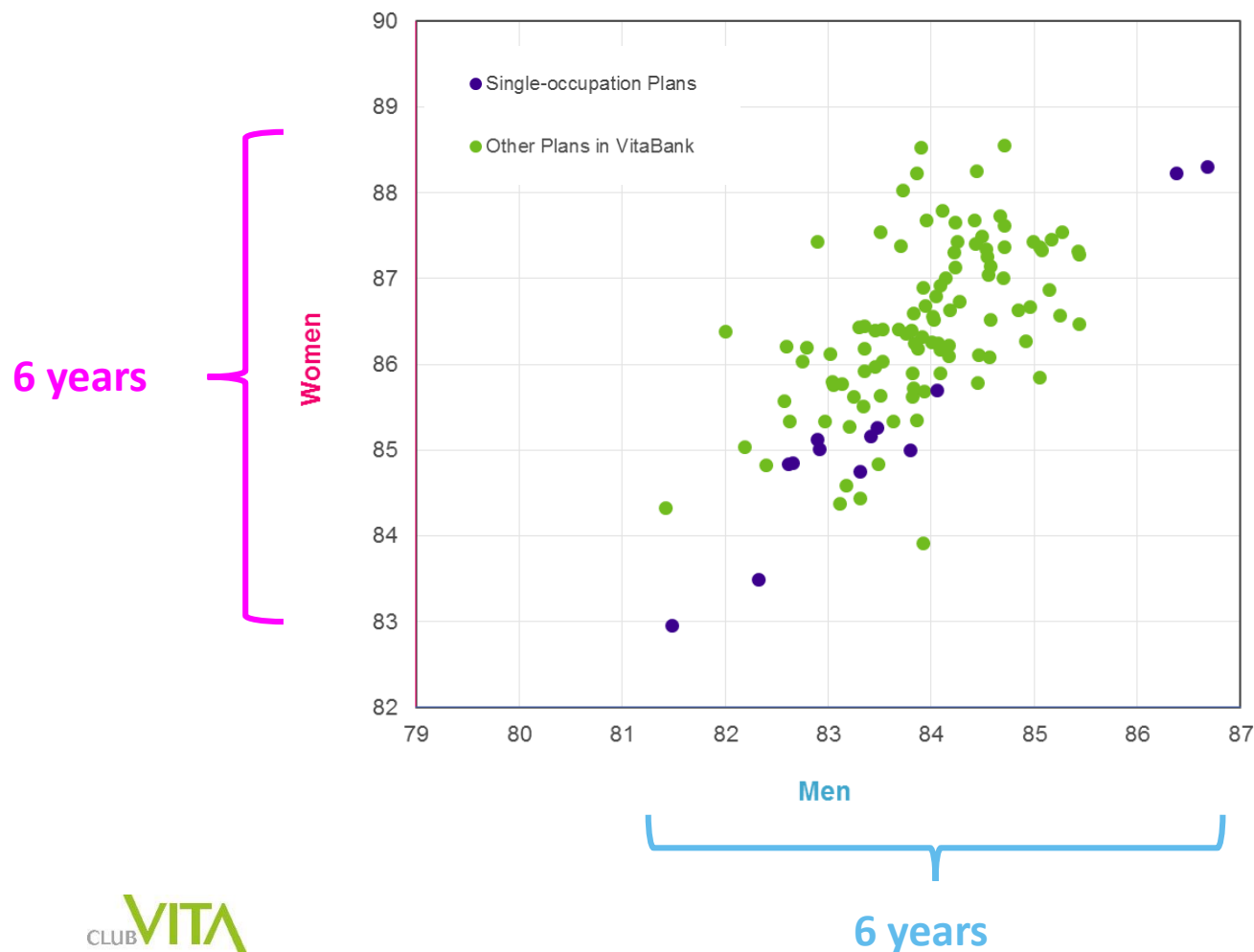


1. Diversity between plans

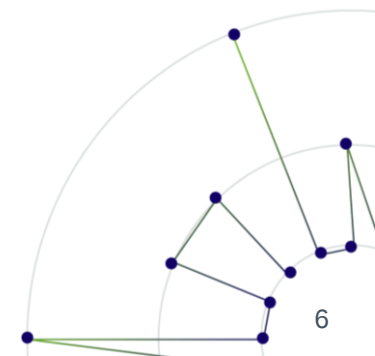
Diversity at the plan level



Expectation of life of a 65 year old in each scheme
(2012-2016 data)



- Each dot shows the crude period life expectancy for a pension plan in Club Vita using observed data from 2012-2016
- There is no allowance for future improvements
- The purple dots represent plans whose participants are dominated by the same occupation. For example:
 - Bus drivers
 - Brewers
 - Clergy
 - University lecturers.

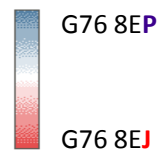
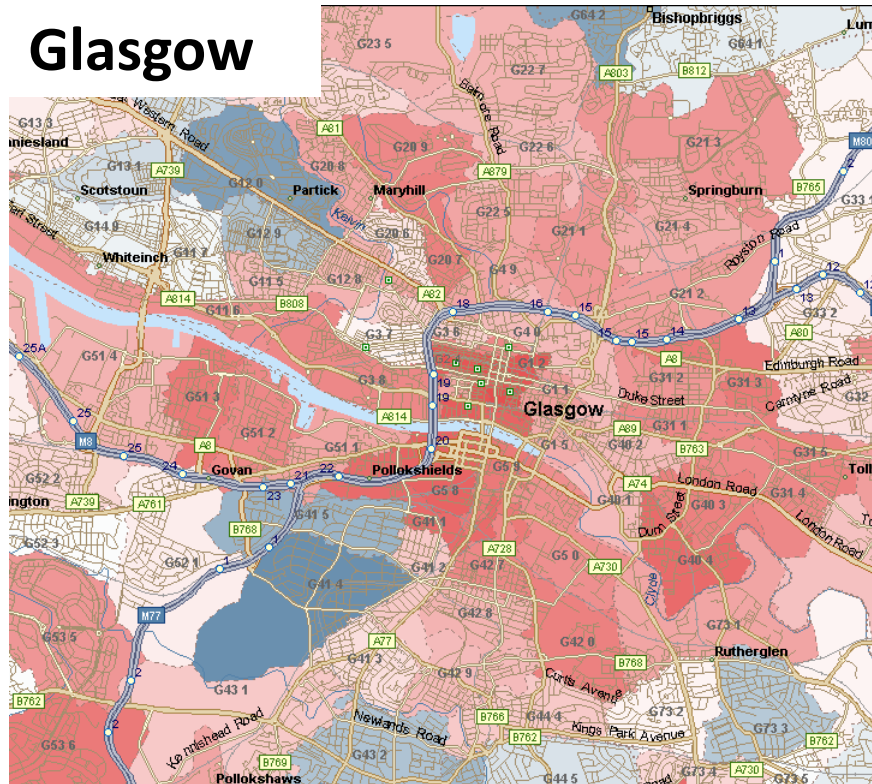


2. Diversity between places

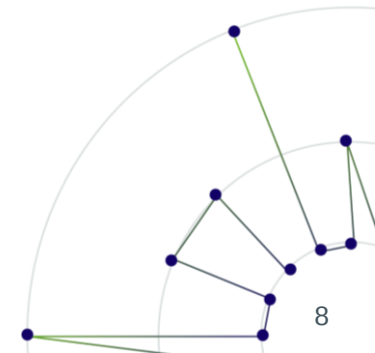
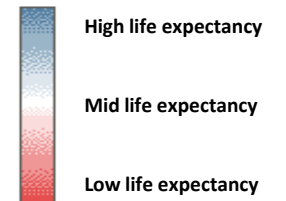
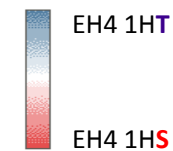
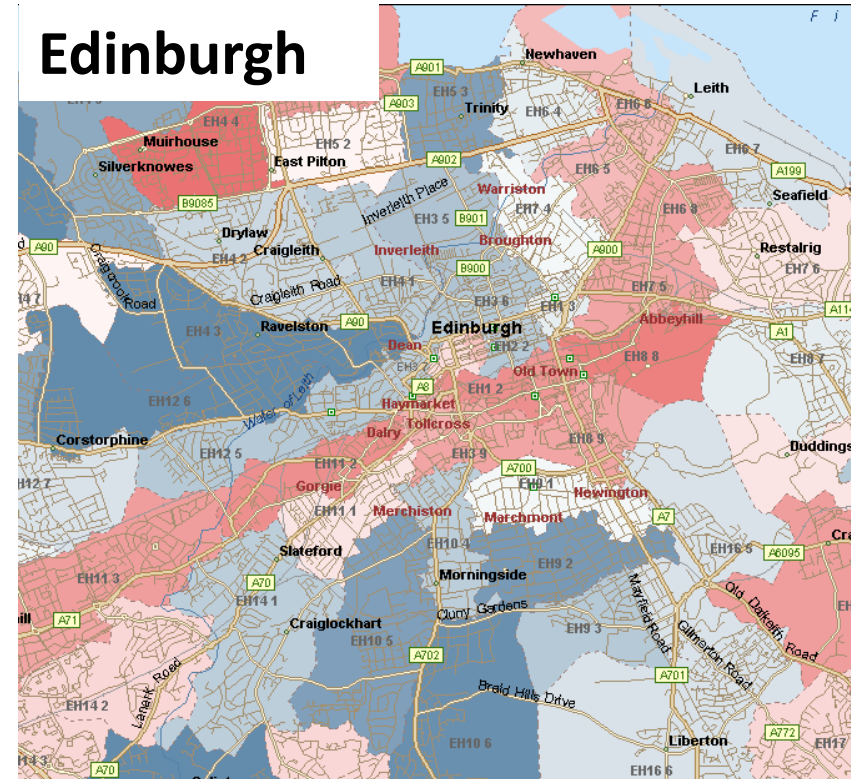


Scottish diversity

Glasgow

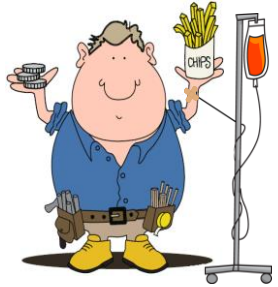


Edinburgh



3. Diversity between people

Diversity between individuals



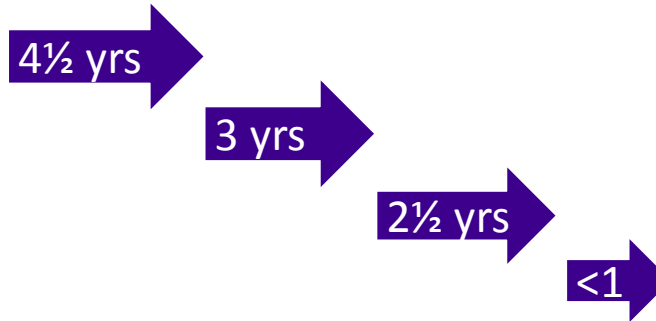
Life expectancy
from 65:
12 years



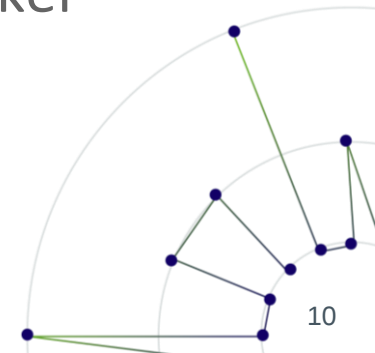
Life expectancy
from 65:
22 years



- ◆ Unhealthy lifestyle postcode
- ◆ Low affluence
- ◆ Ill health retirement
- ◆ Blue collar worker

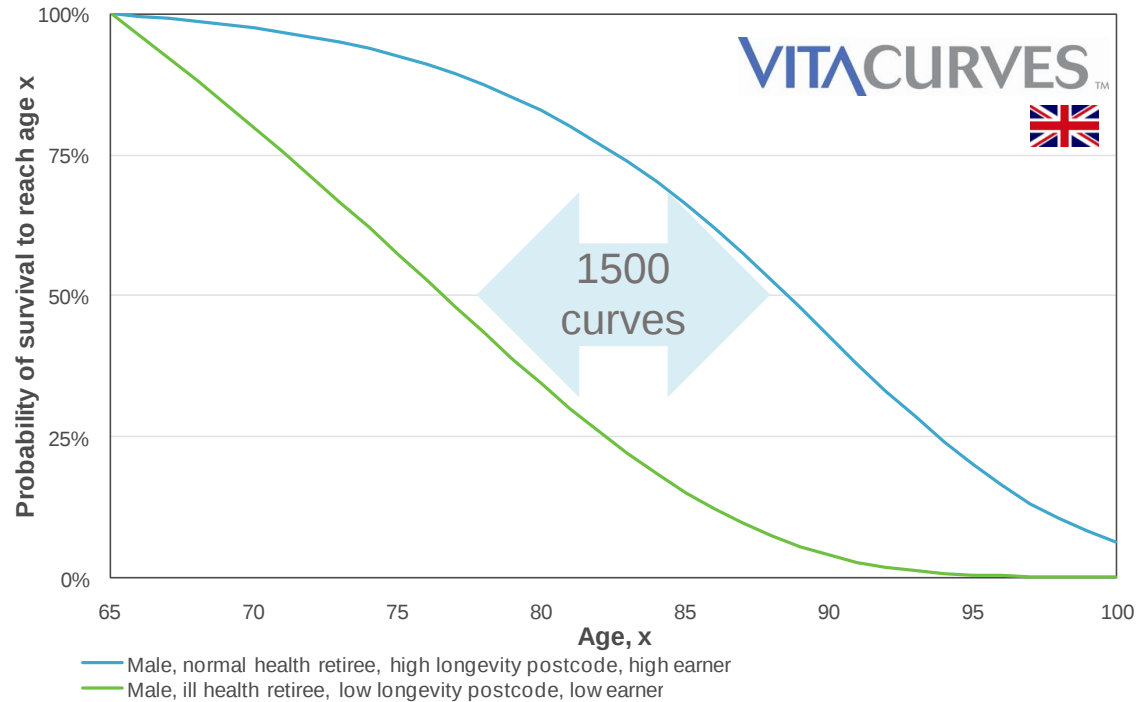


- ◆ Healthy lifestyle postcode
- ◆ High affluence
- ◆ Normal health retirement
- ◆ White collar worker

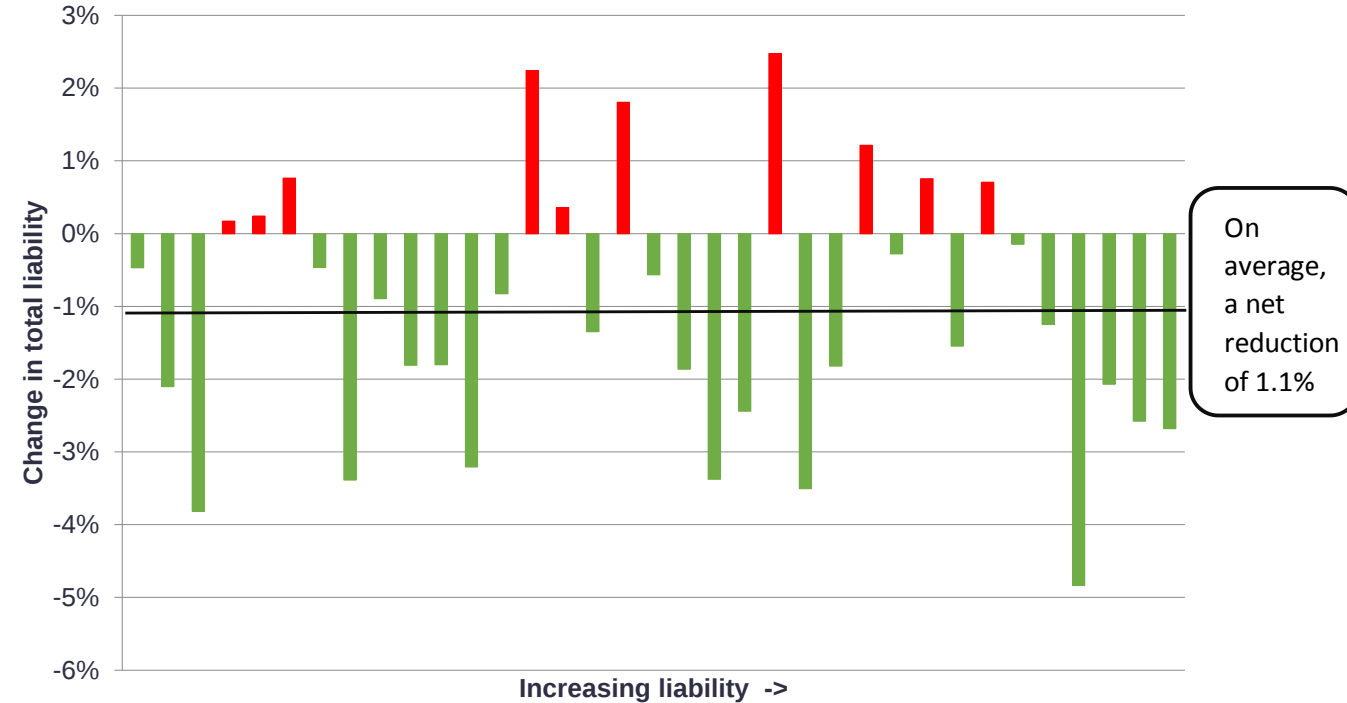


Valuing people as individuals

Comparison of survival curves (from age 65)
prior to allowance for future improvement



Impact of adopting VitaCurves (Schemes joining in last 3 years)



Source: Club Vita – 34 new schemes joining between July 2013 and June 2016, relative to each scheme's previous technical provision assumption for baseline longevity

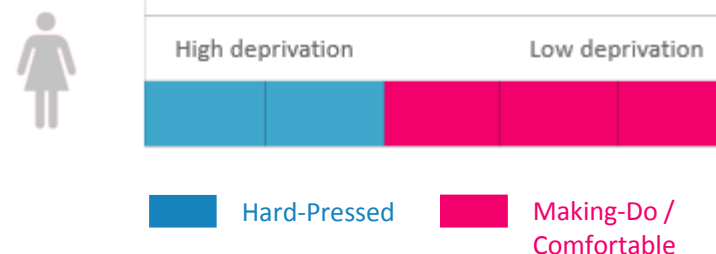
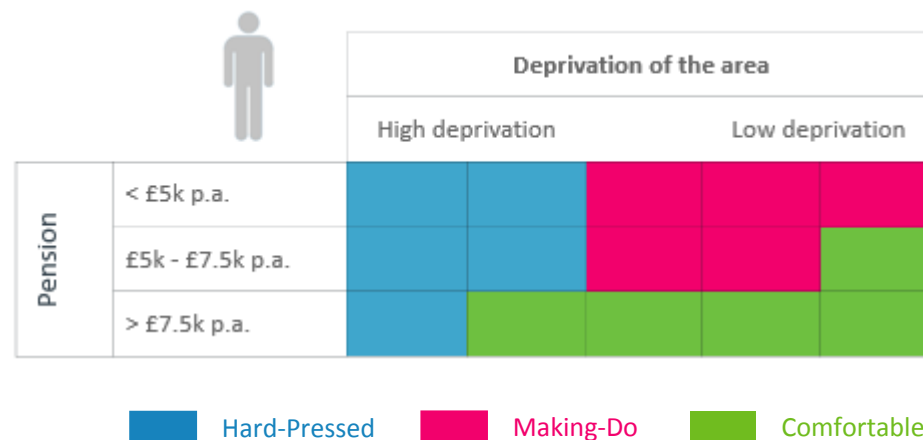
4. Diversity over time

Diversity in trends

“Bucketing” Principles

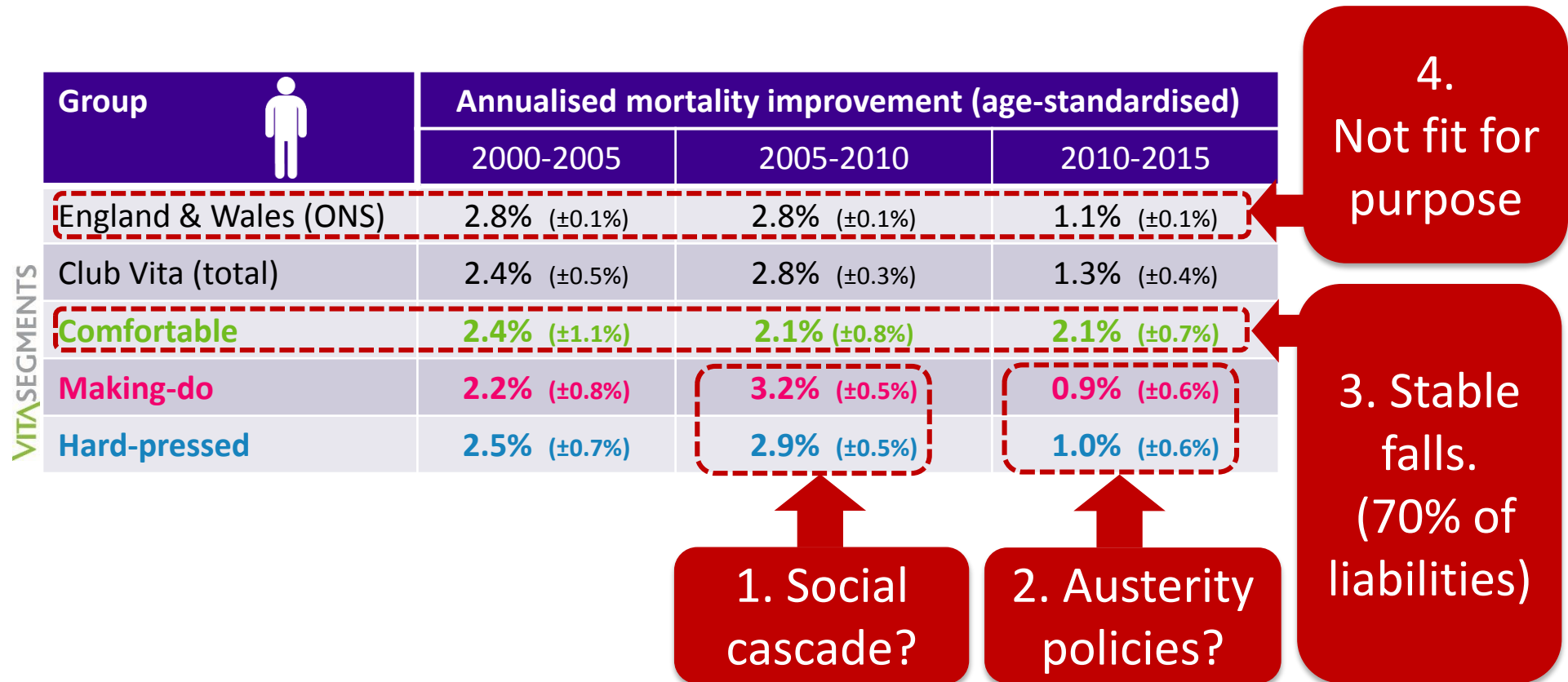
1. Findings applicable to all
2. Statistically credible
3. Interpretable groups
4. Manageable number
5. Capture differences in mortality improvements

VITA SEGMENTS

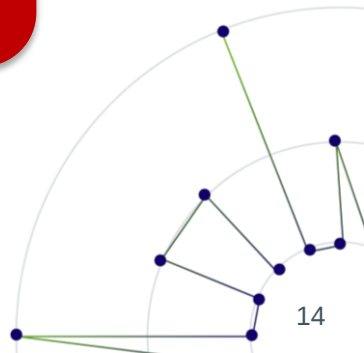




Diversity in trends



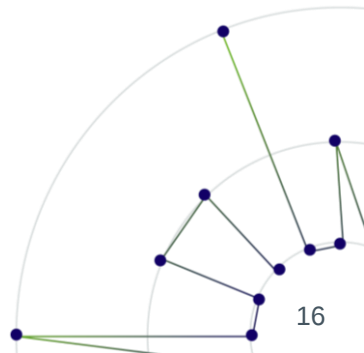
Figures in brackets represent 95% confidence interval. For more information, please see our report: <https://www.hymans.co.uk/media/uploads/PLSA Longevity model - June 2017.pdf>



5. So what?

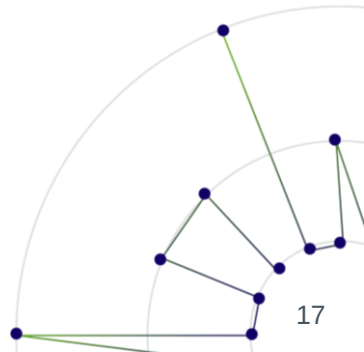
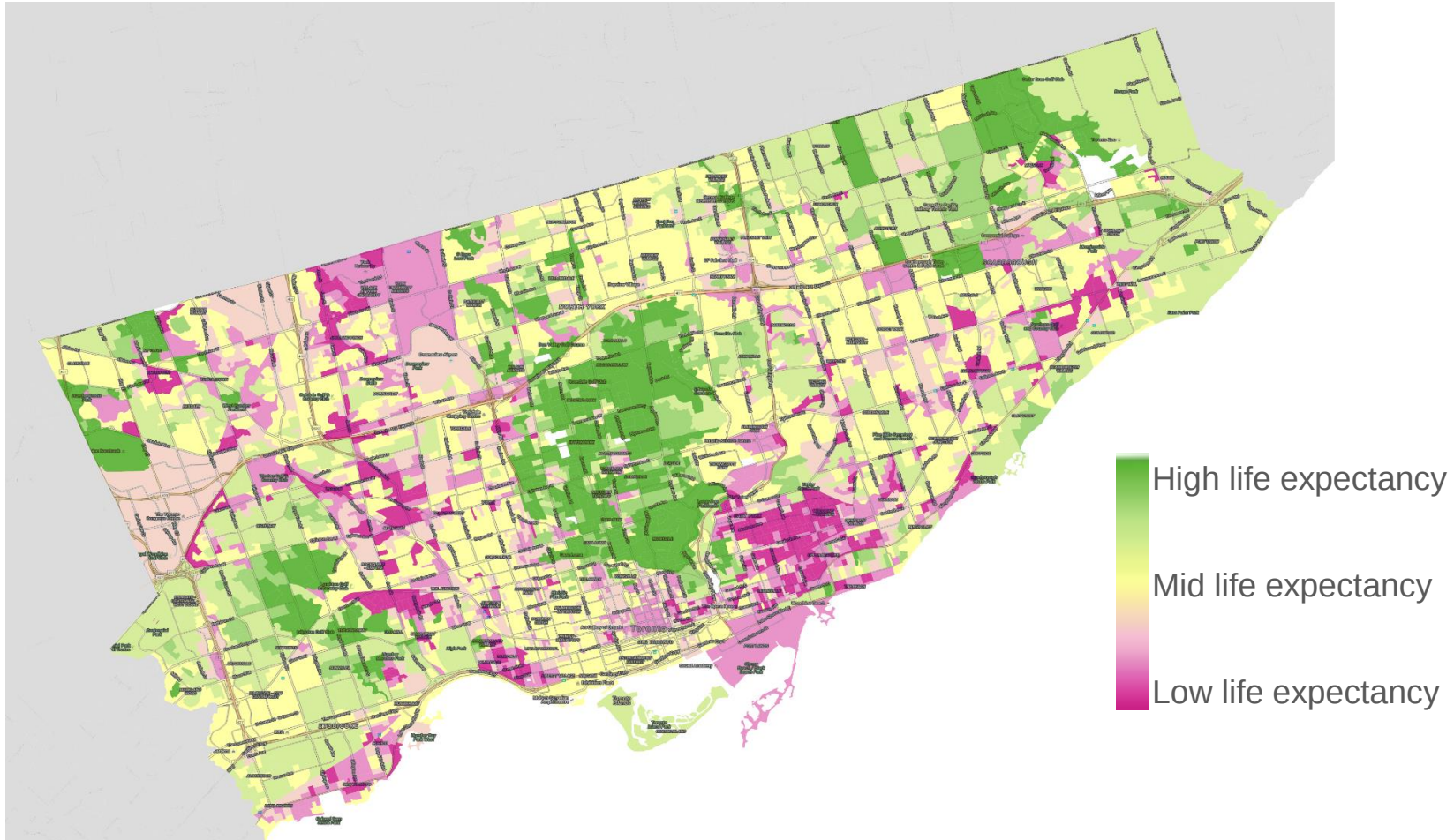
Benefits from Club Vita approach

- Cleaner data
- More confidence in assumptions
- Start thinking of longevity as a risk that can be managed, rather than assumption
- More risk management strategies become possible
- Drive down the cost of insurance
- Better informed decisions



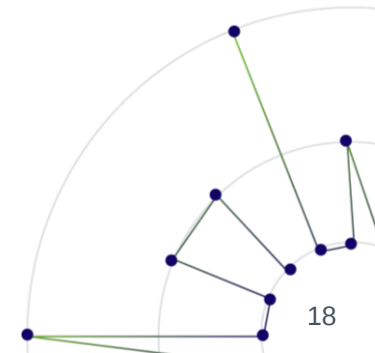
The techniques travel well

Toronto – males



- Founded in 2014
- Very similar findings to UK*
- Will publish first trend analysis in Canada shortly
- Club has grown to diverse group 50 plans, including 4 multi-employer plans:
 - IBEW local 353 Pension Plan (electrical workers)
 - Ontario Ironworkers Pension Fund
 - IUOE Local 793 Pension Plan (operating engineers)

* <https://www.clubvita.co.uk/assets/images/general/CIA-pensioner-baseline-mortality.pdf>





Douglas Anderson, Founder

Lang mae yer lums reek

For more information:

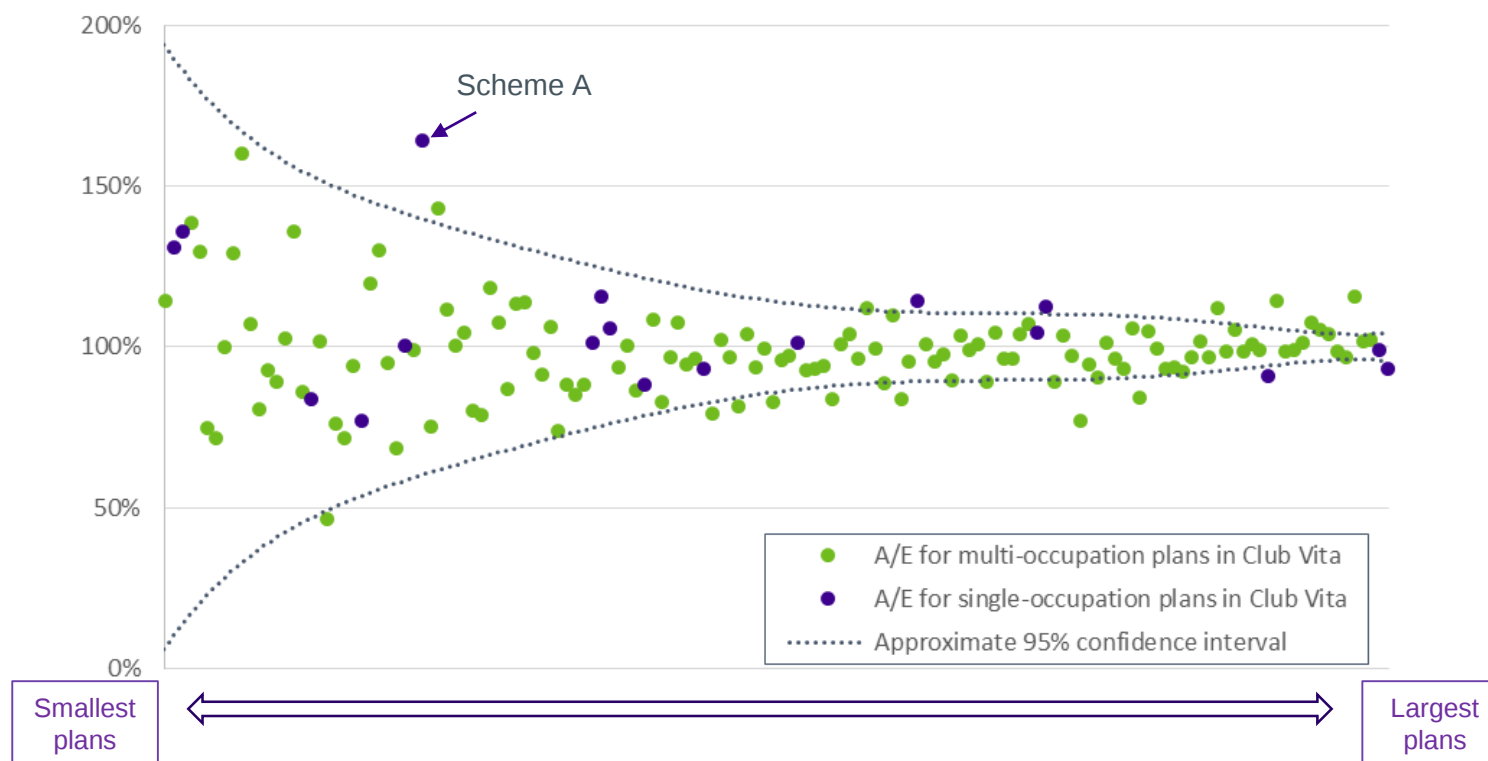
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How good a fit is VitaCurves model?

Actual vs Expected deaths on amounts basis
(2014-2016 experience vs 2018 VitaCurves model)



The chart shows actual deaths compared to expected deaths (A/E) for the period 2014 to 2016 with expected deaths calculated by assigning each individual to the most granular VitaCurve appropriate to that individual. Many of the cases falling outside the approximate 95% confidence interval funnel do so for explicable reasons. For example, scheme A is a senior executive scheme where each individual has a very high pension and longevity risk is very concentrated. One particular high net worth individual died in their early 60s skewing the results.