

A top-down view of a wooden desk. In the top left, a portion of a silver laptop is visible. In the top center, a small green succulent in a woven basket sits. In the center right, a white mug filled with dark coffee is placed. In the bottom right, a silver pen lies horizontally. The main focus is a white document titled "Retirement Plan" in large, bold, black letters. The document contains several columns of text and a line graph at the bottom showing two fluctuating lines over time.

Retirement Plan

Mortality Improvements for U.S. Defined Benefit Pension Plan Participants

Webinar
November 17, 2021



NATIONAL INSTITUTE ON
Retirement Security

Reliable Research. Sensible Solutions.

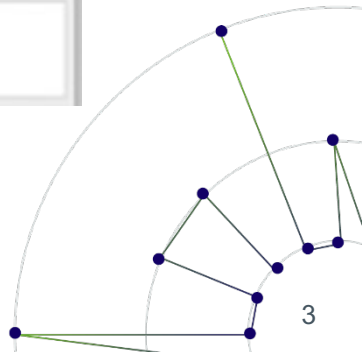
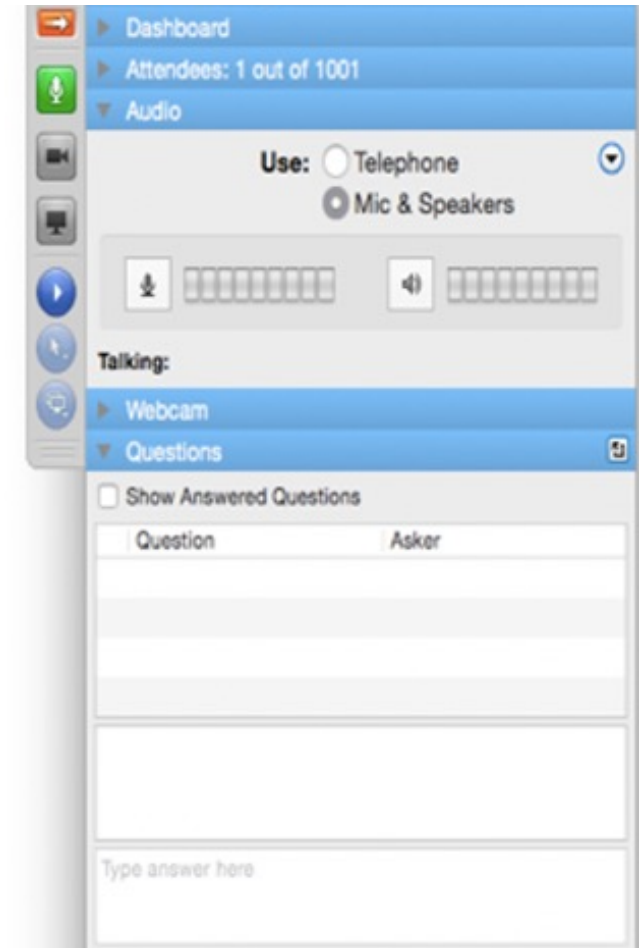
Agenda

1. Logistics & Introductions
2. Club Vita's approach to current life expectancy
3. New research into changing life expectancy
4. Questions



Logistics

- Attendees in listen only mode.
- Questions are welcome. Submit using “Question” function on control panel.
- Audio/technical issues during webinar: call GoToWebinar at 1-800-263-6316.
- Webinar replay and slides will be posted at nirsonline.org/events.



Speakers



Dan Doonan

Executive Director
National Institute on Retirement
Security



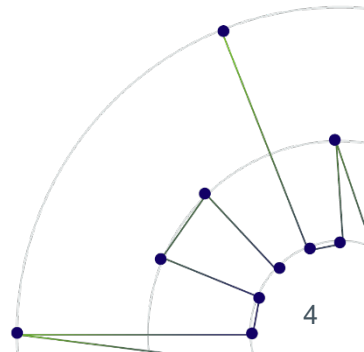
Dan Reddy FSA EA MAAA

CEO
Club Vita US



Erik Pickett PhD FIA CERA

Chief Content Officer
Club Vita






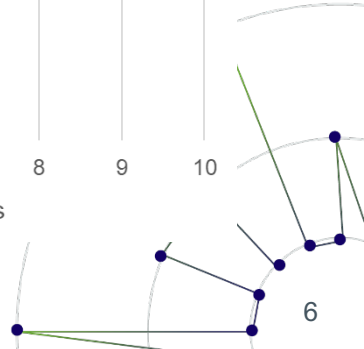
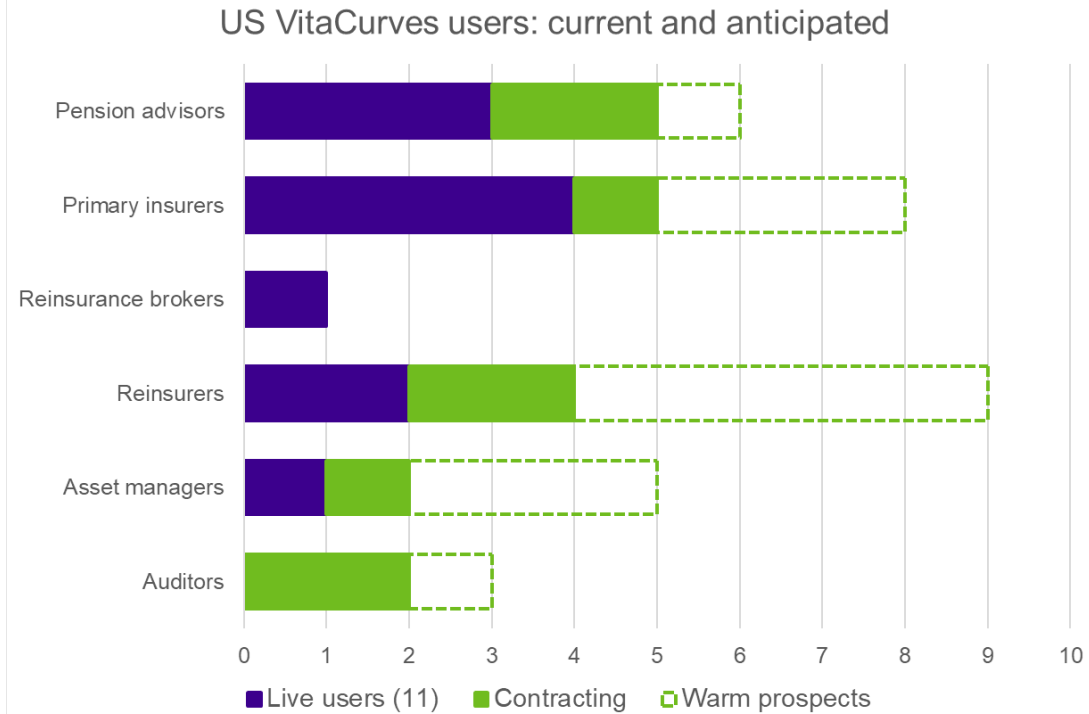
Introduction

Introducing Club Vita

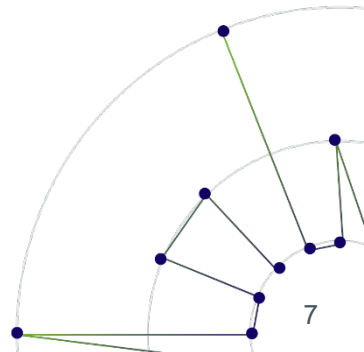
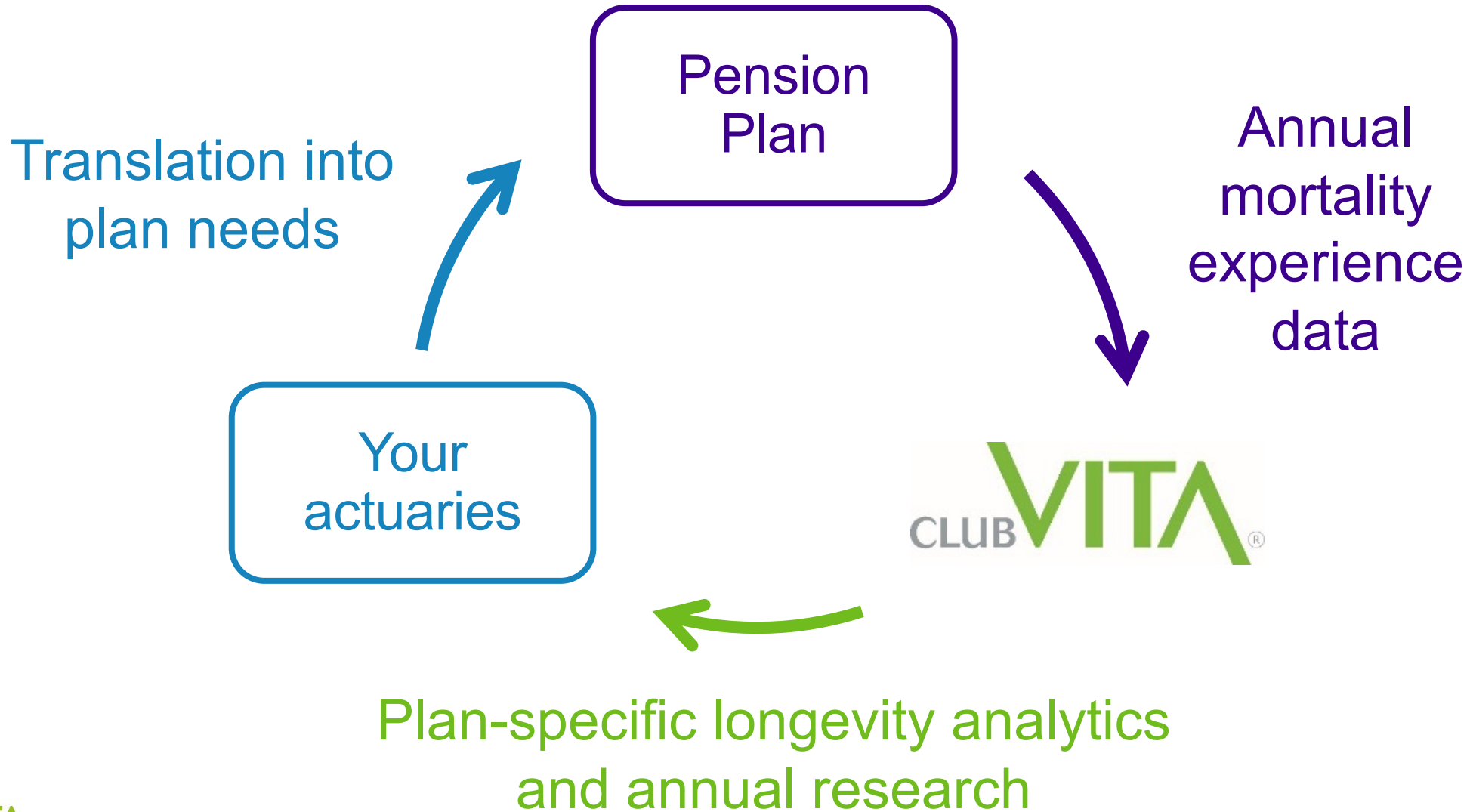
Club Vita is an independent data utility, supporting pension funds, advisors, insurers & asset managers

VITALSTATISTICS

			
Founded	2008	2015	2019
Retirees tracked	3.0m+	875k+	800k+
Plan relationships	235+	95+	100+
Re/insurers	17	11	6
Advisors	2	2	5



Our preferred delivery model



Two steps to calculate life expectancy



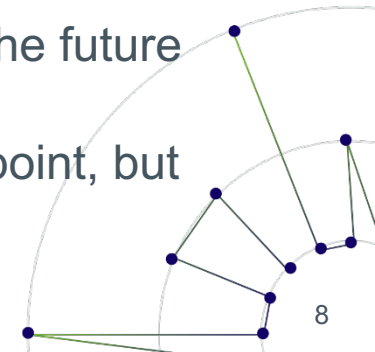
Baseline

- Snapshot of current state of longevity
- Objective measure
- Based on past experience



Future trends

- How life expectancy will change in the future
- More subjective measure
- Recent experience a good starting point, but how and when will it change?



Club Vita's approach to current life expectancy

Two steps to calculate life expectancy



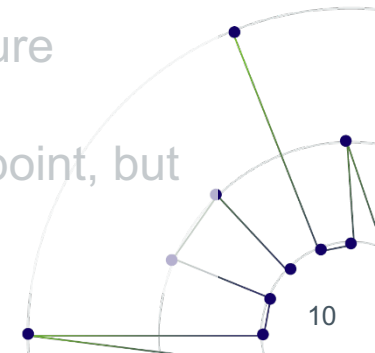
Baseline

- Snapshot of current state of longevity
- Objective measure
- Based on past experience



Future trends

- How longevity will change in the future
- More subjective measure
- Recent experience a good starting point, but how and when will it change?



Different approaches

***“Top Down”
traditional approach***

***“Bottom Up”
Club Vita approach***

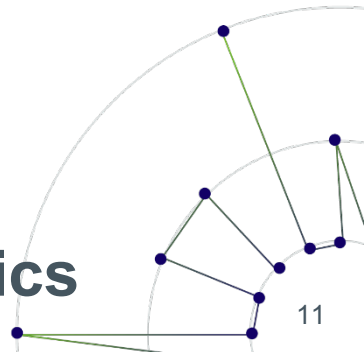
Collect large amounts of data
from similar pension plans

Average out
experience
and apply to
plan

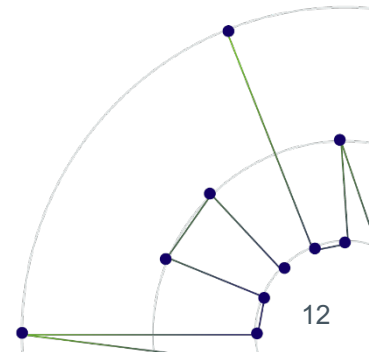
Plan assumption

Combine
assumptions
for the
individuals
within plan

Calculate longevity for different
individuals based on their characteristics



What affects how long people live?



VitaCurves baseline model



ZIP+4




Pension



Collar



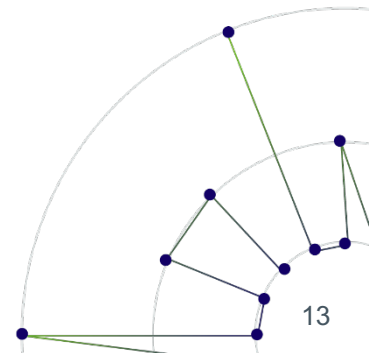
Disability?



Sex

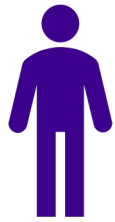


More in next gen model



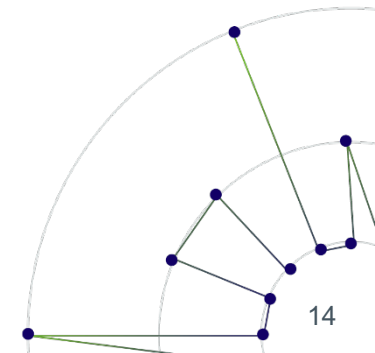
Gender vs. ZIP code

What's the most important rating factor?

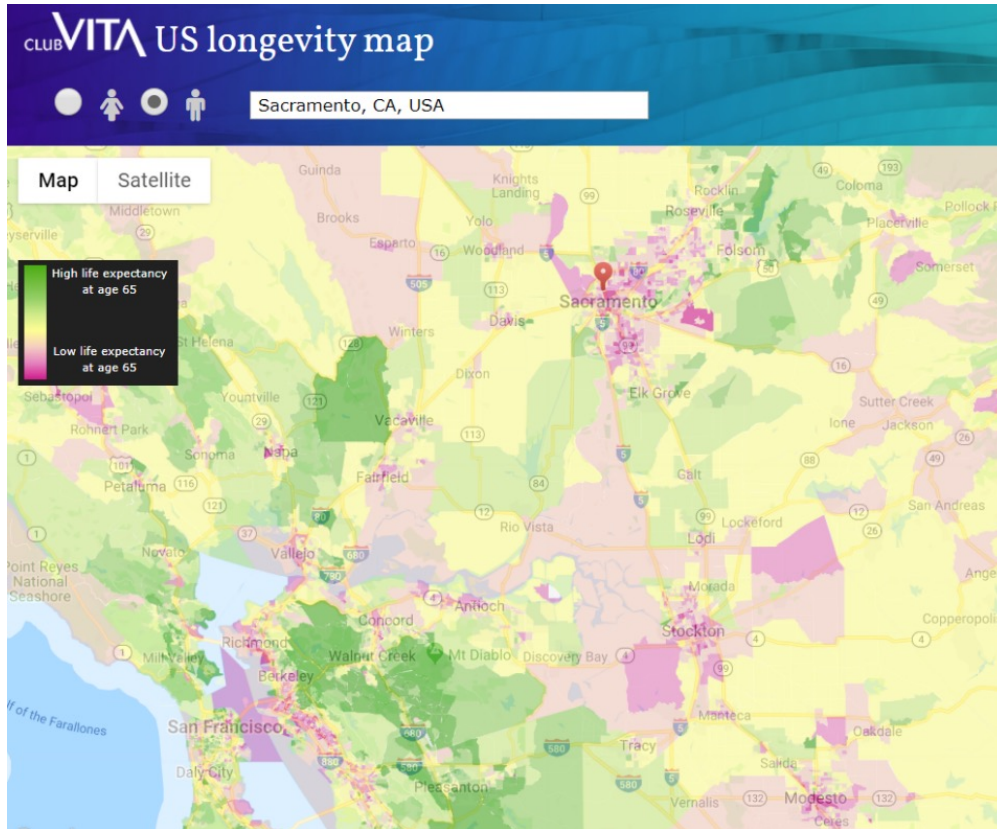


Gender gap = 1.5 years
 ZIP+4 range = 3.2 years
 (note: identical gap both men and women)

Life expectancy from age 65

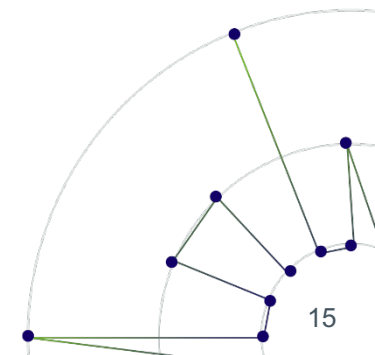


Effects of ZIP code longevity modeling

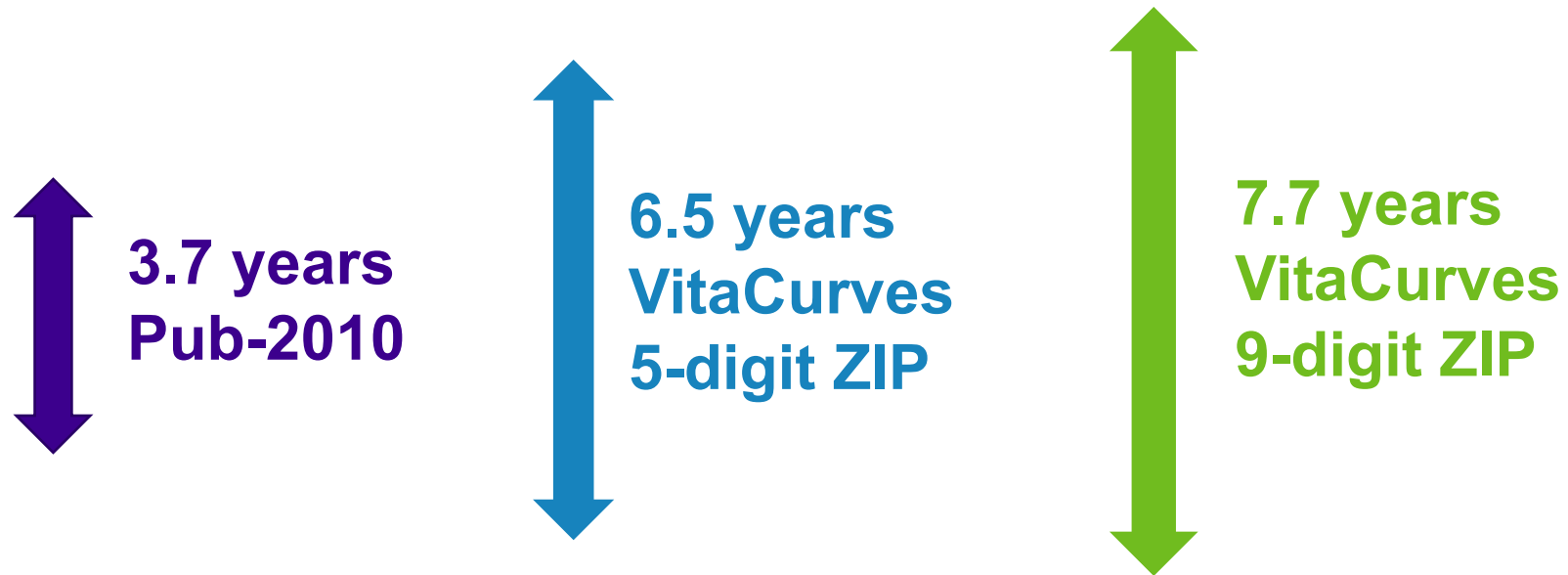


LONGEVITY PREDICTOR	INDICATOR
Lifestyle	ZIP+4 Code
Affluence	Pension amount
Retirement health	Disabled vs. normal retirement
Gender	Male/female
Occupation	Blue/white collar

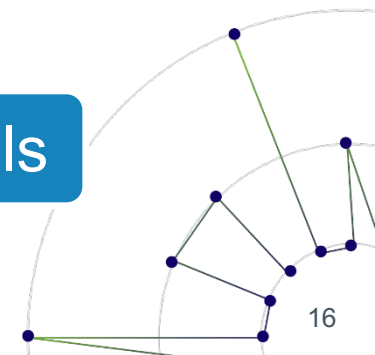
Better predictors of longevity that are modeled simultaneously are more accurate for each pension plan



Capturing diversity

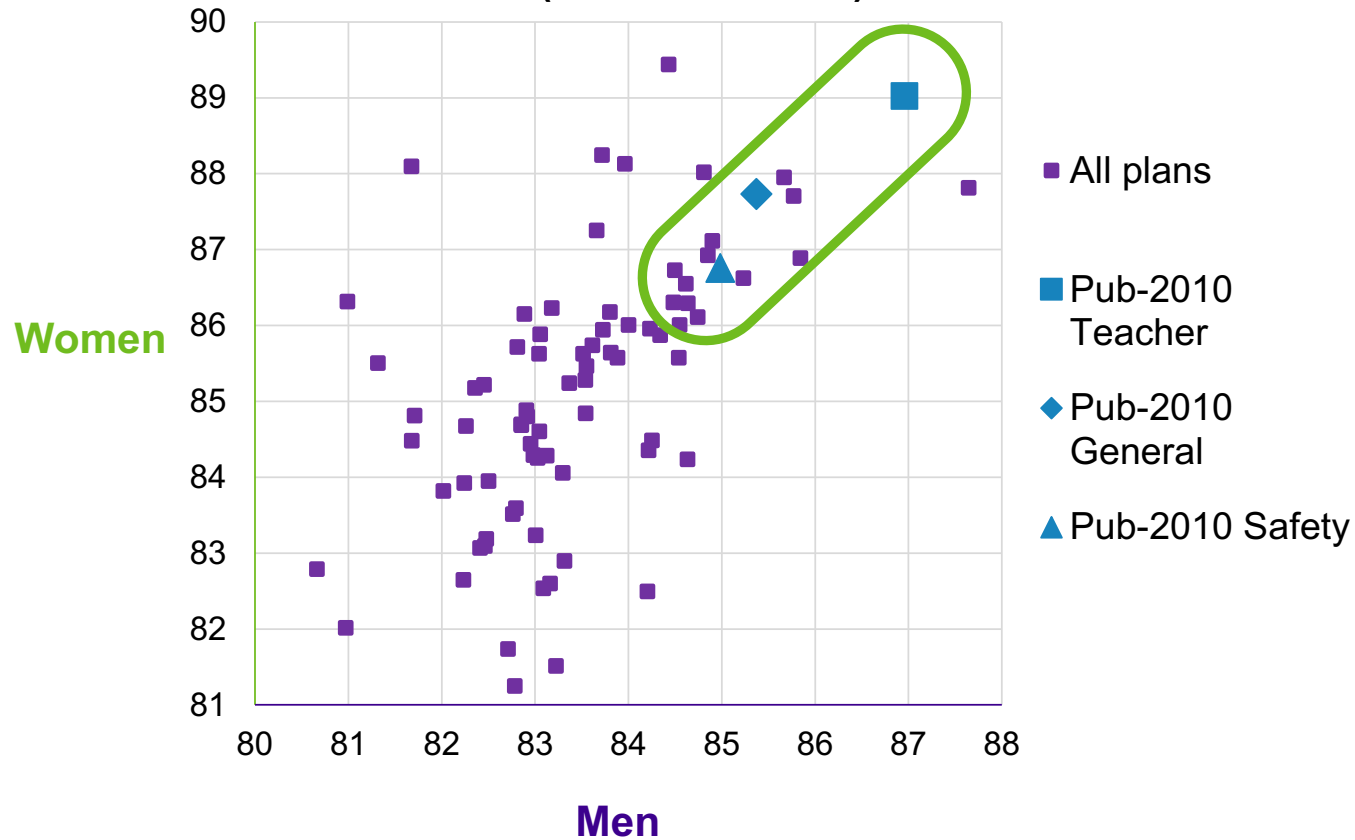


Range of healthy male life expectancy at age 65 in different models



Why it's important

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



Each purple dot shows the average life expectancy of participants in one pension plan in our data set

Longevity experience of defined benefit pension plans varies widely

The standard tables capture only part of this diversity

Changes in future life expectancy

Two steps to calculate life expectancy



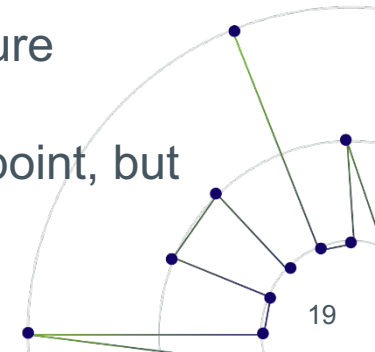
Baseline

- Snapshot of current state of longevity
- Objective measure
- Based on past experience



Future trends

- How longevity will change in the future
- More subjective measure
- Recent experience a good starting point, but how and when will it change?



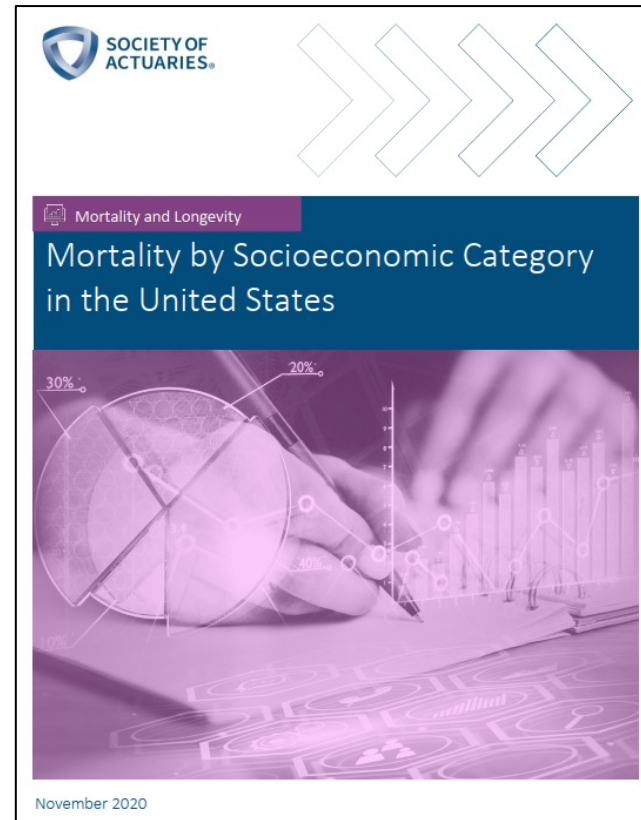
Recent research from the Society of Actuaries



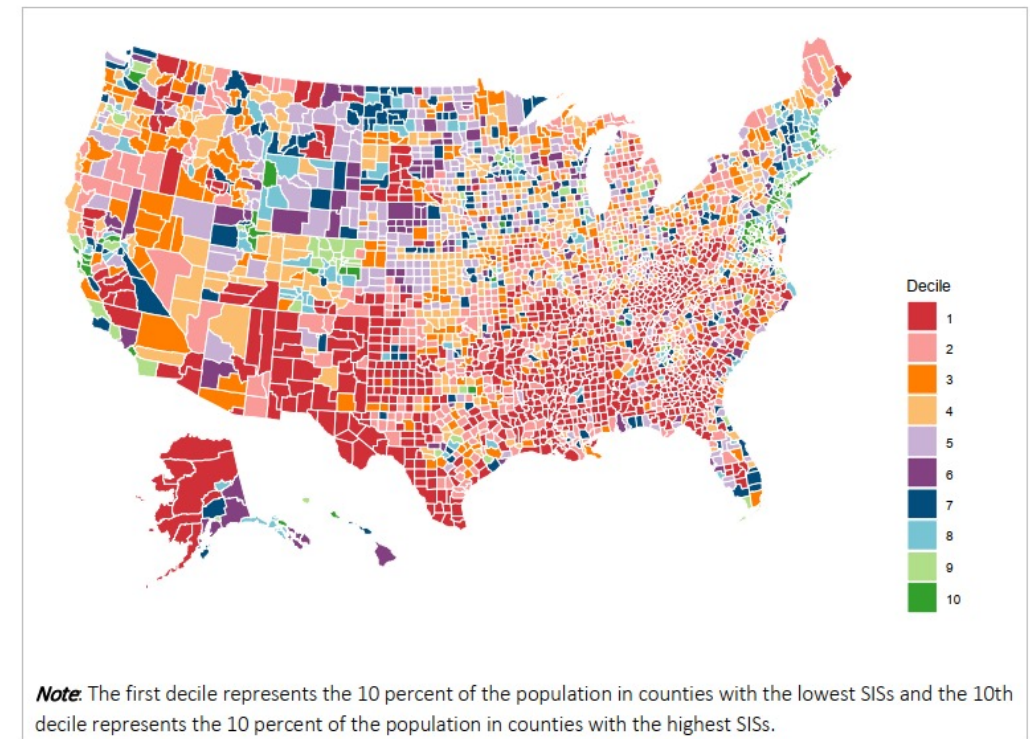
SoA: Mortality by Socioeconomic Category

Work by Magali Barbieri

- Orders the 3000+ US counties by socio-economic status
- Groups counties into socio-economic deciles
- Tracks life expectancy and mortality rates for each decile over time.



COUNTIES BY SOCIOECONOMIC DECILE (WEIGHTED BY POPULATION), 2014–2018



Life expectancy inequality is increasing

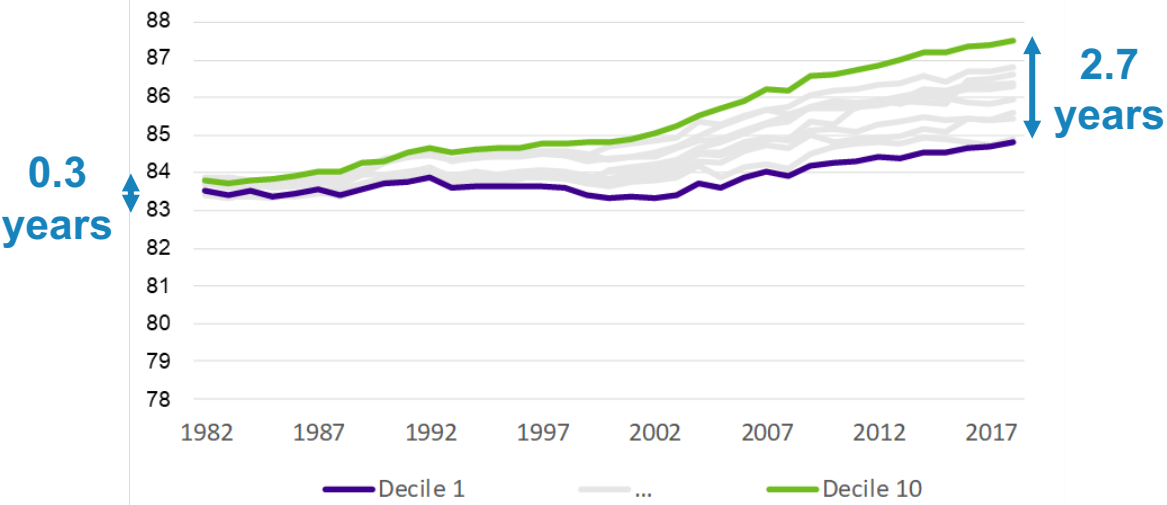
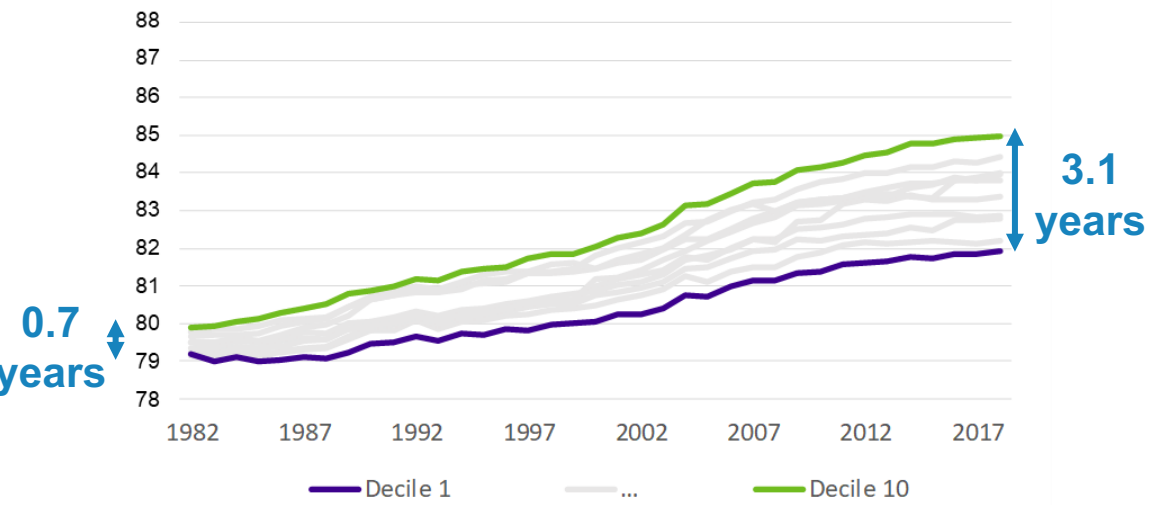
Trends in (period) life expectancy at age 65 for US counties

Men

Women

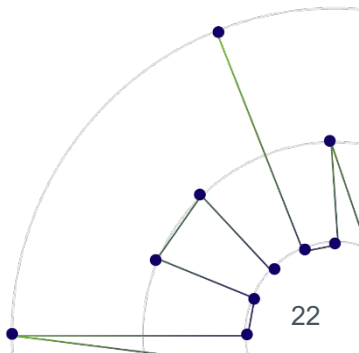
Life Expectancy from age 65

Life Expectancy from age 65



What does widening longevity inequality mean for DB pension plans?

Notes: Club Vita graphics based on December 2020 version of SoA life tables by socio-economic decile as published on SoA website



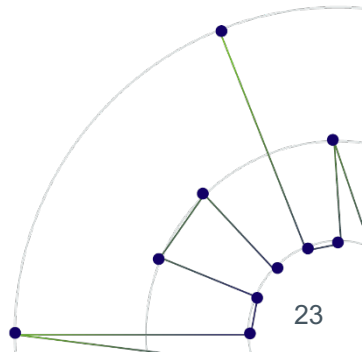
How helpful is the SoA study?

Lots to like...

- Highlights an important *societal* level issue
- Draws pension plan actuaries attention to socio-economic variations...
- ...and the *risk* of faster trends in higher socio-economic groups (who tend to dominate pensioner liabilities)

Usefulness to pension valuations?...

- Counties too blunt a metric – would you price all of LA County the same?
- Tracks deciles of counties: not individuals (or even counties)
- Risk that DB annuitants a select group e.g. access to health care provision through sponsor

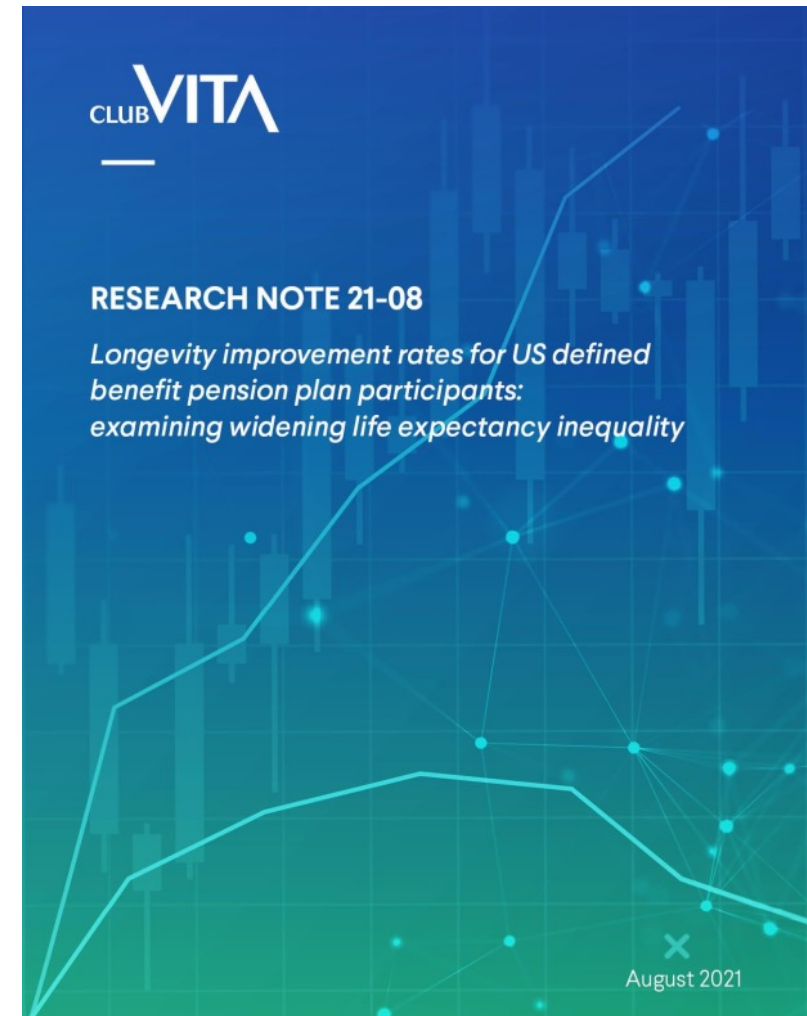


Recent research from Club Vita



Club Vita research

- Compares recent mortality improvements between US DB pension plans and the US population
- Analysis of c100 large single employer pension plans over the period 2013-2018

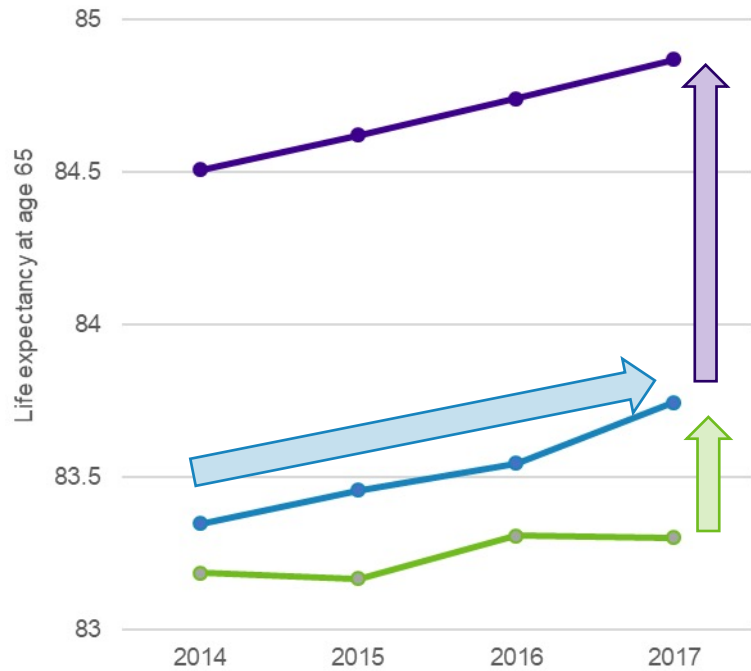


Paper available for download here:

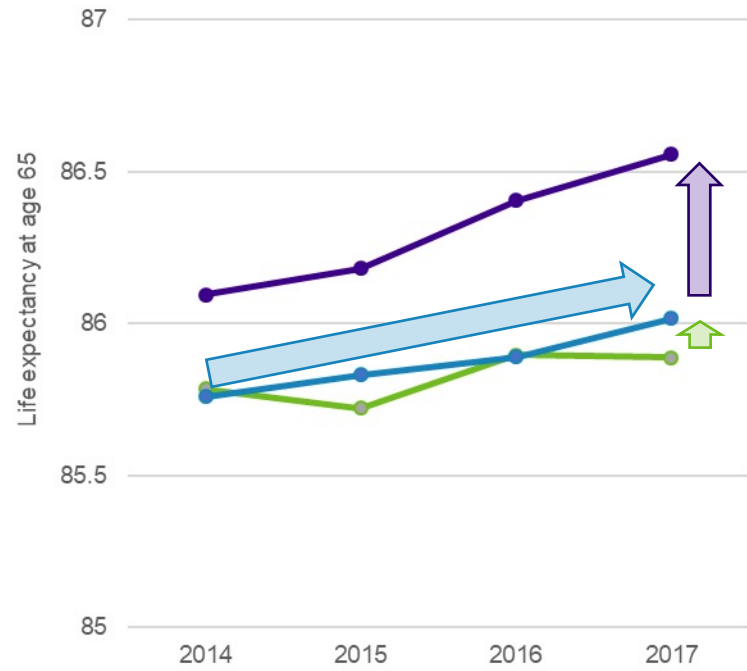
<https://www.clubvita.us/collaborative-research/longevity-inequality-in-the-us>

Comparing life expectancy at age 65

Men



Women



● US population
 ● DB pensioners - lives
 ● DB pensioners - amounts

Select effect of pension plan membership

Impact of affluence

Faster improvements in DB pensioners than the general population



Future longevity: Club Vita research

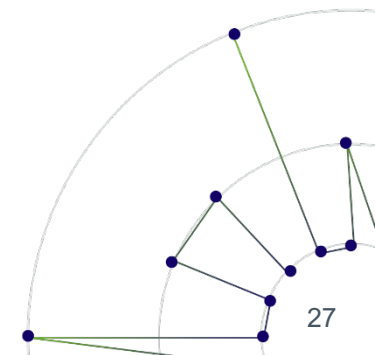
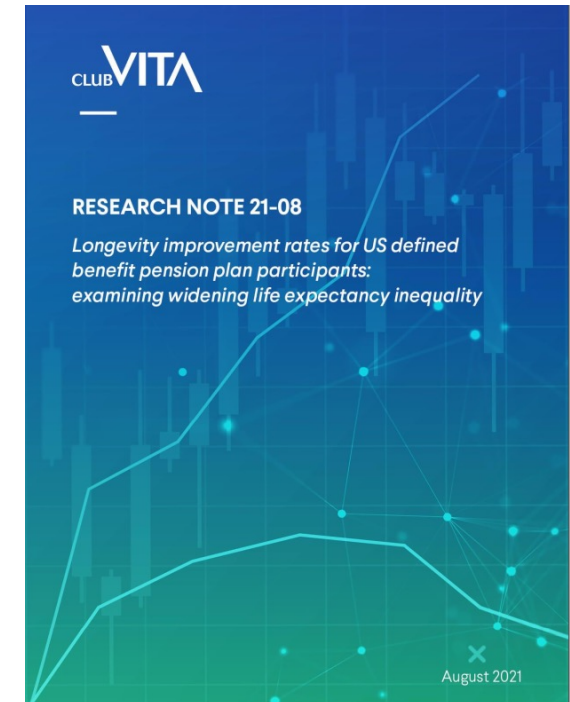
Annual improvements in standardized mortality rates (2014-2017)

Group	US Population	Pension Plans
Male	0.6%	1.4% (±0.6%)
Female	0.5%	1.3% (±0.9%)

- Improvement rate in pension plans 1%+ p.a. higher than national population
- ½ – 2 years addition to cohort life expectancy at age, depending on assumed duration
- Potential for between **2-8% addition to liabilities**

Paper available for download here:

<https://www.clubvita.us/collaborative-research/longevity-inequality-in-the-us>

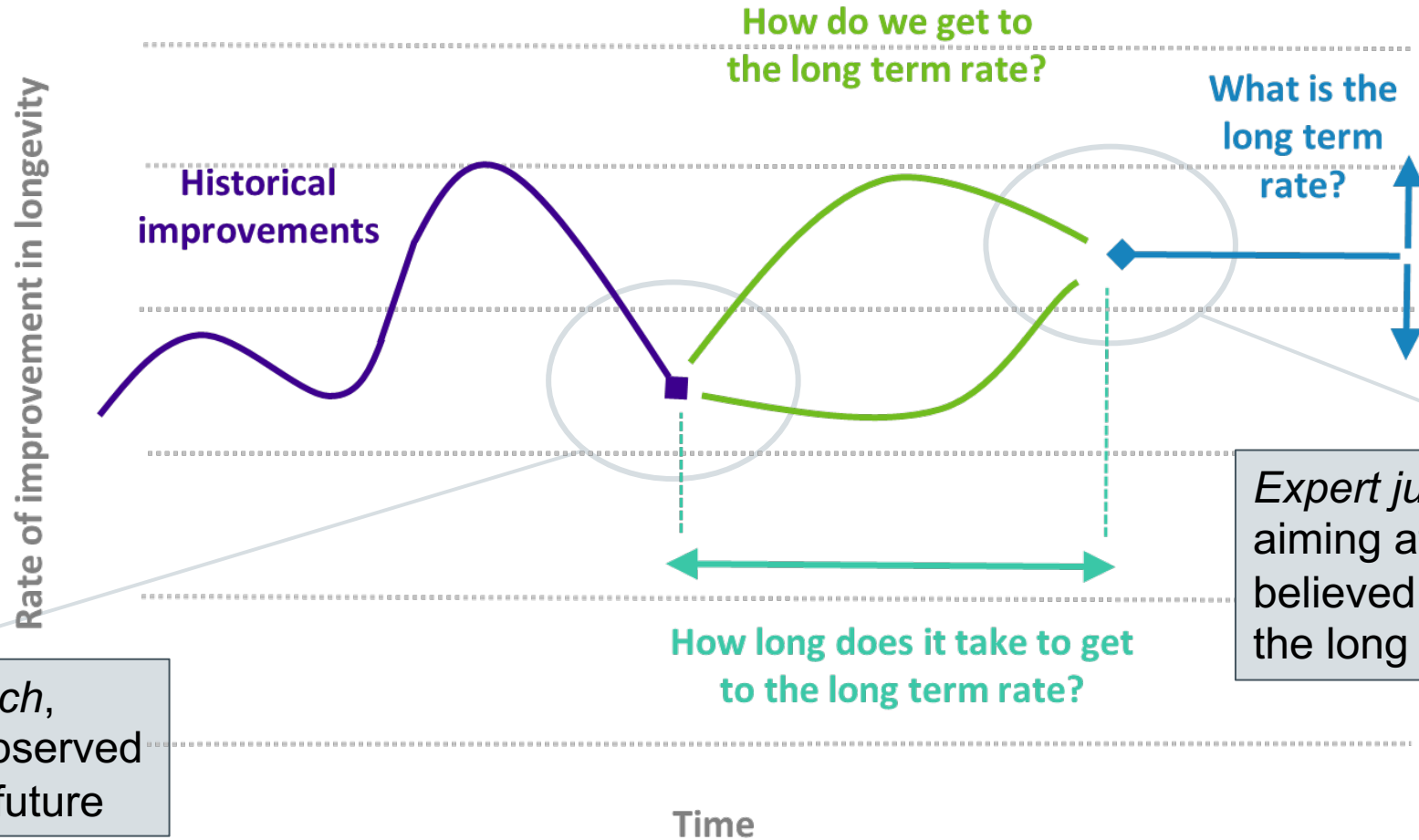


Potential impact on liabilities



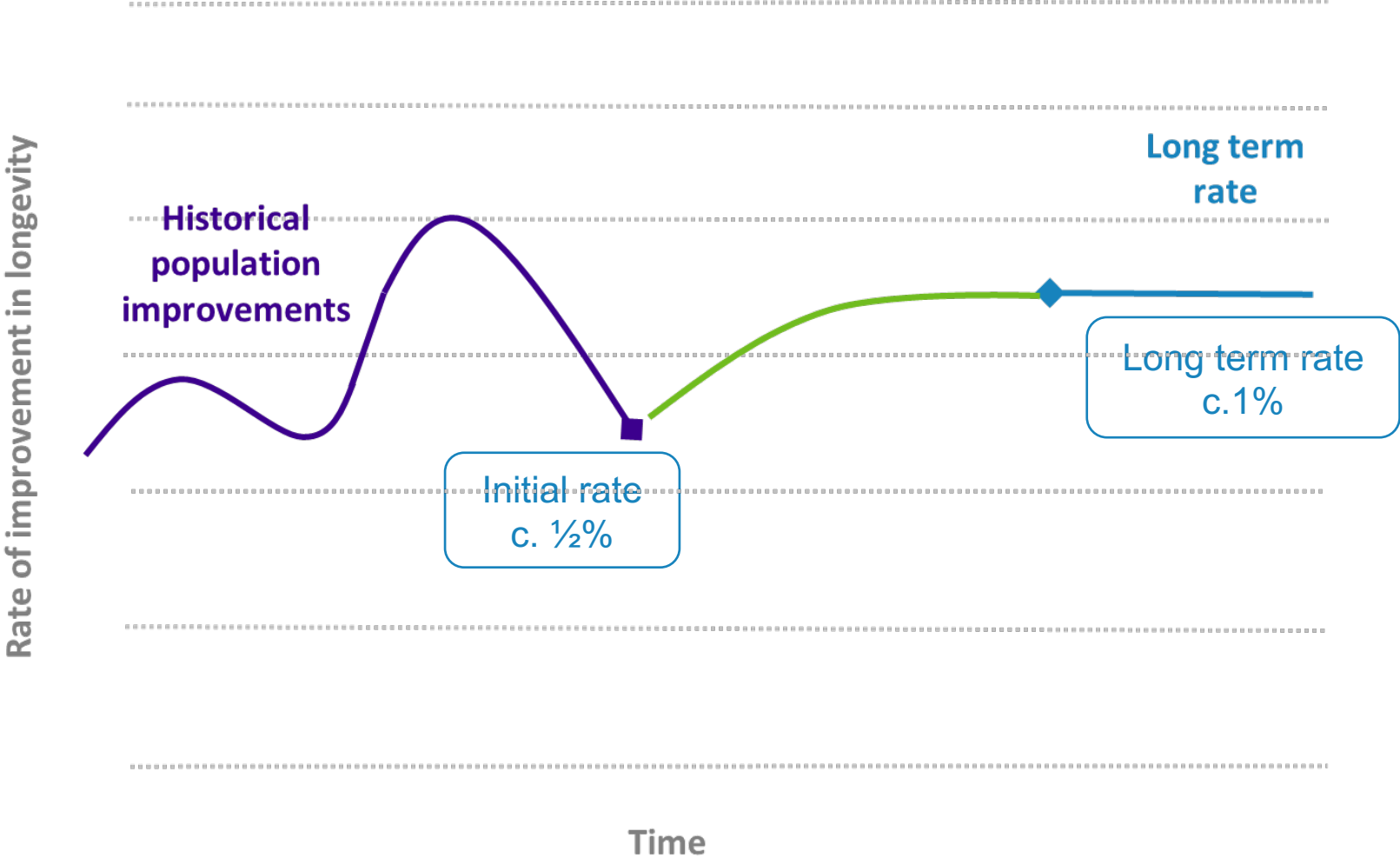
Implications for projections

Illustrative US life expectancy improvement model

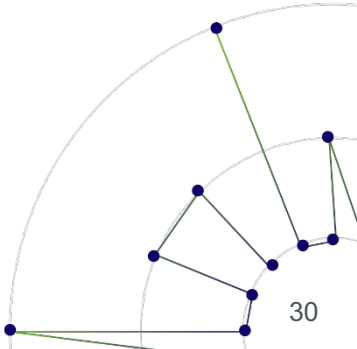


Implications for projections

Adjusting the scale for this insight

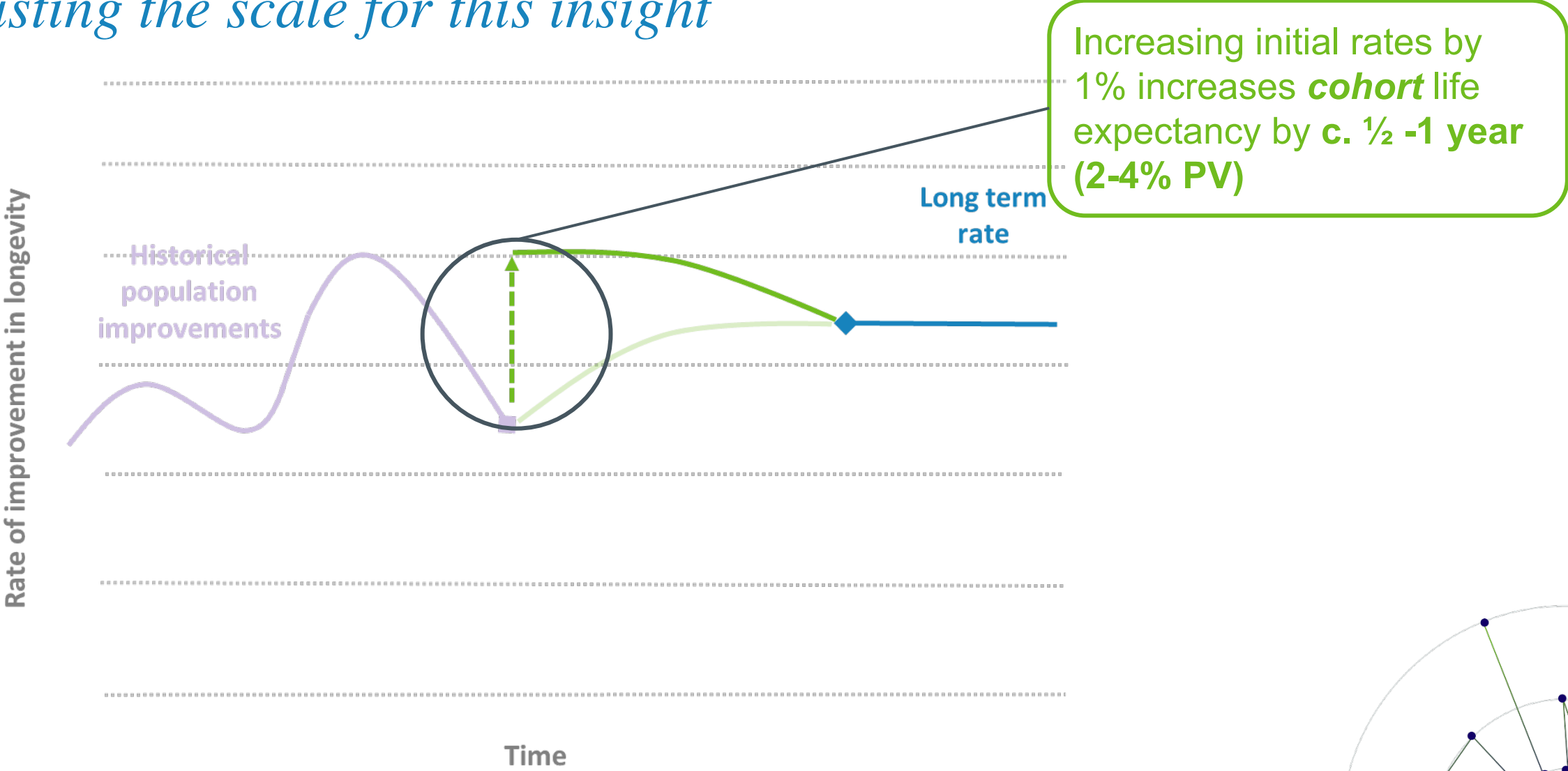


Notes: Indicative impacts based upon broad rules of thumb

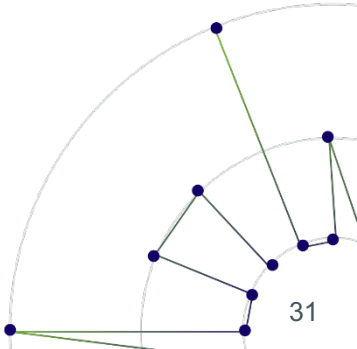


Implications for projections

Adjusting the scale for this insight

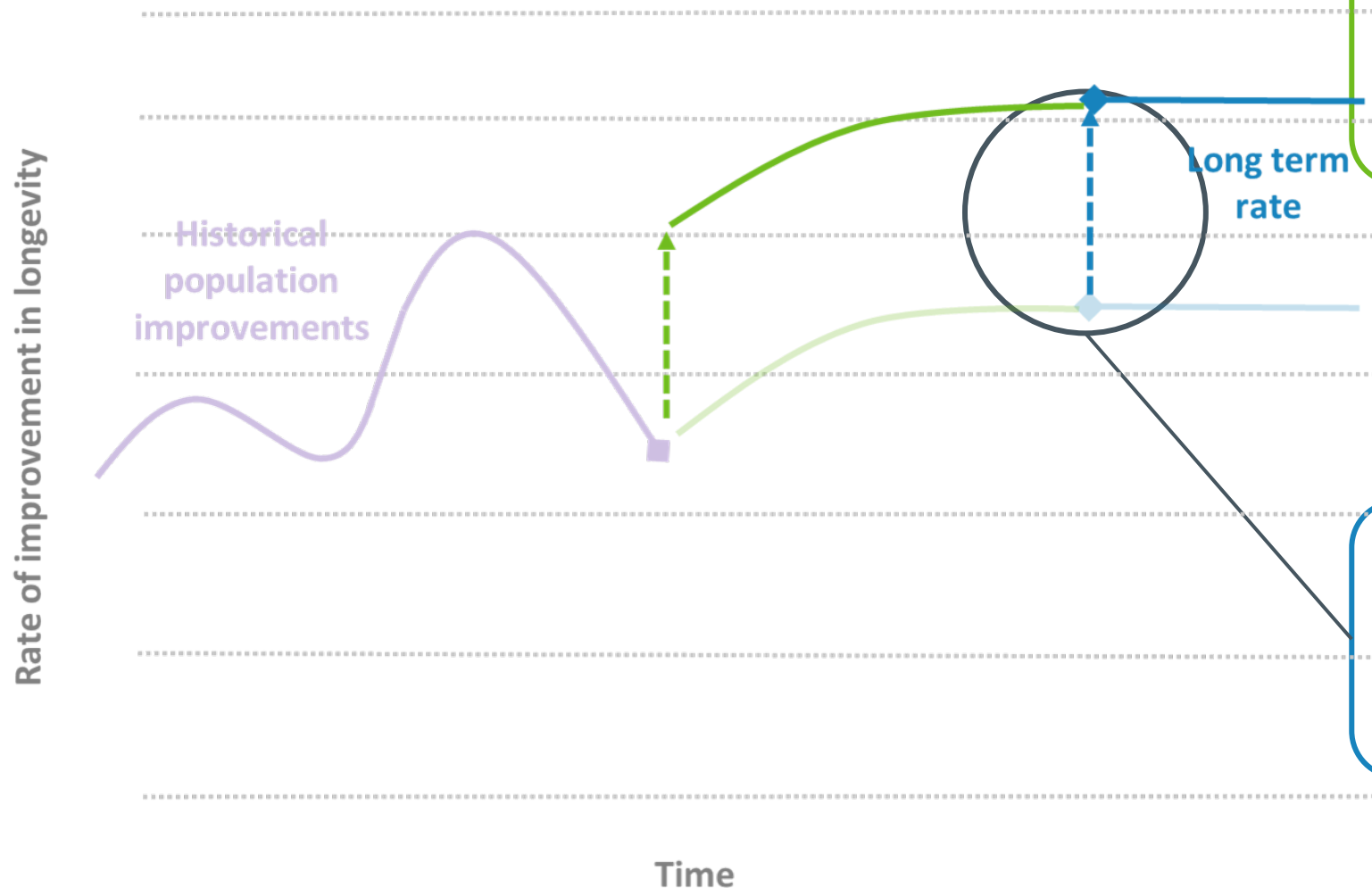


Notes: Indicative impacts based upon broad rules of thumb



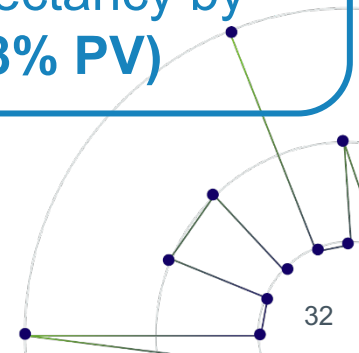
Implications for projections

Adjusting the scale for this insight



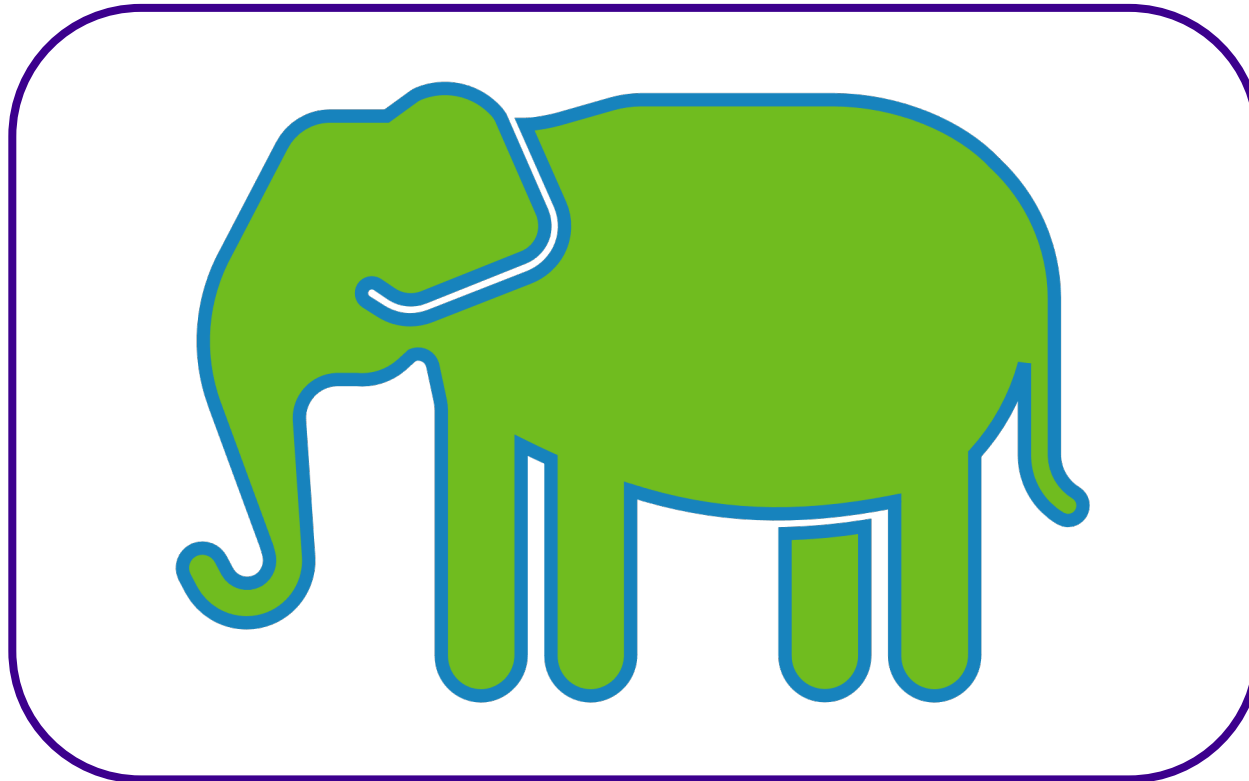
Increasing initial rates by 1% increases **cohort** life expectancy by **c $\frac{1}{2}$ -1 year (2-4% PV)**

If also adjust **long term outlook** could increase **cohort** life expectancy by **c1-2 years (4-8% PV)**

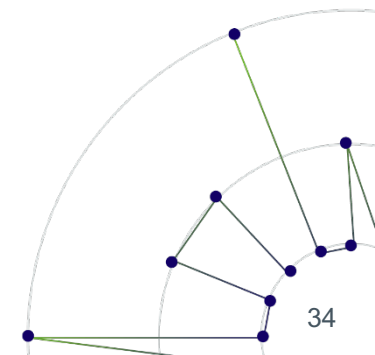


The COVID-shaped elephant

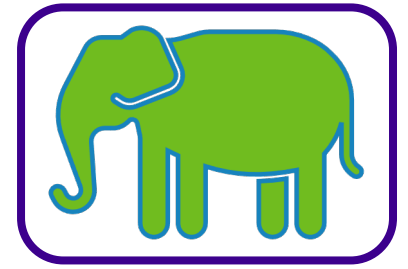




COVID-19!

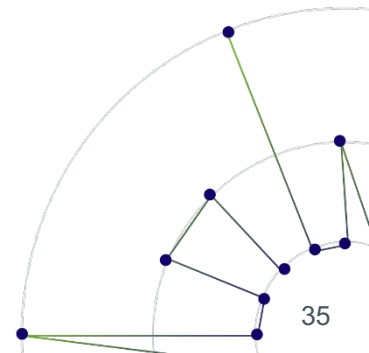


COVID-19

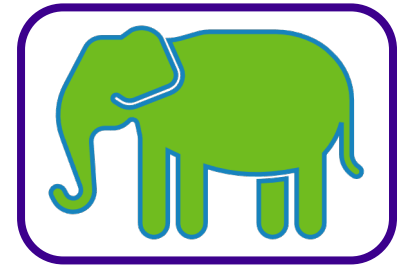


- Recent Society of Actuaries life expectancy improvement model (MP-2021) is calibrated to data through 2019
- Implicitly assumes data is representative of the near future
- ... but no COVID-19 experience included in calibration data!
- Year-by-year expectations for COVID-19 mortality rate loads need to be entered into the application tool
- Doing nothing is still a decision

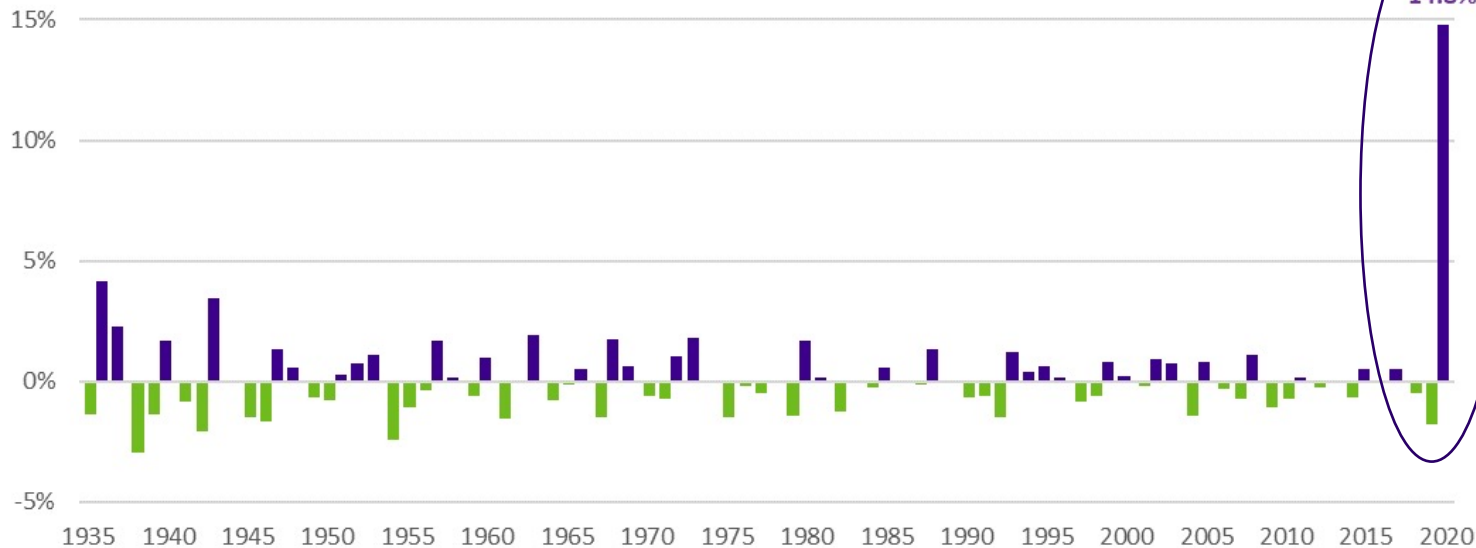
Pension plans must decide how to recognize COVID-19
in life expectancy projections



COVID-19 impact analysis



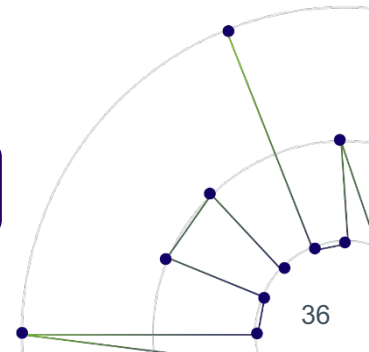
United States: excess deaths versus underlying trend



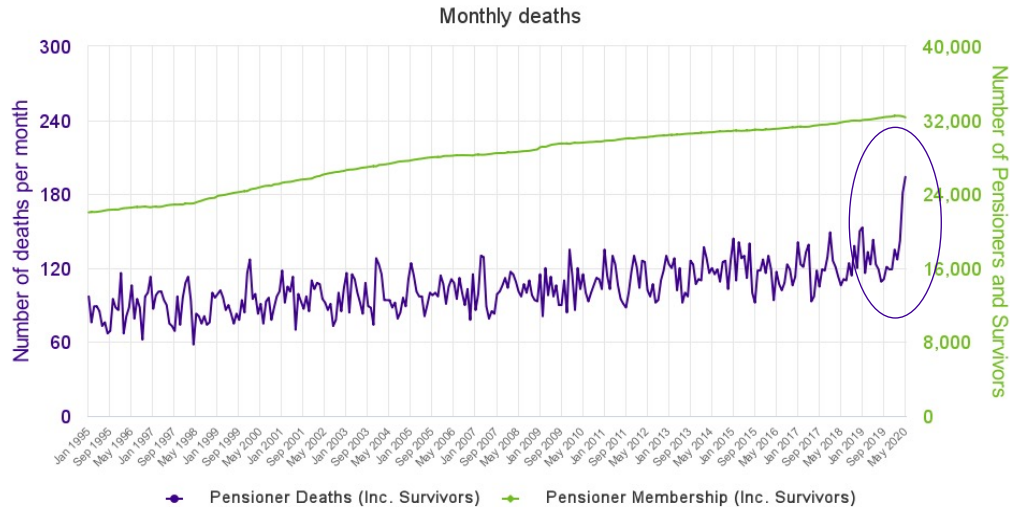
Is this the same as your plan's...

- geographical area?
- state?
- socio-economic profile?
- actual experience?

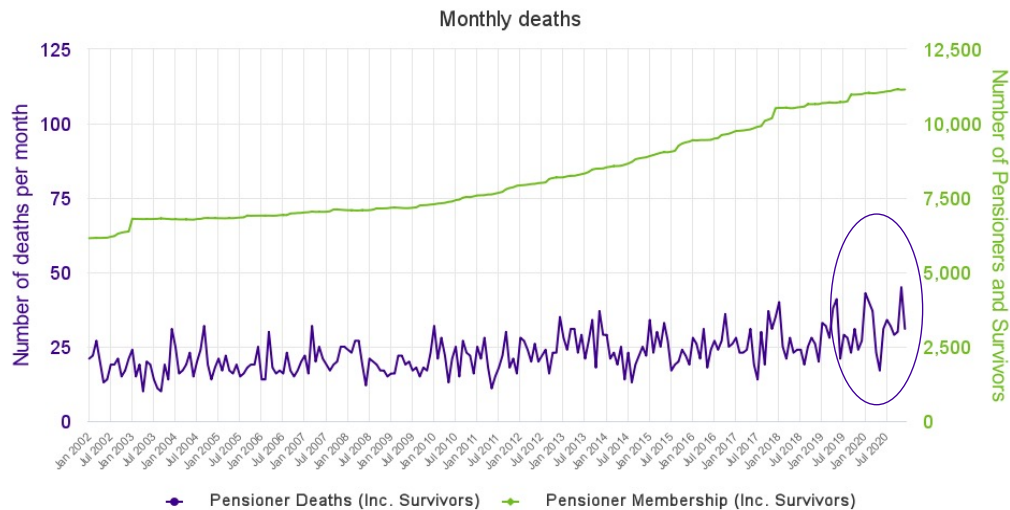
Join Club Vita to find out how COVID has affected your plan!



Different emerging experience among pension plans



Clear COVID-19 effect



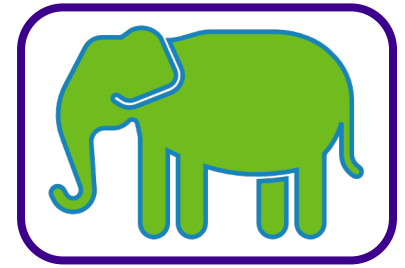
No clear COVID-19 effect

- Were your pensioners geographically concentrated in hard-hit areas?
- Is your plan more male or female dominated?
- What is the age profile of your pensioners?
- Is your plan in an industry on the front lines of the pandemic?
- Do you offer retiree health care?

Source: data from two Club Vita pension plan subscribers



Club Vita COVID-19 scenarios



Healthcare Decline



Long Road to Recovery



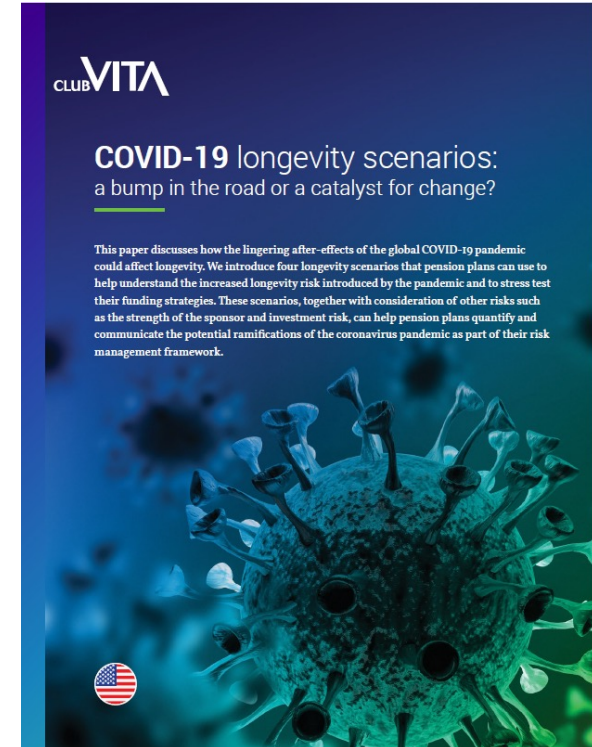
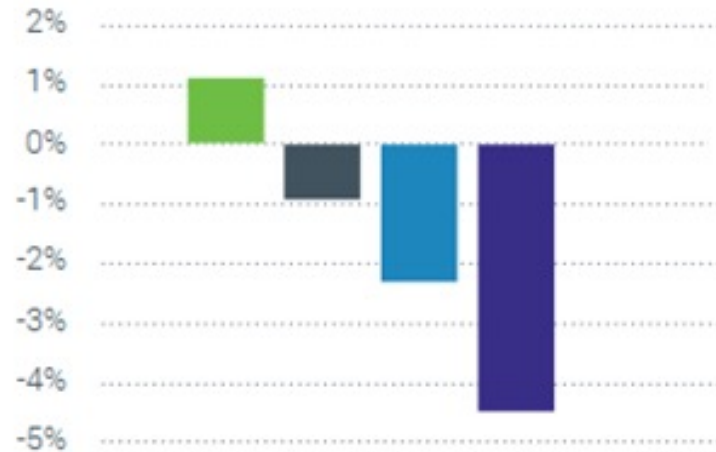
Bump in the Road



Innovation in Adversity



LIABILITY IMPACTS (TYPICAL PLANS)



<https://www.clubvita.us/collaborative-research/covid-19-longevity-scenarios-a-bump-in-the-road-or-a-catalyst-for-change>

Questions?



Thank you

This presentation contains confidential information belonging to Club VITA LLP (CV). CV are the owner or the licensee of all intellectual property rights in the presentation. All such rights are reserved. The material and charts included herewith are provided as background information for illustration purposes only. This presentation is not a definitive analysis of the subjects covered and should not be regarded as a substitute for specific advice in relation to the matters addressed. It is not advice and should not be relied upon. This presentation should not be released or otherwise disclosed to any third party without prior consent from CV. CV accept no liability for errors or omissions or reliance upon any statement or opinion herein.

