

The Role of the SOA in Addressing Longevity Risk

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Agenda

- SOA Overview
- Longevity: Challenges for the Actuarial Profession
- SOA Longevity Initiative

SOA Overview

The Society of Actuaries (SOA)

- Who we are
 - One of the largest professional actuarial organizations in the world
 - 24,000 members in 75 countries
 - 30,000 candidates taking education pathway
 - Serving the public good

The Society of Actuaries (SOA)

- What we do
 - Education (pre-qualification and professional development)
 - Research
 - Promote the profession

Three SOA Designations

- Associate of the Society of Actuaries (ASA)
- Chartered Enterprise Risk Analyst (CERA)
- Fellow of the Society of Actuaries (FSA)



Full Range of Educational Tracks

Individual Life and Annuities

Retirement Benefits

Group and Health

Investment

Finance/ERM

General Insurance

Longevity: Challenges for the Actuarial Profession

Why Does This Matter for Actuaries?

- Key roles of actuaries:
 - Measure and manage longevity risk for providers of life insurance, annuities, pensions and long-term care
 - Help to ensure solvency of annuity, pension and social insurance systems

Actuarial profession & longevity

- Professional associations must serve multiple stakeholders:
 - Public
 - Members
 - Regulators
 - Policy-makers

Actuarial profession & longevity

■ Historical role

- Experience studies for members / regulators
- Education of members
- Research & Conferences
 - ◆ (NAAJ, *Living to 100* Symposium series)

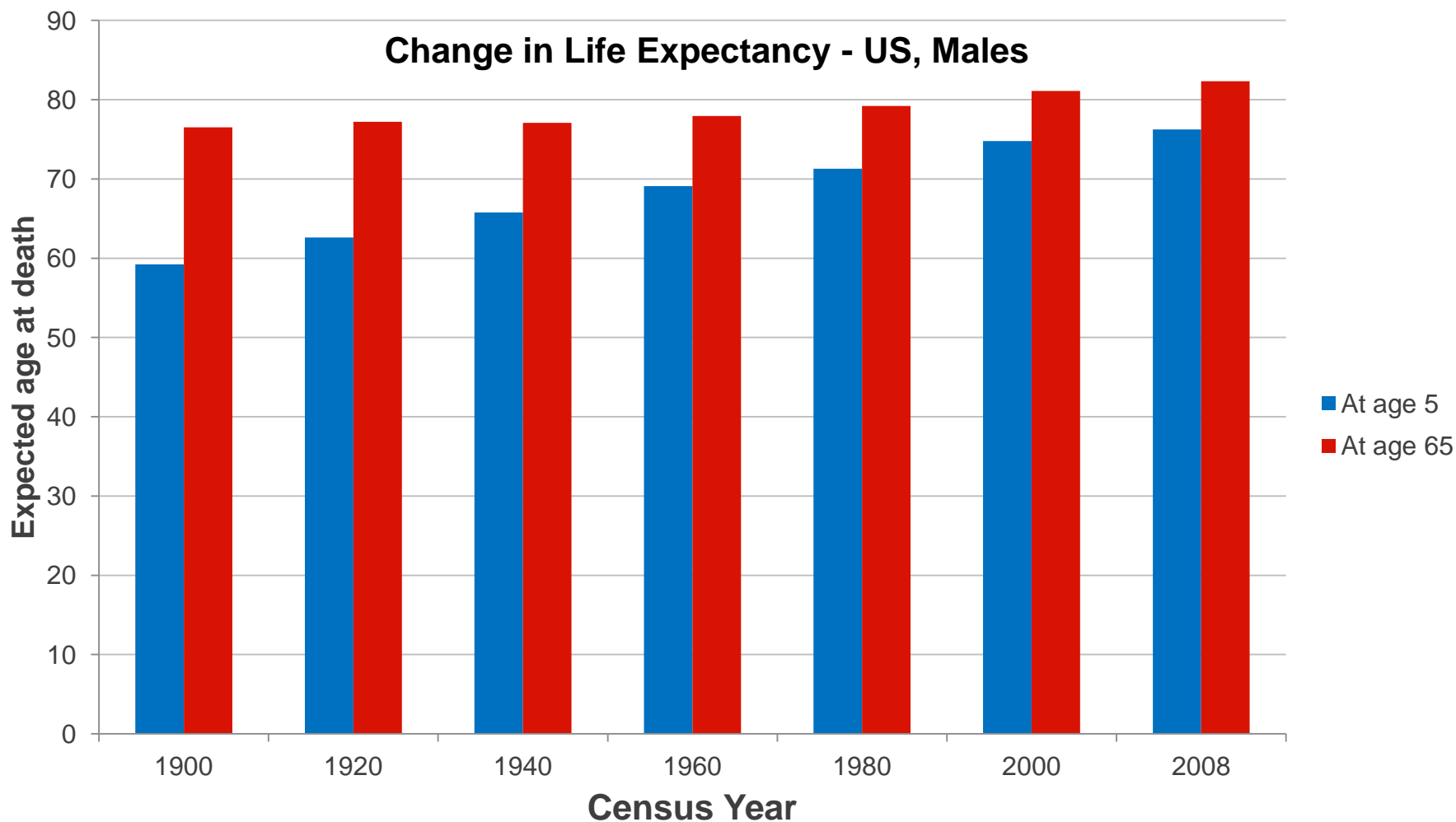
■ Evolving role

- Meet multiple stakeholder needs
- Understand evolution of longevity “science”
- Encourage “best practice” methods

Challenge #1: Longevity risk is important

- Longevity risk is systemic, not idiosyncratic
- Matters for pricing
 - Pooling hedges idiosyncratic risk (for free)
 - Systemic risk can't be managed with pooling
 - ◆ Must build cost into pensions, annuities
 - ◆ If can't hedge this (in markets), must build wide margin into pricing (or benefit structure)

Challenge #2: History Shows Steady Longevity Improvement

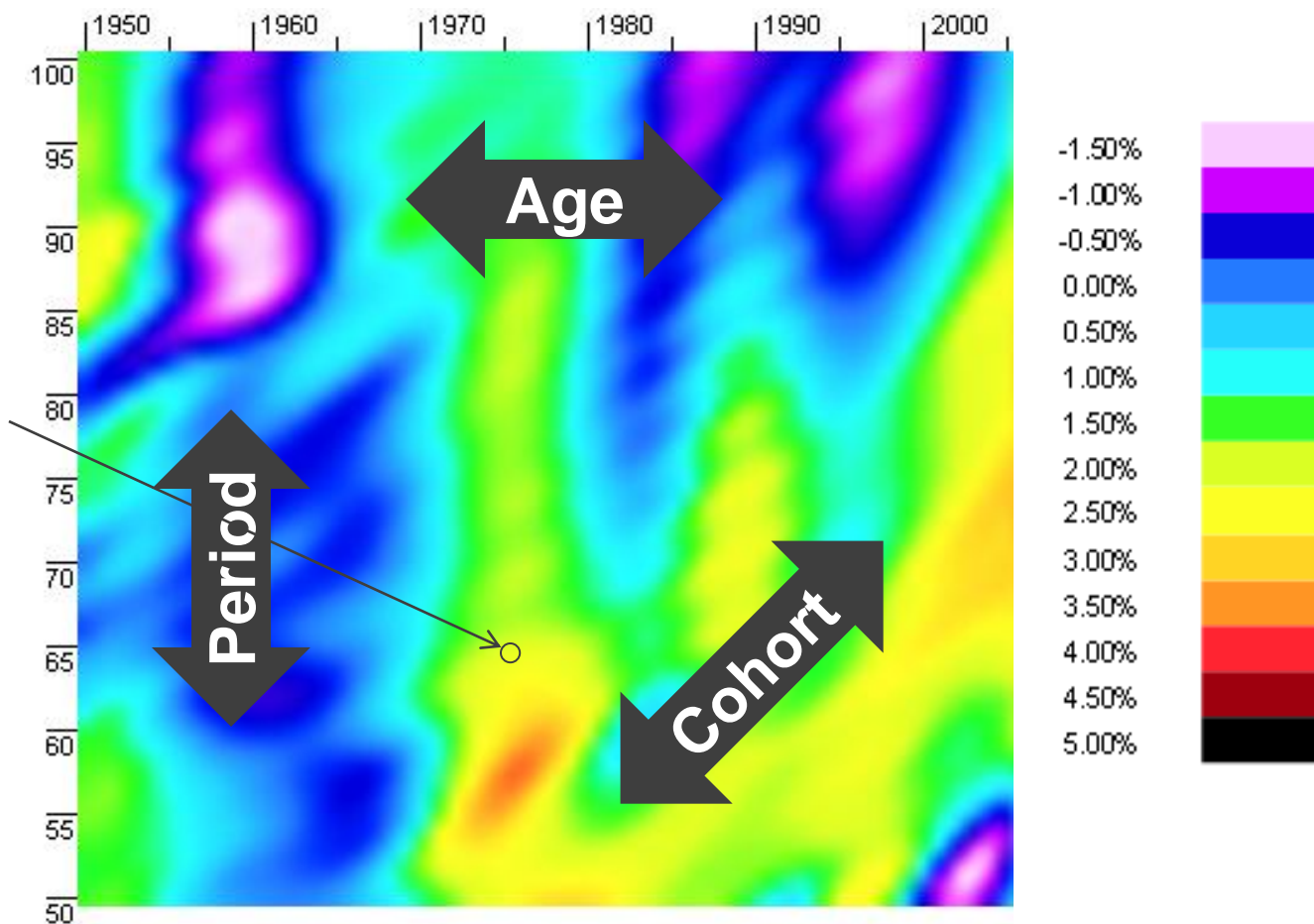


Challenge #3: Need to take into account “improvement” in mortality rates

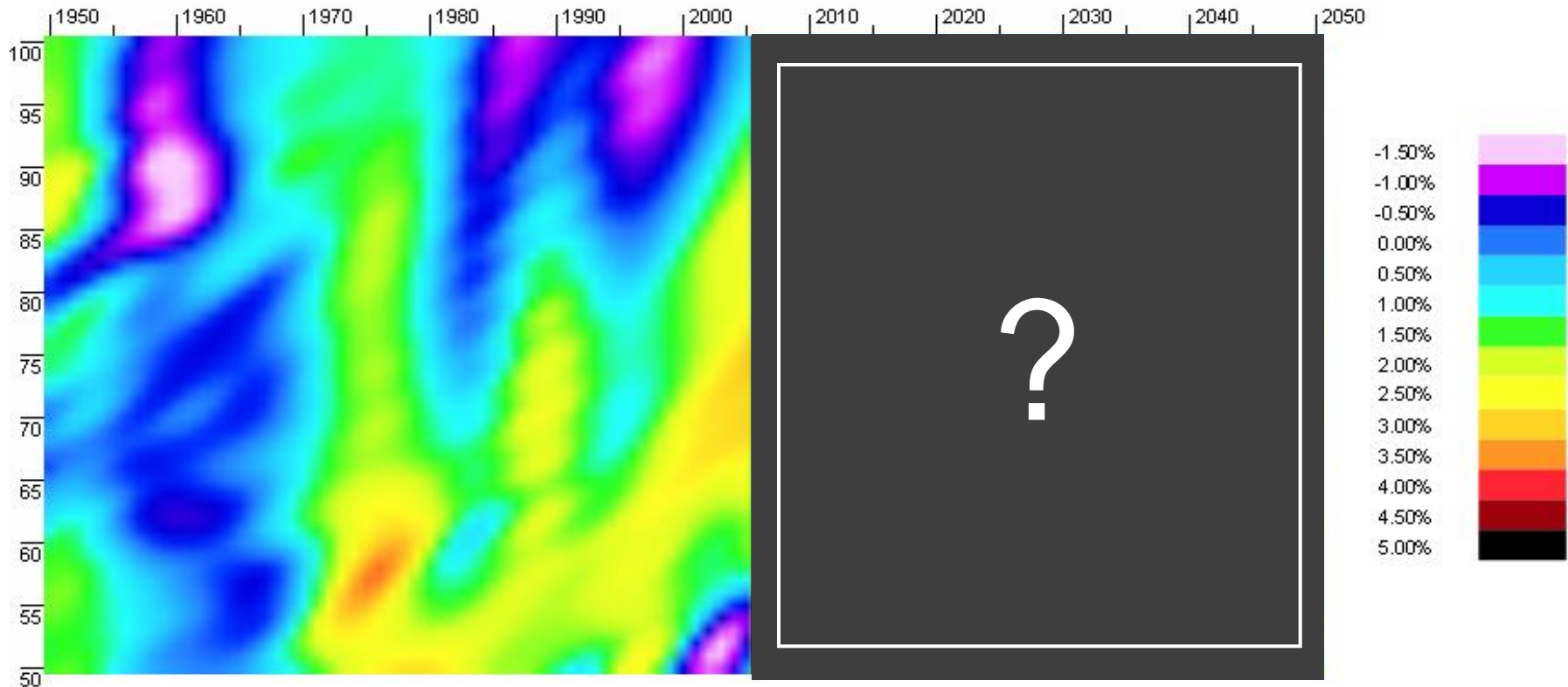
- Pre-1990: **Table margins** (loads)
 - *Adverse deviation, **improvement***
- Today: Publish explicit improvement rates (male & female)
 - One dimensional: age
 - Two dimensional: age & calendar year

Historical Mortality Improvement Rates* US (SSA) Male 50-100; 1950-2005

Reduction in age 65 mortality between 1974-1975 was about 2.5% (smoothed basis)



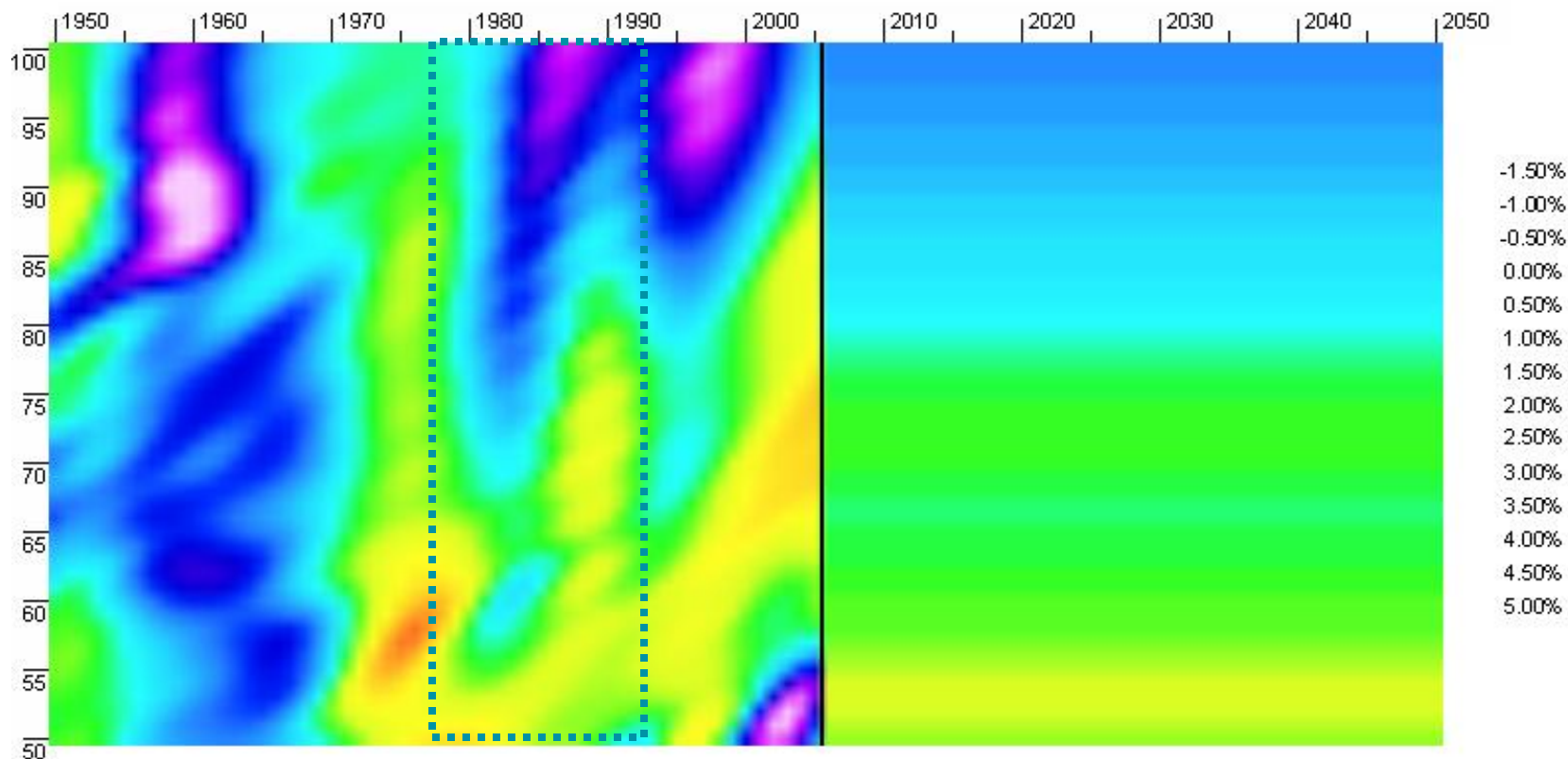
Challenge: How to extend these rates to the future



One-dimensional rates (age)

Historic SSA Male MI Rates

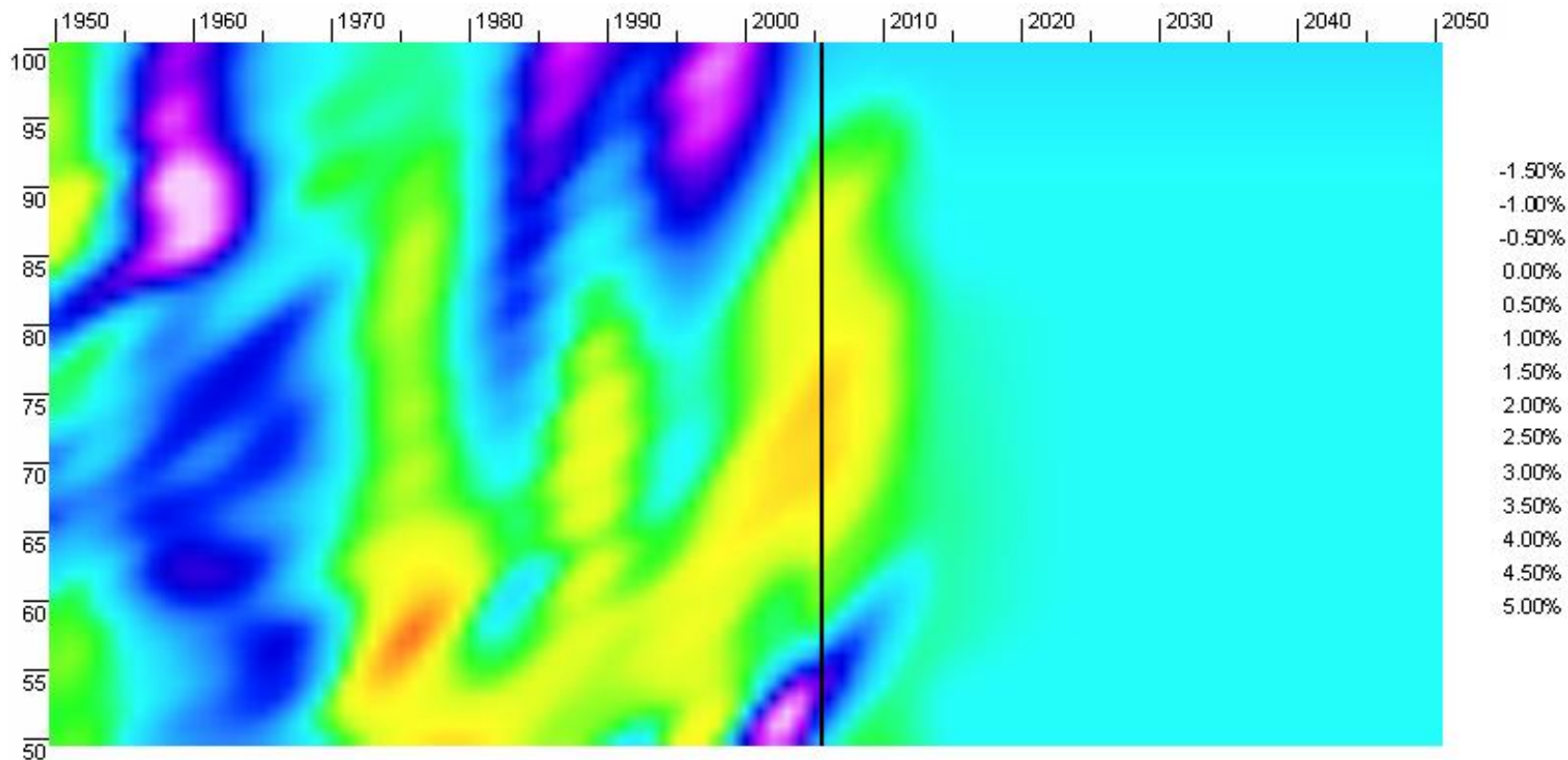
Scale AA (male)



(Very light) two-dimensional (10 year)

Historic SSA Male MI Rates

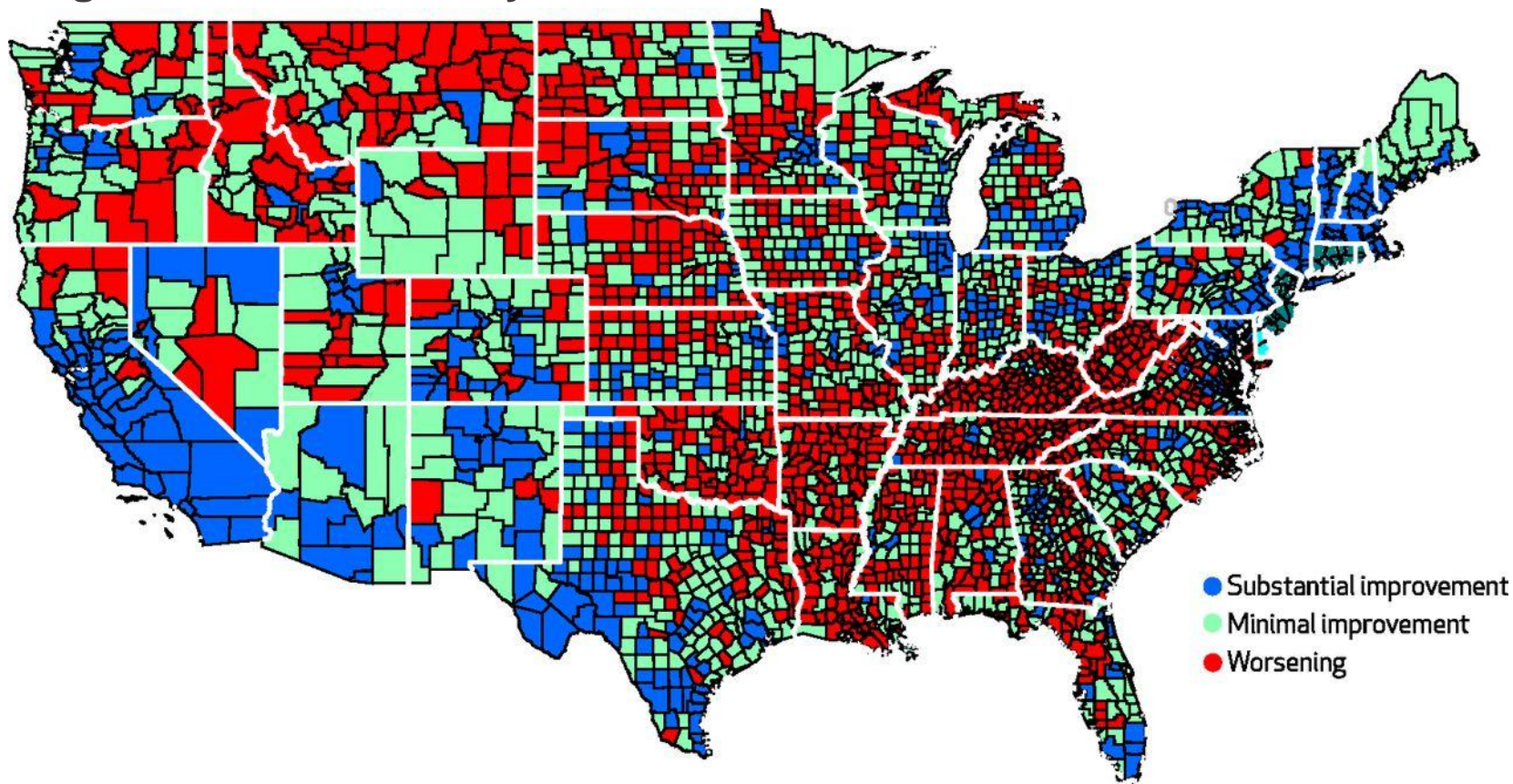
Scale BB 2-D (male)



Note: SOA Scale BB is an **interim** scale

Challenge #4: Improvement rates aren't uniform across populations

Change In Female Mortality Rates From 1992–96 To 2002–06 In US Counties



Kindig D A , and Cheng E R Health Aff 2013;32:451-458

HealthAffairs

Challenge #5: Modeling is imperfect

- Modeling is a combination of
 - Science
 - Art
 - Educated guess
- Data is always going to be imperfect and out of date
 - Doesn't come with "life history"
 - Worst for extreme old ages (inaccurate, thin)

Challenge #5: Modeling is imperfect (cont.)

- Complexity may not yield accuracy
- Don't know future drivers of mortality improvement
 - Overall population vs. specific subsets
- For actuaries, finding correlations is helpful
 - Helps create market hedges
 - Allows underwriting for annuities

SOA Longevity Initiative

SOA Longevity Task Force

- SOA Board level task force established in 2012
- Task force charged to consider:
 - What actions SOA should take in response to the rapidly changing science
 - How can the SOA be more proactive in serving the needs of key stakeholders (members, public, policy-makers, regulators)

Task Force Work

- Core premises:
 - **Longevity risk is an issue of social and economic importance, and**
 - Actuaries have a key role to play in the measurement and management of risk to financial institutions (public and private) that provide income in old age

Key Findings

- Longevity improvement is becoming a key social issue
 - Both its drivers & variations
- Actuaries must be better positioned to manage mortality/longevity as a risk
 - Similar to other risks - e.g. interest rates, investments

Key Findings (cont.)

- Actuaries as a profession (in N.A. context) have not been keeping up with the evolving science
- SOA experience studies are both a strength and weakness
 - Respected
 - But, also limited

Four Recommended Goals

1. SOA members recognize the impact of changing longevity as a key risk to be managed
2. SOA members play a public leadership role in longevity impact risk management
3. The SOA supports actuaries so that they can be leading experts on longevity risk management
4. SOA members and volunteers recognize the expertise of others in longevity and use that expertise

Tactics

- Education
 - Provide targeted education for
 - ◆ Key volunteers
 - ◆ Thought leaders
 - Expand education process through
 - ◆ Exam syllabus
 - ◆ Continuing professional development

Tactics (cont.)

- Research & resources
 - Expand longevity research beyond experience study work
 - Improve experience study process
- Partnerships
 - Third parties
 - Academics
 - Other

What's Next...

- Implementation – 2013 and beyond
- Continued support of *Living to 100*
- Partnering with events like the *Longevity Conference* series

- We need your help...
 - Engagement
 - Thought leadership
 - Data for studies

Thank you