THE SCOTLAND EFFECT: IS THERE ONE AND WHY DOES IT MATTER?

Susan Hanlon FFA

20 March 2018
AS YOU ALL KNOW...

**Prudence**
- Fundamental to technical provisions
- Negotiated between funding parties – not specified by the Regulator
- Still need a best estimate starting point

**Data**
- Almost no underwriting data available
- Direct experience data limited for all but the largest of schemes.

**Typical approaches**
THE SCOTLAND EFFECT
IS THERE ONE AND WHY DOES IT MATTER?

NATIONAL STATISTICS

MERCER MODEL

WHAT ARE THE CAUSES?

WILL THE EFFECT PERSIST?

SO WHAT?
THE SCOTLAND EFFECT
IS THERE ONE? NATIONAL STATISTICS

LIFE EXPECTANCY AT 65

Source: Office for National Statistics, 2014-based principal projections

© MERCER 2018
THE SCOTLAND EFFECT
IS THERE ONE? MERCER MORTALITY MODEL

• 1 million records
• More than 4 million life-years of experience
• 15 years’ data
• Good spread across both public and private sector clients
• 95% of records had a valid UK postcode
THE SCOTLAND EFFECT
IS THERE ONE? MERCER MORTALITY MODEL

Lives

Amounts

© MERCER 2018
THE SCOTLAND EFFECT
IS THERE ONE? MERCER MORTALITY MODEL

\[ \mu_{x,y} = \frac{e^{\epsilon} + e^{\alpha + \beta x + \delta(y-2000)}}{1 + e^{\alpha + \beta x + \delta(y-2000)}} \]

\[ \alpha_i = \sum_j z_{i,j} \alpha_j \quad \beta_i = \sum_j z_{i,j} \beta_j \]
THE SCOTLAND EFFECT
IS THERE ONE? MERCER MORTALITY MODEL

AGE

POSTCODE TYPE

DATA

SEX

RETIREMENT AGE
THE SCOTLAND EFFECT
IS THERE ONE? MERCER MORTALITY MODEL

AGE
POSTCODE TYPE
PENSION SIZE
SEX
DATA
RETIREMENT AGE
THE SCOTLAND EFFECT
IS THERE ONE? MERCER MORTALITY MODEL

SOUTH ENGLAND + 0.3
NORTH ENGLAND & WALES = 0
SCOTLAND −0.5

DIFFERENCE 0.8
THE SCOTLAND EFFECT
IS THERE ONE? MERCER MORTALITY MODEL

COMPARATIVE LIFE EXPECTANCIES AT 65 FOR SCOTLAND
AND THE REST OF THE UK

Life expectancy at 65

Lifestyle group

© MERCER 2018
THE SCOTLAND EFFECT
WHAT ARE THE CAUSES? DIET
THE SCOTLAND EFFECT
WHAT ARE THE CAUSES? ALCOHOL
THE SCOTLAND EFFECT
WHAT ARE THE CAUSES? SMOKING
THE SCOTLAND EFFECT
WHAT ARE THE CAUSES? WEATHER
THE SCOTLAND EFFECT
WHAT ARE THE CAUSES? TRAFFIC ACCIDENTS
THE SCOTLAND EFFECT
WHAT ARE THE CAUSES? MENTAL HEALTH
THE SCOTLAND EFFECT
WHAT ARE THE CAUSES? DEINDUSTRIALISATION
THE SCOTLAND EFFECT
WHAT ARE THE CAUSES?
THE SCOTLAND EFFECT
WILL IT PERSIST?

LIFE EXPECTANCY AT 65

- Male England
- Male Scotland
- Female England
- Female Scotland

© MERCER 2018
DOs and DON’Ts

✖ Get distracted
THE SCOTLAND EFFECT
SO WHAT?

MALES

FEMALES

Source:

© MERCER 2018
THE SCOTLAND EFFECT
SO WHAT?

DOs and DON’Ts

✘ Get distracted

✔ Consider other factors

✘ Ignore it

✔ Assess the impact
The views expressed in this presentation are those of invited contributors and not necessarily those of the IFoA. The IFoA do not endorse any of the views stated, nor any claims or representations made in this presentation and accept no responsibility or liability to any person for loss or damage suffered as a consequence of their placing reliance upon any view, claim or representation made in this presentation.

The information and expressions of opinion contained in this publication are not intended to be a comprehensive study, nor to provide actuarial advice or advice of any nature and should not be treated as a substitute for specific advice concerning individual situations. On no account may any part of this presentation be reproduced without the written permission of the IFoA or authors.