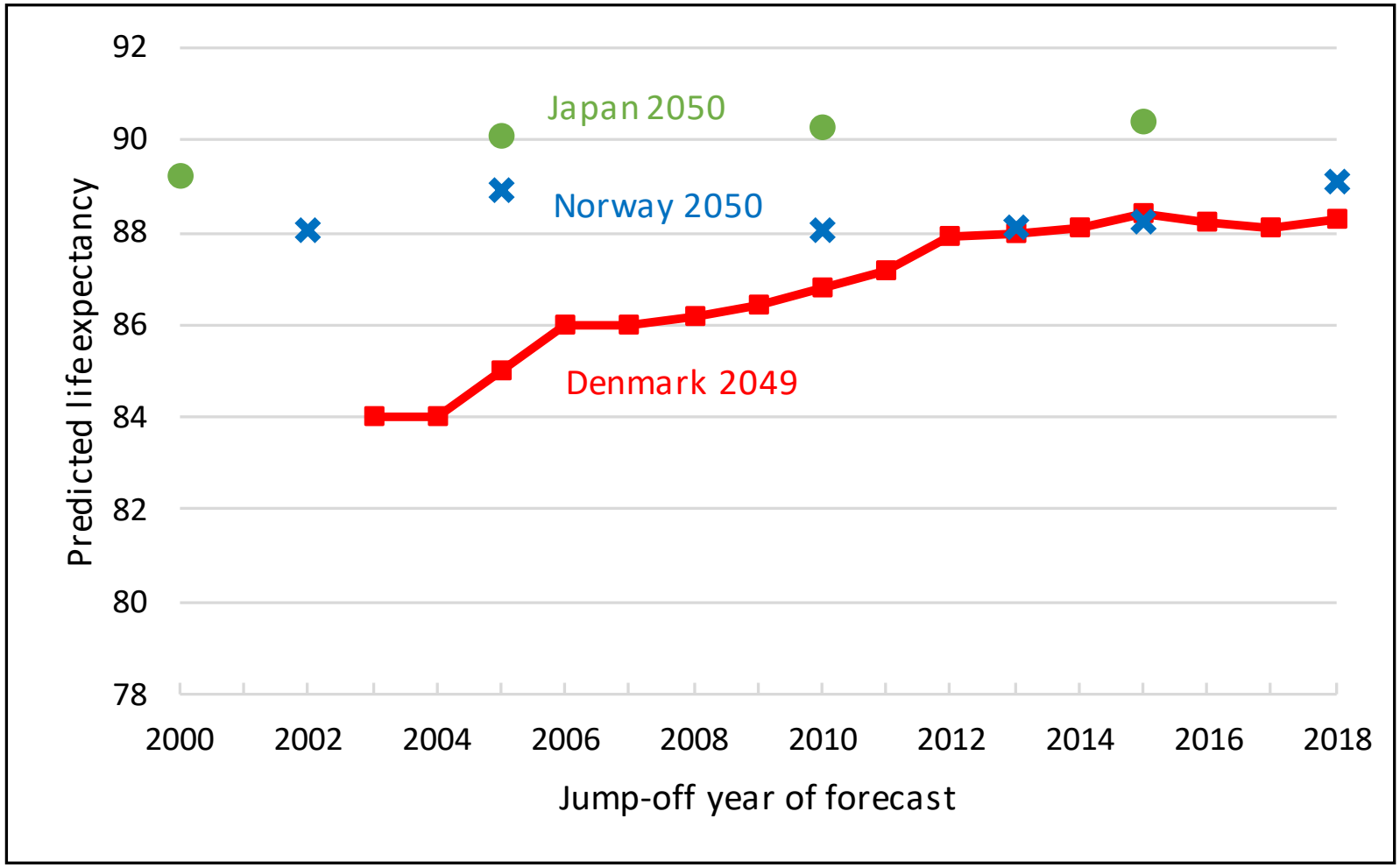
UiO : University of Oslo

European mortality forecasts: Are the targets still moving?

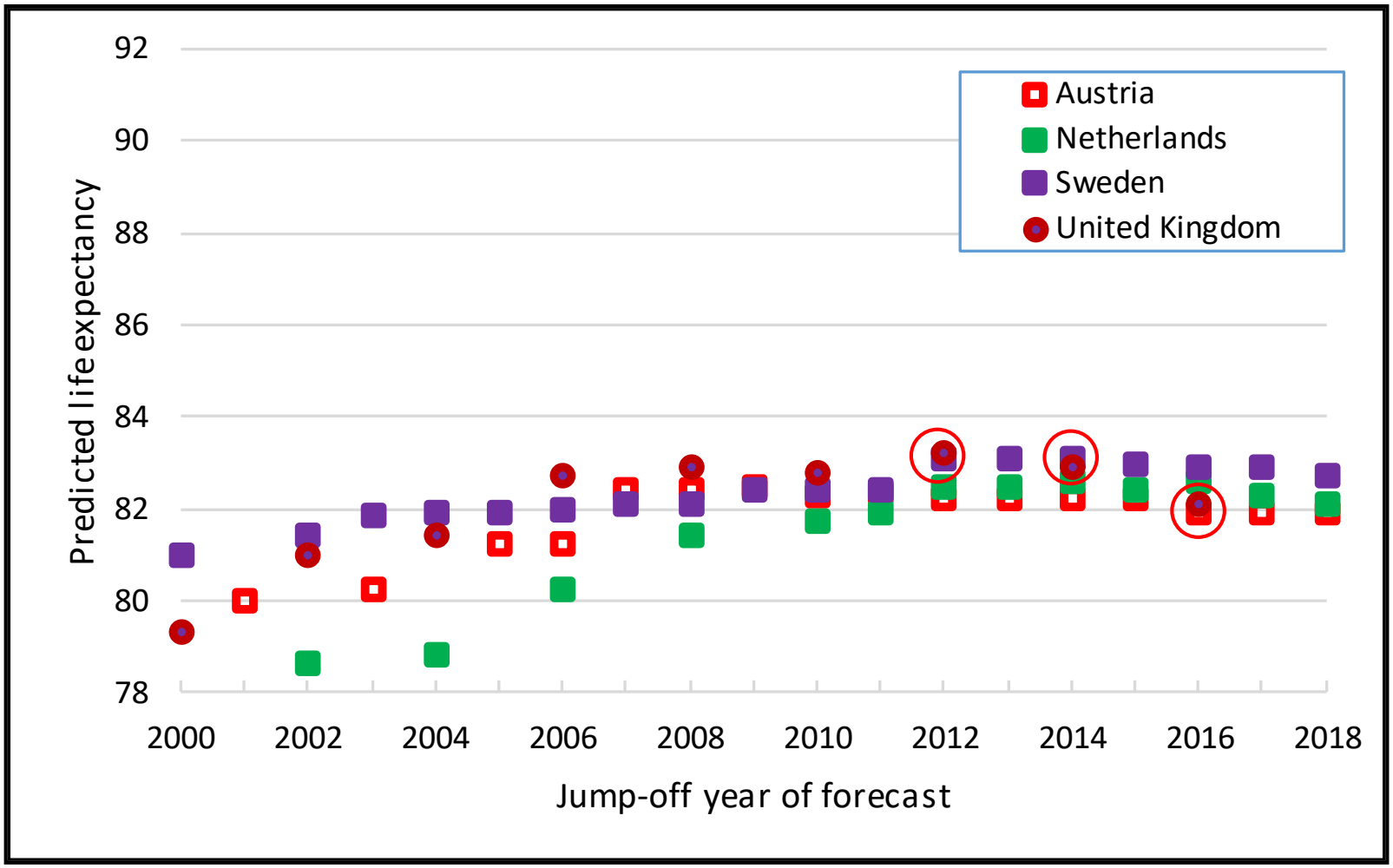
Joint work with Sigve Kristoffersen

Work Session on Demographic Projections, Belgrade, 25-27 November 2019

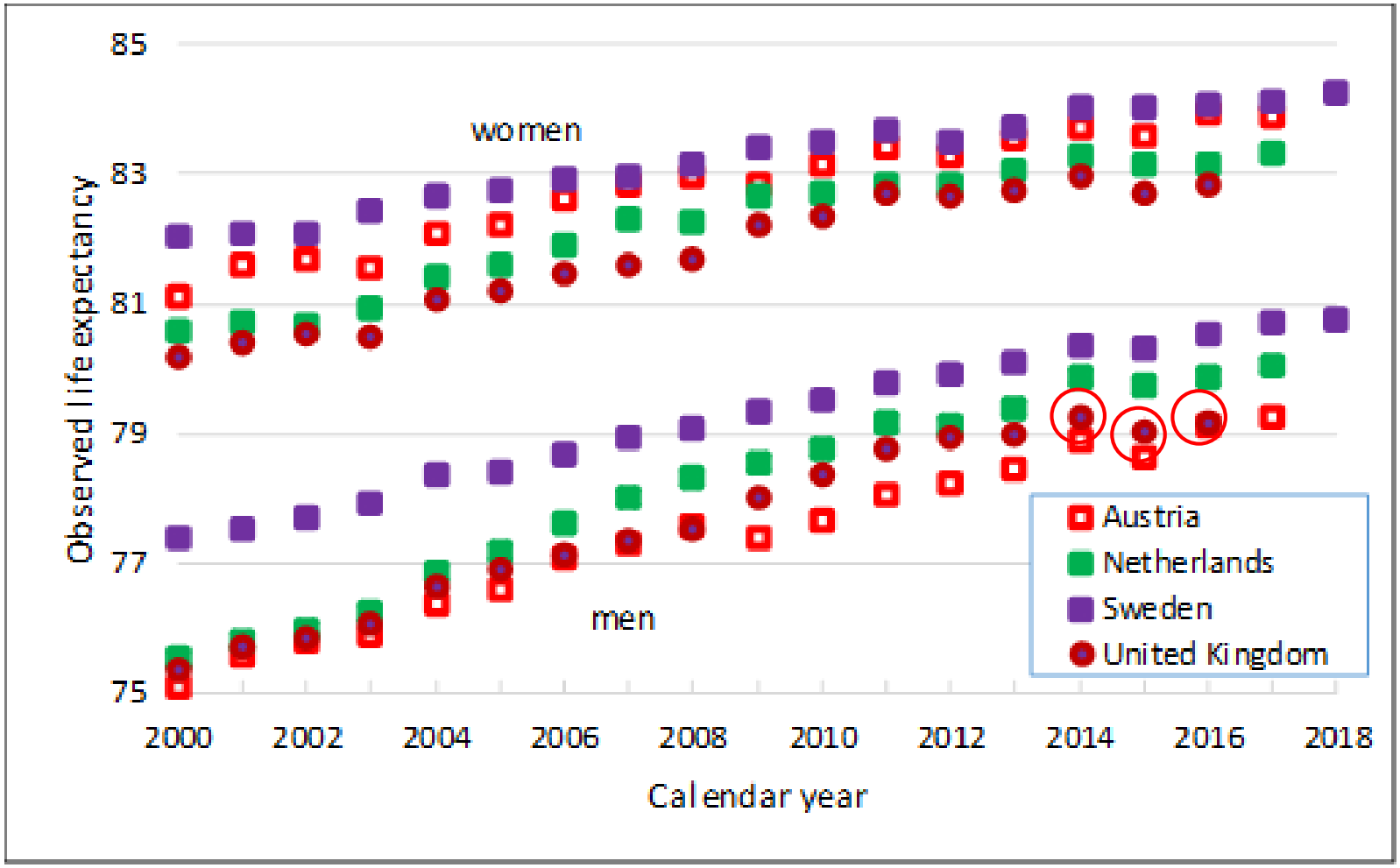
Assumed life expectancy, women, around 2050
official population forecasts prepared 2000-2018



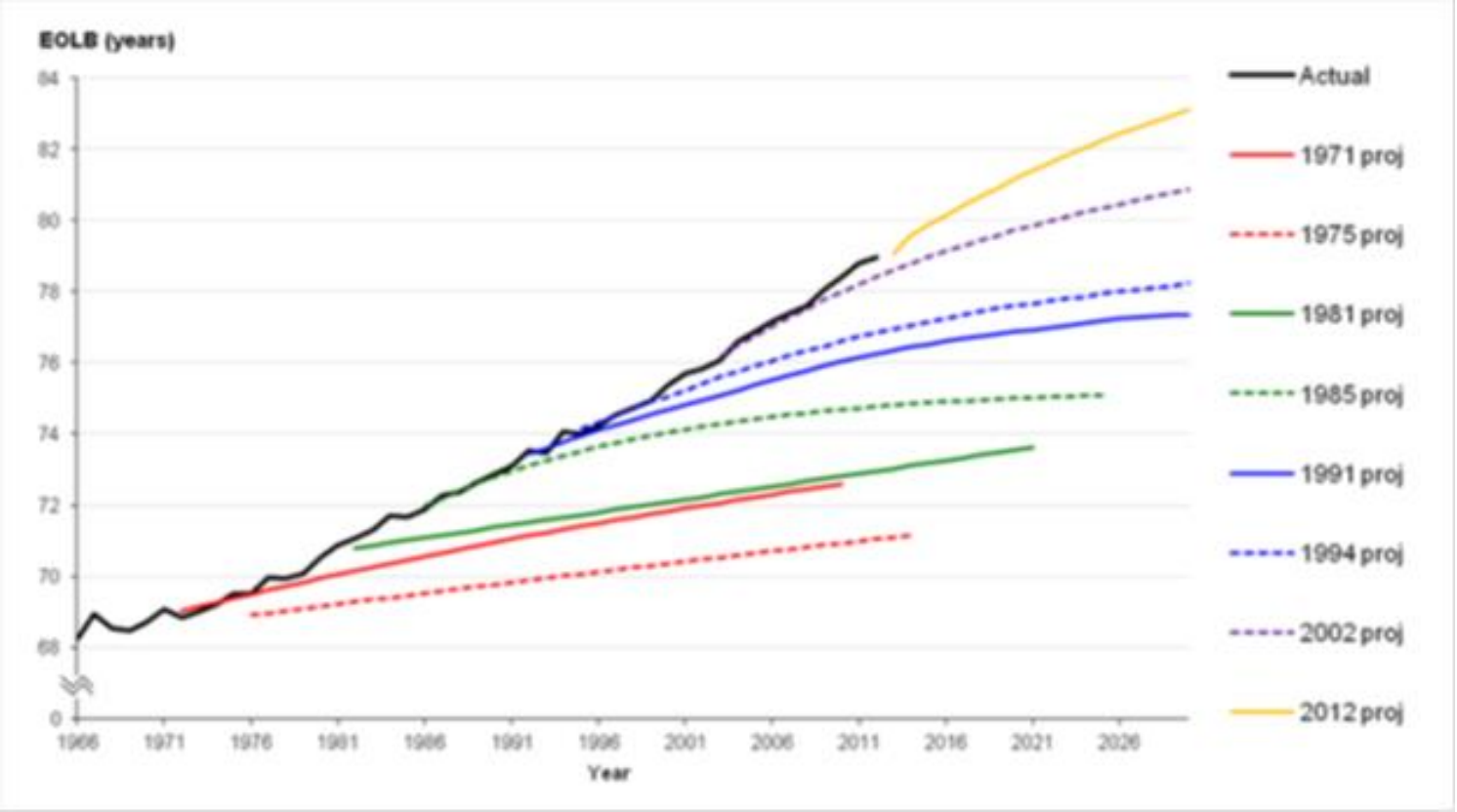
Assumed life expectancy, men, around 2050
official population forecasts prepared 2000-2018



Actual life expectancy 2000-2018



LE men, UK . Actual (black solid line), forecasts 1971-2012 (other lines)



ONS 2015

Assume life expectancies (LE) increase following a straight line, slope b.

Extrapolated life expectancies also straight line, slope b_e

Both slopes reflect increase in life expectancy (years of age) per calendar year

When forecast with jump-off year t_1 is updated to a new one with jump-off year t_2, the revised forecast differs from the previous one by an amount of

$$(t_1 - t_2)(b - b_e)$$

Upward revision for $b_e < b$

No revision for $b_e = b$

Downward revision for $b_e > b$

Explanations

1. Assumption drag (Ascher 1978, fertility forecasts in developed countries)

maintaining incorrect assumptions after their validity has been contradicted by data

forecasters rely heavily on recently observed data, give less weight to long-term trends

Assumption drag tends to hold for the improvement in LE, not its level

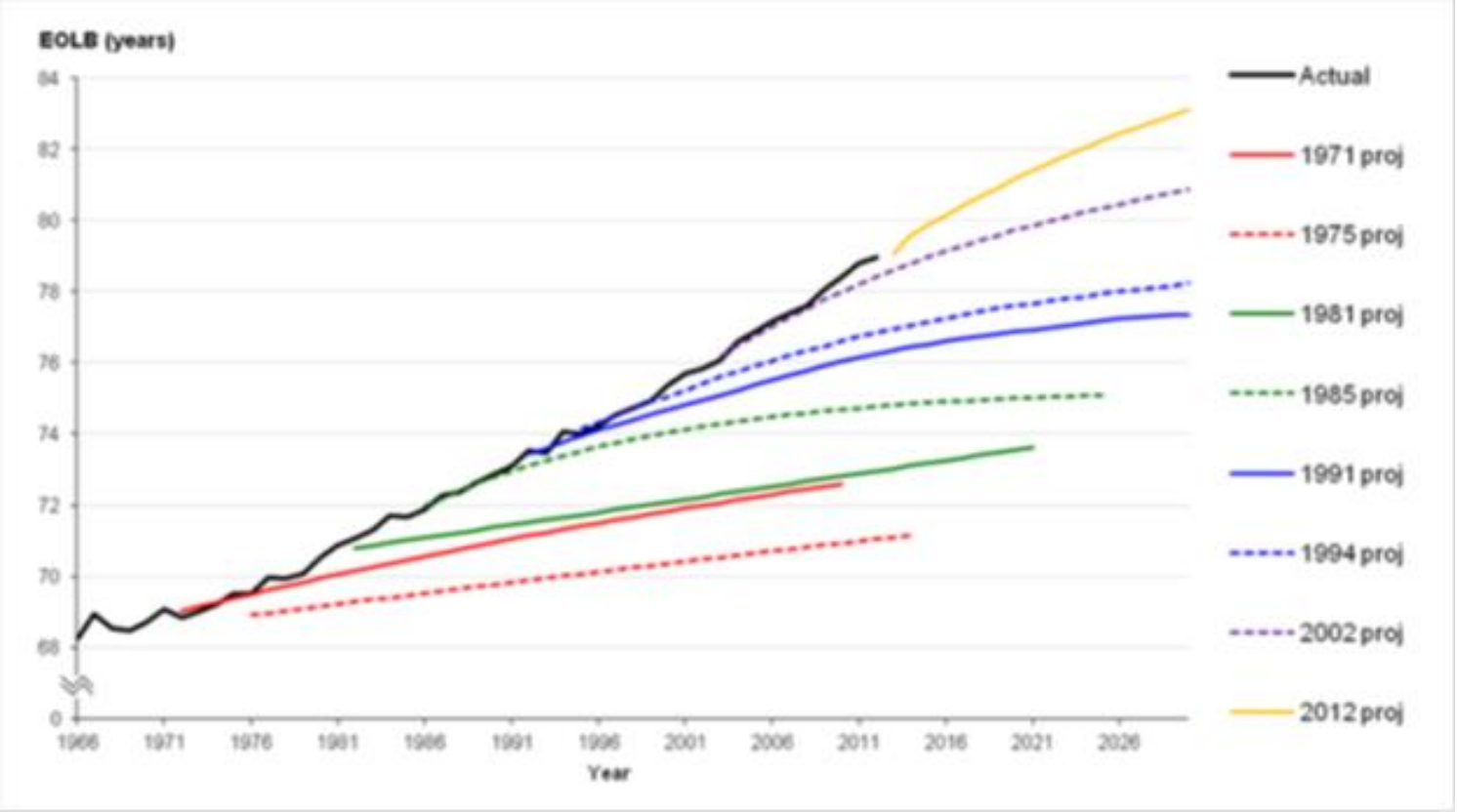
2. Anchoring (Kahneman and Tversky 1974/2011; experimental psychology)

Takes place when we observe a certain value of an unknown quantity, before predicting it.

Observation = anchor; we adjust the anchor to a prediction

Adjustment ends prematurely, because we are uncertain that we should move away further from the anchor

LE men, UK . Actual (black solid line), forecasts 1971-2012 (other lines)



ONS 2015

Finally

Anchoring may appear reasonable in certain situations, e.g. predicting LE or TFR.

Yet, once we are aware of this behaviour, will we learn from the errors we made in the past?