

## Economic impact of mortality decline and selection

**Background:** Mortalities have since The Second World War gone steadily down both for men and women. This is going to have huge impact for pension funding if it continues. The model below has been developed from Norwegian historical data for the period 1950-2004. Another issue is the fact that pension portfolios often have mortalities that are considerably lower than country averages.

**Objective:** Present models for selected and dynamic mortalities and illustrate their economic impact.

**Material:** Section 15.2, The GablerPartner report (website for STK4520) and some of the exercises to Ch 15, for example 15.2.8 and 15.2.6

**Main points:** The presentation (45 minutes) should cover

- The dynamic model in Exercise 15.2.8 and plots showing how the mortalities change with time
- How mortalities varying with time can be entered ordinary life-insurance calculations (see Section 15.2)
- Present values of pension portfolios of short and long duration

They are to be computed both with the model in Exercise 15.2.6 *and* the dynamic one in Exercise 15.2.8. Compare results.

- Plots of one-time premia under the dynamic model compared to a flat 15% reduction of the mortalities that are at work today.

This is Exercise 15.2.7. Preferably plot the two sets of one-time premia  $a_{l_0}$  against  $l_0$  in a joint plot.