The Netherlands

Practice mortality assumptions
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Netherlands

- Population 2014: 16.9 million
  - 81% Dutch
  - 5% Other EU
  - 2.5% Indonesian
  - 4.2% Turks, Moroccans
  - 7.3% other
Life expectancy compared to other countries Male
Life expectancy compared to other countries Female

Levensverwachting lft= 0
Vrouwen
How insurance companies use mortality tables
How insurance companies use mortality tables

• In the Netherlands we don’t use industry tables: simply not allowed by law (NMA)
• We start with whole population tables that are adjusted by the insurance company for mortality within insurance populations
Whole population tables

- CBS (official statistical office) publish every year mortality observations (raw) and 5-years raw period data

- AG smooth these 5 years to AG period survival tables (e.g. AG 2005-2010)
Projections

• CBS publishes every two years a projection of the morality
  – The latest model is based on a Lee Carter projection of Western European mortality, but for the Netherlands adjusted for smoking related death (via Li Lee model)
  – Uncertainty mainly based on expert judgement
Projections

• AG also publish every 2 years a projection for the future
• Very recently (September 9) a new stochastic model is published
AG projection

• Also AG starts with European mortality, average for countries at the same development level

\[
\begin{align*}
\ln \mu_x(t) &= \ln \mu_x^{EU}(t) + \ln \mu_x^{NL}(t) \\
\ln \mu_x^{EU}(t) &= A_x + B_x K_t \\
\ln \mu_x^{NL}(t) &= \alpha_x + \beta_x \kappa_t
\end{align*}
\]
AG Projection

• The specific deviation of the Dutch mortality compared to the European average convert to zero

• In the publication also new: life expectancies are published as cohort figured instead of period figures
## AG projection

<table>
<thead>
<tr>
<th>Starting year cohort</th>
<th>Male age 0</th>
<th>Female age 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>89.9</td>
<td>92.9</td>
</tr>
<tr>
<td>2039</td>
<td>92.4</td>
<td>94.5</td>
</tr>
<tr>
<td>2064</td>
<td>94.1</td>
<td>96.1</td>
</tr>
</tbody>
</table>
• Next time perhaps I can show some more technical issues of the model