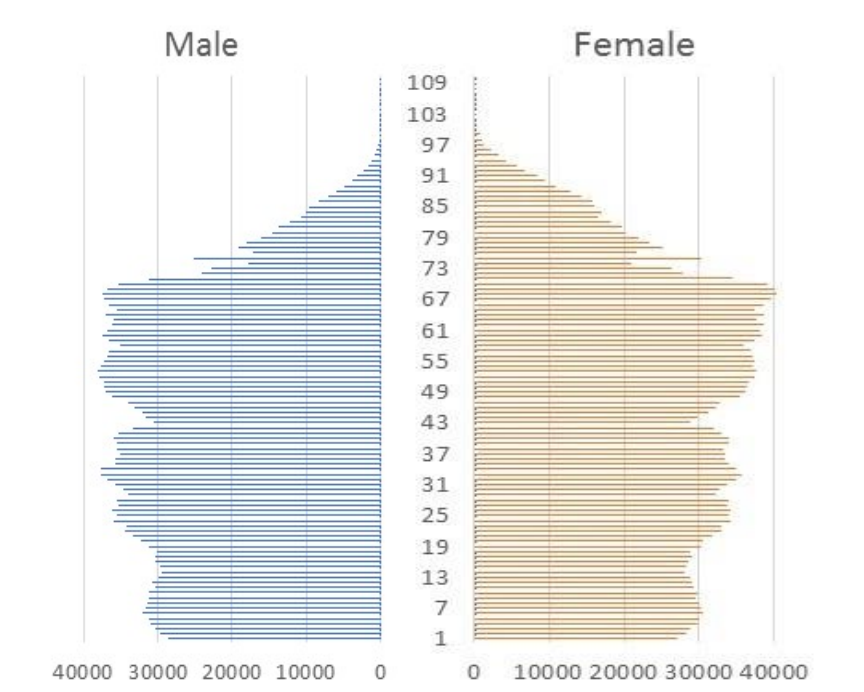
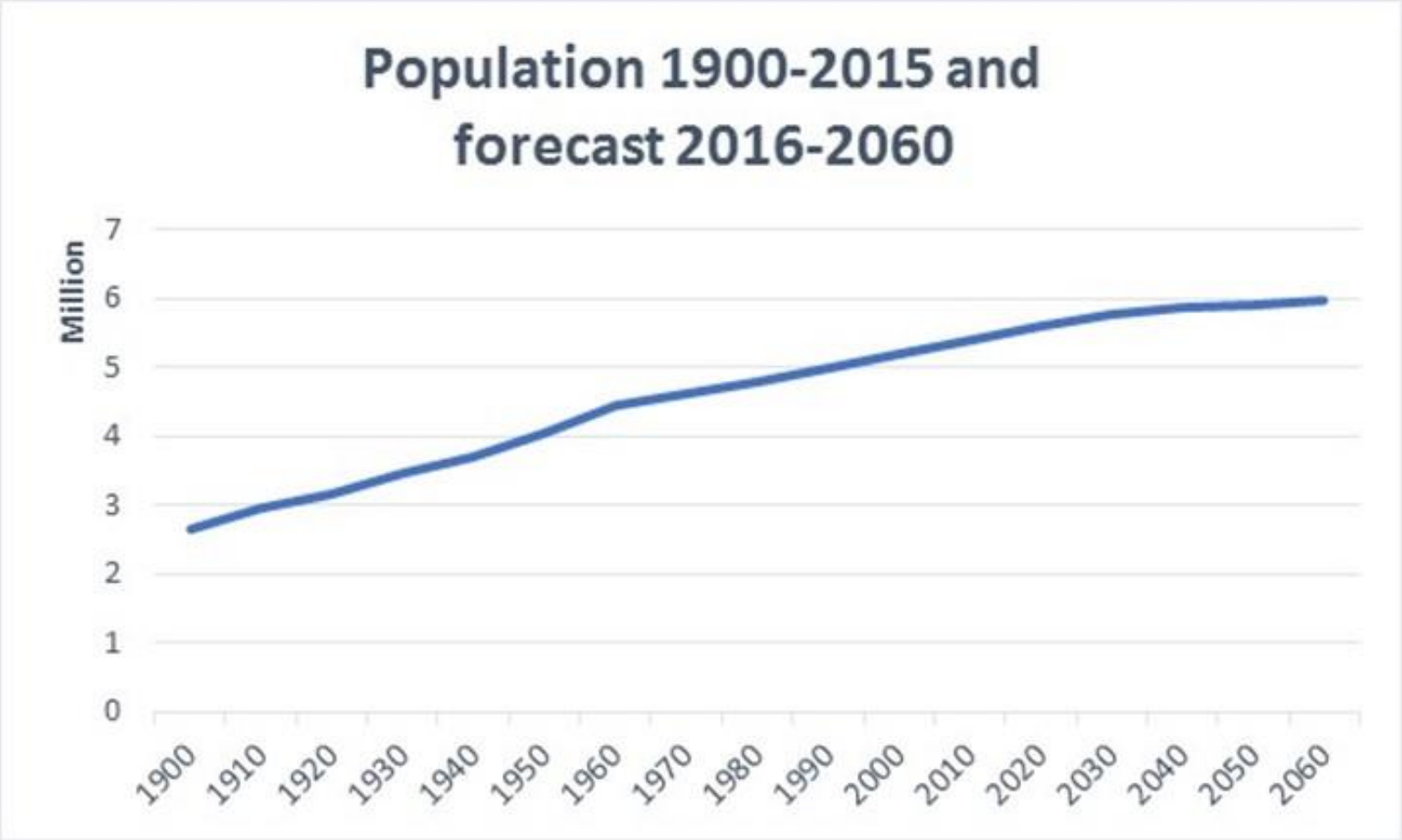
Finnish population

Current period life expectancy	
At birth	Male 78,5 (2015) Female 84,1 (2015)
Population Pyramid 2016	 Source: Mortality Human Database (www.mortality.org)

Population forecast

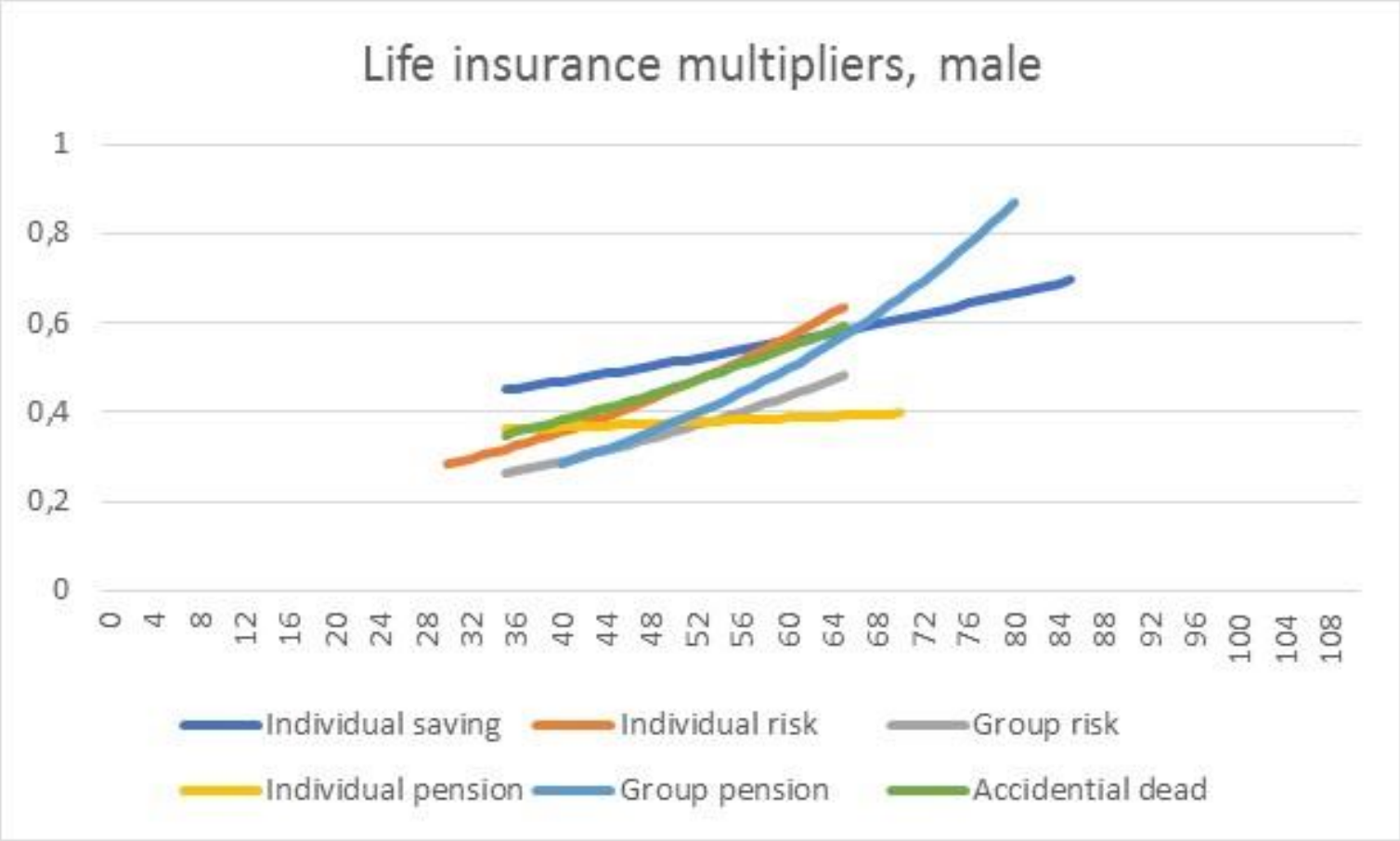


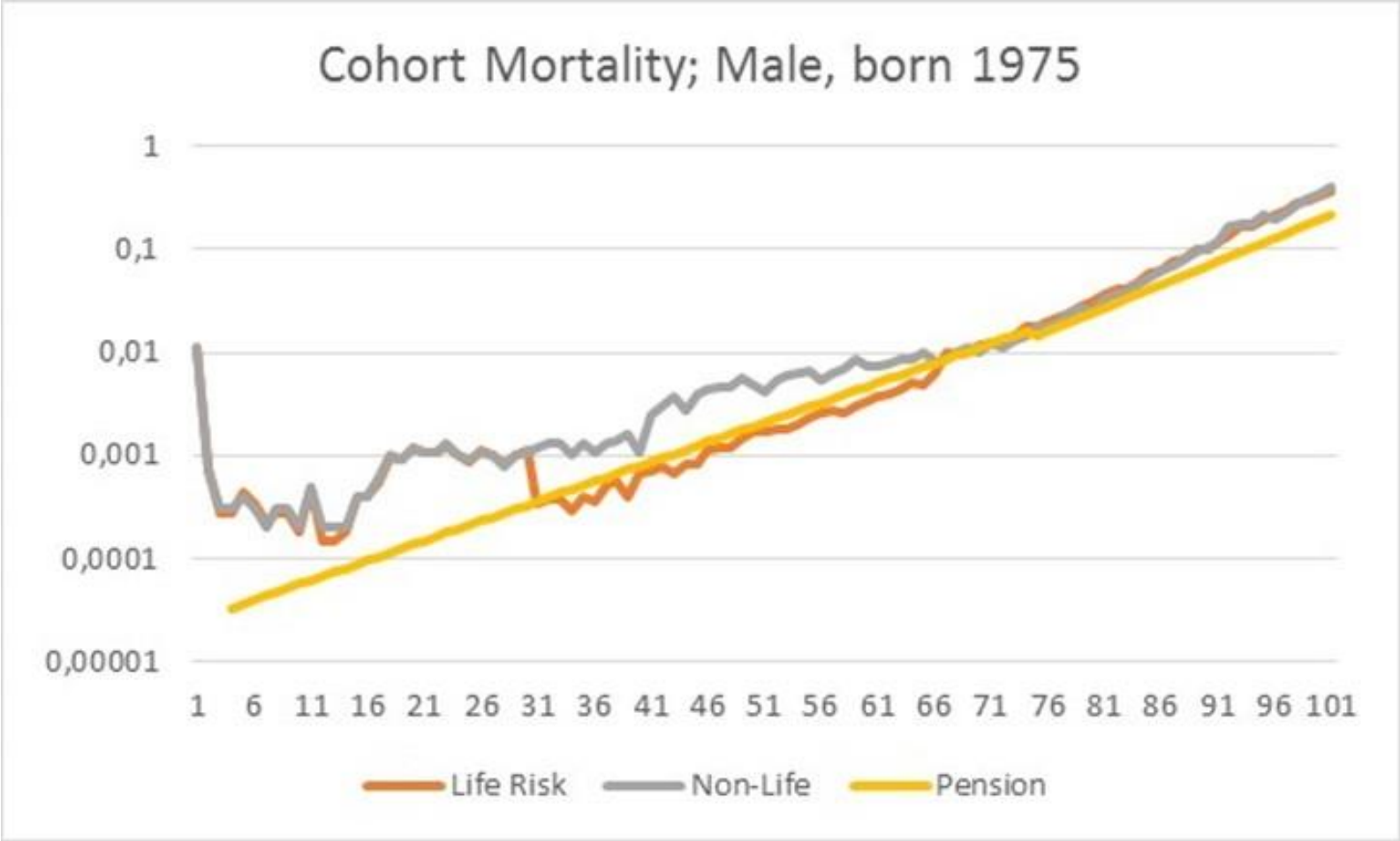
Finnish mortality models used in insurance business

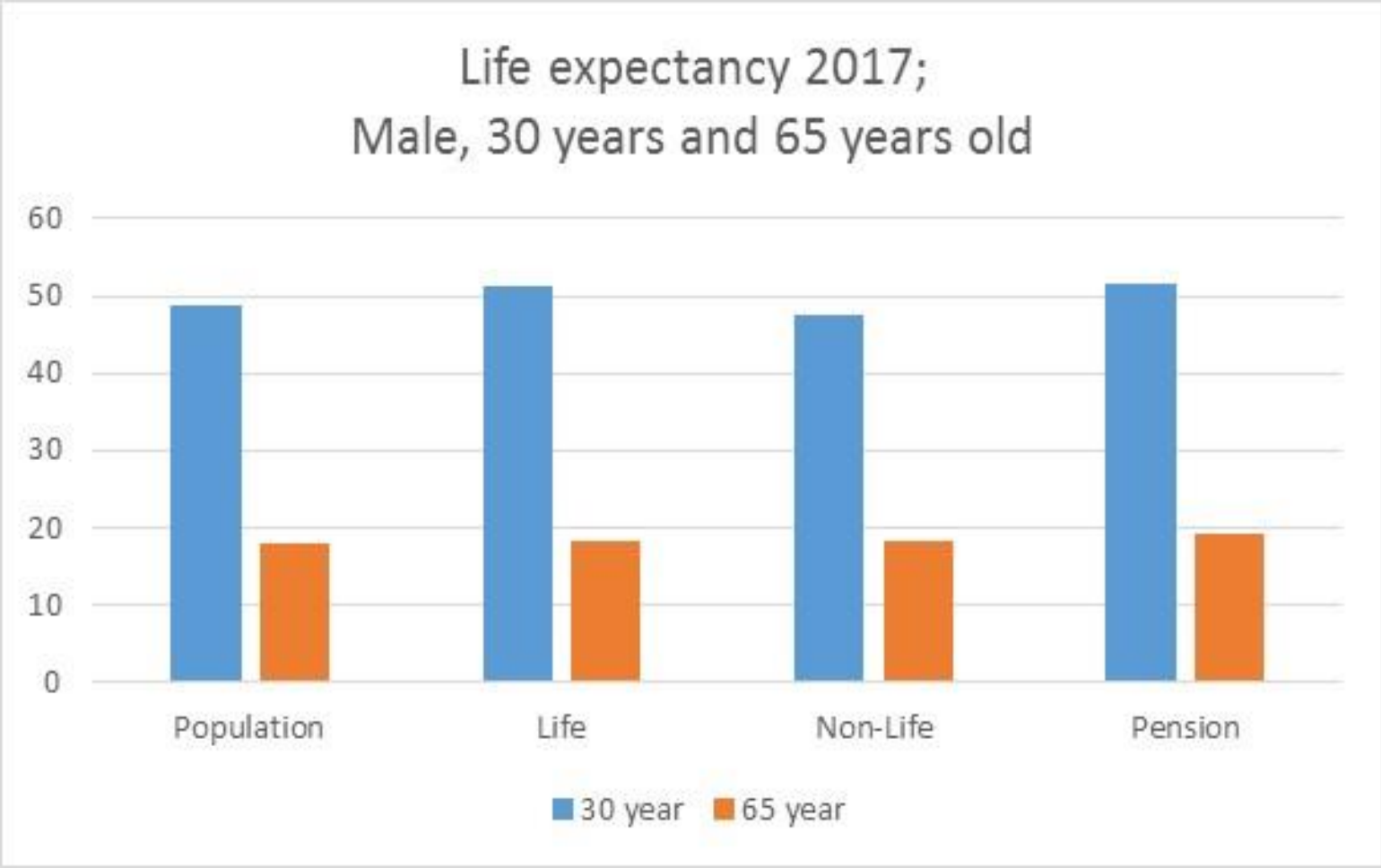
- Life Insurance Mortality model K2012
  - Model is made for individual and group business
    - ’Different model’ for different insurance classes
    - Used for pricing and reserves
    - Selection: Medical UW
- Non-Life Insurance Mortality model K2016
  - Model is made for statutory insurance classes (3rd party motor liability, patient insurance)
    - Used for reserves
    - Selection: damaged individual
- Statutory Pension Insurance Mortality model (2015)
  - Model is for Statutory pension
    - Used for reserves (Politically important that liabilities are adequately reserved)
    - Selection: Individual has some kind of working history

Finnish mortality models used in insurance business

- In Finland, we have different models for life, non-life and pension insurance, but basics are same
  - Based on Lee-Carter
  - Population forecast model is converted to be ’insurance data’
  - Modified so that model will match with it’s use (life, non-life, pension)
  - Old age problem -> With old ages all models use population mortality


Life insurance multipliers, male
1
0,8
0,6
0,4
0,2
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100 104 108
Individual saving
Individual risk
Group risk
Individual pension
Group pension
Accidential dead


Cohort Mortality; Male, born 1975
1
0,1
0,01
0,001
0,0001
0,00001
1 6 11 16 21 26 31 36 41 46 51 56 61 66 71 76 81 86 91 96 101
Life Risk
Non-Life
Pension


Life expectancy 2017;
Male, 30 years and 65 years old
60
50
40
30
20
10
0
Population
Life
Non-Life
Pension
30 year
65 year