General Session VII – Panel: Demographic Perspectives on Longevity

2020 Living to 100 Symposium

Panel: Demographic Perspectives on Longevity

Péter Vékás, Ph.D. (Corvinus University of Budapest)

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Significance

- Besides demography, huge financial impact: e.g., if human lifetimes are three years longer than expected (in line with underestimations in the past), costs of aging will increase by 50% of GDP in advanced economies and 25% of GDP in emerging economies (IMF, 2012).

Dominant paradigm

- Dominant approach to demographic mortality forecasting: statistical extrapolation of univariate time series of country-specific mortality rates based on historical data.
- Since Lee–Carter (1992), members of the global research community have created a multitude of variants and new models of this kind.

Thinking "outside the box"

- **Extrapolation?**
  - Recent reversal of past trend of mortality decreases in US and other countries
  - Will longevity increase forever? (Carnes & Olshansky, 2007)
  - Incorporating structural breaks? (Coelho & Nunes, 2011)
- **Statistical?**
  - Promising advances in data science and artificial intelligence, machine learning, artificial neural networks, deep learning (Richman & Wüthrich, 2019)
  - Individual-level mortality paths, but not much insight

Thinking "outside the box"

- **Univariate time series?**
  - Multi-population models (Börger, Schoenfeld & Schupp, 2019)
  - Cause-of-death models (Glushko & Arnold, 2018)
- **Country-specific mortality rates?**
  - Insured populations, retirees?
  - By income group?
  - By risk group: smokers vs. non-smokers, diabetes, etc.?
- **Based on historical data?**
  - Incorporating insights from medicine and other fields?
  - External predictor variables