Population Europe

Mortality in Population Forecasts

Tomáš Kučera

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What we are going to talk about?

We are going to talk about **forecasts** – statements about most probable (plausible) future development, on the answers on the question "What will happen with the highest probability?"

We are going to talk about **population forecasts** – the compound statements about the most probable future development of the size and sex and age structure of a particular population

What we are going to talk about?

- We are going to talk about **mortality,** the process of generations' extinction**, in population forecasts**

We are **not** going to talk about **projections** answering the question "What will happen with under particular conditions?"

We are **not** going to talk about **other components** of population change in population forecasts

What is the position of mortality in population forecasts?

- **Mortality** is the **most stable** component of population development due to:
  - ✓**strong biological nature**
  - ✓**lowest level of modification** by social conditions
  - ⇒ relative **inertia** of observed trends

i.e. a good runway to take off to the future

Is it really so ideal?

- **Not**, because of:

Statistical regularities of mortality patterns and their dynamics are not absolute; they **are only relatively strong**, in comparison with other components – fertility and migration components, due to incompleteness of demographic cognition.

How demographic cognition of mortality looks like?

- Our **cognition** of mortality changes and their causalities is:
  - ✓rather weak, because of …
  - ✓more specific than general, because of …
  - ✓more empirical than theoretical
  - .

How demographic cognition of mortality looks like?

- **Significant factors** of mortality:

✓their **number is** generally **high**

✓their **list is** always **incomplete** and **variable** over space and time

✓their **interactions are diverse** and also **variable** over space and time

How demographic cognition of mortality looks like?

- **In brief - lack of conceptualization:**

✓our **cognition of mortality** is **not** sufficiently **theory grounded**

✓**theories** dealing with mortality (demographic revolution and epidemiologic transition in particular) are more "framework" rather than "core" theories with respect to the **needs of mortality forecasting**

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How demographic forecasting looks like?

- Demographic forecasting (and forecasting of mortality in particular) is, in principle, the **search for population functions which are invariable over time and which fluctuations are small and random** (Keyfitz, 1972)

Demographic forecasting means:

✓extrapolating observed trends (setting explicitly tempo and implicitly quantum)

✓setting the limits (setting explicitly quantum and implicitly tempo)

How demographic forecasting looks like?

- Extrapolation of trends is mostly based on analysis of time series of selected indicators´ values

The limits setting usually works on the **principle of analogy**, taking into experience of more developed but comparable populations.

Formal extrapolations work satisfactory in the case of short-term forecasts

Analogies have higher weight in medium-term forecasts

How demographic forecasting looks like?

- Two **principal** questions:
  - ✓on **what basis** to forecast mortality in the **forefront populations**?
  - ✓on **what basis** to formulate the **long-term forecasts**?

How demographic forecasting looks like?

- Looking for the answers demographers frequently leave a traditional sphere of demography and **search in the field of biology and medicine** trying to translate different theories and **concepts or attained progress and trends in experimental medicine** into the limits to human life

This approach has its historical roots, especially in **theoretical demography**, but only slowly is penetrating **population forecasting practice**

How demographic forecasting looks like?

- Explanation is to be found in general receding forecasts´ horizons:

Base in	Common horizon
1970´s	2000
1980´s	2025
1990´s	2050
2000´s	2075
2010´s	2100

How demographic forecasting looks like?

- Life expectancy at birth in offical forecasts:

Period (cases)	LEB average around 2050 (years)		LEB average deviation around 2050 (years)	
	Males	Females	Males	Females
1990´s (7)	79.8	85.2	0.82	1.21
2000´s (13)	84.9	88.8	0.81	0.57

Characteristic feature of the mortality forecasts is:

✓substantial increase of the life expectancy at birth target values for comparable horizon (here 2050-2060, i.e. in distance of about 50 years) and

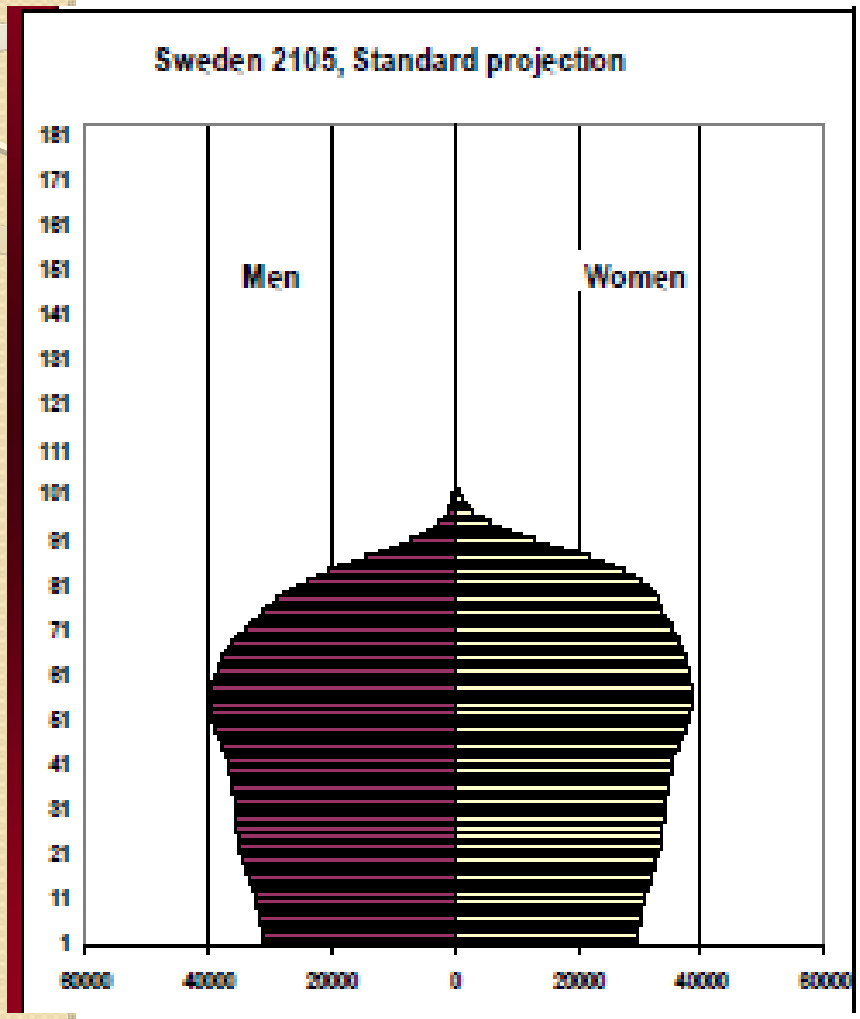
✓their convergence as they reach a psychological barrier of 90 years during past two decades. It can be illustrated namely on female mortality in the most developed countries.

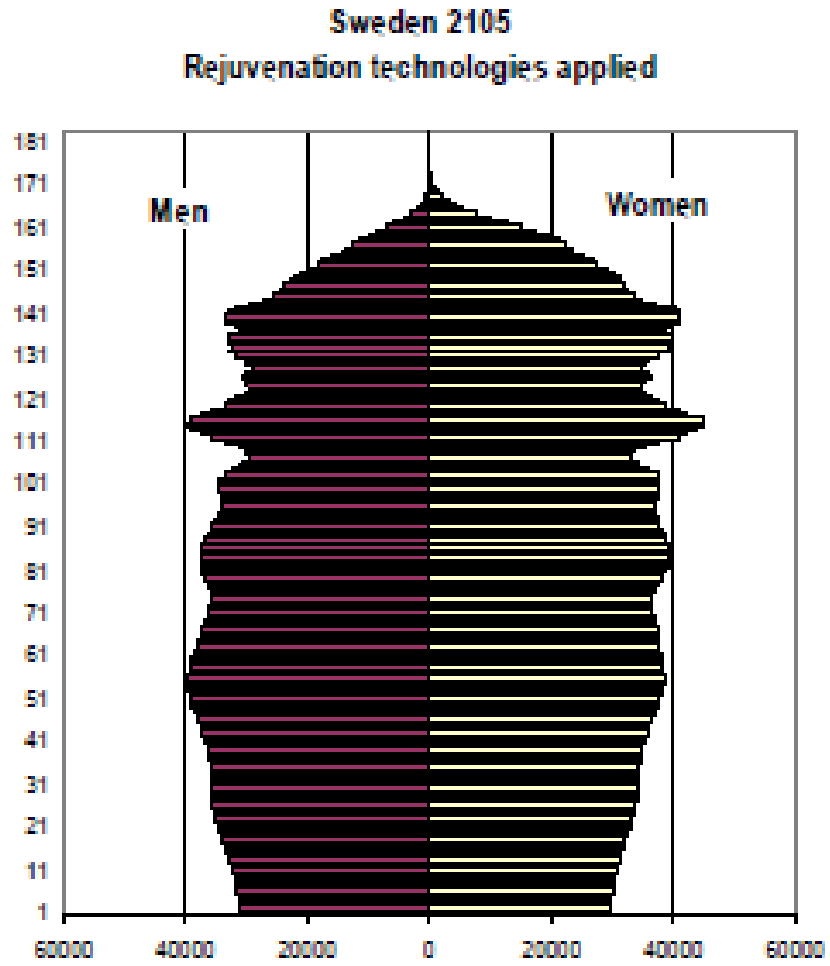
How demographic forecasting looks like?

- The official forecasting practice, however, has not followed academic discussions.

While **academic demographers** are disputing about mortality limits divided on **conservatives and visionaries,** the **practitioners trust extrapolation techniques, analogies and magic numbers** (limits).

How mortality future looks like?





Source: Gavrilov, Gavrilova, 2010

Thank you for your attention!