Uncertain Population Forecasting:
A Case for Practical Uses

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Probabilistic Population Forecasts

“The chief purpose of making a population forecast ... is to contribute to improved planning and better decisions”
(Jan M Hoem, 1973)

• Probabilistic population forecasting dates back at least to the 1970s
• Methodological developments enter the mainstream demography since the 1980s
• Slow uptake of methods in official statistics
  Only a handful of National Statistical Institutes (NZ, The Netherlands), and the UN 2014 prototype
Challenges and Open Questions

• Current, mainly variant-based practice in official population forecasting not sufficient
  – Variants have almost zero probability, and answer the incorrect – tautological – question
  – **But:** Easy to grasp in cognitive terms

• Probabilistic forecasts offer the answer, with explicit statements about uncertainty

• Technical, statistical, computational challenges still present, but can now be addressed
Challenges and Open Questions

- Key contemporary challenges
  1. User *attitude* towards forecasting uncertainty: A curse or a blessing?
  2. Different requirements: *specificity* of user needs and circumstances of decisions
  3. Ways of dealing with incomplete, superfluous, or possibly conflicting *information*
  4. Methods for *validation*, calibration and testing of probabilistic forecasts
Where next?

• Addressing the four key challenges

  1. **Attitude:** focus on the *added value* of an analysis of uncertainty – additional information

  2. **Specificity:** *bespoke approaches*, tailored to specific needs of different users and audiences

  3. **Information:** two-way *interaction* with users, with exchange of knowledge

  4. **Validation:** more *methodological research* is needed for dependent data series
Where next?

• Change the discourse about uncertainty: from the lack of knowledge, towards confidence
• Transparency about uncertainty is associated with honesty, humility, and trust
• Focus on decisions and their consequences
• **Success stories:** meteorology, aviation, or even macro-economic regulation
• **Communication is key!**
Endnotes

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• The views expressed in the paper are exclusively those of the authors, and should not be attributed to any institution with which they are affiliated.

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