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Volumes

Articles

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Why population forecasts should be probabilistic - illustrated by the case of Norway

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Abstract
Deterministic population forecasts do not give an appropriate indication of forecast uncertainty. Forecasts should be probabilistic, rather than deterministic, so that their expected accuracy can be assessed. We review three main methods to compute probabilistic forecasts, namely time series extrapolation, analysis of historical forecast errors, and expert judgement. We illustrate, by the case of Norway up to 2050, how elements of these three methods can be combined when computing prediction intervals for a population's future size and age-sex composition. We show the relative importance for prediction intervals of various sources of variance, and compare our results with those of the official population forecast computed by Statistics Norway.

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