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# PROBABILISTIC POPULATION AND HOUSEHOLD FORECASTS FOR THE NETHERLANDS

Submitted by Statistics Netherlands[1]

**Abstract**

Population forecasters have a long tradition of explicitly stating the uncertainty of their forecasts by means of specifying alternative variants. In addition to a medium variant, usually high and low variants are published. One problem in using high and low variants is that it is unknown how likely it is that the interval between these variants will cover the actual population size. Probabilistic population forecasts provide information about the probability that a specific forecast interval will cover the true future value. The development of high speed computers has made it possible to make probabilistic forecasts by means of simulations. The probability distribution of future population is assessed on the basis of assumptions about the degree of uncertainty of future fertility, mortality, and migration.

In assessing the uncertainty of household forecasts one major question is how low and high variants should be specified. It is not evident whether one should combine the high population variant with high or low average household size. Since the high population variant is based on high fertility, it seems logical to combine the high population variant with large household size and similarly the low population variant with small family size. However, this would imply that the difference between the numbers of households in the low and high variants would be rather small, which may lead to underestimating the degree of uncertainty of household forecasts. On the other hand combining high population growth with low household size may lead to overestimating uncertainty. One benefit of making probabilistic household forecasts is that the forecaster does not need to choose one combination of population and household variants.

This paper discusses concisely the methodology of making probabilistic population and household forecasts. The focus of the paper is on the way the underlying assumptions are specified. The discussion is based on the analysis of Dutch data.

[1] Prepared by Joop de Beer and Maarten Alders.