**Poster 1405**

The projection of the number of households for UN member countries
Utopia or valuable approach?

Sabine Springer (INED/IEDUB)

Objective & Model

The model was developed by UN-Habitat (former UNCHS) and the results first published in the Global Report on Human Settlements 1996(1). Its main objective is to provide household projections for all UN member countries either by projecting observed values (by size or based on the total number) or, in case of insufficient data, through estimation.

The original model proposes 3 different modules in function of the available data. The indicator projected is the *ratio between the number of households and the population aged 15 years and more*. Modified exponential functions, one for positive and one for negative trends, are used for the projection of the observed values.
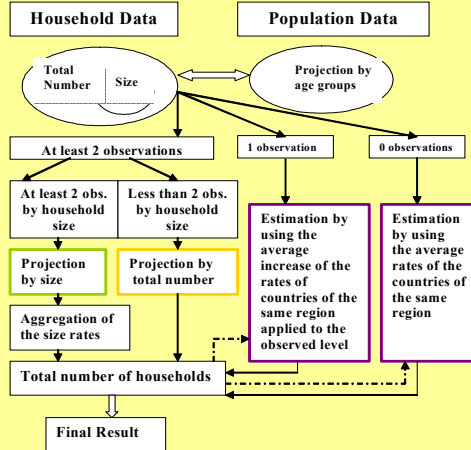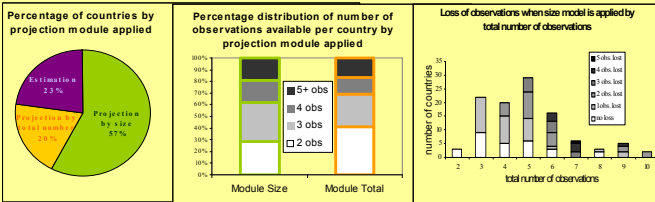

Data

At least two censuses with detailed information on households by size are needed for the correct application of the model, otherwise the ratio between the total number of households and the adult population are used.

The 184 countries with population projections by age groups provided by the UN Population Division display very disparate pattern of availability of information on households by size.

An other problem consists in the loss of information in the case a country has at least 2 censuses with information on households sizes, but also some years with only aggregated data. The size model will ignore this last information.



Comparability & methodological problems

- Differences in definitions between countries
- Change of the definition of households in national time series
- Data quality/reliability can not be checked for each country separately
- Danger of missing values or misclassification for households by size
- Changes in the national data collection method
- Condition of monotone data series not always respected
- Important percentage of countries with decreasing trends
- Use of size model causes loss of information on only total number of households (size details not available for all censuses)
- No specific model for aggregated data
- Pattern in the evolution of the rates that can not be modeled by a modified exponential function

Example: Changing trends and omission of observations
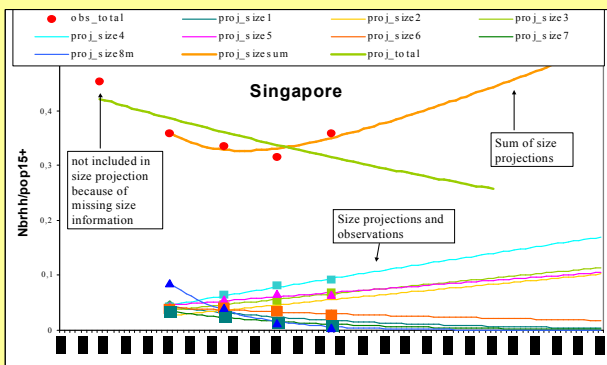
The case of Singapore illuminates the possibilities of the size module to model changing trends in the ratio households/adult population, and the limitations of the projection based on the total number. On the other hand, the lesser availability of data on households by size reduces the number of observations, often the most recent, included in the projection using the size module.

Example: Oscillating observations
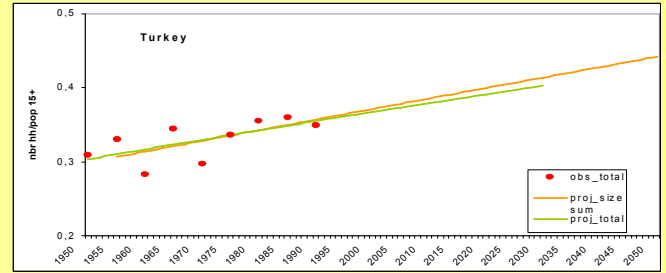
For a certain number of countries the observations do not allow the identification of a clear trend, for others, as for instance Turkey, the observations oscillate around a general trend. In this case the projection model can provide acceptable results, while otherwise the creation of a module taking into account different forms of evolution should be considered.

Comparison with other projections:

National projections of different sources and the results of the projection model HOMES (1) have been used in order to evaluate the plausibility of the results of the UN model. Since national projections have been available for only a small group of countries, the scope of this evaluation is very limited, especially for developing, and more specifically, African countries.
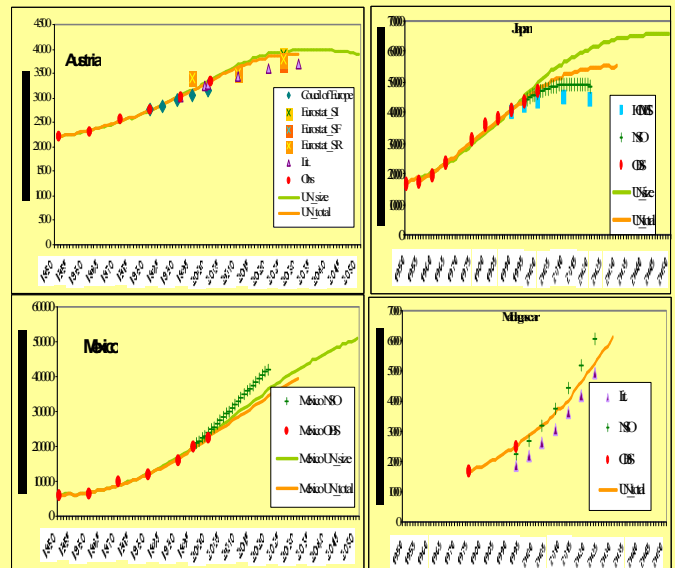
The projection by size and by total number can either give identical results or can be more or less divergent, depending on the evolution of the different household size trends. *Austria* is a good example for the quality of the results in case all the assumptions of the model have been respected, and the differences to the national projections are not very large.

For *Mexico*, the results of the UN model are always lower than those obtained by a national source, but also these differences are not very large.

Japan serves as an example for the problems encountered when the tendency starts to slow down or even changes direction. The results of the different projection model are quite divergent. While the results obtained on the basis of the household size information indicates a continuous increase in the number of households, the national model and the HOMES model indicate a change in the tendency in the future.

Finally, the case of *Madagascar* shows that the results obtained on the basis of two observations without specifications of the households by size can be reasonably close to those obtained by a more sophisticated model.

Conclusion

While the model as a whole can not be rejected since its results are quite satisfactory for a certain number of countries, modifications that take into account the following deviations from the main assumptions of the model have to be considered:
- lack of detailed census information on household size, above all for recent periods
- trend pattern, such as not monotonous series, that can not be modeled by a modified exponential function
- decreasing ratios of total number of households and adult populations

Nevertheless, the model has proven to be very useful for the projection of the number of households for countries with smooth and continuous trends for the ratio "households/adult population". By accepting a lesser degree of precisions it can also be used for countries with some deviations from the main assumptions. Furthermore, the model allows the addition of further modules in order to project those forms of household formation that can not be expressed by modified exponential functions.

Acknowledgments & Main Reference: