

Old and alone? Projecting the future family situation of German elderly using SOCSIM

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Introduction

As population ageing is putting more and more pressure on European social security systems, political decision-makers increasingly demand projections about future demographic developments in order to plan political reforms accordingly. Germany is one of the European countries, where the political effects of early population ageing have been particularly evident over the past decade due to budget constraints, high unemployment, and very low fertility rates. At the same time detailed population projections for Germany are practically not available.

This paper aims at providing future demographic prospects for Germany until the year 2040 using the micro simulation approach. Special attention will be paid to the family situation of the elderly, here defined as people aged 55+. The main goal of the simulation is to show future changes in the relative size of this age group and to highlight what kind of overall composition of the German population may occur. The number of elderly people is expected to grow significantly over the next decades, in particular those being childless over their whole life course. However, it still remains an open question, how big the magnitude of these changes will be. This is of high political relevance as people aged 55+ may be the main target group of future social reforms.

The paper first gives a brief overview of existing population, household and kinship projections for Germany. In the second part we provide an overview on the method applied, especially on the data requirements for micro simulations and data restrictions in the German case. Part 3 presents the results of the simulation and compares them to existing projections. We conclude with a discussion of possible social policy implications.

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Methodological approach and data

In order to forecast the future family situation of German elderly, we use SOCSIM, a demographic micro simulation programme based on Monte Carlo projections of kinship structures. In contrast to macro simulations, the fundamental unit in micro simulations is the individual member of the population. Main advantages of this method are its capacities to handle a large state space with many covariates, to explicitly retain the relation of individuals, and to provide a rich output including the probabilistic distribution of outcomes.

The drawback of this method is that it requires extensive time-series data. For example, to simulate the period 2005 to 2040, which was the aim of this study, one actually has to start off the simulation at around 1950, i.e. detailed vital rates for the period 1950 to 2004 are needed: age- and sex-specific mortality rates by marital status, age- and parity-specific fertility rates by marital status, age- and sex-specific first marriage rates, age-specific divorce rates by duration of marriage, and age- and sex-specific re-marriage rates. Only a part of these data was available for Germany and could be obtained from the Human Mortality Database, Eurostat, the Fertility Database at the Max Planck Institute for Demographic Research, and the Federal Statistical Office (Destatis). Some rates, e.g. first and re-marriage rates had to be calculated from raw data provided by Destatis. Furthermore, we developed a new approach based on the Lee Carter Model in order to estimate missing age-specific fertility rates by parity for the period 1985 to 2005.

Preliminary results

Existing population projections by the German Federal Statistical Office are mainly scenario-driven and do not provide any information on kinship structures. In our paper we provide additional information on Germany's future demographic development and its possible social policy implications. Our micro simulation (baseline scenario with constant rates at the levels of the year 2004) predicts that the German population will not only age but that its kinship structure is very likely to change significantly, too. In 2004, 38 % of people aged 55+ were not married. This proportion will increase to over 60 % by the year 2040, i.e. the current ratio will be reversed (see figure 1).

We will further post-process the obtained SOCSIM output in order to analyse the development of childlessness among elderly people for the same period of time. We will also run further simulations based on other scenarios than the baseline one in order to account for the range of possible future demographic developments.

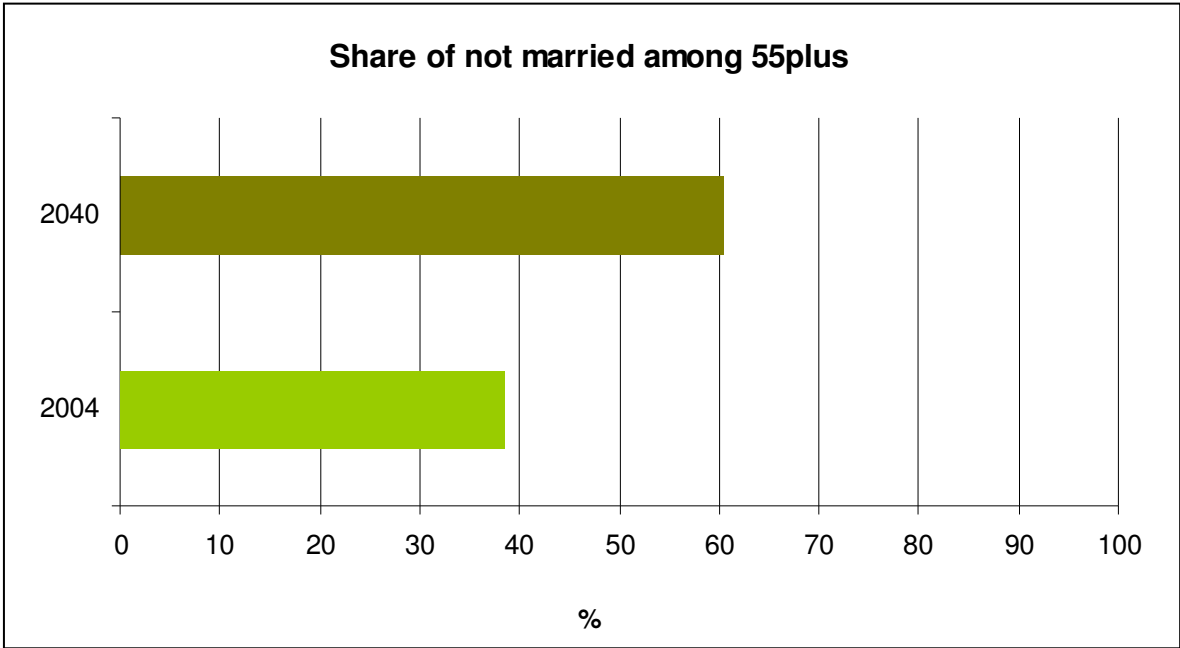


Figure 1: Proportion of not married people aged 55+ in Germany for the years 2004 and 2040