

Preface

In 2018, the Czech Statistical Office (CZSO) changed the methodology for processing of life tables. The change lies mainly in an innovation of the function for smoothing of real mortality rates and in an innovation of the function for modelling of mortality at high ages. For smoothing of real mortality rates, which are common part of life tables processing, the CZSO newly choose the generalised additive model (the GAM method) combined with the so-called P-splines. Instead of the previously used (exponential) function of Gompertz-Makeham the life tables of the CZSO newly introduce the function of Kannisto for modelling of mortality at high ages, which belongs to logistic functions. The logistic model is in compliance with studies confirming deceleration in mortality increase with age and is also used in the international Human Mortality Database.

The choice of a suitable smoothing and modelling method is not unequivocal and can change in time, among others with regard to statistical methods development or development of mortality. Also for these reasons, the life tables (and resulting life expectancies) processed by the CZSO, Eurostat, the World Health Organization (WHO) etc. are not completely identical.

Mainly for monitoring of dynamics of mortality development, the CZSO prepared a retrospective set of life tables calculated uniformly by using of the new methodology. The time series of life tables for the Czech Republic covers the period since 1920; in the period 1938–1944 it is limited to the Czech population of the Protectorate of Bohemia and Moravia. In the case of life tables for smaller territorial units, the retrospection concerns the period since 2001. All life tables were computed separately for males and females.

To exclude random fluctuations, the life tables for cohesion regions and regions were calculated for a two-year period (starting with the period of 2001–2002) and the life tables for the districts for a five-year period (starting with the period 2001–2005). Nevertheless, low numbers of deaths and used (in time and spatially uniform) methodology for smoothing and modelling the observed mortality rate can stand behind the fluctuations in time series.

The life tables are detailed i.e. by single year of age with an open age interval for 105+. The basic input data are the data on the number of deaths and mid-year population by age and sex in the given year, which has the CZSO at disposal and uses in its outputs. Only the input data available for both deaths and population at single age detail entered into the calculation (for example in the years 1920–1924 the input data for ages of 0–94 years included). The input data always referred to the regional breakdown valid on 1 January of the given year of the event.