

## **Demographic transition, population growth, demographic ageing – interrelations and development contexts at the regional level**

### **Abstract**

This thesis aims to examine how the timing and pace of the demographic transition correlated with the timing and pace of ageing at the regional level in Czechia and also to contribute to understanding the determinants and evolution of demographic transition, specifically mortality and fertility decline, and connect it with the population ageing. It is a common belief that ageing is the result of demographic transition, but there is a limited number of studies that investigate the interrelations between these two processes. The greatest challenge was the difficulty in comparing historical and current data caused by changes in the administrative division during 1868–2017. Thus, the recalculation of data was needed to analyse trends in mortality and fertility. 2011 statistical units at the level of districts were chosen as basic units for analysis. The data recalculation was preceded by the reconstruction of historical districts maps and population data estimation for intercensal periods. Data were recalculated using spatial overlays in GIS software and database processing operations both for population and vital statistics. This step was followed by the data analysis. Evolution of mortality and fertility levels was analysed. Districts were grouped by the timing and pace of demographic transition, but also by the onset and pace of ageing in order to identify similarities and differences among them. For the ageing chapter, age structures (0–14, 15–64, 65+) and old-age dependency ratio values were analysed. For understanding the roots of ageing, the interrelations between demographic transition and ageing were determined by using correlations and linear regression analysis. The results show a close link between the geographical position and demographic transition and ageing, and over time, the differences among districts are decreasing. Changes in age structure after the Second World War constituted a challenge for our research. However, we attempted to minimize their impact by selecting only the districts that didn't face substantial changes in age structure. The correlation between demographic transition and ageing showed relationships of moderate strength between the duration of demographic transition and speed of ageing, and the onset of demographic transition and proportion of population aged 65+ at the onset of ageing. Main contributions of this research are related to the original recalculation methodology of long historical data series going across multiple administrative division reforms of the country and the results related to the interrelations between demographic transition and ageing.

**Keywords:** demographic transition, fertility decline, population ageing, recalculation, interrelations, districts, Czechia