HMD R-packages

László Németh, Carl Boe, HMD Team

October 31, 2019

The Human Mortality Database is probably the most frequently used database in mortality research among demographers and scholars of many other disciplines. The data are of extremely high quality and harmonized enabling all researchers to conduct analysis of mortality not only including one single country separately but also facilitate comparisons across multiple countries. The database is maintained by joint efforts of a team with members affiliated with the Max Planck Institute for Demographic Research in Rostock, Germany and Berkeley, University of California.

The Human Mortality Database contains carefully checked life tables that have been compiled using strict standards and similar procedures. Vital statistics provide raw data, birth and death counts, while population counts are derived from periodic censuses or official population estimates. Sources of raw data and exact methodology of specific adjustments for each population are well documented. The method protocoll describes all the procedures applied creating the final data published online.

Before the data are published on the project website, mortality.org, processing the data consists of three steps. The work procedure was established in MATLAB and SAS. However, these scripts are not available to the public. The HMD team would like to present the details of this procedure for the users and enhance the reliability of the database even further by providing open source R-packages for users.

This paper introduces and describes the following three steps, R-packages related to the workflow of the HMD.

1. Raw input data $\rightarrow$ Lexis database conversion

2. Lexis database $\rightarrow$ construction of life tables and statistics

3. Diagnostic checks

The workflow starts with processing the raw data after – if necessary – country-specific adjustments. The raw data are transformed into so called Lexis database files with the HMD methodology applied (eg. intercensal estimates, old age mortality adjustment, etc.). Based on the unified Lexis database files life tables and other statistics are constructed. Before publication the country specialist runs the diagnostic checks to control for potential mistakes or ireggularities present in the dataset that is extensively documented and published with the data.

Figure 1: The current user interface for HMD Diagnostic Checks