

Overview (April 2018)

For many developing countries, life tables are estimated using only child (or child and adult) mortality and model life tables. But the deaths at old ages are already more than at other ages, worldwide and in developing countries. The Developing Countries Mortality Database (DCMD) provides life tables for developing countries, using empirical estimates of child, adult, and old-age mortality, and the three-input-parameter model life table. Child and adult mortality are estimated by UNICEF (www.childmortality.org) and IHME (<http://www.healthdata.org/>), respectively. Data on old-age mortality are estimated using the DCMD methods. The three-input-parameter model life table is part of the DCMD methods. Child, adult, and old-age mortality is the probability of dying between ages 0 and 5, 15 and 60, and 60 and 75 years, respectively.

The DCMD methods include the *Census method*, the *three-input-parameter model life table*, *validation*, *multiple-year-period life tables*, *single-year life tables*, and *complete life tables*. The *census method* uses census population at old ages to estimate the old-age mortality for the multiple-year period between two successive censuses. Using the estimated old-age mortality, and together with the child and adult mortality estimated by UNICEF and IHME, the *three-input-parameter model life table* calculates the abridged life tables for the multiple-year period between two successive censuses. Using data from the Human Mortality Database (HMD) and the model life table that utilizes only child and adult mortality, the *validation* indicates that the errors of fitting old-age mortality are reduced for more than 70% of all the countries in HMD. *Multiple-year-period life tables* utilized population census data for all the developing countries after the year 1970 (after which the IHME estimates are available), estimated old-age mortality, and calculated abridged life tables for all the countries and periods with proper data. *Single-year life tables* collected data from death registration and reported in census for all the developing countries after the year 1970, estimated the additional old-age mortality, and provided single-year life tables using local regression. Finally, *Complete life tables* (in preparation) are constructed using the abridged life tables into complete life tables.

In DCMD, developing countries refer to the countries in the less developed regions defined by the United Nations Population Division (<http://www.un.org/en/development/desa/population/>), which include all Africa, Asia (excluding Japan), Latin America and the Caribbean, and part of Oceania (excluding Australia and New Zealand). In 2015, there are 151 developing countries with more than 100 thousand population. The DCMD methods could estimate old-age mortality for countries that have at least two population censuses after 1970. Further, these censuses should have open age groups older than 75 years. Furthermore, the number of population in a certain age group enumerated in an earlier census should be larger than the corresponding survivors in a later census. Finally, between two successive censuses, there should not be significant change in territory or population definition. Among the 151 developing countries, 122 had the censuses satisfied the above conditions. Subsequently, the DCMD provided life tables for the 122 countries, of which 43 are in Africa, 41 in Asia, and 38 in Latin America and the Caribbean, and Oceania.

Some developing countries have reliable data on both death and population. The DCMD life tables are not recommended to be used to replace the life tables provided by the National

Statistics Agency (NSA) of these countries. Nonetheless, comparing the life tables of the DCMD and NSA of these countries could obtain valuable evaluations about the accuracy of the DCMD methods, or suggest proper ways to improve the DCMD methods.

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