Technical notes[1]

Table 9a (**Expectation of life at specified ages for each sex: 1948–1997**) presents expectation of life at specified ages for each sex for as many years as possible between 1948 and 1996.

Description of variables: Expectation of life is defined as the average number of years of life which would remain for males and females reaching the ages specified if they continued to be subjected to the same mortality experienced in the year(s) to which these life expectancies refer.

The table shows life expectancy according to an abridged life table as reported by the country. Values from complete life tables are shown in this table only when an abridged life table was not available.

Male and female expectations are shown separately for selected ages beginning at birth (age 0) and proceeding with ages 1, 2, 3, 4, 5, 10, l5, 20, 25, 30, 35, 40,45, 50, 55, 60, 65, 70, 75, 80 and 85 years.

Life expectancy is shown with two decimals regardless of the number of digits provided in the original computation.

The data come mainly from the official life tables of the countries or areas concerned. Where official data are lacking, estimates of life expectancy at birth, prepared by the Population Division of the United Nations Secretariat, are included. These estimates have been prepared by use of the techniques described in the *United Nations Manual on Methods of Estimating Basic Demographic Measures from Incomplete Data* [25] and the application of assumed rates of gain in life expectancy based on model life tables[26] and other information. United Nations estimates are identified in the table by footnotes.

Life table computation: From the demographic point of view, a life table is regarded as a theoretical model of a population which is continuously replenished by births and depleted by deaths. The model gives a complete picture of the mortality experience of a population based on the assumption that the theoretical cohort is subject, throughout its existence, to the age-specific mortality rates observed at a particular time. Thus levels of mortality prevailing at the time a life table is constructed are assumed to remain unchanged into the future until all members of the cohort have died.

The starting point for the calculation of life-table values is usually the computation of death rates for the various age groups. From these rates other functions are derived, and from the latter functions survival ratios are derived, expressing the proportion of persons, among those who survive to a given age, who live on and attain the next age level.

The functions of the life table are calculated in the following sequence: (1) m_x, the death rate among persons of a given age, x; (2) q_x, the probability of dying within a given age interval, (3) l_x, the number of survivors to a specific age from an assumed initial number of births; (4) L_x, the number of years lived collectively by those survivors within the given age interval; (5) T_x, person-years lived by a hypothetical cohort from age x and onward; and (6) $e_o x$, the expectation of life of an individual of given age.

In all these symbols, the suffix "x" denotes age. It denotes either the lower limit of an age group or the entire age group, depending on the nature of the function. In standard usage a subscript "n" precedes each of these functions. In a complete life table n is 1 and is frequently omitted. In an abridged life table by five-year age groups, "n" becomes 5.

The life-table death rate, q_x, expresses the probability that an individual about to enter an age group will die before reaching the upper limit of that age group. In many instances the value shown is 1 000 q_x. For a complete life table, 1 000q_{10}=63.0 is interpreted to mean that of 1 000 persons reaching age 10, 63 will die before their eleventh birthday. From an abridged life table $1,000q_{10} = 63$ is interpreted to mean that of 1 000 persons reaching age 10, only 63 die before their fifteenth birthday.

The number of survivors to the given exact age is symbolized by l_x, where the suffix 'x' indicates the lower limit of each age group. In most life tables, 100 000 births are assumed and the l_x function shows how many of the 100 000 reach each age.

Expectation of life, e_x, is defined as the average number of years of life which would remain for males and females reaching the ages specified if they continued to be subjected to the same mortality experienced in the year(s) to which these life expectancies refer.[27]

Reliability of data: Since the values shown in this table come either from official life tables or from estimates prepared at the United Nations, they are all considered to be reliable. With regard to the values taken from official life tables, it is assumed that, if necessary, the basic data (population and deaths classified by age and sex) have been adjusted for deficiencies before their use in constructing the life tables.

Limitations: Expectation-of-life values are subject to the same qualifications as have been set forth for population statistics in general and death statistics in particular, as discussed in sections 3 and 4, respectively, of the Technical Notes.

Perhaps the most important specific qualifications which can be set forth in connection with expectation-of-life values is that they must be interpreted strictly in terms of the underlying assumption that surviving cohorts are subjected to the age-specific mortality rates of the period to which the life table refers.

Coverage: Expectation of life at specified ages for each sex is shown for 203 countries or areas.

Earlier data: Expectation of life at specified ages for each sex has been shown in previous issues of the *Demographic Yearbook*. Data included in this table update the series covering a period of years as follows:

ISSUE	YEARS COVERED
Special Issue	1900–1990
Historical Supplement	1948–1977
1981	1972–1980
1948	1896–1947

25. Manuals on Methods of Estimating Population, Manual IV: Methods of Estimating Basic Demographic Measures from Incomplete Data (United Nations publication, Sales No. 67.XIII.2). See also Indirect Techniques for Demographic Estimation (United Nations publication, Sales No. E.83.XIII.2).

26. Manuals on Methods of Estimating Population, Manual III: Methods for Population Projections by Age and Sex (United Nations publication, Sales No. 56.XIII.3); Coale, A. J. and Demeny, Paul, Regional Model Life Tables and Stable Population, Princeton, Princeton University Press, 1966).

27. For further information on the construction and interpretation of life tables, refer to Manuals on Methods of Estimating Population, Manual III: Methods for Population Projections by Age and Sex (United Nations publication, Sales No. 56.XIII.3).