

Table 1a – Special Topic Volume 1

Table 1a presents population by single years of age by sex and urban/rural residence for each census 1985 - 2003.

Description of variables:

Age is the estimated or calculated interval of time between the date of birth and the date of the census, expressed in completed solar years.¹ Age is an inherent attribute of individuals and represents a basic type of demographic information collected about individuals in censuses. The classification of population by age is a core element of most analyses of the social and demographic characteristics of the population, as well as estimation and projection of population statistics. The age classification generally used in this table is the following: under 1 year, single years from 1 to 99, 100 years and over and age unknown.

Data in this table are from population censuses. Data obtained from sample surveys are shown for those countries or areas where no census of the total population was held during the period. These have been footnoted. Data refer to the de facto (present-in-area) population, unless otherwise indicated.

The urban/rural classification of population by age and sex is that provided by each country or area; it is presumed to be based on the national census definitions of urban population. National definitions are displayed in the Demographic Yearbook 2001 and 2002, table 6.

Age data are subject to a number of sources of error and non-comparability. Accordingly, the reliability of age data should be of concern to nearly all users of these statistics.

Reliability and limitations of data:

(a) Collection and compilation of age data

Age is commonly determined by either of two methods. The first method is to ask for the date of birth for each member of the population in a census or survey and then to calculate the completed age of the individual by subtracting the date of birth from the date of enumeration.² The second method is to record the individual's completed age at the time of the census that is the age in years at last birthday. For infants this is recorded in months, weeks or days from the actual birthday.

The recommended method is the first method, namely to convert the date-of-birth information to age at last birthday by subtracting the exact date of birth from the date of the census. This age, which will be in the largest units of completed time, i.e., years, months, weeks, days, can then be classified into age groups. Some countries or areas, however, instead calculate the difference between the year of birth and the year of the census. Data of this type are footnoted whenever possible. They can usually also be identified to a certain extent by a smaller than expected population under one year of age. However, an irregular number of births from one year to the next or age selective omission of infants may obscure the expected population under one year of age. It should further be noted that the date-of-birth type of question may be of limited applicability in situations where a large proportion of the population is illiterate or unable, for other reasons, to give the exact date of birth.³ On the other hand, the direct question on age also may be answered incorrectly, either through ignorance or deliberate misstatement. Differences between countries and areas in the method of converting date-of-birth data into age is a source of non-comparability of data.

(b) Errors in age data

Errors in national census data can arise at any stage of the collection, processing or presentation process. These errors may limit the quality and international comparability of census statistics presented in the Demographic Yearbook. Two major types of errors in census data are often distinguished: first, *coverage errors*, which lead to the over-enumeration or under-enumeration of the population in the census, second, *content errors*, which affect the accuracy of the recorded information for the covered population. Because coverage errors may occur more frequently among some population sub-groups than others,

¹ *Principles and Recommendations for Population and Housing Censuses*, Revision 1, para. 2.87 (ST/ESA/STAT/SER.M/67/Rev.1).

² Alternatively if a population register is used, completed ages are calculated by subtracting the date of birth of individuals listed in the register from a reference date to which the age data pertain.

³ *Demographic Yearbook 1960*, United Nations publication, Sales No. 61.XIII.1.

coverage errors may affect not only the absolute number of persons in any given category but also their relative distribution. Levels and patterns of coverage and content errors differ widely among countries and even, often times, from census to census for a specific country. Further limiting the international comparability of census statistics are variations among countries in the concepts, definitions and classifications used in their censuses.

Both such errors are more important in relation to certain age groups than to others. For example, under-enumeration is usually more prevalent among infants and young children than among older persons. Similarly the exclusion from the total population of certain groups which tend to be of selected ages (such as the armed forces) can markedly affect the age structure and its comparability with that for other countries or areas. Consideration should be given to the implications of these basic limitations in using the data.

Content errors in age data may be due to a variety of causes, including misstatements due to ignorance of correct age; carelessness in reporting and recording age; a general tendency to state age in figures ending in certain digits (such as zero, two, five and eight); a tendency to exaggerate length of life at advanced ages; possibly subconscious aversion to certain numbers such as 13; and wilful misrepresentations. These reasons for errors in reported age data occur to varying extents in many countries or areas, and they may impair comparability of the data to a marked degree. Another source of non-comparability of age data between countries and areas is reporting years of age in terms of a calendar concept other than completed solar years since birth.⁴

As a result of the above-mentioned difficulties and differences, the age-sex distribution of population in many countries or areas shows irregularities which may be summarized as follows : (1) a deficiency in number of infants and young children, (2) a concentration at ages ending with zero and five (that is, 5, 10, 15, 20...), (3) a preference for even ages (for example, 10, 12, 14...) over odd ages (for example, 11, 13, 15...), (4) unexpectedly large differences between the frequency of males and females at certain ages, and (5) unaccountably large differences between the frequencies in adjacent age groups. Comparison of identical age-sex cohorts from successive censuses, as well as study of the age-sex composition of each census, may reveal these and other inconsistencies.

The absence of frequencies in the unknown age group does not necessarily indicate completely accurate reporting and tabulation of the age item. It is often an indication that the unknowns have been eliminated by assigning ages to them before tabulation, or by proportionate distribution after tabulation.

The comparability of data by urban/rural residence is affected by the national definitions of urban and rural used in tabulating these data which tend to vary considerably from one country or area to another.

(c) Evaluation of accuracy

One way to measure the accuracy of data by age is Whipple's Index, or the Index of Concentration, which is based on the evidence of irregularities in 5-year groups. Whipple's Index is presented in table 1c.

Coverage and earlier data:

Population by single years of age and sex is shown for 145 countries or areas. Data are presented by urban/rural residence for 92 countries or areas.

Population by single years of age and sex has been published in issues of the Demographic Yearbook featuring population census statistics as the special topic. Data in this table updates information published in those issues.

⁴ A source of non-comparability may result from differences in the method of reckoning age, for examples, the Western versus the Eastern or, as it is usually known, the English versus the Chinese system. By the latter, a child is regarded as one year old at birth and his age advances one year at each Chinese New Year. The effect of this system is most obvious at the beginning of the age span where the frequencies in the under-one-year category are markedly understated. The effect on higher age groups is not so apparent. Distributions constructed on this basis are often adjusted before publication, but the possibility of such aberrations should not be excluded when census data by age are compared.