WORLD FERTILITY DATA 2019

Metadata

Suggested citation: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Fertility Data 2019*. POP/DB/Fert/Rev2019. Available from
https://www.un.org/en/development/desa/population/publications/dataset/fertility/wfd2019.asp

World Fertility Data 2019 presents data on age-specific fertility rates, total fertility and mean age at childbearing for 201 countries or areas of the world. The database includes data from civil registration systems, population censuses, and sample surveys available as of August 2019 and covers the time period from 1950 to the present.

The *World Fertility Data* database builds on the historical repository of demographic data and census and survey reports collected over the past 50 years by the Population Division and Statistics Division of the Department of Economic and Social Affairs (DESA) of the United Nations Secretariat. Data derived from censuses are generally reported by National Statistical Offices to the Statistics Division. Census data are also obtained from official census publications produced by National Statistical Offices. Estimates based on data compiled from civil registration systems are generally obtained from National Statistical Offices. Additional sources of data include the Demographic and Health Surveys (DHS), the Multiple Indicator Cluster Surveys (MICS), the Reproductive Health Surveys (RHS), the Statistical Office of the European Union (Eurostat), the Human Fertility Database (HFD), the Human Fertility Collection (HFC), the Pan-Arab Project for Child Development Surveys (PAPCHILD), the Pan-Arab Project for Family Health Survey (PAPFAM), national surveys, as well as fertility estimates produced by the Population Division of DESA.

This revision of the database was prepared by Lina Bassarsky and Kyaw Kyaw Lay, under the supervision of Victor Gaigbe-Togbe. Assistance on programming was provided by Kyaw Kyaw Lay. Giulia Gonnella assisted the team with reviewing metadata. This database builds upon a previous edition, *World Fertility Data 2017*, to which the following contributed: Kirill Andreev, Helena Cruz Castanheira, and Stephen Kisambira. The Population Division extends thanks to our colleagues in National Statistical Offices for providing the requested data, reports and answering our numerous questions regarding the data.

World Fertility Data 2019 charts are available from https://population.un.org/dataportal/home. Along with fertility data, the charts also show the latest estimates of fertility levels and trends published in the *World Population Prospects 2019* (United Nations, 2019), for illustrative purposes. The empirical data used for deriving estimates in *World Population Prospects 2019* are not necessarily the same as reported in *World Fertility Data 2019* due to the time lag between the two publications. Moreover, fertility estimates in *World Population Prospects 2019* may incorporate additional adjustments to account for cohort sizes in consecutive censuses.

Definitions

Age-specific fertility rate (ASFR) measures the annual number of births to women of a specified age or age group per 1,000 women in that age group. An age-specific fertility rate is computed as a ratio. The numerator is the number of live births to women in a particular age group during a period of time, and the denominator is an estimate of the number of person-years lived by women in that same age group during the same period of time. It is expressed as births per 1,000 women. The following seven five-year age groups of mothers at time of birth are presented in the database: 15-19, 20-24, 25-29, 30-34, 35-39, 40-44 and 45-49.

Total fertility (TF) is the mean number of children a woman would have by age 50 if she survived to age 50 and was subject, throughout her life, to the age-specific fertility rates observed in a given year. The total fertility is expressed as the number of children per woman. Total fertility is computed as the sum of age-specific fertility rates divided by 1,000:

$$TF = \frac{5}{1,000} \sum_{a=15-19}^{45-49} f_a$$

Where f_a is the age-specific fertility rate for women in age group a.

Mean age at childbearing (MAC) is the mean age of mothers at the birth of their children, calculated under the assumption that women are subject through age 50 to the age-specific fertility rates observed in a given year. It is computed as the sum of age-specific fertility rates weighted by the mid-point age of each age group, divided by the sum of the age-specific rates:

$$MAC = \sum_a x_a f_a \Big/ \sum_a f_a$$

where x_a is the mid-point of each age interval (17.5, 22.5,…47.5.) and f_a is the age-specific fertility rate for women in age group a.

Unless otherwise specified, the reference period for the age-specific fertility rates presented in *World Fertility Data 2019* is the calendar year.

Data sources

Data on age-specific fertility rates can be obtained from three sources: civil registration systems, sample surveys and censuses. Data from civil registration systems are considered to be of good quality if they cover 90 per cent or more of all live births taking place within a country or area[1]. Censuses and sample surveys are the main sources of data on fertility in countries that either lack a civil registration system or have a registration system where coverage is too incomplete to be utilized for statistical purposes.

---

[1] For further information on coverage of birth registration see:
http://unstats.un.org/unsd/demographic/CRVS/CR_coverage.htm

Fertility data have been compiled from web sites, online databases, reports and other publications produced by national statistical systems, the United Nations or by other international and regional organizations. The main databases used are the Demographic Yearbook database of the Statistics Division of the Department of Economic and Social Affairs of the United Nations Secretariat (http://data.un.org, https://unstats.un.org/), internal databases of the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (http://www.unpopulation.org), Eurostat (http://ec.europa.eu/eurostat/data/database), Human Fertility Database (https://www.humanfertility.org) and Human Fertility Collection (https://www.fertilitydata.org). The main surveys utilized are the Demographic and Health Surveys (DHS), the Multiple Indicator Cluster Surveys (MICS), the Reproductive Health Surveys (RHS), the World Fertility Surveys (WFS) and other nationally-representative surveys.

Data limitations

Civil registration systems are considered the best source of information on age-specific fertility rates. However, estimates based on civil registration data are subject to limitations that depend on the completeness and coverage of birth registration. Comparability of data is also affected by the treatment of infants born alive but who died before registration or within the first 24 hours of life, the quality of the reported information relating to age of the mother, and the inclusion of births from previous periods. The population estimates used as denominators may suffer from limitations connected to age misreporting and coverage.

In countries where civil registration systems are lacking, surveys and censuses can be utilized to estimate age-specific fertility rates. Such information is generally obtained from questions regarding the number of live births that occurred in the household in the 12 months preceding the census or survey enumeration, commonly known as "recent births", questions on the date of birth of the last child born alive in the household or, in the case of surveys, from collecting information on full retrospective birth histories. Censuses usually cover the whole country and the vast majority of surveys are designed to be nationally representative.

Compared to data from well-functioning civil registration systems, fertility estimates derived from survey data tend to be less reliable due to sampling errors and recall biases, since they are based on a sample of the population and rely on the ability of individuals to recall with accuracy an event that took place several months or years before the survey. Fertility estimates derived from data on recent births collected in censuses are also less reliable than estimates derived from complete civil registration systems because of the omission of some births, often resulting in underestimates of fertility. Information on (cumulative) parity collected through questions on children ever born is often used to adjust direct fertility estimates using variants of the Brass P/F method (Moultrie and others, 2013; United Nations, 1983). Furthermore, whereas civil registration systems produce annual estimates, the availability of survey and census data depends on the timing of surveys and censuses. Censuses are generally conducted every ten years, while surveys are undertaken at varying, usually multi-year, intervals. Among large, cross-national survey programmes such as the Demographic and Health Surveys, surveys typically take place every three to five years.

This dataset includes both adjusted and unadjusted data. For adjusted data, estimates derived by several methods are included when available. Additional information on the type of method used to produce fertility estimates is included, when known, in the database. For data compiled directly from the census reports, only official estimates are included. Unadjusted data should not be taken at face value for providing information on the level of fertility in a country. However, estimates based on unadjusted data have been included in the dataset for analytical purposes and to reflect the uncertainty and variability of estimates derived from different data sources.

References

Moultrie TA, RE Dorrington, AG Hill, K Hill, IM Timæus and B Zaba (eds) (2013). *Tools for Demographic Estimation*. Paris: International Union for the Scientific Study of Population. Available from https://demographicestimation.iussp.org/

United Nations (1983). *Manual X: Indirect Techniques for Demographic Estimation*, Sales No. E.83.XIII.2. New York: United Nations. Available from www.un.org/esa/population/publications/Manual_X/Manual_X.htm

United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*. Available from https://population.un.org/wpp/

United Nations, Department of Economic and Social Affairs, Statistics Division (2004). Handbook on the Collection of Fertility and Mortality Data. Studies in Methods Series F No.92, ST/ESA/STAT/SER.F/92. Available from https://unstats.un.org/unsd/demographic-social/standards-and-methods/