

Fertility Rates

A cohort is a well-defined group of people who have had a common experience or exposure who are observed through time. For example, the birth cohort of 1960 refers to people born in that year.

The crude birth rate is the number of live births per 1,000 population (where the population is the total population: men, women and children). It is of limited value for comparisons, because it takes no account of the age/sex structure of the population.

The General Fertility Rate (GFR) is the number of live births per 1,000 women of child-bearing age (for the purpose of calculating the rate, 'child-bearing age' is taken as ages 15-44, inclusive). This is better than the crude birth rate, but could be affected by (say) changes in the proportion of women of child-bearing age who are in the peak child-bearing years.

The Age Specific Fertility Rate (ASFR) is the number of live births per 1,000 women of a specific age in a specified period - e.g., the age-specific fertility rate for 25-29 year old women in 2008 is calculated by dividing the number of births in 2008 to women aged 25-29 by the estimated population of women of that age in that year. When 5-year age-groups are used, they are usually from 15-19 to 40-44: if so, the calculation of the fertility rate for 15-19 year olds includes in the numerator any births to mothers aged 14 and under, and the calculation of the fertility rate for 40-44 year olds includes in the numerator any births to mothers aged 45 and over. Similarly, when single year of age rates are produced, they are usually for the ages from 15 to 44 inclusive: if so, the calculation of the 15-year old rate includes any births to mothers aged under 15 in the numerator, and the calculation of the 44-year old rate includes births to mothers aged over 44 in the numerator.

The Total Fertility Rate (TFR) is the average number of children per woman that would be born to a cohort of women who experienced, throughout their childbearing years, the fertility rates of the calendar year in question. It is calculated by summing the age-specific fertility rates for each year of age in that calendar year. For example, the total fertility rate for 2008 is the sum of that year's individual fertility rates for each year of age from 15 to 44, inclusive. Because it is based on only one calendar year's births, the TFR may provide a misleading indication of the number of births that women will eventually have. For example, the TFR is likely to underestimate eventual fertility at times when women are delaying childbearing.

Average completed family size, or cumulative cohort fertility, is the average number of children per woman who were actually born as a cohort of women passed through their childbearing years. It is calculated by summing the relevant age-specific fertility rate for each of the calendar years in which the women were of childbearing age. For example, in the case of women who were born in 1960, it is calculated by summing the fertility rates for 15-year olds in 1975, 16-year olds in 1976, 17-year olds in 1977, and so on, up to 43-year olds in 2003 and 44-year olds in 2004. This approach can be used to compare the cumulative fertility of different cohorts as they pass through the childbearing ages - for example, one can compare the cumulative fertility by age 30 of those born in 1958 (based on their births up to and including 1988) and those born in 1978 (based on their births up to and including 2008). However, women's

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future fertility is not certain, so one cannot produce a precise final figure for the cumulative fertility of a given cohort until they are at least 45 years old (e.g., in theory, a cohort which had had relatively low cumulative fertility at age 30 could 'catch up', to some extent, with other cohorts as a result of having relatively high fertility rates in their older childbearing years).

The gross reproduction rate is the average number of live daughters that would be born to a cohort of women who experienced, throughout their childbearing years, the fertility rates of the calendar year in question. And the net reproduction rate is the average number of these live daughters that, subject to the mortality rates of the calendar year in question, would survive to the mothers' age at the time of birth.