

INDICATOR ANALYSIS

FERTILITY RATE

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How is this indicator calculated?	"Total fertility is the sum of age-specific fertility rates weighted by the number of years in each age group. An age- or age-group-specific fertility rate is calculated as the ratio of annual births to women at a given age or age-group to the population of women at the same age or age-group, in the same year, for a given country, territory, or geographic area" (1).
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GLOBAL TRENDS

What are the global patterns for this indicator?	There has been a significant decline in fertility rates worldwide. Globally, the rate has dropped from more than 5 in 1965 to just below 2.5 in 2017. There is a negative correlation between development and fertility. Lower income countries have had a much smaller decline over the last five decades (6.53-4.80) compared to middle income countries (5.71-2.37). High income countries also had a small decline, although they were significantly lower to begin with (2.81-1.70) (2).
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UTILITY

What does the indicator measure?	The average number of children a woman would have at the end of her reproductive period if subject to the fertility rates of a given period (1).
What does it NOT measure - what does it miss?	Total fertility does not provide information on the ages at which women bear children and does not take into consideration terminated pregnancies, miscarriages, or deaths at childbirth.
If and how does the indicator relate to interface/relationship among health, gender and fragility/stability	Fertility rate is negatively correlated with development and thus the health and wealth of a country. Alternatively, child mortality has a positive correlation with fertility rate; as child mortality decreases, so does fertility rate (2). However, there is strong evidence of a child replacement effect in conflict affected settings. Although, this varies depending on the type of violence exposure a woman has had. Additionally, a reduction in the local sex ratio due to conflict is negatively associated with fertility (3). Lastly, decreasing fertility rates demonstrates a women's ability to exercise her right to make informed and free choices over if, when, and how many children she would like to have (2).

AVAILABILITY

Sources for indicator (CRVS, DHS etc - include links)	<p>Data collection:</p> <ol style="list-style-type: none"> 1. Civil registration system (preferred) 2. Census data 3. Demographic and Health Surveys (DHS) 4. Reproductive Health Surveys (RHS), 5. World Fertility Survey (WFS) 6. Multiple Indicator Cluster Surveys (MICS) 7. Contraceptive Prevalence Surveys (CPS) 8. Other nationally sponsored surveys. <p>Reporting:</p> <ol style="list-style-type: none"> 1. Demographic Yearbook produced by the Statistics Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2009-2019): https://unstats.un.org/unsd/demographic-social/products/dyb/dyb_2019/ 2. World Bank Data Bank (1960-2019) : https://data.worldbank.org/indicator/SP.DYN.TFRT.IN 3. The WHO's Global Health Observatory (1991-2019) https://www.who.int/data/gho/data/indicators/indicator-details/GHO/hem-total-fertility-rate-(per-woman) 4. Human Fertility Database (1932-2018): https://www.humanfertility.org/cgi-bin/main.php
Most recent data available;	The most recent dates available through the World Bank is 2019 for the majority of countries; however, some countries' most recent statistics date back to 2002 (4).
Availability across geographic areas	Available in most countries through the World Bank Data Bank (4). Estimates from the Demographic yearbook and Human Fertility Database are more limited in space and time.
Availability in conflict affected settings	<p>There may be limited availability of data during conflict and/or emergencies as the structures that support civil registration systems may be threatened or destroyed. Moreover, displaced populations or those experiencing ethnic, racial or religious discrimination, may be excluded from systems of birth registration for political purposes (5).</p> <p>The World Bank Data Bank provides values with no gaps between 1970-2019 for Yemen, South Sudan, Libya, Somalia, DRC, Afghanistan and Syria.</p>

GRANULARITY	
<i>Disaggregation at national level</i>	
Data disaggregated by sex	N/A.
Data disaggregated by identity group (race, ethnicity)	No.
Data disaggregated by income	No. Some surveys cover this but the aggregated results for all countries would not be comparable.
Data disaggregated by citizenship	No.
Data disaggregated by migration background	No.
<i>Disaggregation at sub-national level</i>	
Data disaggregated by geographic region;	Yes, the WHO's Global Health Observatory offers survey data at the provincial level for some countries in 2015 (1). The UN's demographic yearbook also offers urban and rural estimates.
Data disaggregated by identity group (race, ethnicity);	No.
Data disaggregated by income.	No.

SOURCES OF BIAS	
What bias can exist with these data?	Selection and recall bias are possible when surveys are used to collect data. There is also the possibility of misinterpretation of the reference period in retrospective estimates of fertility rates and under reporting of home births if facility data are used.

VALIDITY	
Clear and accepted international standards for indicator;	Clear methods have been developed to calculate fertility and are widely used and accepted.

Validity of measurement of indicator generally accepted;	Depending on the data source there is high validity.
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RELIABILITY

Reliability of indicator generally accepted;	Fertility rate is a commonly used metric because it is reliable. Although, use of vital statistics and census data are more reliable than survey data.
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COMPLEXITY

Enables analysis across time and location.	Fertility rate statistics are used for comparisons across time and location. However, methods and quality of data source may vary over time and in different settings thus making comparisons more difficult to interpret.
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OTHER REFLECTIONS

<p>Are indicator values imputed/modelled?</p>	<p>UN's demographic yearbook: Values are not modelled or imputed. The report makes use of a coding system to differentiate data sources and completeness.</p> <p>Human Fertility Database: Values are based on the use of statistical models (6). The website also provides country specific documentation presenting the sources and quality of the data used to compute values.</p> <p>WHO's Global Health Observatory: Population data used to calculate fertility rate is taken from the United Nations World Population Prospects which model some of their values and offer a description of country specific methods and data sources used to derive estimates in their metadata documentation (7). <i>Uncertainty bounds are provided with estimates and should be considered during analysis.</i></p> <p>World Bank: The World Bank specifies where data is sourced for each country on its Databank [5]. Most values from the World Bank are derived from the United Nations World Population Prospects estimates which model some of their values and offer a description of country specific methods and data sources used to derive estimates in their metadata documentation (7). <i>Uncertainty bounds are not provided with estimates. As such, the metadata documentation should be consulted to see methods and data used to derive country specific estimates prior to analysis. Caution should be exercised when comparing model derived values that are based on limited data.</i> Note: In the metadata documentation, indirect estimation refers to "any estimation method that depends upon models or uses consistency checks, or indeed uses conventional data in an unconventional way" (8) .</p>
<p>Other reflections on debates, accuracy, etc.</p>	<p>Fertility is used in Caprioli's 2005 study – together with female percentage of labour force – to show how gender inequalities are correlated with internal conflict (9).</p>

References

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