



Selecting adolescent birth rates (10-14 and 15-19 years) for monitoring and reporting on Sustainable Development Goals

Stephen Kisambira and Karoline Schmid**

Abstract

This technical paper presents the challenges and procedures for assessing and selecting the data on adolescent fertility for monitoring the implementation of the Sustainable Development Goals (SDG).

The Population Division of the Department of Economic and Social Affairs is the custodian agency for SDG indicator 3.7.2, “Adolescent birth rate (aged 10–14 years; aged 15–19 years) per 1,000 women in that age group”. As such, the Division develops and recommends international standards and a methodology for the estimation and monitoring of this indicator, compiles country data and metadata and it estimates regional and global aggregates for inclusion in the Global SDG Indicators Database and in the annual Sustainable Development Goals reports. Before 2022, the Division had provided estimates and reported on adolescent fertility only for women aged 15–19 years. In October 2020, the Population Division convened an expert group meeting to assess the coverage, accuracy and consistency of the data and estimates related to early adolescent fertility, including births to girls aged 10-14 years, and to develop standards for the measurement and future reporting on early adolescent fertility in this age group.

This technical paper follows up on the recommendations of an expert group meeting and provides an additional specification of the procedures used in selecting, reporting and monitoring the data for indicator 3.7.2.

We review the experience of data collection, assessment and selection for the Millennium Development Goals (MDG) and SDG reporting on the levels and trends of the adolescent birth rate among women aged 15-19 years, at the country and regional levels. We then explain how the existing procedures for data evaluation and selection can be extended to the assessment and selection of data for reporting on fertility among girls aged 10-14 years. The paper concludes with a presentation of the challenges in estimating, assessing and selecting early adolescent birth rates.

Keywords: Adolescent fertility, adolescent birth rate, SDG Indicators, under-15 fertility, under-15 births.

Sustainable Development Goals: 3

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The Population Division of the Department of Economic and Social Affairs provides the international community with timely and accessible population data and analysis of population trends and development outcomes. The Division undertakes studies of population size and characteristics and of the three components of population change (fertility, mortality and migration).

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I. INTRODUCTION

The Population Division of the United Nations Department of Economic and Social Affairs produces the estimates of fertility and other demographic variables at the global, regional and country levels. It contributes to the development of the methodology for estimating and evaluating the levels and trends of adolescent fertility.

The Programme of Action (PoA) of the International Conference on Population and Development (ICPD) adopted in Cairo, Egypt in September 1994, sought to substantially reduce all adolescent pregnancies and to protect and promote the rights of adolescents to reproductive health education, information and care (United Nations Population Fund, 2014), in line with the Convention on the Rights of the Child (United Nations General Assembly, 1989).¹ The Programme of Action recognized that valid, reliable, timely and internationally comparable data form the basis for policy and programme development, implementation, monitoring and evaluation. However, many gaps remained in the quality and coverage of demographic data series, including statistics on births. Prior to the adoption of the Cairo Programme of Action, the principal sources of demographic data were vital statistics and population censuses, as well as a growing number of sample household surveys. For example, the World Fertility Survey (WFS) programme had conducted household surveys in 41 developing countries and collaborated on surveys in developed countries. The Contraceptive Prevalence Surveys (CPS) programme had carried out 43 surveys in 33 countries, more focused on family planning. The Demographic Health Survey (DHS) program was established in 1984 and was designed as a follow-up to the WFS and the CPS. The DHS Program conducted 58 standard surveys in 46 countries before the International Conference on Population and Development (ICPD) in Cairo.

Following the adoption of the Cairo Programme of Action in 1994, the data collection including women of childbearing ages was scaled up. For example, the DHS Program has since conducted and completed 225 standard surveys in 80 countries. During the same period, the Multiple Indicator Cluster Surveys (MICS) programme by UNICEF has conducted and completed 227 surveys in 110 countries. Most data on adolescent fertility in countries with incomplete vital statistics come from household surveys, which collect data on girls and women aged 15 to 49 years. The expansion of data availability from more sources, combined with an increase in computer capacity and improved software, have yielded improvements in the evaluation and estimation of adolescent fertility. The estimation techniques vary and depend on the types of data source, whether from the birth registration system, censuses or surveys. The application of different methods yields different estimates of the adolescent birth rate, even some for the same reference year for a given country. This technical paper lays out the procedures for selecting the adolescent birth rates (ages 10-14 and 15-19 years) for purposes of SDG monitoring and reporting.

A critical aspect in measuring progress towards the achievement of the Goals and targets of the 2030 Agenda for Sustainable Development (2030 Agenda) is to make high-quality statistical information available, in accordance with the Fundamental Principles of Official Statistics² and the Principles Governing International Statistical Activities.³ As the custodian agency for SDG indicator 3.7.2.

¹ States Parties to the Convention on the Rights of the Child committed themselves "to take all effective and appropriate measures with a view to abolish traditional practices prejudicial to the health of the children" (United Nations General Assembly, 1989, Article 24.3).

² <https://unstats.un.org/unsd/dnss/gp/fundprinciples.aspx>.

³ https://unstats.un.org/unsd/ccsa/principles_stat_activities.

Adolescent birth rate (ages 10-14 and 15-19),⁴ the Population Division is tasked with providing accurate, timely, disaggregated and internationally comparable data and information on the SDG Indicators under its purview to the Global SDG Indicators Database. This includes the development of methods and standards for data collection and verification, and to establish transparent mechanisms for adjusting or estimating the data in consultation with the concerned countries.

For most countries, there is more than one observation (or data point) of the adolescent birth rate for some years, obtained from different types of data sources and methods of estimation. However, the Global SDG Indicators Database admits only one data point to be reported for each year and country, requiring the Population Division to select only one data point for each year and country, drawn from the available statistical data sources. The Division has consequently developed internal guidelines to aid the selection of the data points that are consistent with the levels and trends in the adolescent birth rate for a given country. To the extent possible and as appropriate, this should be done in consultation with the respective national statistical offices or other pertinent national data producers.

Prior to the establishment of the SDG framework, the Population Division had routinely gathered, estimated and assessed the data on childbearing among women in the main reproductive ages (15 to 49 years), including adolescent women aged 15-19 years.⁵ As will be explained in what follows, a set of criteria, tools and guidelines aided the evaluation and selection of data points for monitoring the levels and trends of fertility among women aged 15-19. The baseline fertility levels among women aged 15-19 have been set for almost all countries and areas. Following the specification of SDG indicator 3.7.2 to include adolescent births to girls aged 10-14, the Division began to examine the available data for births to these younger girls, with a view to start reporting these data for SDG monitoring.

This technical paper reviews the experience from the data gathering, assessment and selection of data points for the MDG and SDG reporting on the levels and trends of the conventional adolescent birth rate among women aged 15-19 years at country and regional levels. It outlines the criteria and procedures developed by the Population Division to address gaps in the data, evaluating the differences in fertility estimates using various estimation methods and data sources. The paper then discusses how the existing procedures of data evaluation and selection could be applied to the assessment and selection of data for the SDG reporting on childbearing among girls aged 10-14 years. We conclude with an overview of the challenges in estimating, assessing and selecting early adolescent birth rates.

⁴ The Population Division of the United Nations is the custodian agency of SDG indicator 3.7.2 on adolescent birth (aged 10-14 years; aged 15-19 years) per 1,000 women in that age group and indicator 3.7.1 on family planning satisfied with modern methods. A custodian agency is an organization responsible for developing and recommending international standards and methodologies for the monitoring of SDGs. Other responsibilities include compiling and verifying internationally comparable country data and metadata, estimating regional and global aggregates, using the data for thematic reporting and inclusion in the Global SDG Indicators Database.

⁵ The global indicator framework for the Sustainable Development Goals (SDGs) expanded the scope of the target of ensuring universal access to sexual and reproductive health-care services to include the birth rate of adolescent girls aged 10-14 years. The global indicator framework was developed by the Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs).

II. CHALLENGES OF STUDYING VERY YOUNG MOTHERHOOD

A. DEFINITION OF ADOLESCENCE AND ADOLESCENT FERTILITY

Adolescence is defined as the period following the onset of puberty during which a young person develops from a child into an adult. The global average age menarche, one of the markers of the onset of puberty among girls, is around 12 years. The most common onset of the transition to adulthood is generally considered to occur between the ages of 20 to 21 years but the transition is multifaceted and some transitions to adult life may occur earlier or later and within a shorter time frame and through different modalities within the same society (Juárez and Gayet, 2014; Eliason and others, 2015). Adolescence can be defined as covering the ages 12 to 19 years or 10-19 years to encompass the conventional quinquennial age groups 10-14 and 15-19 years. However, the Convention on the Rights of the Child defines a child as every human being below the age of eighteen years unless under the law applicable to the child, majority is attained earlier.⁶ In many jurisdictions, the age of majority is set at age 18 or higher, suggesting that one approach in determining the period of adolescence is to focus on persons aged 12 to 17 years (United Nations, 2012).

The base population for calculating the indicators of sexual and reproductive health of young adolescents is often limited to females (and males) aged 15-19 years, a legacy of data collection programmes that focused on the most fertile period of the female reproductive life span, the age range of 15 to 49 years. Although childbearing at ages below 15 years has historically been rare in many countries, the global decline in the age of menarche, the rising age at marriage and changing societal values (National Research Council and Institute of Medicine, 2005; Prentice and others, 2010; Pathak and others, 2014; Song and others, 2015) are widening the window of girls' susceptibility to pre-marital sexual activity and pregnancy and to low gynaecologic age.⁷

In many societies today, girls are marrying later than their mothers and grandmothers but continue to start sexual activity early. Within this window, the needs and challenges of young females aged 14 and younger are markedly different from older adolescents. Girls who begin sexual activity at young ages take longer to initiate contraceptive use and their risk of unintended pregnancy is high (Finer and Philbin, 2013). They are also less likely to use contraception at first sexual intercourse (Guleria and other, 2017) due in a large part to the lack of information and restrictions to using contraception (Finer and Philbin, 2013), and consequently, have a much higher unmet need for family planning than older women (MacQuarrie, 2014; Kantorová and others, 2021; Li and others, 2020).

In societies where marrying off underage girls is still common, the power dynamics within the household disadvantage the child brides. In such societies, girls who marry early more often participate in arranged marriages to much older boys or men (de Silva-de-Alwis, 2008), have less decision-making power and communication with their husbands (Santhya and others, 2011; Erulkar, 2013) and are more likely to be in polygamous unions than if they marry later (Erulkar and Bello, 2007). Child marriage exerts additional pressures and expectations upon the young brides, including the expectation of pregnancy soon after marriage. Married adolescents are less likely than unmarried adolescents of the same age to use contraceptives to delay a first pregnancy (United Nations, Department of Economic and Social Affairs, 2013).

⁶ <https://undocs.org/A/RES/44/25>.

⁷ Defined as conception within 2 completed years of menarche.

Studies define young motherhood using different criteria based on age and other characteristics (Phipps and Sowers, 2002). Very young teenage mothers have generally been excluded from research and data collection or they have been grouped in ad-hoc age categories, such as 12 to 14 or 14 to 16 years, without providing a rationale for choosing specific ages to include in the analyses. Estimates of childbearing among very young adolescents from household surveys are normally obtained from the birth histories collected from all or married women aged 15 years or older in sampled households, not from the questions about current/recent births in household surveys asked of women in the main reproductive ages. Also, in censuses and household surveys, most or all questions, including those related to fertility, are generally answered by the household head or reference person, not necessarily by the woman or girl who gave birth.⁸

A disaggregation of the adolescent age span into three groups (ages 10-14, 15-17 and 18-19) has been proposed (Dixon-Mueller, 2008), considering the physiological readiness of the female body for childbearing, the stage of cognitive development, and normative social expectations and legal requirements governing the transition to adulthood. Although most girls who experience menarche early will be physically mature enough for childbearing at ages 15-17 years, many of those aged 10-14 are not physiologically and cognitively ready for sexual intercourse and pregnancy (Dixon-Mueller, 2008). Some studies suggest that “early adolescent childbearing” can be defined as giving birth at age 15 years or younger, because the proportion of poor birth outcomes is lower and begins to stabilise starting at age 16 years. A study of rates of preterm delivery, low birth weight, small-for-gestational-age and infant mortality (Phipps and Sowers, 2002; Akseer and others, 2022) by maternal age found that, starting at the age of 16 years, these four indicators of poor birth outcome were lower than among mothers aged 15 years or younger (Phipps and Sowers, 2002; Akseer and others, 2022). Another study of childbirth outcomes among adolescent mothers in Latin America found that mothers under the age of 16 faced higher risks of morbidity and adverse pregnancy outcomes, compared to mothers aged 16 to 17 and 18 to 19 years (Conde-Agudelo and others, 2005).

Most data and research on adolescent childbearing focuses on women aged 15 to 19 years, and less attention is devoted to those under age 15. Childbearing has been found to be rare to nil among young adolescents under 12 years of age in most countries,⁹ while it is not so uncommon among adolescents aged 15 or less, for example in Angola, Bangladesh, Cameroon, Gabon, Guinea, Madagascar, Mali, Mozambique, Niger, Nigeria and Sierra Leone, where, in 2010-2017, 8 to 15 per cent of girls already had had a child by the age of 15 (Finer and Philbin, 2013; United Nations, Department of Economic and Social Affairs, 2020a). Among the major regions of the world, elevated levels of childbearing among girls aged 10-14 (6 or more births per 1,000 girls) appears to be much more common in countries of sub-Saharan Africa and Latin America and the Caribbean than those in other regions, with the notable exception of Bangladesh in Asia. Childbearing under age 15 is also positively correlated with fertility in later adolescence (15-19), with total fertility and population growth rates (United Nations, Department of Economic and Social Affairs, 2020a).

Measurement issues and data sources on early childbearing are discussed at some length in a recent report by the Population Division (United Nations, Department of Economic and Social Affairs, 2020a). In sum, data on fertility among girls under age 15 are scarce and often unreliable. Birth registration or reporting is incomplete or otherwise deficient. In many cases, births among girls aged 10 to 14 years are unintended and, in some cases, a consequence of forced sexual intercourse. But that is not always the case, particularly

⁸ A more detailed discussion of data sources for early adolescent fertility data can be found on the website of the expert group meeting on the evaluation of adolescent fertility data and estimates convened by the Population Division from 26-27 October 2020: <https://un.org/development/desa/pd/events/EGM-on-the-evaluation-of-adolescent-fertility-data-estimates-for-SDG-reporting>.

⁹ In more than 200 DHS surveys, there were 9 births reported at age 11 and 1 birth at age 10 in the five years preceding the survey (Croft and others, 2018).

where early and child marriages and early childbearing are common and positively sanctioned by the community, for example in sub-Saharan Africa and in South Asia.

Global estimates show that as of 2019, of all births, one in four had not been registered with a civil authority. The estimated figure for South Asia is one in three, and one in two for sub-Saharan Africa. In all other regions of the world, completeness of birth registration ranges from 95 per cent in Latin America and the Caribbean to 99 per cent in Eastern Europe and Central Asia, and 100 per cent in Western Europe and Northern America.¹⁰

B. COMPUTATION AND DATA SOURCES

The data required to calculate the adolescent birth rate can be obtained from three sources: civil registration systems, population censuses or population-based surveys.¹¹ When the coverage of the vital registration system and vital statistics (CRVS) is complete or nearly so, data from it provide more accurate estimates of fertility than data from censuses or surveys. The data on births from censuses typically include both recent births and lifetime fertility (the number of children ever born). These data are very useful and have the advantage of having nearly universal geographical coverage, but they can be prone to errors like the possible omission of dead children and older children who have left home and the misreporting of the age of mother. The data on births from surveys include both the summary information on lifetime fertility (also collected in censuses) and a detailed birth history from mothers which include questions about each child's date of birth, whether the child is still living and the date of death if the child is deceased. But the estimates from surveys are based on limited samples and might be subject to substantial standard errors, which diminish the reliability of the estimated results. However, some household surveys, such as those conducted by the DHS Program have increased sample sizes as the technology for collecting and processing large data sets has improved and become more cost-effective. Generally, we consider complete or nearly complete data from the CRVS to be preferable to data from household surveys, and data from the household surveys to be preferable to data from censuses. The estimation methods developed thus far depend on the data available.

The adolescent birth rate (ABR) is computed as the ratio of the number of live births to females aged 19 years or younger, within a given year or other reference period, to the exposure to childbearing by adolescents in the same age range.¹² The computation is commonly aggregated for age groups 10-14 and 15-19 years but can also be computed by single years of age.

Data from civil registration systems are considered of good quality if the coverage as reported by the national registration systems is 90 per cent or more of all live births taking place within a country or area. Information on global coverage of birth registration can be found on the website of the United Nations Statistics Division.¹³ Estimates based on civil registration systems, national projections and vital statistics from censuses are provided by national and international agencies or obtained from other published sources. For many countries that either lack a civil registration system or have a registration system where the coverage is too incomplete to be utilized for statistical purposes, censuses, sample surveys and survey-based estimates are used.

¹⁰ <https://data.unicef.org/topic/child-protection/birth-registration/>; accessed on 9 December 2019 (data updated in March 2019). This dataset draws on household surveys, but also on national civil registration systems to monitor levels and trends in birth registration.

¹¹ Often, estimates of childbearing among very young adolescents (below age 15) from household surveys are obtained from the birth histories collected from all or married women aged 15 years or older in sampled households, not from current/recent births as is customary for females in the main reproductive ages in household surveys and as is typically recorded in vital statistics.

¹² Details of the computation methods are described elsewhere (United Nations, 1983; United Nations, Department of Economic and Social Affairs, 2004). The calculation of the early adolescent birth rate (10-14 years and the underlying assumptions are provided elsewhere (Way, 2014; MacQuarrie and others, 2017; Croft and others, 2018; Pullum and others, 2018).

¹³ http://unstats.un.org/unsd/demographic/CRVs/CR_coverage.htm.

The Population Division maintains a database on fertility rates from different sources including estimates produced by National Statistical Offices and regional statistical units (United Nations, Department of Economic and Social Affairs, 2017, 2019). Existing data since the last annual round of SDG reporting are updated from various sources up to a specified cut-off date—usually by the end of January of the reporting year. When a new revision of the *World Population Prospects* has been published (generally every two years),¹⁴ the adolescent birth rate computed from civil registration data are recalculated using the revised female population from the *World Population Prospects*. When updating the ABR dataset, the Population Division collaborates closely with the regional economic commissions (especially with the Population Division of ECLAC) as well as with the United Population Fund (UNFPA) for assistance in obtaining country data that might be available but not yet published. Also, the UNFPA assists in requesting that data that the Population Division deems questionable be verified by the National Statistics Office or another pertinent government agency.

In 2018, the Population Division commissioned a study to estimate the fertility rates of women by 3 and 5-year retrospective periods from about 435 microdata sets in international survey programs, including the adolescent fertility rates among girls aged 10-14 years (Schoumaker, 2019). The study included a disaggregation of the fertility rates by single years of age and by various characteristics or sub-populations relevant for the 2030 Agenda for Sustainable Development, such as urban/rural, years of education and household wealth quintile. Those data on the adolescent birth rate for ages 10 to 14 years have been integrated in the fertility database.

¹⁴ *World Population Prospects* is the official United Nations population estimates and projections prepared by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (<https://population.un.org/wpp/>).

Table 1. Distribution of data points and of countries or areas¹⁵ with at least one data point on the adolescent birth rate (10-14 and 15-19 years), by type of data source, 2000-2021

<i>Age group</i>	<i>Data Source Type</i>	<i>Number of Data Points</i>	<i>Number of Countries</i>	<i>Data Points (per cent)</i>	<i>Countries (per cent)</i>
10-14 years	Census	4	4	0.2	1.9
10-14 years	Estimate ¹⁶	407	37	19.1	18.1
10-14 years	Registration	1092	137	51.3	50.7
10-14 years	Survey	624	92	29.3	45.1
10-14 years	Total	2127	207	100	...
15-19 years	Census	57	42	2.8	19.7
15-19 years	Estimate	88	44	4.3	20.7
15-19 years	Registration	1318	152	64.0	71.8
15-19 years	Survey	596	99	28.9	46.5
15-19 years	Total	2059	215	100	...

Source: United Nations, Department of Economic and Social Affairs, 2017; 2019 and updated since publication of database; DemoData SQL database (<https://population.un.org/DemoData/web/>).

Note: the “Number of countries” refers to the counts of countries having data points on the adolescent birth rate (15-19 years) from each of the data source types listed in the first column during 2000-2020. Since countries can and often do have data points drawn from more than one source, the sum of the percentages shown in the last column of the table is greater than 100 (not shown).

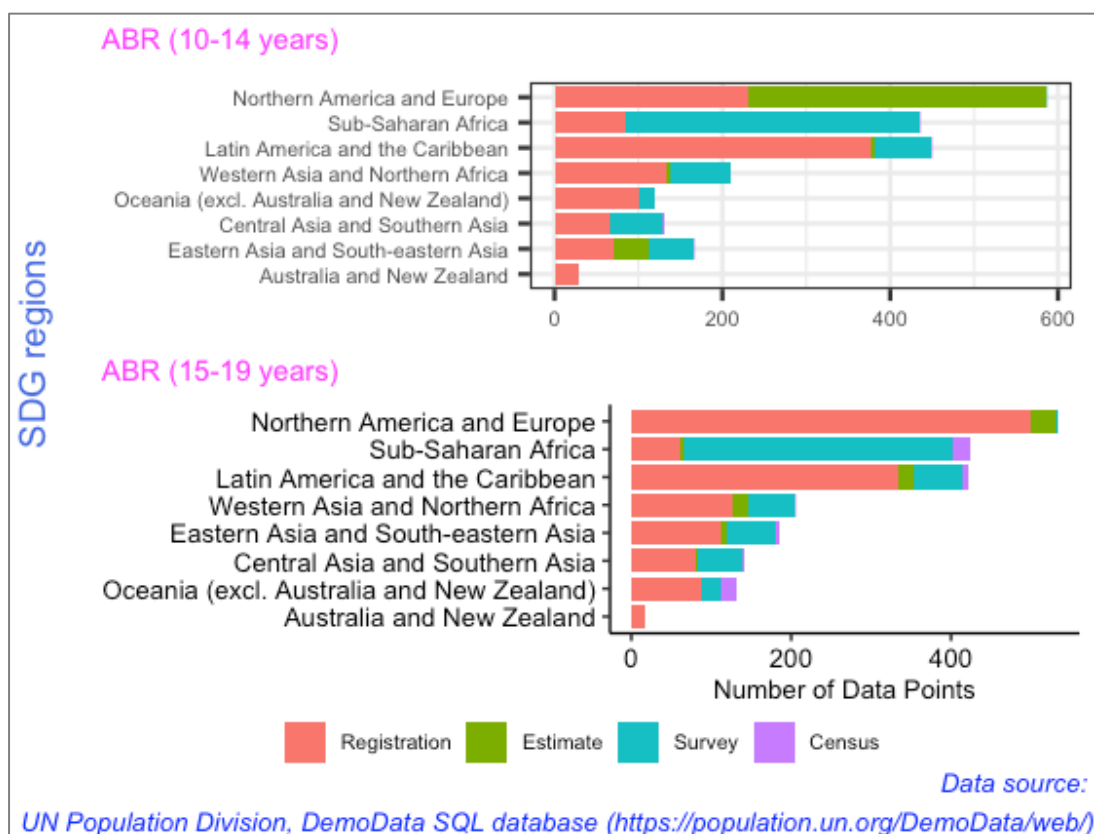
The data on the adolescent birth rates (10-14 and 15-19 years) presented in this paper are from the most recent version of the database,¹⁷ updated up to the last round of the SDG reporting in 2021. Table 1 shows the distribution of the data points drawn from the database by age group and type of data source. At least one data point on the ABR (10-14 years) is available for 207 countries or areas from 2000 to 2021 and one or more data points on the ABR (15-19 years) are available for 215 countries or areas. The largest proportions of data points on the ABR (10-14 years) and on the ABR (15-19 years) come from CRVS (66 per cent for each age group), followed by surveys (30 per cent and 28 per cent, respectively). Most data points come from registration systems in Europe and Northern America, Latin America and the Caribbean, and Northern Africa and Western Asia (figure 1). Europe and Northern Africa have a large number of data points from country estimates. Sub-Saharan Africa has a large number and proportion of data points from household surveys. The distribution of data points on the adolescent birth rate (15-19 years) by SDG region and data source is shown in annex table A.1.

¹⁵ The designations used in this paper and the assignment of countries or areas to specific groupings is for statistical convenience and do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or concerning its political or other affiliation.

¹⁶ There is no information on the type of data source on which estimates are based. Estimates include direct estimates, adjusted estimates and official national estimates.

¹⁷ DemoData is a database with structured and standardized empirical data and demographic estimates (with meta-information), designed for analysis and statistical modelling of demographic rates from multiple sources, estimation methods and variable reliability and time periods. (<https://population.un.org/DemoData/web/>).

Figure 1. Number of data points on the adolescent birth rate (10-14 and 15-19 years) by SDG regions, 2000-2020



III. DATA SELECTION PROCEDURES AND GUIDELINES

A. CONSIDERATIONS FOR SELECTION OF ADOLESCENT BIRTH RATES (15-19 YEARS)

The selection process involves three groups of data types and estimates (table 2) and it is applied to each of the 224 countries or areas with at least two data points of the ABR (15-19 years). The basic criteria to start the selection process are the availability of data of different sources and their quality, with Group 1 sources considered most preferable and Group 3 least preferable. The selection is aided by an interactive automated process and review by analysts. The automated analysis is done using R programming (R Core Team, 2021; RStudio Team, 2021). It is not uncommon that the data point from the most preferable data type or estimate is not accurate or consistent with the historical pattern of other data sources. The selection of each data point is not mutually exclusive.

Group 1:

The first priority selection is the adolescent birth rate computed as the ratio of (a) the number of live births for this age-group from civil registration systems¹⁸ in the *Demographic Yearbook* (DYB) if the coverage of birth registration is 90 per cent or more of all live births to (b) the female population of the pertinent age group from the

¹⁸ The quality of births data depends on the accuracy and coverage of the information, the treatment of infants born alive that die before registration, the quality of the reported information relating to the age of the mother, and the inclusion of births from previous periods. In some cases, the births are tabulated by year of registration rather than by year of occurrence.

latest revision of the *World Population Prospects*. When the number of births in the DYB is not the most recent data, the number of births reported by the National Statistical Offices (NSOs) is used instead.

Table 2. Selection process based on three groups of data sources and estimates

GROUP 1 (registration data are reliable and complete):	
	UNSD & WPP: Registration data from the United Nations Statistics Division (number of births only if vital registration data are considered to be reliable and complete) and World Population Prospects (population of women 15-19).
GROUP 2:	
	National statistics & WPP: When DYB data are not the most recent data, registration data from national statistics offices are used in numerator and WPP data in the denominator (population of women 15-19).
A.	National statistics: National estimates of ABR based on registration data (considered to be reliable and complete).
GROUP 3:	
A.	Survey – DHS (preliminary and final datasets)
	- birth history data: 0-2 years before survey (to get most recent estimate)
	- period 0-4 years is given higher priority over the period 5-9 year before survey)
	Exceptions: Trends from 5-9 or 10-14 years before the survey are allowed for countries with limited data. (Examples, Afghanistan 2003 from 2010 Afghanistan Mortality Survey, Angola 2003 from 2011 MIS, Gabon 2004 from 2012 DHS, 2000 for Solomon Islands Demographic and Health Survey 2006-07, Tajikistan 2005 from 2012 DHS).
B.	Survey -- Other nationally representative surveys (including MICS and national surveys)
C.	Census data from UNSD
	Census data from all other sources (adjusted have preference over unadjusted),
D.	including research articles
E.	Own-children estimate (both from survey and census data) including research articles

Group 2:

When the number of births in the DYB is not the most recent data, the number of births from National Statistical Offices (NSOs) is used in the numerator (2A). When the number of live births is not available, the direct estimate of the adolescent birth rate reported by the pertinent National Statistical System or regional organization (such as Eurostat

or ECLAC/CELADE) is selected. National estimates of the ABR are used for small countries, with a total population of less than 90,000 inhabitants, where it is not possible to estimate the adolescent birth rate using population figures from the *World Population Prospects (WPP)* because the number of women aged 15-19 is not reported in the WPP for those countries (2B).

Group 3:

In countries where the coverage of registration of births is incomplete, the adolescent birth rate is obtained from household survey data and census data. In countries with multiple nationally representative survey programmes, data from such surveys are given preference in the selection of the adolescent birth rate, mindful of the possibility of bias stemming from errors of recalling with accuracy events that took place several months or years ago. Preference is therefore given to adolescent birth rates estimated for periods as close as possible to the date of the survey. When such data are not available, the next tier of selection are adolescent birth rates obtained from other surveys using retrospective birth histories, censuses and other surveys, in that order or, in exceptional cases, other data or estimates published in analytical reports.

The rates obtained from any of these sources and estimates present challenges. For instance, the quality of the data on live births from civil registration systems is self-reported by the national statistical offices or other pertinent national data producers, without the means of cross validating the data. Adjusted adolescent birth rates might be published without providing information on the adjustment method and assumptions. Also, the reference periods used to calculate the published adolescent birth rates vary, ranging from 12 months before the census to 36 or 60 months before the survey. As noted above, these more remote reference periods may lead to more severe recall errors or omissions. It is common to find, within the same report, the current adolescent birth rate based on three-year and five-year intervals preceding the survey, even in countries with multiple nationally representative survey programmes such as the Demographic and Health Surveys (DHS).¹⁹ As noted in table 1, for countries where data are scarce, data points might be selected for reference periods more than five years before the survey.

Discrepancies in the adolescent birth rates might arise due to different sources, different denominators, different reference periods, different adjustment methods or the inclusion of births to women under 15 years of age when computing the adolescent birth rate (15-19 years). Also, discrepancies in the adolescent birth rates might arise when adolescent birth rates from data sources are calculated using direct vs. indirect estimation methods or when the birth rate is calculated using truncated birth histories. A comprehensive account of why two indicators from different sources may unexpectedly differ is provided elsewhere (Pullum and others, 2017). Where the preliminary selection yields duplicate data points for any given year, priority is given to data points provided by national statistical offices or other pertinent national data producers.

¹⁹ For the DHS datasets, the adolescent birth rates are calculated for either five-year periods preceding the survey (1-60, 61-120, 121-180 and 181-240 months before the interview date) or four-year periods (1-48, 49-96, 97-144, 145-192, and 193-240 months before the interview date). The four-year period is used where birth displacement of five years is thought to be important (Croft and others, 2018).

B. APPLICATION OF THE SELECTION PROCEDURE – PRACTICAL EXAMPLES

Figure 2. Adolescent birth rates (15-19), Bangladesh, 2000 – 2018

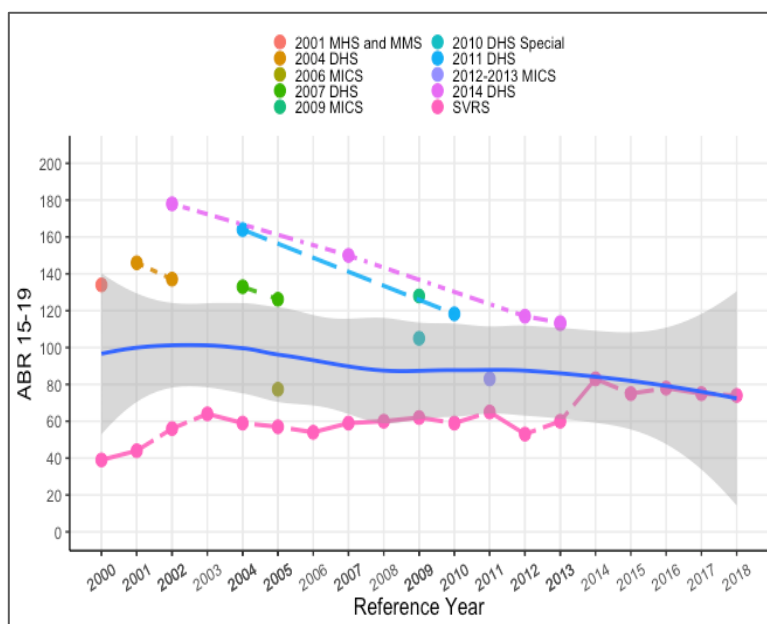
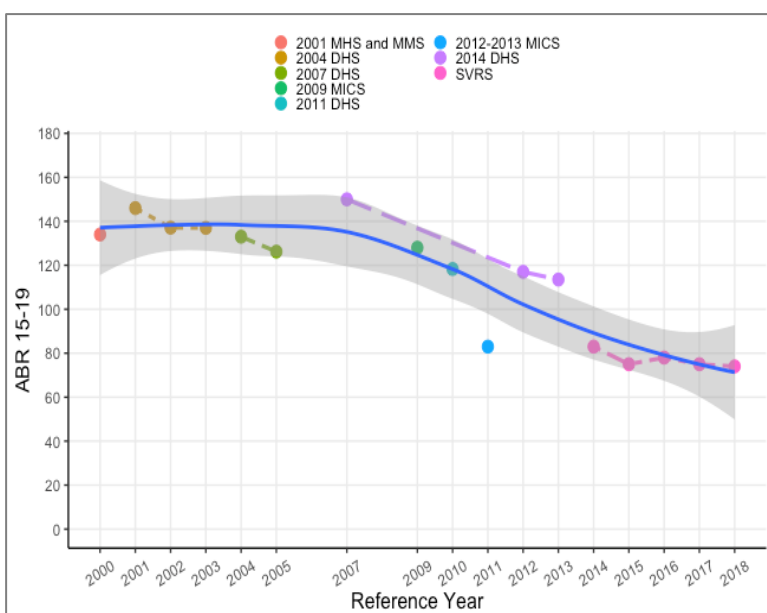


Figure 3. Adolescent birth rates (15-19), Bangladesh, 2000 – 2018



Bangladesh

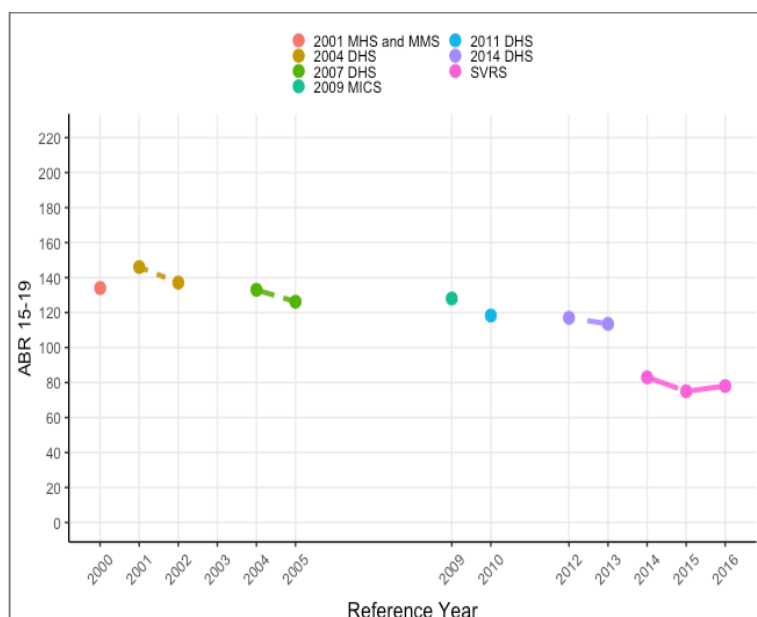
Figure 2 shows the data points for the ABR (15-19) of Bangladesh that were pre-selected using the three-tiered procedure described above and shown in table 2. The pre-selected adolescent birth rates (15-19 years) from various sources are plotted against the reference years with confidence intervals of 95 per cent to help, via a visual inspection, identify patterns and determine which of the empirical data points are closer to smoothed means of the selected data points of the adolescent birth rate based on a locally weighted least squares regression model (Cleveland, 1979).²⁰ Most of the data points that fall outside this interval would ordinarily be excluded, in particular data points based on retrospective birth histories for reference years exceeding 8 years before the survey, due to the difficulty of recalling with accuracy an event that took place several years ago. However, some “borderline” data points that are deemed plausible, based on the historical trend, are selected for further assessment (figure 3). Conversely, data points that fall within the confidence intervals are sometimes excluded by the analyst if they diverge from the plausible historical pattern.

In the Bangladesh example, birth rates obtained from the sample vital registration system (SVRS) are overall extremely low compared with those obtained from other sources, pushing

²⁰Locally weighted regression, or LOESS, is a smoothing nonparametric technique that fits a linear or quadratic function of the independent variables in a moving fashion that is analogous to how a moving average is computed for a time series. It uses a “nearest neighbours” method to smooth more local data to estimate the dependent variable.

downwards the entire confidence interval. Between 2013 and 2014, the adolescent birth rate obtained from the SRVS rise to a level that is identical to the birth rate in 2011 obtained from the 2012-2013 MICS survey (figure 2), suggesting

Figure 4. Adolescent birth rate (15-19) preselected for SDG reporting, Bangladesh



an improvement in data collection in the sample vital registration system. Following this assessment, the analyst decided to exclude the SRVS data from 2000 to 2013, the 2014 DHS data for 2002 and the 2020 DHS Special data for 2004, and to redraw the chart shown in figure 3.

The analyst then proceeded to pre-select the data points between 2005 and 2014. The adolescent birth rates obtained from the 2014 DHS survey were considered to be “borderline” data. The selection procedure instructs that where a series of data points are available from the same source and can provide an assessment of trends, those data are given preference in the selection of the adolescent birth rate if they are compatible with the values from alternative sources, pre-selected according to the selection protocol.

In the Bangladesh example, the birth rate in 2007 (from 2014 DHS) is compatible with the birth rates in 2009 and 2010 (from 2011 DHS) but it is incompatible with the declining trend in the birth rate in the preceding years. Also, the birth rate in 2007 is far removed from the date of the 2014 DHS and could be erroneous. The birth rate in 2007 (from 2014 DHS) was therefore excluded (figure 4).

The next step was to connect the data points for 2005, 2009, 2010, 2012, 2013 and 2014 (in figure 3). The selection of that trend implies that the adolescent birth rate did not change much between 2005 (126 births per 1,000 women) and 2009 (128 births per 1,000 women).

The preselected adolescent birth rates are further assessed by calculating the average annual percentage change in the ABR (15-19 years). Data points that show 25 per cent or greater change in the average annual change are excluded. Such year-to-year changes in the ABR (15-19 years) are deemed implausible, based on observed historical rates of change in the adolescent birth rate among women aged 15-19 years in any given country. There are very rare exceptions to this guideline, as in the case of Bangladesh where a steep decline of 27 per cent in the adolescent birth rate occurred between 2013 and 2014, but the average annual decline from 2012 to 2014 was 17 per cent and it was consistent with the historical pattern. The analyst retained the preselected birth rates obtained from the Sample Vital Registration System for SDG reporting despite a steep decline in the adolescent birth rate 2013 and 2014. In this case, all the preselected values of the ABR (15-19) for Bangladesh (figure 4) were retained for SDG reporting in 2021.

C. COMPARISON OF THE LEVELS AND TRENDS OF THE ADOLESCENT BIRTH RATE AND TOTAL FERTILITY RATE

An argument can be made for selecting data points of the ABR (15-19 years) whose patterns, levels and trends are consistent with the patterns, levels and trends of the total fertility rate (TFR) among women aged 15-49 years. When a data source provides both the ABR (15-19 years) and TFR, it is instructive to compare the two rates. Often, high levels of the ABR are associated with high levels of the TFR. A systematic comparison of the ABR (15-19 years) and TFR has not been used to date for the selection process of the ABR (15-19 years) data for SDG reporting. We screened the 2,498 data points selected for the SDG reporting in 2020, and found that 1,856 of them have information on both the ABR (15-19 years) and the TFR. One hundred and ninety-two countries or areas have at least two pairs of those two indicators.

Figure 5. Comparison of adolescent birth rate and total fertility rate, Zimbabwe

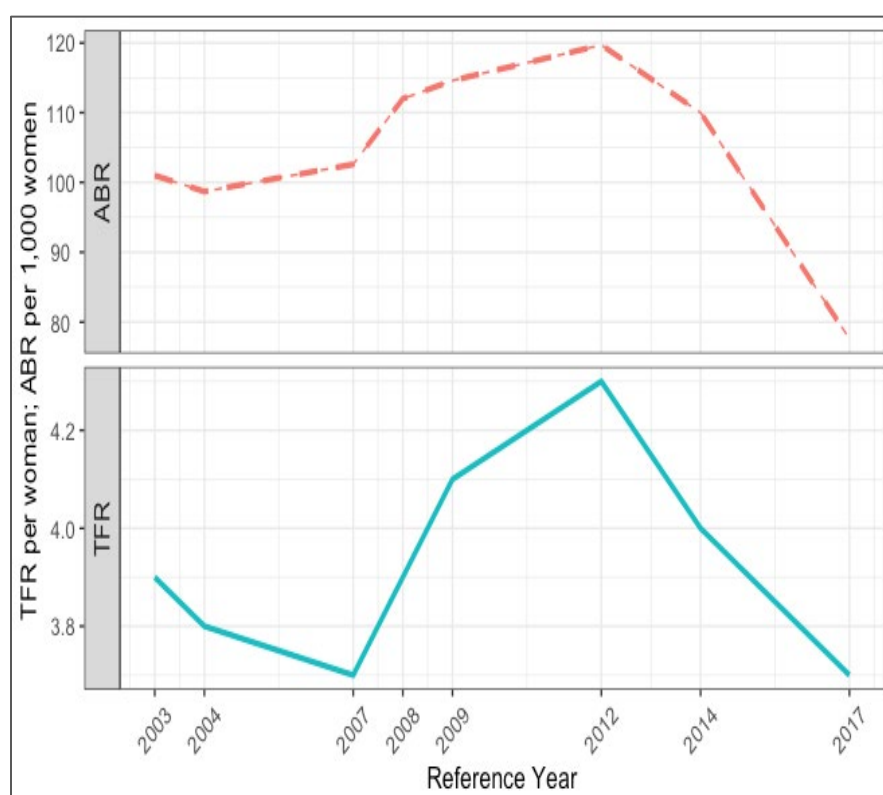


Figure 5 illustrates how a comparison of the ABR (15-19 years) and TFR could contribute to the assessment of the levels, trends and consistency of the adolescent birth rates. The levels and trends in the ABR (15-19 years) in Zimbabwe are roughly in sync with the levels and trends of the TFR, indicating that the selected ABR (15-19 years) data points are plausible and consistent with the levels of total fertility.

E. SELECTION OF ADOLESCENT BIRTH RATES (10-14 YEARS)

The adolescent birth rate (10-14 years) is calculated in a similar manner to the adolescent birth rate (15-19 years), including the procedures to obtain or calculate the numerator and the denominator with data from civil registration, survey and censuses.²¹ Similarly to the adolescent birth rate (15-19 years), discrepancies in adolescent birth rates (10-14 years) might arise due to use of different data sources, denominators, reference periods or adjustment methods.

The experience gained in the selection of the adolescent birth rate among women aged 15-19 years for SDG reporting is being applied to the selection of the adolescent birth rates among girls aged 10-14 years. For each country, we match the data sources, the reference years, or both the sources and reference years for the adolescent birth rates of girls aged 10 to 14 years, with those of the selected adolescent birth rates of those aged 15 to 19 years for the SDG reporting. The selection of adolescent birth rates of girls aged 10-14 for each country and reference year can thus be based on the selected adolescent birth rate of girls aged 15-19 for the SDG reporting, mindful of possible differences in the quality and validity of data used for the calculation of the ABR for both adolescent age groups. The same selection procedure is retained.

The selection of data points of ABR (10-14 years) is guided, like in the case of ABR (15-19 years) already described, by data quality and validity. The first, priority tier are data from the groups of data source types described before for the selection of adolescent birth rate (15-19 years), matched or unmatched by reference year. For example, if the data source type for the adolescent birth rate (15-19 years) is a census, then the corresponding data source type for the adolescent birth rate (10-14 years) should, normally, also be a census. The second priority tier consists of cases where the data sources or reference years for the adolescent birth rate (10-14 years) do not match those for the selected adolescent birth rates (15-19 years). In such cases, the rates from the data source type with the largest number of datapoints are selected (e.g., either only from civil registration or only from surveys). The trends in the adolescent birth rate (10-14 years) selected from the data source type with the largest number of datapoints are compared to the corresponding trends in the adolescent birth rates (15-19 years) that are selected based on the data source type with the largest number of data points for ABR (10-14 years) to assess the time trends of the respective adolescent birth rates (10-14 and 15-19 years). Often, the selection process combines (is a hybrid of) the first and second priority tiers. The birth rates 10-14 years are compared to the time series of the adolescent birth rates (15-19 years) most recently selected for reporting to the Global SDG Indicators Database. The selection procedure is an interactive process for groups of countries, depending on certain criteria (e.g., levels of the adolescent birth rate (10-14 years), data source types and regions). The adolescent birth rates (10-14 years) from sources without a commonality of data source types or reference years for the adolescent birth rate (15-19 years) are manually and individually assessed for each country that has such data.

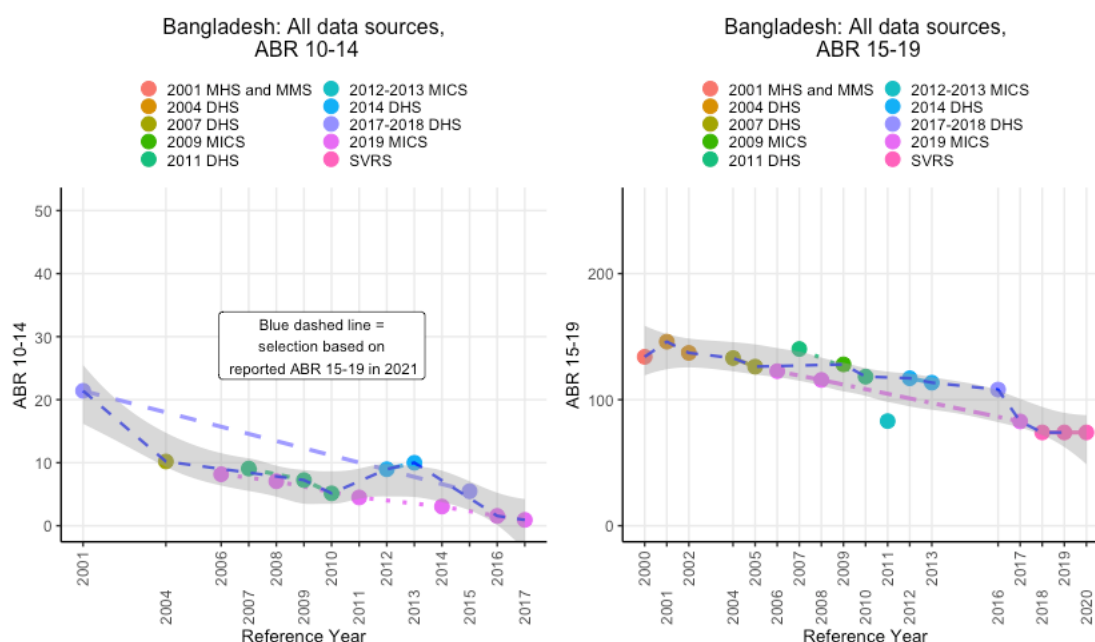
Bangladesh

The selection procedure is illustrated using data from Bangladesh. The adolescent birth rates (10-14 years) from various available sources are plotted against the reference years with confidence intervals of 95 per cent (as shown in figure 6 to help, via a visual inspection, identify patterns and determine which of the empirical data points are closer to smoothed means or expected values of the adolescent birth rate based on a locally weighted regression model).

²¹ Details of the computation methods are described elsewhere (United Nations, 1983; United Nations, Department of Economic and Social Affairs, 2004). The methods for estimating under-15 fertility using DHS surveys are presented in a recent methodological report (Pullum and others, 2018).

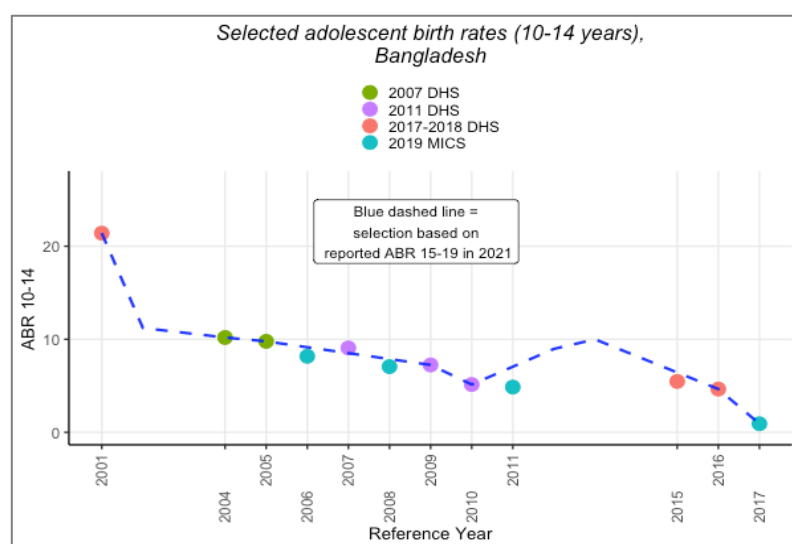
The chart on the left in figure 6 shows all available data on the adolescent birth rate (10-14 years). The blue dashed line connects the data points based on the reference years of the adolescent birth rate (15-19 years) that were reported to the Global SDG Indicators Database in 2021. The chart on the right in figure 6 shows the data on the adolescent birth rate (15-19 years), excluding the outliers (shown in figure 2 above)

Figure 6. Selection of datapoints for ABR (10-14 years) based on selected datapoints for ABR (15-19 years), all data sources



but including the data points reported to the Global SDG Indicators Database (connected by the blue dashed line) in 2021. The patterns in the adolescent birth rates (10-14 and 15-19 years) are generally similar, suggesting a consistency in the quality of the data.

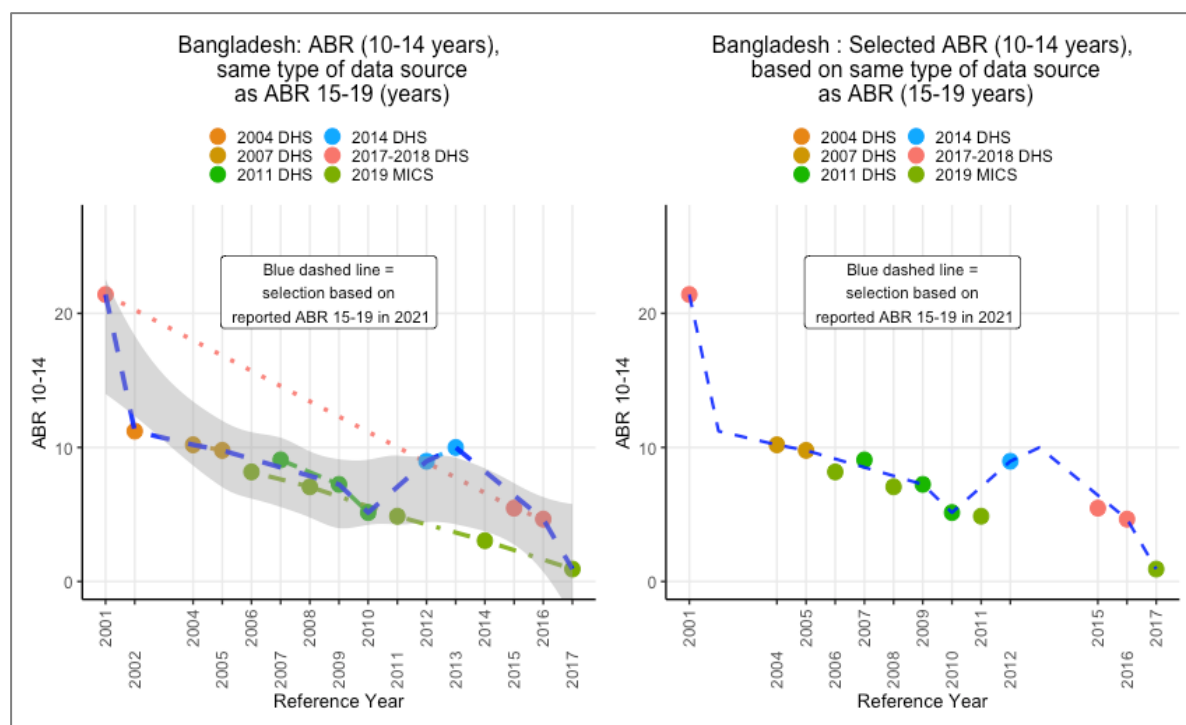
Figure 7. Selected adolescent birth rates (10-14 years), Bangladesh



In the Bangladesh example (figure 6), 10 data points for the adolescent birth rate (10-14 years) could be selected based on the data points selected for the adolescent birth rate (15-19 years). However, two of those data points for the reference years 2002 (11 births per 1,000 girls) and 2013 (10 births per 1,000 girls) fall outside of the confidence intervals of 95 per cent, and therefore they were deselected (figure 9). On the other hand, in Bangladesh, there are six data points for the adolescent birth rate (10-14

years) that are not matched with the selected adolescent birth rate (15-19 years) for reference years 2006, 2007, 2008, 2011, 2014 and 2015. One of these data points for the reference year 2014 (3.0 births per 1,000 girls) falls outside of the confidence interval of 95 per cent, so that data point was deselected (figure 7).

Figure 8. Selection of data points for ABR (10-14 years) based on data points for ABR (15-19 years) from the same type of data sources, Bangladesh



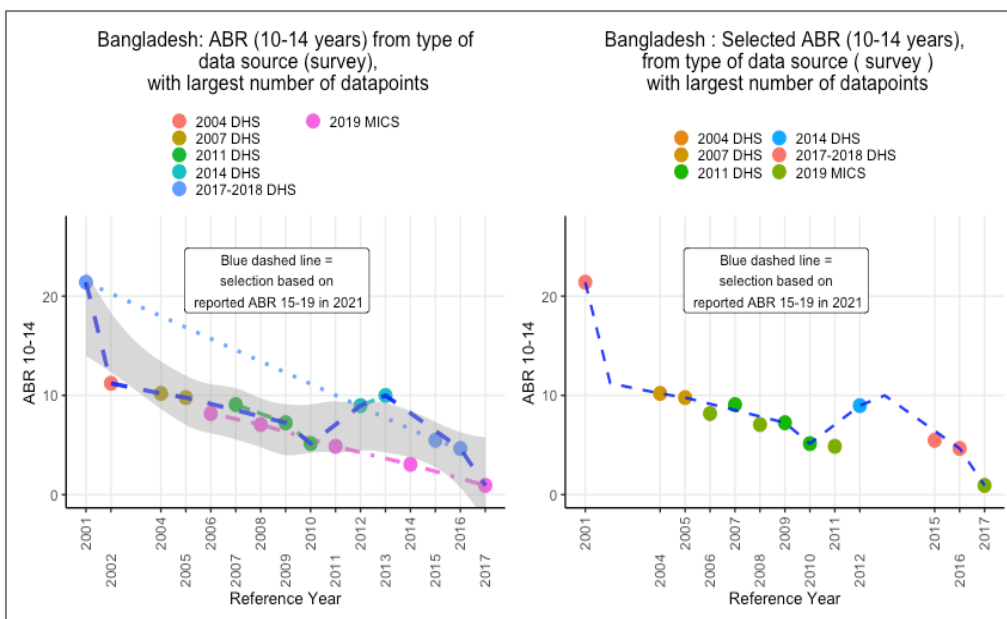
The same procedure is applied for preselecting the adolescent birth rate (10-14 years) from the same type of data source or from the type of data source with the largest number of data points.²² Figure 8 shows the birth rates (10-14 years) selected using data from the same type of data source. However, some adolescent birth rates (10-14 years) are further selected on their own merits. In the Bangladesh example, the adolescent birth rate (15-19 years) in 2001 (187 births per 1,000 women)—not shown—falls outside the 95 per cent confidence interval but the corresponding birth rate (10-14 years) in the same year and from the same source (2017-2018 DHS) falls within the corresponding 95 per cent confidence interval. Also, considering that the ABR (10-14 years) in 2001 was calculated using birth history data of women interviewed in the 2017-2018 DHS survey, which implies a time lag of 15-17 years, the analyst can manually deselect the 2001 data point.²³ On the other hand, the analyst may consider to manually select the ABR (10-14 years) for the year 2014, which is consistent with the trend pattern shown in the chart on the left in figure 8. The high values of the ABR (10-14 years) for 2012 and 2013 push the confidence interval upwards, making the 2014 value of the ABR (10-14 years) to fall outside the confidence interval. Otherwise,

²² All estimates produced from different types of data sources are subject to possible errors and biases.

²³ The effect of the time lag between the date of interview and of the births and other factors that limit the accuracy of birth history data are well-documented in Macro International Inc. (1994), United Nations, Department of Economic and Social Affairs (2004), Pullum (2006) and Schoumaker (2014).

without such considerations and intervention by an analyst, the automated selection process would yield the datapoints shown in the right chart in figure 8. These data points would be selected for SDG reporting.

Figure 9. Selection of datapoints for ABR (10-14 years) and ABR (15-19 years) based on type of data source with largest number of datapoints, Bangladesh



The alternative step to selecting the datapoints based on the same type of data source is to select the ABR (10-14 years) from the type of data source with the largest number of datapoints for each country (figure 9). For Bangladesh, all 16 data points for the adolescent birth rate (10-14 years) are obtained from surveys (figure 9). Those survey data points would be the basis for data selection for SDG reporting (right panel of figure 9) if the alternative data selection process did not yield a consistent, plausible time series. In the Bangladesh example, the data on the adolescent birth rate (10-14 and 15-19 years) are mostly from surveys (16 data points in the case of the ABR 10-14 years and 15 out of 20 in the case of the ABR 15-19), so there is no difference in the selection based on data points from the same type of data source or from the type of data source with the largest number of data points.

In the Bangladesh example, the selection of the ABR (10-14 years) based on the same type of data source, or the type of data source with the largest number of datapoints, would yield one or two more datapoints than the selection based on the selected ABR (15-19 years). In this case, the analyst could select any data on the adolescent birth rate (10-14 years) shown on the right in figure 8 and figure 9.

F. CHALLENGES IN ESTIMATING, ASSESSING AND SELECTING EARLY ADOLESCENT BIRTH RATES

Unlike the long experience gained in the collection and analysis of the adolescent birth rate among women aged 15-19 years, the analysis of childbearing among girls under age 15 began only recently and presents several challenges (United Nations, Department of Economic and Social Affairs, 2020a). Ordinarily, the estimation of the most plausible birth rate for a given country and year would be undertaken by smoothing of trends, taking into account other appropriate demographic considerations and adjustments. However, the requirement to use “country data” for SDG reporting obviates that method.

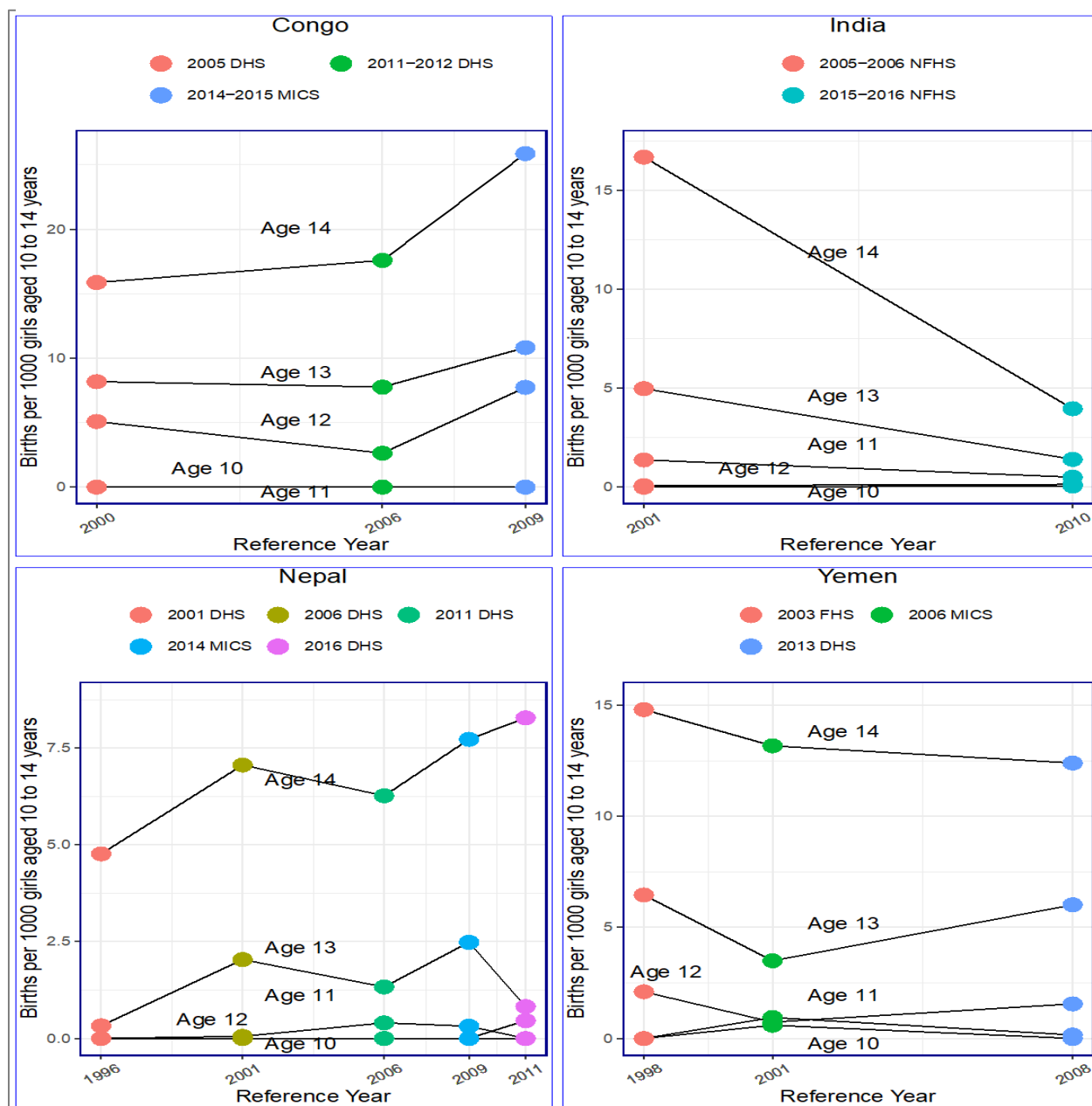
Rarely are data on births to girls under 15 years of age (“under-15 fertility”) collected directly from those girls. In many countries, under-15 fertility rates are estimated from data collected from retrospective birth histories of girls aged 15-19 years. Research has shown that estimating under-15 fertility rates from respondents aged 15 to 19 years may underestimate early adolescent fertility for various reasons (Neal, Sarah E and Hosegood, 2015; Neal, 2020; United Nations, Department of Economic and Social Affairs, 2020b). One study found significant inconsistencies between surveys in the proportion of women who reported giving birth before the age of 15 years when they were interviewed at ages 15-19 years and 5 years later, at ages 20-24 years. The proportion of adolescents aged 15-19 years who reported giving birth before the age of 15 years in the first set of surveys was significantly lower than the proportion of women aged 20-24 (same cohort) who reported so in surveys conducted five years later (Neal, Sarah E. and Hosegood, 2015).²⁴

One of the biggest challenges to reporting on ABR (10-14 years) is the scarcity of the data to benchmark the levels and patterns of childbearing among this group of girls. The adolescent birth rate among girls aged 10-14 years is not normally included in the calculations of the total fertility rate, conventionally based on fertility data of women aged 15-49. Partly for this reason, in many countries, the age pattern and level of childbearing among girls under the age of 15 remain unknown. Little is known also about the relationship between childbearing at ages 10-14 and childbearing among older adolescents aged 15-19 or the wider reproductive age span (15-49 years).

In many countries or areas, the incidence of very early childbearing (at ages 10 to 14 years) is low. In 77 countries—mostly in Europe, Northern America, Australia, India and Japan—the most recent estimates of the ABR (10-14 years) were under one birth per 1,000 girls in that age group. For some of the reasons discussed earlier, births of girls under the age of 15 tend to be underreported, but the magnitude of the downward bias in the estimation of the ABR (10-14 years) is unknown. In most countries or areas, there is a large gap between fertility levels at age 13 or 14 and fertility at age 12 or younger (figure 10). In particular, the birth rate among girls aged 10 and 11 is close to zero in most countries with data on single-age fertility rates (figure 10 and annex figure A.1).

²⁴ The differences could also be explained by the fact that while the same age-cohorts were sampled, not the same girls/women were surveyed since these surveys are not longitudinal studies and different sampling frameworks could have been applied for the different surveys.

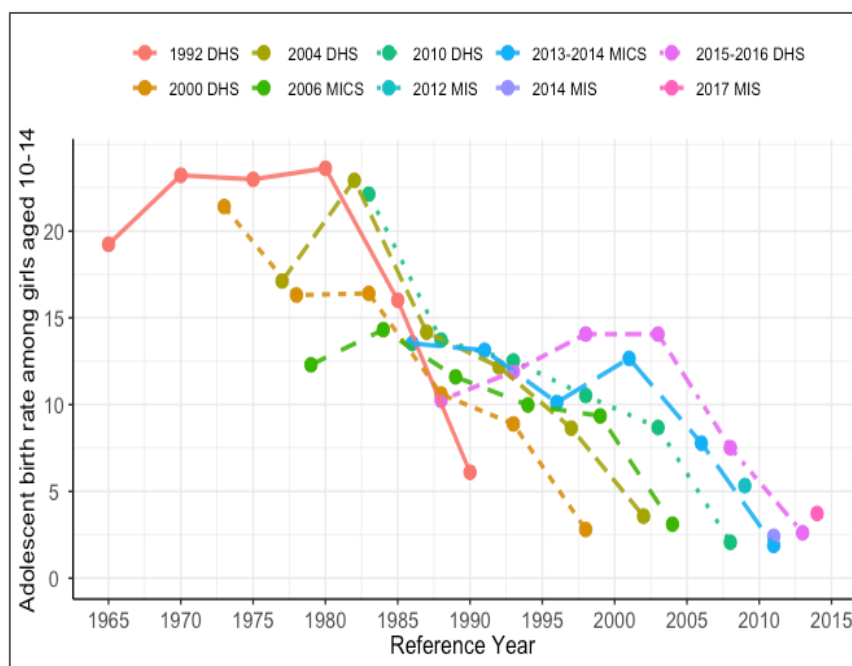
Figure 10. Adolescent birth rate (10-14 years) by single years of age, selected countries



Levels and trends vary over time and by age. In countries such as India, Indonesia, Pakistan, Senegal, Turkey and Togo, trends show declines in early childbearing at ages 13 and 14 years since 2000 ([annex figure A.1](#)). Conversely, in countries such as Congo, Brazil, Paraguay and Sudan, among others, fertility rates at ages 13 and 14 years appear to have increased during this period. In other countries, including Mozambique, Nigeria and Rwanda, there is no clear trend, while measured fertility rates for those ages have been stable in Chad, Cameroon and Madagascar.

As it is the case with fertility rates in other age groups, for countries that have data from retrospective birth histories, the estimates of the trends in adolescent birth rate among girls aged 10-14 from one survey are not always consistent with the trends derived from other surveys (annex figure A.2). In Malawi, for example, rates of early childbearing from two of the most recent DHS surveys (2010 and 2015-2016) show rates that are far apart for the same reference years (figure 11). Specifically, the early adolescent birth rate in 2003 was 8.7 per 1,000 girls using the data from the DHS survey conducted in 2010, but 14.1 per 1,000 girls, using the 2015-2016 DHS survey. Similarly, in 2008 the rate from the 2010 DHS survey was 2.1 per 1,000 girls compared to 7.5 per 1,000 girls from the 2015-2016 DHS survey. The birth rates for the most recent reference year, on the other hand, are almost identical across all surveys.

Figure 11. Adolescent birth rates among girls aged 10-14 during five-year periods before each survey, Malawi



Distortions in birth history data, especially in relation to the shifting of births to more distant years to avoid additional questions, are well documented (Cleland, 1996; Schoumaker, 2010, 2011; Pullum and others, 2018; Moultrie, 2013). The omission and displacement of births might result in the underestimation of adolescent birth rates particularly in the period three to five years before the survey. On the other hand, the DHS program has recommended caution in the interpretation of under-15 fertility estimates that go back more than 5 years before the survey because of the

likelihood of biases arising from the displacement of current age or dates of birth (Pullum and others, 2018). But such displacements can occur even in the most recent birth history window. For instance, in some surveys where interviewers will shift girls who are aged 15 into age 14 in order to reduce their workload (UNESCO Institute for Statistics, 2017), births to those girls will be missed. The pattern exemplified by Malawi in figure 14 suggests that plausible adolescent birth rates and trends can be obtained from either the second birth history window with a data time reference of 7.5 years before the survey or the most recent birth history window for which the data time reference is 2.5 years before the survey. Choosing the latter window will yield consistently lower rates that are likely to be underestimated compared to the rates based on the data time reference of 7.5 years before the survey.

IV. DISCUSSION AND RECOMMENDATIONS

The Population Division of the Department of Economic and Social Affairs has a long history of assessing and reporting on adolescent childbearing among girls aged 15-19 years, including the MDGs era. By contrast, only recently has the Division begun to collect the data, calculate and assess adolescent birth rates among younger adolescents (girls under age 15 years), in accordance with the specification of SDG indicator 3.7.2, which includes the ABR for girls aged 10-14 years. A standard requirement for SDG reporting on Indicator 3.7.2 (United Nations, 2020) is the reporting of a single indicator value for each country and reference year, calculated from national data sources. The challenge is to select the best or most appropriate value of the birth rate for a given country and reference year from among the multiple estimates obtained from various data sources and using different methods and assumptions.

This technical paper builds on the recommendations of the expert group meeting (EGM) convened in October 2020 to evaluate adolescent fertility data and estimates.²⁵ The Population Division prepared and presented at that meeting a background paper on the criteria and procedures for selecting the adolescent birth rate for women aged 15-19 years, and the extent to which those processes could be applied to selecting the adolescent birth rate for girls aged 10-14 years. The EGM made several recommendations, including on the standardisation and transparency of the selection process. Heeding those recommendations, the Division will continue using the present procedures for data analysis and selection while applying a transparent set of criteria to select data points that reduces potentially subjective, analyst-specific biases (United Nations, 2020).

Considering that births among girls aged 10 to 11 years are extremely rare, the EGM recommended to limit the population at risk to girls aged 12 to 14 years, which would provide more meaningful birth rates for adolescents in this age group. Also, given that the age of majority in many jurisdictions is set at age 18 or higher, one recommended approach to define and estimate adolescent fertility in the future would specify the adolescent birth rate as that pertaining to girls aged 12 to 17 years (United Nations, 2020b).

The EGM also recommended that the Population Division explores ways to improve its approach to data selection, including the production of model-based country estimates when no reliable estimates were available for a particular year. Also, the Division could report a hybrid set of estimates, including those calculated directly from births and exposure to childbearing from existing data sources, as well as modelled values when no reliable observations were available. The EGM also suggested to review the methodologies used for calculating and reporting SDG indicators 3.1.1 on maternal and 3.2.1 on child mortality. For these indicators, the estimates reported to the SDG Global Database were model-based “trend” estimates which were generally close to the underlying empirical data.

The Population Division has benchmarked the adolescent birth rate (15-19 years) for almost all countries and areas. It recommends that the selection of the adolescent birth rates for SDG reporting should be based on the selected data for the adolescent birth rate (15-19 years) where both sets of data are available, matched by either the reference years or the same type of data source or the patterns of both rates.

²⁵ <https://un.org/development/desa/pd/events/EGM-on-the-evaluation-of-adolescent-fertility-data-estimates-for-SDG-reporting>.

Where data from retrospective birth histories of women are available, measurement of adolescent fertility before the ages of 15 and 18 should be based on the reported birth histories of women aged 20-24 or, at least, those data should be used to assess and evaluate the measurement of adolescent fertility based on the information collected from adolescents aged 15-19 years.

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VI. ANNEX

**Annex table 1. Distribution of data points on the adolescent birth rate (15-19 years)
by data source and SDG region, 2000-2020**

<i>Age group</i>	<i>Data source type</i>	<i>SDG region</i>	<i>Number of data points</i>	<i>Per cent</i>
10-14 years	Census	Central Asia and Southern Asia	1	0
10-14 years	Census	Eastern Asia and South-eastern Asia	1	0
10-14 years	Census	Latin America and the Caribbean	1	0
10-14 years	Census	Northern America and Europe	1	0
10-14 years	Census	Sub-Saharan Africa	2	0.1
10-14 years	Estimate	Eastern Asia and South-eastern Asia	53	1.8
10-14 years	Estimate	Latin America and the Caribbean	6	0.2
10-14 years	Estimate	Northern America and Europe	62	2.1
10-14 years	Estimate	Western Asia and Northern Africa	10	0.3
10-14 years	Registration	Australia and New Zealand	40	1.4
10-14 years	Registration	Central Asia and Southern Asia	79	2.7
10-14 years	Registration	Eastern Asia and South-eastern Asia	108	3.7
10-14 years	Registration	Latin America and the Caribbean	487	16.5
10-14 years	Registration	Northern America and Europe	820	27.7
10-14 years	Registration	Oceania (excl. Australia and New Zealand)	114	3.9
10-14 years	Registration	Sub-Saharan Africa	102	3.5

<i>Age group</i>	<i>Data source type</i>	<i>SDG region</i>	<i>Number of data points</i>	<i>Per cent</i>
10-14 years	Registration	Western Asia and Northern Africa	189	6.4
10-14 years	Survey	Central Asia and Southern Asia	96	3.2
10-14 years	Survey	Eastern Asia and South-eastern Asia	77	2.6
10-14 years	Survey	Latin America and the Caribbean	106	3.6
10-14 years	Survey	Northern America and Europe	8	0.3
10-14 years	Survey	Oceania (excl. Australia and New Zealand)	23	0.8
10-14 years	Survey	Sub-Saharan Africa	477	16.1
10-14 years	Survey	Western Asia and Northern Africa	93	3.1
10-14 years	Total	-	2956	100
15-19 years	Census	Central Asia and Southern Asia	9	0.3
15-19 years	Census	Eastern Asia and South-eastern Asia	6	0.2
15-19 years	Census	Latin America and the Caribbean	3	0.1
15-19 years	Census	Northern America and Europe	2	0.1
15-19 years	Census	Oceania (excl. Australia and New Zealand)	30	0.9
15-19 years	Census	Sub-Saharan Africa	20	0.6
15-19 years	Census	Western Asia and Northern Africa	11	0.3
15-19 years	Estimate	Central Asia and Southern Asia	6	0.2
15-19 years	Estimate	Eastern Asia and South-eastern Asia	32	0.9

<i>Age group</i>	<i>Data source type</i>	<i>SDG region</i>	<i>Number of data points</i>	<i>Per cent</i>
15-19 years	Estimate	Latin America and the Caribbean	46	1.4
15-19 years	Estimate	Northern America and Europe	8	0.2
15-19 years	Estimate	Oceania (excl. Australia and New Zealand)	3	0.1
15-19 years	Estimate	Sub-Saharan Africa	13	0.4
15-19 years	Estimate	Western Asia and Northern Africa	3	0.1
15-19 years	Panel	Central Asia and Southern Asia	1	0
15-19 years	Panel	Sub-Saharan Africa	3	0.1
15-19 years	Registration	Australia and New Zealand	40	1.2
15-19 years	Registration	Central Asia and Southern Asia	105	3.1
15-19 years	Registration	Eastern Asia and South-eastern Asia	177	5.2
15-19 years	Registration	Latin America and the Caribbean	502	14.9
15-19 years	Registration	Northern America and Europe	921	27.2
15-19 years	Registration	Oceania (excl. Australia and New Zealand)	148	4.4
15-19 years	Registration	Sub-Saharan Africa	105	3.1
15-19 years	Registration	Western Asia and Northern Africa	228	6.7
15-19 years	Survey	Central Asia and Southern Asia	104	3.1
15-19 years	Survey	Eastern Asia and South-eastern Asia	99	2.9
15-19 years	Survey	Latin America and the Caribbean	110	3.3

<i>Age group</i>	<i>Data source type</i>	<i>SDG region</i>	<i>Number of data points</i>	<i>Per cent</i>
15-19 years	Survey	Northern America and Europe	1	0
15-19 years	Survey	Oceania (excl. Australia and New Zealand)	38	1.1
15-19 years	Survey	Sub-Saharan Africa	509	15.1
15-19 years	Survey	Western Asia and Northern Africa	97	2.9
15-19 years	Total	-	3380	100

Source: DemoData (<https://population.un.org/DemoData/web/>).