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Background Information on Education Statistics in the UIS Database

March 2022

Objective

This document serves as a reader's guide to help data users understand and interpret the education data disseminated by the UIS. It presents the following information:

- The list of symbols accompanying data.
- The annual data release cycles.
- The data sources used by the UIS and their updates, including population and economic data used to calculate education indicators.
- Specific country notes.
- The production process for learning assessment-based indicators.

The following symbols are used:

...	Data not available
(a)	Category not applicable
(n)	Magnitude nil or negligible
(+)	National estimation
(‡)	UIS estimation (For regional averages: partial imputation due to incomplete country coverage, ranging from 33% to 60% of population, depending on the indicator)

Data releases

As of September 2018, the UIS has moved to one education data release in September of each year, with new national and regional data. National data are also updated in February, completing the UIS publication of educational data for the round of surveys conducted in the previous reference year.

This refresh includes SDG 4 national data for the school or reference year ending in the previous year (2020) and includes data collected from administrative sources and household surveys, including educational attainment and literacy statistics (every two years), from learning assessments; and data gaps filled from published sources.

The March 2022 Date Refresh will be in two phases.

- SDG 4 Data Refresh
- Update of Regional averages and Other Policy Relevant Indicators

UIS data can be accessed in the the following ways:

- SDG 4 March 2022 Data Refresh , which houses the most recent SDG 4 (Quality Education for All) data for more than 200 countries and territories.;
- UIS Data Portal, which houses internationally comparable data on all levels of education for more than 200 countries and territories. This includes Other Policy Relevant indicators and Regional Averages from the September 2021 Data Release;
- Bulk data download service (BDDS), which enables access to all UIS databases in comma-

separated values (CSV) format. The BDDS files includes SDG 4 data from the March 2022 refresh and all other information is from the September 2021 Data Release.

- SDG 4 data resources, which contains resources to visualize SDG data, Benchmark data, and the repositories of national publications with administrative data on education and educational expenditure data.

Note: As of June 23rd, 2020 the UIS SDMX API has reached its End-of-Life (EOL) and is no longer up-to-date with the latest UIS datasets.

The metadata of the SDG 4 indicators is available at: http://tcg.uis.unesco.org/methodological-toolkit/metadata/.

Stay informed of the latest data releases by signing up for the UIS email alert service at: http://uis.unesco.org

Data sources

To produce internationally comparable education indicators, the UIS uses the main sources of data listed below. These data sources differ in their coverage as well as the timing and way in which they are collected:

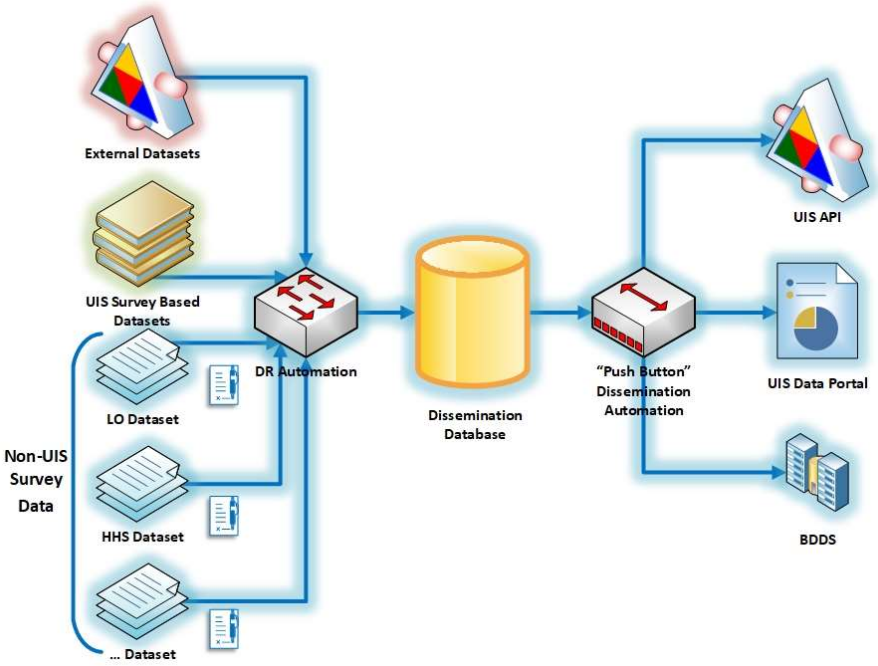
- **Administrative data** – based on information usually available from educational management information systems (EMIS) used by ministries of education for management and planning purposes, and are typically updated on an annual basis. EMIS should typically cover many types of educational paths and levels, including early childhood education (ECE), higher education, and technical and vocational education and training (TVET). Most international monitoring of previous global development agendas (Education For All and the Millennium Development Goals) was based on administrative data produced by countries and compiled by international organizations on school EMIS, which has since been expanded. Although some administrative data, such as school feeding programmes and teachers' salaries, are usually available from non-EMIS sources in education ministries, these should ideally be linked to EMIS.
- **Household surveys** – an important source of data on access, participation, completion, literacy and educational attainment. Surveys differ in terms of coverage, frequency, objectives and questionnaire design. In contrast to administrative data, they are collected less frequently, and by a variety of organizations and countries. Household survey data are usually available from non-EMIS sources outside of ministries but should also ideally be linked to EMIS.
- **Learning assessments** – these include national school-based assessments designed to measure specific learning outcomes at a particular age or grade considered relevant for national policymakers. They encompass cross-national initiatives (either regional or global) that are based on a common, agreed-upon framework and follow similar procedures to yield comparable data on learning outcomes. Assessment data can be collected from households. Skills surveys (ICT, literacy, etc.) can also provide relevant information on the adult population. Learning assessments can be used to provide non-cognitive information as well, such as on

home language, school infrastructure, students experiencing bullying and teachers' professional development.

- **Financial and expenditure data** – these contain information on different sources of income and expenditure, including government spending on education. This source commonly encompasses data on the construction and maintenance of schools, teacher salaries and household spending on education, such as supplies, transport and other costs. Some administrative data are typically available from non-EMIS sources within ministries but should ideally be linked to EMIS (e.g. school feeding programmes and teacher salaries), depending on how a country organizes their data.

Population censuses – important as a source of population estimates (the number of persons by age and sex in a country). The UIS uses population estimates from the United Nations Population Division, which are based on a reliable methodology that is internationally accepted. Some administrative data are typically available from non-EMIS sources outside the ministries and again should ideally be linked to EMIS. **Figure 1** presents the UIS database and dissemination cycle, illustrating the centralized collection of data that originate from different sources.

Figure 1. UIS database production and dissemination cycle



Source: UNESCO Institute for Statistics.

Note: LO = learning outcomes; HHS = household surveys; DR = data release

Overview of SDG indicators currently available

Table 1 provides a concise snapshot of the SDG indicators available on the UIS website.

Table 1. Summary of SDG Indicator data dimensions released for Education

Indicator	Indicator description			
	Is the indicator being reported for the first time? (Y/N)	Total number of countries for which the indicator is reported	Range of years for which data are available for the indicator	Dimensions of disaggregation
1.a.GDP	No	201	1970 - 2021	.
1.a.2	No	206	1970 - 2021	.
4.1.0	No	116	2000 - 2019	Sex
4.1.1	No	160	1995 - 2021	Sex, school location (urban/rural), socio-economic status (SES), immigrant status, language of the test at home
4.1.2	No	164	1996 - 2020	Sex, location (urban/rural), wealth and disability
4.1.3	No	212	1970 - 2021	Sex
4.1.4	No	215	1970 - 2021	Sex, location (urban/rural), wealth and disability
4.1.5	No	204	1970 - 2021	Sex
4.1.6	No	219	2014 - 2020	Subject (reading/mathematics)
4.1.7	No	219	1970 - 2021	Free and compulsory education
4.2.1	No	78	2010 - 2020	Sex
4.2.2	No	205	1970 - 2021	Sex, location (urban/rural), wealth
4.2.3	No	89	2005 - 2019	Sex, location (urban/rural), wealth
4.2.4	No	223	1970 - 2021	Sex
4.2.5	No	220	1970 - 2021	Free and compulsory education
4.3.1	No	109	1994 - 2018	Sex
4.3.2	No	210	1970 - 2021	Sex, location (urban/rural), wealth
4.3.3	No	204	1970 - 2021	Sex
4.4.1	No	108	2014 - 2020	ICT skills, sex
4.4.2	No	31	2012 - 2017	Sex
4.4.3	No	199	1950 - 2021	Sex, location (urban/rural)
4.5.1	No	226	1950 - 2021	Sex, location (urban/rural), wealth and disability
4.5.2	No	126	2013 - 2019	Sex, location (urban/rural), SES (wealthiest/poorest)
4.5.3	No	81	2020 - 2020	.
4.5.4	No	205	1970 - 2021	.
4.5.5	No	40	2010 - 2020	.

Indicator	Indicator description (cont.)			
	Is the indicator being reported for the first time? (Y/N)	Total number of countries for which the indicator is reported	Range of years for which data are available for the indicator	Dimensions of disaggregation
4.6.1	No	51	2006 - 2017	Sex, SES, native status
4.6.2	No	176	1962 - 2021	Sex, location (urban/rural)
4.6.3	No	12	2008 - 2011	Sex
4.7.1	No	69	2020 - 2020	.
4.7.2	No	73	2000 - 2021	.
4.7.4	No	23	2016 - 2016	Sex, SES, location (urban/rural)
4.7.5	No	42	2015 - 2019	Sex, SES, location (urban/rural)
4.7.6	No	3	2020 - 2020	Thematic aspect (teaching and learning, assessment and accountability, enabling environment)
4.a.1	No	168	2000 - 2021	.
4.a.2	No	152	2003 - 2019	Sex, location (urban/rural), SES (wealthiest/poorest)
4.a.3	No	95	2013 - 2020	.
4.b.1	No	150	2006 - 2019	.
4.c.1	No	161	1970 - 2021	Sex
4.c.2	No	161	1970 - 2021	.
4.c.3	No	152	1970 - 2021	Sex
4.c.4	No	151	1970 - 2021	.
4.c.5	No	42	2009 - 2021	.
4.c.6	No	95	1970 - 2021	Sex
4.c.7	No	94	2013 - 2019	Sex

UIS surveys on education

The UIS collects education statistics in aggregate form from official administrative sources at the national level. Collected information encompasses data on educational programmes, access, participation, progression, completion, literacy, educational attainment, and human and financial resources. These statistics cover formal education in public (or state) and private institutions (early childhood education, primary and secondary schools, and colleges, universities and other tertiary education institutions), and special needs education (both in regular and special schools).

These data are gathered annually by the UIS and its partner agencies through the following three major surveys that can be downloaded from the UIS website at http://uis.unesco.org/en/uis-

questionnaires.

i) UIS Survey of Formal Education

The UIS education questionnaires are sent to UNESCO Member States annually. The questionnaires are based on international standards, classifications and measures that are regularly reviewed and modified by the UIS to address emerging statistical issues and improve data quality.

ii) UOE Survey of Formal Education

The UIS, the OECD and Eurostat (UOE) have jointly administered this annual data collection since 1993. The UOE questionnaire compiles data from high- and middle-income countries that are generally members or partner countries of the OECD or Eurostat. The UOE survey gathers more detailed education statistics.

iii) UIS Survey on Literacy and Educational Attainment

The UIS gathers attainment data through its biennial literacy and educational attainment survey, which is sent to all UNESCO Member States. The questionnaires collect internationally comparable data used to calculate literacy and attainment rates as well as mean years of schooling. The data are derived from national population censuses, household surveys and labour force surveys.

The UIS supplements literacy and educational attainment data provided by countries by calculating indicators based on information obtained from population censuses and international survey programmes such as the Multiple Indicator Cluster Survey (MICS) and the Demographic and Health Survey (DHS). The UIS also applies methodologies, such as the Global Age-specific Literacy Projections Model (GALP), to produce literacy estimates for years with missing data and to produce regional and global averages.

Household surveys

For the indicators listed below, some national values are calculated by the UIS from household survey and population census data. Observations derived from survey and census data are identified as such in the UIS database.

- SDG indicator 4.3.1: Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex
- SDG indicator 4.3.2: Gross enrolment ratio for tertiary education by sex
- SDG indicator 4.5.1: Parity indices (female/male, rural/urban, bottom/top wealth quintile and others, such as disability status, indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated
- SDG indicator 4.5.4: Education expenditure per student by level of education and source of funding.

The indicators below, based on household surveys, produced by the GEMR have been aggregated in the database:

- SDG indicator 4.1.2: Completion rate (primary education, lower secondary education, upper secondary education)
- SDG indicator 4.1.4: Out-of-school rate (1 year before primary, primary education, lower secondary education, upper secondary education)
- SDG indicator 4.1.5: Percentage of children over-age for grade (primary education, lower secondary education)
- SDG indicator 4.2.2: Participation rate in organized learning (one year before the official primary entry age), by sexSDG indicator 4.2.4: Gross early childhood education enrolment ratio in (a) pre-primary education and (b) early childhood educational development
- SDG indicator 4.6.2: Youth/adult literacy rate

Additionally, 35,340 data points to report against SDG Indicator 4.1.2 on completion rates have been added using, the Adjusted Bayesian Completion Rates estimation model using household survey data https://education-estimates.org/completion/data/ .

A minority of household surveys contain information on the disability status of respondents. Currently 18 surveys provide disaggregated disability data for completion rates and out-of-school rates, where possible.

Learning assessments and integration of data sources

Some national values are calculated/compiled by the UIS and/or its partners from learning assessments while other data sources are flagged with footnotes to identify the data sources in the UIS database. The indicators calculated and their metadata are:

- SDG Indicator 4.1.0 *Proportion of children/young people prepared for the future, by sex*
- SDG Indicator 4.1.1 *Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex*
- SDG Indicator 4.1.6 *Administration of a nationally representative learning assessment (a) in Grade 2 or 3; (b) at the end of primary education; and (c) at the end of lower secondary education*
- SDG indicator 4.2.1 *Proportion of children aged 24-59 months who are developmentally on track in health, learning and psychosocial well-being, by sex*
- SDG indicator 4.2.3 *Percentage of children under 5 years experiencing positive and stimulating home learning environments*
- SDG Indicator 4.4.1 *Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill*
- SDG Indicator 4.4.2 *Percentage of youth/adults who have achieved at least a minimum level of proficiency in digital literacy skills*
- SDG Indicator 4.5.1 *Parity indices (female/male, rural/urban, bottom/top wealth quintile, low/high socio-economic status, migrant/non-migrant, and others as data become available)* for all education indicators on this document that can be disaggregated

- SDG Indicator 4.5.2 *Percentage of students in a) early grades, b) at the end of primary, and c) at the end of lower secondary education who have their first or home language as language of instruction*
- SDG Indicator 4.5.3 *Existence of funding mechanisms to reallocate education resources to disadvantage populations*
- SDG Indicator 4.6.1 *Proportion of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex*
- SDG Indicator 4.7.4 *Percentage of students in lower secondary education showing adequate understanding of issues relating to global citizenship and sustainability*
- SDG Indicator 4.7.5 *Percentage of students in lower secondary showing proficiency in knowledge of environmental science and geoscience*
- SDG Indicator 4.7.6 *Extent to which national education policies and education sector plans recognize a breadth of skills that needs to be enhanced in national education systems*
- SDG Indicator 4.a.1 *Proportion of schools offering basic services, by type of service*
- SDG Indicator 4.a.2 *Percentage of students experiencing bullying in the last 12 months in a) primary, and b) lower secondary education*
- SDG Indicator 4.c.5 *Average teacher salary relative to other professions requiring a comparable level of qualification*
  SDG Indicator 4.c.7 *Percentage of teachers who received in-service training in the last 12 months by type of training*

For more information on the data production cycle of SDG 4 Indicators, please refer to: http://tcg.uis.unesco.org/wp-content/uploads/sites/4/2020/08/CN_LOS_DataProduction-.pdf

Indicators with data collected from national sources

The UIS has piloted a process of collecting data directly from publicly available national publications sourced as administrative and expenditure data in order to fill data gaps.

The data collected are used to calculate 16 SDG indicators: 14 indicators on students, teachers and schools; and 2 indicators on education expenditure.

The following phases have been completed:

1. Design and development of the following two dynamic templates to be completed for each country:
   a. **Education Template** – collects data for 11 years (2010 to 2020) on students, teachers and schools, and is automatically prefilled with population data from UNPD, ISCED mapping data on the national education system (theoretical entrance age and duration of the national education programmes), and with indicator figures available at the UIS for comparison purposes. Indicators are automatically calculated with the indicator formulas embedded in the template.
   b. **Educational Expenditure Template** – collects data for 7 years (2015 to 2021) on government expenditure on education and total government expenditure. The template is prefilled with GDP data from the World Bank and with indicator figures available at the UIS for comparison

purposes. Indicators are automatically calculated with the indicator formulas embedded in the template.

2. Complete both templates with the data and metadata published by countries.
3. Production of a database with data and metadata for all covered countries.
4. Creation of a repository for the official data sources available at the country level.
5. Curation of compiled data to remove outliers.

The indicators and variables of the templates are summarized in **Table 2**.

Table 2. Indicators and variables of education and educational expenditure templates

Variables	Education template														Educational expenditure template	
	4.1.3	4.1.4	4.1.5	4.2.2	4.2.4	4.3.2	4.3.3	4.7.2	4.a.1	4.c.1	4.c.2	4.c.3	4.c.4	4.c.6	1.a.2	% GDP
National education system	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Population data	x	x		x	x	x	x									
Enrolment by sex	x	x	x	x	x	x	x				x		x			
Enrolment by age		x	x	x			x									
Enrolment by grade	x		x													
Repeaters by sex and grade	x															
Teachers by sex										x		x		x		
Trained teachers by sex										x	x					
Qualified teachers by sex												x	x			
Newly recruited teachers by sex														x		
Schools by type of facility								x	x							
Educational expenditure															x	x
Total government expenditure															x	
Gross domestic product (GDP)																x

Note: The number of data points to be published are around 6,000.

External data sets

Indicators aggregated from partner agencies

The UIS compiles data for some Sustainable Development Goal 4 indicators directly from partner organizations, such as:

- The OECD:
  - **SDG indicator 4.5.5** *Percentage of total aid to education allocated to least developed countries*
  - **SDG indicator 4.b.1** *Volume of official development assistance flows for scholarships by sector and type of study*

- Global Coalition to Protect Education from Attack:
  - **SDG indicator 4.a.3** *Number of attacks on students, personnel and institutions*
- Global Education Monitoring Report (GEMR):
  - **SDG Indicator 4.5.3** *Existence of funding mechanisms to reallocate education resources to disadvantage populations*
- UNESCO Section for Education for Sustainable Development (Division for Peace and Sustainable Development, Education sector):
  - **SDG Indicator 4.7.1** *The extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education and (d) student assessment*

Population estimates

The main source of population estimates is from the following reference: United Nations, Department of Economic and Social Affairs, Population Division (2019). W*orld Population Prospects: The 2019 Revision*, (https://population.un.org/wpp/Download/Standard/Population/). Where UN Population Division (UNPD) estimates are not available or where population issues have arisen, national data or UIS estimates are used.

Summary of population data sources

The UN Population Division (UNPD) is the standard source of population data at the UIS. For 14 countries, population data from a different source are used to generate more precise indicator values. The exceptions, summarized in **Table 3**, can be classified as follows:

- No UNPD population estimates are available. This is the case for some small countries (Liechtenstein, Monaco).
- Population data by UNPD represent a geographically larger area than education data. Without adjustment, this would lead to an underestimation of population-based indicators. Countries in this group include Azerbaijan, Cyprus, Republic of Moldova and Serbia.
- Analysis by the UIS revealed important inconsistencies between education data and UNPD population estimates by single year of age that affected the accuracy of population-based indicators. This applies to the remaining countries listed in the table below.

The UIS has collaborated with the UNDP and the World Bank on the use of UN or non-UN population data for calculation of SDG indicators, as part of a task team established by the Committee for the Coordination of Statistical Activities (CCSA). UNPD has revised its estimation method for national population figures and expects to release updated World Population Prospects based on the new methodology in May 2022 (details available at https://www.un.org/development/desa/pd/events/expert-group-meeting-methods-world-population-prospects-2021-and-beyond).

Following the 2021 TCG decision to establish a hybrid approach in the use of UNPD data and estimates from national sources, the UIS will review the new data and develop guidelines for the

selection of the most suitable source of population data for calculation of population-based SDG indicators.

Table 3. Sources of population data for UIS indicator calculation

Source of population data	Number of countries	Criteria used
United Nations Population Division (UNPD): World Population Prospect 2019, released in June 2019	196	UNPD is the main source of population data used by the UIS for all countries, with the exception of the countries below in this column.
Eurostat population database	9	**Countries for which education data do not cover certain areas but UNPD data do**: - Azerbaijan (excluding Nagorno-Karabakh) - Cyprus (excluding areas not under the control of the national government) - Serbia (excluding Kosovo) **Small European countries for which the UNPD did not provide data:** - Liechtenstein - Monaco
		Countries with important inconsistencies between education data and UNPD data that make indicator values implausible. Following recurrent objections from countries, it was decided to use national data instead of UNPD data for the following countries: - France - Ireland - Latvia - Lithuania
National data collected through UOE data collection	2	**Countries with important inconsistencies between education data and UNPD data that make indicator values implausible.** Following recurrent objections from countries, it was decided to use national data instead of UNPD data for the following countries: - Brazil - United States of America
National statistical offices submitting data directly to the UIS	4	**Countries with important inconsistencies between education data and UNPD data that make indicator values implausible.** Following recurrent objections from countries, it was decided to use national data instead of UNPD data for the following countries: - Dominican Republic - Republic of Moldova (excluding Transnistria) (2013-2020) -San Marino (small country – 2017-2019) -Singapore (2016-2019)

Note: Data for countries with a population under 90,000 inhabitants provided by the UN Population Division (UNPD) should be used with caution as the annually interpolated population by age and sex based on 5-year periods and 5-year age groups can

only provide crude approximations, especially since key demographic determinants of population change are often unavailable for these small countries.

Economic statistics

Data on economic indicators, such as gross domestic product (GDP) and purchasing power parity (PPP), are World Bank estimates as of December 2021. For countries where GDP estimates are not published by the World Bank, data are obtained from the December 2021 release by the United Nations Statistics Division (UNSD). This data release uses the Purchasing Power Parities (PPP) conversion factor, GDP (local currency unit per international dollar), of the most recent World Bank International Comparison Program of 2017. Data on total general government expenditure (all sectors) come from the October 2021 release of the International Monetary Fund's (IMF) World Economic Outlook database.

High level summary of countries that reported data that could not be released

The **Tables 4** and **5** below present a summary of the number of countries for which data was reported but not released, grouped by key causes for the Education Surveys.

Table 4. Formal Education Survey – summary of causes preventing the publication of datasets

Issues preventing the publication of parts of datasets recently received for reference years 2019 and 2020	Number of countries
Trend is not consistent and no explanation available	28
Inconsistency between population estimate and the submitted enrolment data	15
Partial data/undercoverage	2

Note: the table includes only countries where the data received is not published. There are new data being published for 23 countries.

Table 5. Literacy and Education Attainment Survey – summary of reasons for non-processing

Questionnaire	Reason for non-processing	Number of questionnaires affected
UIS_ED_AT_2021	Duplicate submission to previous round	8
	Incomplete data submission/data quality concerns	3
	Response received too late to process	2
UIS_ED_LIT_2021	Duplicate submission to previous round	16
	Incomplete data submission/data quality concerns	3
	Response received too late to process	1
	Proxy literacy measure based on educational attainment and therefore not eligible for dissemination	4

Following the launch of the 2021 Literacy Survey (LIT), 85 literacy questionnaires have been returned by countries. Of these, 58 have been processed (84%). In response to the Education Attainment Survey (EA), 124 questionnaires were returned, 115 of which were processed (93%). Of the 209 total questionnaires returned, the large majority were submitted as the 2021 version. Eleven questionnaires (10 and 1 respectively for LIT and EA) were returned using versions from 2019 or earlier.

Technical notes

A. UIS Resources

Technical Cooperation Group for Education 2030 Indicators (TCG): tcg.uis.unesco.org

Global Education Observatory: geo.uis.unesco.org

B. SACMEQ, PIRLS and MILO

SACMEQ IV results were added to the UIS database based on the release of the international report for the 15 participating countries.

PIRLS: data was was processed for 4.5.2, 4.a.1; 4.a.2; 4.c.7 seeking trend consistency and avoiding duplication. More information in the updated metadata.

Monitoring the Impact of Learning Outcomes: data for the 6 participating countries has been released along with the disaggregation by gender. Description of the project here.

C. Education data

Education data and indicators are based on the International Standard Classification of Education (ISCED) 2011. ISCED 2011 was implemented starting with the 2014 education data collection and covers the entire formal education system, including both formal initial education programmes and formal adult education programmes. For the years before 2014, the UIS Survey of Formal Education did not cover formal adult education programmes. Data for countries involved in the UOE data collection did not cover formal adult education programmes for the years 2004-2012. These limitations should be taken into consideration when comparing time series data.

Prior to 2018, data for SDG indicator 4.3.3 *Participation rate in technical and vocational programmes (15-to 24-year-olds), by sex* do not include enrolment in technical and vocational short-cycle tertiary programmes (ISCED 5) as the UIS only collected data up to ISCED level 4 – although the indicator covers by definition all technical and vocational programmes. As of 2018, the UIS started collecting and incorporated enrolment at the ISCED 5 level in the calculation of this indicator. On average, participation rates are approximately 1.6% higher with inclusion of the ISCED 5 programmes. Caution is required when comparing this indicator over time.

The number of students considered in the calculation of SDG indicator 4.5.4 on initial funding per student is the number of full-time and part-time students.

The education regional averages are based on both publishable data and non-publishable estimated or imputed data. They are calculated based on data as of September 2021.

The literacy regional averages are based on the September 2021 release.

There are cases where an indicator should not exceed a maximum theoretical value (e.g. the adjusted net enrolment rate) but inconsistencies between demographic and school data may have resulted in the indicator exceeding the theoretical limit. In these cases, "capping" has been applied, while maintaining the same gender ratio. For more details, please refer to the definition of capping in the UIS Glossary.

Since the September 2020 data release, the UIS has replaced all parity indices, including the gender parity index, by adjusted parity indices. Adjusted parity indices are limited to a range of 0 to 2, are symmetrical around 1, and are therefore easier to interpret. Unadjusted parity indices, which were disseminated previously, have no upper bound and are not symmetrical around 1.

D. Education finance

Expenditure on early childhood education or from international sources – both of which are often comparatively small – have been treated as negligible in cases where data were in fact missing. In these cases, the totals may be underestimated.

Following the approval of the TCG and the IAEG-SDG on the new metadata multiple sources have been used to report for two benchmark indicators,Framework for Aciton , Government expenditure in Education as % of the GDP ; and global Indicator 1.a.2, Government expenditure in Education as % Total Government Expenditure. More information in the metadata document.

E. Country notes

Azerbaijan: Education data for the years 1998 to 2018 do not cover Nagorno-Karabakh, whereas the 2019 Revision of the World Population Prospects data do. The population data used for the calculation of indicators were provided by national authorities and exclude Nagorno-Karabakh.

Belgium: Due to the change in how international mobile students are defined, as of 2013 in Belgium, the historical trend of inbound mobile students needs to be interpreted with caution.

Bolivia, Plurinational State of: Population-based indicators should be interpreted with caution due to concerns regarding the coherence between national enrolment data and population estimates from the 2019 Revision of the World Population Prospects.

The rate of out-of-school adolescents of lower secondary (ISCED 2) and upper secondary (ISCED 3) age does not include data on students enrolled in tertiary education (ISCED 5 to 8). This means that the number of out-of-school youth could be overestimated.

Brazil: Due to concerns regarding the coherence between national enrolment data and the population estimates from the 2019 Revision of the World Population Prospects, population data were provided by the *Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira* (INEP).

A break in the time series of pre-primary and primary indicators occurs in 2013 due to the following changes in the national education system:

- The duration of pre-primary education changed from 3 years to 2 years.
- The entry age to primary education changed from 7 years to 6 years and the duration from 4 years to 5 years.

In April 2019, there was a change in the methodology used to calculate the Brazilian Population Projections and for this reason the population data for years 2012 to 2018 have been revised by the country. Those changes have been implemented for the February 2021 data release. Source: *Instituto Brasileiro de Geografia e Estatistica (IBGE)*, Continuous National Household Sample Survey, Second trimester.

China: Two Special Administrative Regions – Hong Kong and Macao – are reported separately from data for China. The country asked the UIS not to publish data derived from PISA as this only covers 4 provinces (Beijing, Shanghai, Jiangsu, and Guangdong)

Cyprus: Education data for Cyprus do not cover areas that are not under control of the national government, whereas the 2019 Revision of the World Population Prospects data do. The population data used for the calculation of indicators were provided by national authorities and only cover the population living in government-controlled areas.

Dominican Republic: The National Statistical Office has revised the population estimates and projections that are not yet reflected in the Revision of the World Population Prospects.

Ecuador: The source of the education data used is the *Archivo Maestro de Instituciones Educativas* (AMIE). Indicators were calculated with a capping factor and with national population estimates. Therefore, indicators for Ecuador are not comparable with the data officially published by the country.

Estonia: The country has an integrated pre-primary education programme. Pupil's age is used as a proxy to disaggregate data for early childhood educational programmes between ISCED level 1 and ISCED level 2. Enrolment of children aged 2 years and younger is mapped as ISCED level 1 and enrolment of children aged 3 years and older is mapped as ISCED level 2.

France: There is a change in methodology in 2006 and 2013 that limits the comparability of time series for SDG indicator *4.3.3 participation rate in technical and vocational programmes (15 to 24 year olds).*

Germany: Starting from the year 2009, there is no concept of repeaters in grades 1 to 2 of primary education. This explains a decrease in 2009 in the time series "Percentage of repeaters in primary education".

Japan: the country asked the UIS to not publish Cross National Learning Assessment results

Kazakhstan: Starting from the year 2020, the structure of the national education system has changed. The entrance age to primary education was set at 6 years old since the reference year 2020 (the school year 2019/2020). Consequently, the theoretical ages in effect starting in 2020 are 6-9 years for primary education, 10-14 years for lower secondary education, and 15-16 years for upper secondary education. Breaks in the time series between 2019 and 2020 can be explained by the change in the education structure.

Malaysia: data from SEA-PLM 2019 for the country for indicator 4.5.2 is not published as per country request to SEAMEO.

Mexico: A break in the time series of pre-primary indicators occurs in 2014 due to the following changes in the national education system:

- The entry age to pre-primary education changed from 4 to 3 years.
- The duration of pre-primary education changed from 2 to 3 years.

Norway: The country has an integrated pre-primary education programme. Pupils' ages are used as a proxy to disaggregate data for early childhood educational programmes between ISCED level 1 and ISCED level 2. Enrolment of children up to 2 years of age is mapped to ISCED level 1 and enrolment of children aged 3 years and older is mapped to ISCED level 2.

Palestine: Education data do not cover East Jerusalem, whereas the 2019 Revision of the World Population Prospects data do. Population-based indicators may be underestimated and therefore should be interpreted with caution.

Peru: the country asked the UIS to not publish data for PISA 2015 and 2018.

Republic of Moldova: Education data do not cover Transnistria, whereas the 2019 Revision of the World Population Prospects data do. The population data used to calculate indicators were provided by national authorities and exclude Transnistria. Additionally, starting from 2014, information provided by the country has been revised to use usual residential population.

Russian Federation: Starting from the year 2015, information provided by the Russian Federation includes statistical data for the Autonomous Republic of Crimea and the city of Sevastopol, Ukraine, temporarily occupied by the Russian Federation. The population data used for the calculation of indicators were provided by the UN Population Division and do not cover the Autonomous Republic of Crimea and the city of Sevastopol.

Serbia: Education data do not cover Kosovo, whereas the 2019 Revision of the World Population Prospects do. The population data used for the calculation of indicators were provided by Eurostat and exclude Kosovo.

Singapore: Education data starting from the year 2016 refer to residents (citizens and permanent residents) with local addresses and who were away from Singapore for a cumulative period of less than 6 months in the past 12 months prior to the reference date (end of June each year). The data

should only be used for the purpose of computing education indicators and should not be compared against other population data published by the Singapore Government.

Ukraine: Education data do not cover Crimea and the part of Donbass that is not under government control from the year 2015 onwards, whereas the 2019 Revision of the World Population Prospects do. Population data excluding these areas are not available for the moment. Consequently, the UIS is not able to produce indicators from 2015 onwards.

United Republic of Tanzania: Education data do not cover Zanzibar, whereas the 2019 Revision of the World Population Prospects data do. The population of Zanzibar is approximately 3% of the total population of the United Republic of Tanzania. Population-based indicators are underestimated and should therefore be interpreted with caution.

United States of America: policies on free/compulsory education may vary by state/subnational unit. Free education at ISCED level 2 is offered for 1 year in the majority of states and, in some cases, a second year of pre-Kindergarten is also free. Therefore, free/compulsory education estimates are a valid representation of the US average but vary by state.