

Education data from household surveys: Indicator definitions

Inter-Agency Group on Education Inequality Indicators (IAG-EII)

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1. Completion rate (primary, lower secondary, upper secondary)

SDG target 4.1, indicator 4.1.4

1. Definition

The percentage of a cohort of children or young people aged 3-5 years above the intended age for the last grade of each level of education who have completed that grade.

The intended age for the last grade of each level of education is the age at which pupils would enter the grade if they had started school at the official primary entrance age, had studied full-time and had progressed without repeating or skipping a grade. For example, if the official age of entry into primary education is 6 years, and if primary education has 6 grades, the intended age for the last grade of primary education is 11 years. In this case, 14-16 years ($11 + 3 = 14$ and $11 + 5 = 16$) would be the reference age group for calculation of the primary completion rate.

2. Purpose

The completion rate indicates how many persons in a given age group have completed primary, lower secondary, or upper secondary education. It indicates how many children and adolescents enter school on time and progress through the education system without excessive delays.

3. Calculation method

The number of persons in the relevant age group who have completed the last grade of the given level of education is expressed as a percentage of the total population (in the survey sample) of the same age group.

4. Formula

$$CR_n = \frac{P_{C_n, AG_{a+3t5}}}{P_{AG_{a+3t5}}}$$

where:

CR_n = completion rate for level n of education

$P_{C_n, AG_{a+3t5}}$ = population aged 3 to 5 years above the official entrance age a into the last grade of level n of education who completed level n

$P_{AG_{a+3t5}}$ = population aged 3 to 5 years above the official entrance age a into the last grade of level n of education

n = ISCED level 1 (primary education), 2 (lower secondary education), or 3 (upper secondary education)

5. Data required

- Population in the relevant age group by the highest level of education completed
- Data on the structure (entrance age and duration) of each level of education

6. Data sources

The data can be obtained from population censuses and household surveys that collect data on the highest level of education completed by children and young people in a household, through self- or household declaration. In the former case, each household member above a certain age reports his or her own level of educational attainment. In the latter case, one person, usually the head of the household or another reference person, indicates the highest grade and/or level of education completed of each member of the household. Administrative data from Ministries of Education on the structure of the education system (entrance ages and durations) are also needed.

Surveys can serve as a source of data if they collect information for the age groups of concern. In addition to national surveys, international sample surveys, such as Demographic and Health Surveys (DHS, <http://dhsprogram.com>) or Multiple Indicator Cluster Surveys (MICS, <http://mics.unicef.org>), are another source. These surveys are designed to meet commonly agreed upon international data needs and aim to assure cross-national comparability, while also providing data for national policy purposes. These surveys are implemented on a regular basis in selected countries, on average every 3 to 5 years.

Population censuses can also be a source of attainment data but they are carried out less frequently than household surveys, often only once per decade.

Typical questions in a household survey to collect data on educational attainment are:

- What is the highest level of education [name of household member] has attended?
- What is the highest grade of education [name of household member] completed at that level?

7. Disaggregation

- Sex
- Location
- Wealth quintiles
- Disability status
- Other personal and household characteristics (if possible)

8. Interpretation

A completion rate at or near 100% indicates that all or most children and adolescents have completed a level of education by the time they are 3 to 5 years older than the official age of entry into the last grade of that level of education.

A low completion rate indicates low or delayed entry into a given level of education, high drop-out, high repetition, late completion, or a combination of these factors.

To identify the causes of low completion rates, it is necessary to examine other indicators, for example the out-of-school rate, the gross intake ratio to the last grade, and the percentage of over-age children.

When disaggregated by sex, location, and other characteristics, this indicator can identify specific population groups who are excluded from education.

9. Limitations and other comments

For monitoring of SDG target 4.1, the completion rate is calculated in reference to levels of education defined in the International Standard Classification of Education (ISCED).¹ The completion rate can be calculated in reference to the national classification of education programmes by modifying the formula in section 4.

The completion rate defined above is similar to measures of educational attainment, which also refer to completion of individual levels of attainment. However, the latter are typically calculated for larger age groups and are not suitable to indicate improvements in average educational attainment over a short period of time. The completion rate defined here is also different from the “primary completion rate” disseminated by some data providers, for example the World Bank, and which is called “gross intake ratio to the last grade” by the UIS.

National data on educational attainment are often collected and reported in reference to national systems of education. The mapping from a national classification to ISCED is not always straightforward and can cause discrepancies between measures of attainment in national and international data. Data collection and mapping to ISCED are more difficult for upper secondary education than lower levels of education because of the variety of providers and programmes at the upper secondary level.

Household surveys usually record the age of household members at the time of enumeration. For a correct calculation of the completion rate, it is necessary to adjust household members’ ages to their age at the start of the school year (or to the reference date at which their eligibility for a given level and grade of education is determined), using information on their date of birth. For example, if enumeration takes place half a year after the start of the school year, approximately half of all children had a birthday during the preceding 6 months. In this case, if the intended age for the last grade of a level of education is n years, half of all children who were $n+2$ years old at the start of the school year would be $n+3$ years old at the time of enumeration and would mistakenly be included in the age group for calculation of the completion rate. If the date of birth is not available in the survey data, other adjustments, for example deducting one year from the ages of all household members if data were collected half a year or more after the start of the school year, can be considered. Age adjustment is especially important for indicators calculated for a small age group, such as the completion rate.

The principal use of the indicator is to measure on-time completion. The age group 3-5 years above the official age of entry into the last grade for a given level of education was selected for the calculation of the completion rate to allow for some delayed entry or repetition. In countries where entry can occur very late or where repetition is common, some children or adolescents in the age group examined may still attend school and the eventual rate of completion may therefore be underestimated with the indicator

¹ UNESCO Institute for Statistics (UIS). 2012. *International Standard Classification of Education: ISCED 2011*. Montreal: UIS. <http://www.uis.unesco.org/Education/Documents/isced-2011-en.pdf>.

defined above. In countries where most children complete education on time, without excessive late entry or repetition, increases in the completion rate will be observed with a lag of a few years.

For calculation of the indicator, the entrance ages and durations of each level of education at the time of data collection must be used. If the structure of the national education system has changed over time, different entrance ages and durations may have to be used for individual years when time series are produced.

Disaggregation by disability status is likely to be challenging due to limited data availability. Where data are collected by disability status, sample sizes are likely to be small due to low prevalence of disability.

2. Out-of-school rate (primary, lower secondary, upper secondary)

SDG target 4.1, indicator 4.1.5

1. Definition

The percentage of children and young people in the official age range for a given level of education who are not attending primary, secondary or higher levels of education. Children and young people who are attending pre-primary education are considered to be out-of-school.²

2. Purpose

To identify the share of the population in the official age range for a given level of education who are not attending school so that they can be better targeted and appropriate policies can be put in place to ensure they have access to education.

3. Calculation method

The number of students of the official age for level n of education attending primary, secondary or higher levels of education is subtracted from the total population of the same age, and the resulting number is divided by the total population of the official age for level n of education.

4. Formula

$$OOSR_n = \frac{P_{AG_n} - \sum_{i=1}^8 P_{A_i,AG_n}}{P_{AG_n}}$$

where

$OOSR_n$ = out-of-school rate for children and young people of the official age for level n of education

P_{AG_n} = population of the official age for level n of education

P_{A_i,AG_n} = population of the official age for level n of education that is attending level i of education

n = ISCED level 1 (primary education), 2 (lower secondary education), or 3 (upper secondary education)

i = ISCED level 1 (primary education) to 8 (doctor or equivalent level)

5. Data required

- Population in the relevant age group
- School attendance by single year of age and level of education
- Data on the structure (entrance age and duration) of each level of education

² The treatment of pre-primary education may be reconsidered. See section 9, "Limitations and other comments".

6. Data sources

The data can be obtained from population censuses and household surveys that collect data on the level of education attended by children and young people in a household, through self- or household declaration. In the former case, each household member above a certain age reports his or her own level of education attended. In the latter case, one person, usually the head of the household or another reference person, indicates the current grade and/or level of education attended of each member of the household. Administrative data from Ministries of Education on the structure of the education system (entrance ages and durations) are also needed.

Surveys can serve as a source of attendance data if they collect information for the age groups of concern. In addition to national surveys, international sample surveys, such as Demographic and Health Surveys (DHS, <http://dhsprogram.com>) or Multiple Indicator Cluster Surveys (MICS, <http://mics.unicef.org>), are another source. These surveys are designed to meet commonly agreed upon international data needs and aim to assure cross-national comparability, while also providing data for national policy purposes. These surveys are implemented on a regular basis in selected countries, on average every 3 to 5 years.

Population censuses can also be a source of attendance data but they are carried out less frequently than household surveys, often only once per decade.

Typical questions in a household survey to collect data on school attendance are:

- Did [name of household member] attend school at any time during the [YYYY] school year?
- During the [YYYY] school year, what level and grade [is/was] [name of household member] attending?

7. Disaggregation

- Age
- Sex
- Location
- Wealth quintiles
- Disability status
- Other personal and household characteristics (if possible)

8. Interpretation

The higher the rate and number of out-of-school children, adolescents and youth, the greater the need to focus on improving access to education. Some out-of-school children have never been in school, some may eventually attend as late entrants, and some may never attend. Other children may have initially attended but dropped out before completion of the given level. When disaggregated by sex, location, and other characteristics, this indicator can identify specific population groups who are excluded from education.

9. Limitations and other comments

For monitoring of SDG target 4.1, the out-of-school rate is calculated in reference to levels of education defined in the International Standard Classification of Education (ISCED).³ The out-of-school rate can be calculated in reference to the national classification of education programmes by modifying the formula in section 4.

Household surveys usually record the age of household members at the time of enumeration. For a correct calculation of the out-of-school rate, it is necessary to adjust household members' ages to their age at the start of the school year (or to the reference date at which their eligibility for a given level and grade of education is determined), using information on their date of birth. For example, if enumeration takes place half a year after the start of the school year, approximately half of all children had a birthday during the preceding 6 months. In this case, if the intended age of entry into grade 1 of primary education is n years, half of all children who were $n-1$ years old at the start of the school year would be n years old at the time of enumeration and would mistakenly be counted as out-of-school. If the date of birth is not available in the survey data, other adjustments, for example deducting one year from the ages of all household members if data were collected half a year or more after the start of the school year, can be considered. Age adjustment is especially important for indicators calculated for a small age group.

The definition of "attendance" in household surveys may vary. Surveys carried out as part of the DHS and MICS programs typically refer to attendance at any time of the school year. Children who attended school for a limited period of time - only a few days or weeks - would thus be considered in school, even if they are out of school at the time of data collection. Data on attendance at any time of the school year are comparable to data on enrolment because the latter may include children who enrolled but did not consistently attend school. An important advantage of the DHS and MICS approach is that it is easy to implement and comparable across countries. A more detailed question, for example one focused on regular attendance, would be more complicated to understand and would be likely to increase the rate of data error.

One issue that concerns the calculation of out-of-school rates is the treatment of participation in pre-primary education. The current international standard, described above, is to treat children of primary age or older enrolled in pre-primary education as out of school because pre-primary education does not meet the same educational standards as formal primary or higher education. This may result in an overestimate of the rate and number of children who are not in school, in particular in countries where pre-primary education is compulsory.⁴ Participation in pre-primary education should be treated in the same manner during indicator calculation from administrative and survey data to maintain a high degree of comparability of out-of-school rates calculated from different sources of data.

For calculation of the indicator, the entrance ages and durations of each level of education at the time of data collection must be used. If the structure of the national education system has changed over time,

³ UNESCO Institute for Statistics (UIS). 2012. *International Standard Classification of Education: ISCED 2011*. Montreal: UIS. <http://www.uis.unesco.org/Education/Documents/isced-2011-en.pdf>.

⁴ The UIS produces a complementary indicator, the rate of out-of-school children of primary school age in pre-primary education (<http://data.uis.unesco.org/Index.aspx?queryid=123>), that can be used to assess to what extent the primary out-of-school rate may be overestimated. The rate of out-of-school children of primary school age in pre-primary education is typically below 3%, with the majority of countries having values below 1%. In a small number of countries, mostly in sub-Saharan Africa, up to 10% of primary-age children are in pre-primary education.

different entrance ages and durations may have to be used for individual years when time series are produced.

Disaggregation by disability status is likely to be challenging due to limited data availability. Where data are collected by disability status, sample sizes are likely to be small due to low prevalence of disability.

3. Percentage of children over-age for grade (primary, lower secondary, upper secondary)

SDG target 4.1, indicator 4.1.6

1. Definition

The percentage of pupils in each level of education (primary, lower secondary, and upper secondary) who are 2 years or more above the intended age for their grade.

The intended age for a given grade is the age at which pupils would enter the grade if they had started school at the official primary entrance age, had studied full-time and had progressed without repeating or skipping a grade. For example, if the official age of entry into primary education is 6 years, the intended age for grade 4 is 9 years. In this case, pupils in grade 4 who are 11 years or older would be considered over-age for their grade.

2. Purpose

The indicator measures progress towards the target of ensuring that all girls and boys complete quality primary and secondary education and achieve at least minimum levels of proficiency in reading and mathematics.

Children may be over-age for grade because they started school late and/or repeated one or more grades.

3. Calculation method

The sum of students across all grades attending a given level of education who are 2 or more years older than the intended age for their grade is expressed as a percentage of the total number of students attending the given level of education.

4. Formula

$$POAG_n = \frac{\sum_{g=1}^{d_n} P_{A_n,g,AG_{g,2+}}}{P_{A_n}}$$

where:

$POAG_n$ = percentage of students over-age for grade in level n of education

$P_{A_n,g,AG_{g,2+}}$ = population attending grade g of level n of education that is 2 or more years older than the intended age for that grade

P_{A_n} = total population attending level n of education

d_n = duration (in years) of level n of education

n = ISCED level 1 (primary education), 2 (lower secondary education), or 3 (upper secondary education)

5. Data required

- School attendance by single year of age in each grade and level of education
- Data on the structure (entrance age and duration) of each level of education

6. Data sources

The data can be obtained from population censuses and household surveys that collect data on the level of education attended by children and young people in a household, through self- or household declaration. In the former case, each household member above a certain age reports his or her own level of education attended. In the latter case, one person, usually the head of the household or another reference person, indicates the current grade and/or level of education attended of each member of the household. Administrative data from Ministries of Education on the structure of the education system (entrance ages and durations) are also needed.

Surveys can serve as a source of data if they collect information for the age groups of concern. In addition to national surveys, international sample surveys, such as Demographic and Health Surveys (DHS, <http://dhsprogram.com>) or Multiple Indicator Cluster Surveys (MICS, <http://mics.unicef.org>), are another source. These surveys are designed to meet commonly agreed upon international data needs and aim to assure cross-national comparability, while also providing data for national policy purposes. These surveys are implemented on a regular basis in selected countries, on average every 3 to 5 years.

Population censuses can also be a source of attendance data but they are carried out less frequently than household surveys, often only once per decade.

Typical questions in a household survey to collect data on school attendance are:

- Did [name of household member] attend school at any time during the [YYYY] school year?
- During the [YYYY] school year, what level and grade [is/was] [name of household member] attending?

7. Disaggregation

- Sex
- Location
- Wealth quintiles
- Disability status
- Other personal and household characteristics (if possible)

8. Interpretation

A full cycle of primary and secondary education is becoming an international norm. Over-age progression and significant repetition should be discouraged as both are associated with a higher risk of drop-out and lower levels of student learning achievement.

A low value of this indicator shows that the majority of students start school on time and progress with minimum grade repetition.

9. Limitations and other comments

For monitoring of SDG target 4.1, the percentage of children over-age for grade is calculated in reference to levels of education defined in the International Standard Classification of Education (ISCED).⁵ The percentage of children over-age for grade can be calculated in reference to the national classification of education programmes by modifying the formula in section 4.

Pupils in higher levels of education are more likely to be overage because of the cumulative effect of late entry and repetition.

Household surveys usually record the age of household members at the time of enumeration. For a correct calculation of the percentage of children over-age for their grade, it is necessary to adjust household members' ages to their age at the start of the school year (or to the reference date at which their eligibility for a given level and grade of education is determined), using information on their date of birth. For example, if enumeration takes place half a year after the start of the school year, approximately half of all children had a birthday during the preceding 6 months. In this case, if the intended age for a given grade is n years, half of all children who were $n+1$ years old at the start of the school year would be $n+2$ years old at the time of enumeration and would mistakenly be counted as over-age for their grade. Without adjustment of ages in the survey sample, the percentage of children over-age for their grade would be an over-estimate. If the date of birth is not available in the survey data, other adjustments, for example deducting one year from the ages of all household members if data were collected half a year or more after the start of the school year, can be considered. Age adjustment is especially important for indicators calculated for a small age group.

For calculation of the indicator, the entrance ages and durations of each level of education at the time of data collection must be used. If the structure of the national education system has changed over time, different entrance ages and durations may have to be used for individual years when time series are produced.

Disaggregation by disability status is likely to be challenging due to limited data availability. Where data are collected by disability status, sample sizes are likely to be small due to low prevalence of disability.

⁵ UNESCO Institute for Statistics (UIS). 2012. *International Standard Classification of Education: ISCED 2011*. Montreal: UIS. <http://www.uis.unesco.org/Education/Documents/isced-2011-en.pdf>.