

The **visibility model** of out-of-school children and children at risk of dropping out



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Key obstacles to monitoring OOSC

OOSC are not (accurately) recorded or reported:

- Gaps in vertical information flows:

National



Local

- Gaps in horizontal information flows:

Ministry ↔ Ministry

Visibility model & OOSC classification: Dim 1, 2 &3

Visible: school age children who are not attending school but are registered in education databases; these are generally children who dropped out of school.

Invisible: school age children who have never attended school and are not recorded in any government database.

Examples: Undocumented migrants, children living on the street, children with disabilities who are hidden in the home.

Visibility model & OOSC classification: Dim 1, 2 &3

Semi-invisible: Unidentified out of school children, who could be identified through an examination of government or school records.

Examples:

- children who never attended school could be identified by linking enrolment records with other government databases at the individual child-level
- children who dropped out but their school record is not updated
- children in non-formal education programmes not reported to the Ministry of Education
- children never in school but recorded in the data of the local health unit after receiving vaccinations

Visibility model and OOSC Classification: Dim 3&4

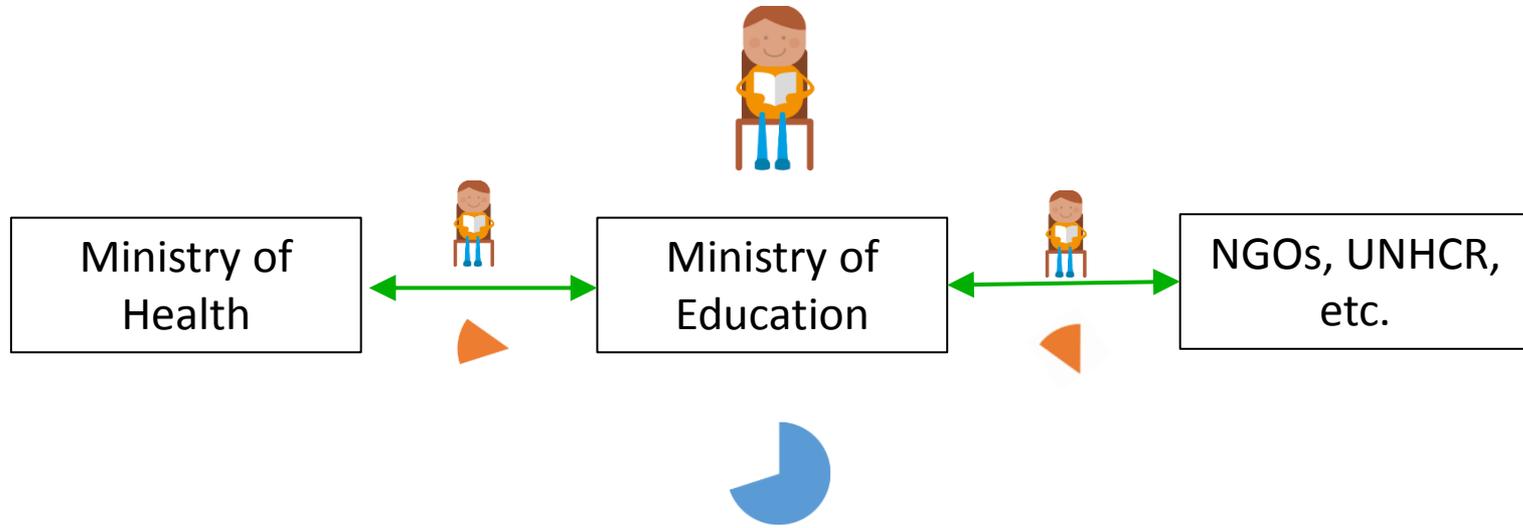
Visible: school age children who are in school, but identified as being at risk of dropping out.

➤ Example: a student whose school record indicates he/she is a child labourer

Invisible: school age children who are in school and at risk of dropping out, but have not been identified as at risk.

➤ Example: a student with a disability which is not identified and recorded in his/her student record

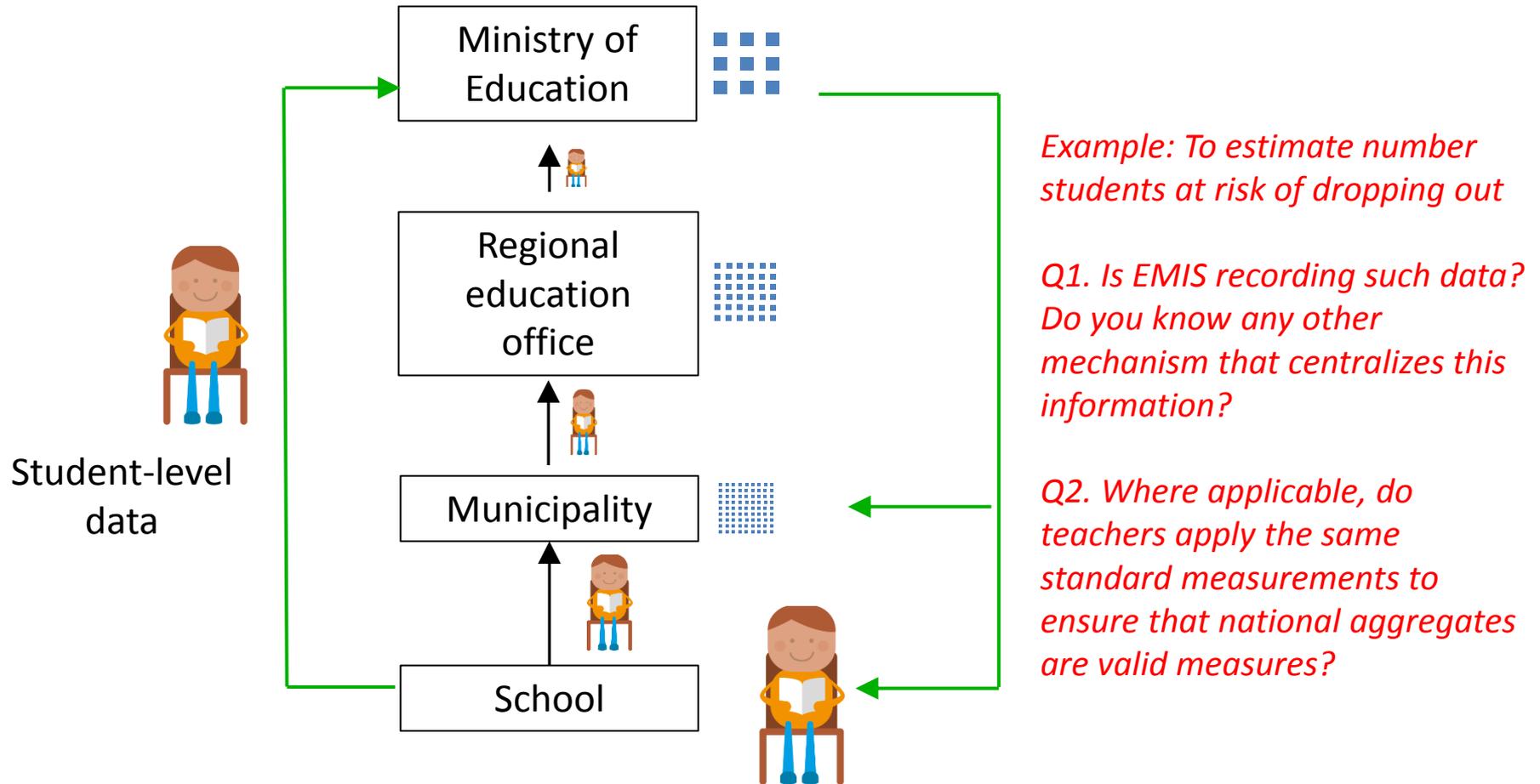
Gaps in horizontal information flows



How would you describe the situation in your home country: existing databases and studies?

Access to, and sharing of info between ministries and other entities that maintain a database that includes stats on OOSC?

Gaps in vertical information flows



Even within the same ministry, several projects collect separate data from the same respondents! without coordination databases may not be linked to draw a rich profile of OOSC that combines the different perspectives.

100 %

All OOSC of pre-primary, primary and lower secondary age

OOSC accurately recorded in government and school databases

Invisible OOSC

OOSC known to the Ministry of Education (EMIS)

Semi-invisible OOSC

OOSC included in reporting & analysis

Forgotten OOSC

OOSC receiving support

Ignored OOSC



X % ?

Visibility model and the Operational Manual Profiles chapter

- Visibility model helps to categorize gaps in the data on out-of-school children identified in Steps 1 and 2
- Provides a language to discuss data coverage:
 - Q1. Which agencies or ministries have information on children never enrolled in school?
 - Q2. Who are the invisible out-of-school children in your country?

Are the questions above of any relevance for OOSCI study in your respective countries?

Recommendations to improve data and policies on out-of-school children

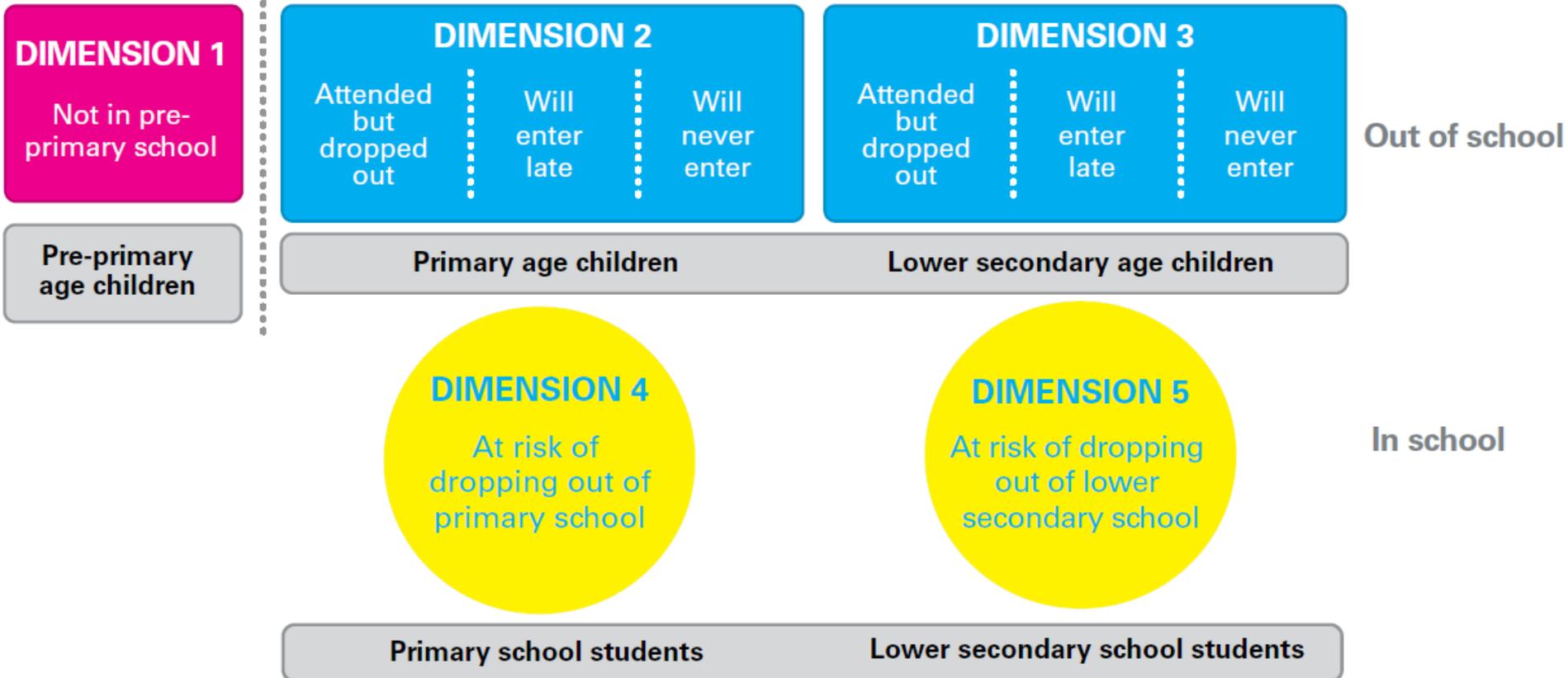
- Thinking about data about children in the 5DE according to the visibility model leads to concrete recommendations in the OOSCI study:
 - Ways to improve recording of data at the school level (unregistered dropouts, at-risk children not identified)
 - Ways to improve data sharing between ministries and agencies with information on OOSC and children at risk of dropping out
 - Ways to identify invisible out-of-school children (relationships with NGOs and agencies working with marginalized children)

Estimation of risk of dropout (Dimensions 4&5)

How many children are at risk of exclusion?

Measurement of dropout: Dimensions 4 and 5

The Five Dimensions of Exclusion



Identification of children at risk of exclusion

- *All children in school are at risk of dropping out: Dimensions 4 and 5 seek to identify children at the greatest risk.*
- *Definition: Dropout child in year t is one who was in school in year $t-1$ but not in year t .*

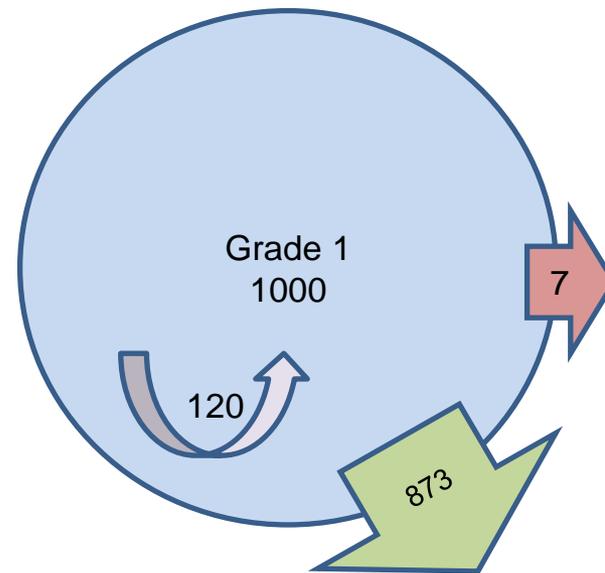
Two complementary approaches to the identification of children at risk of dropping out:

1. Analyze observed dropout rates
2. Identify risk factors for dropout
 - 2.1. *Study characteristics of children who dropped out and*
 - 2.2. *Develop indicators linked to early school leaving for children currently in school.*

Analyze observed dropout rates:

Progression indicators

- Three main indicators are used to analyze the students' path within an education system:
 - Promotion
 - Repetition
 - Dropout



Progression indicators

Promotion rate

- Required data:
 - Total enrolment in grade n in year t
 - New entrants to grade n+1 in year t+1

$$PR_n^t = \frac{\text{New entrants to grade } n + 1 \text{ in year } t + 1}{\text{Total enrolment at grade } n \text{ in year } t} \times 100$$

Progression indicators

Repetition rate

- Required data:
 - Total enrolment in grade n in year t
 - Number of repeaters in grade n in year $t+1$

$$RR_n^t = \frac{\text{Number of repeaters in grade } n \text{ in year } t+1}{\text{Total enrolment in grade } n \text{ in year } t} \times 100$$

Progression indicators

Dropout rate

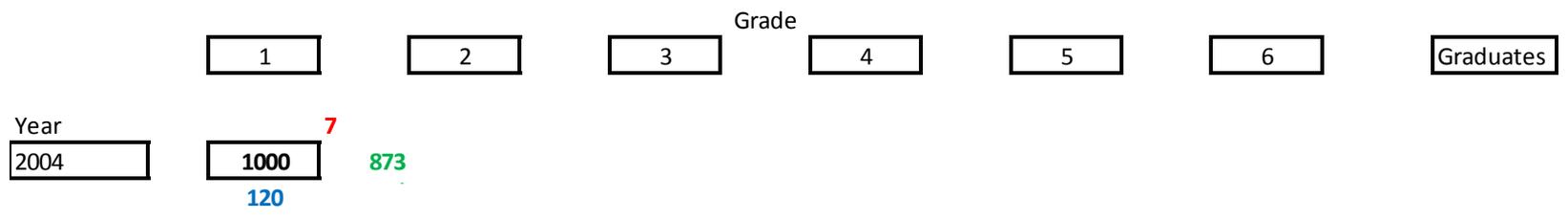
- Required information:
 - Promotion rate by grade
 - Repetition rate by grade

$$DR = 100\% - (PR + RR)$$

Progression indicators

2010		Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	
	Enrolment	654,802	654,369	634,582	753,889	757,671	741,267	
2011		Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	
	Enrolment	658,460	641,065	640,466	632,358	763,675	742,930	
	Repeaters	78,294	69,466	60,598	62,751	83,618	96,759	
	Graduates							621,201
	Promotion rate	0.873	0.886	0.898	0.902	0.853	0.838	
	Repetition rate	0.120	0.106	0.095	0.083	0.110	0.131	
	Dropout rate	0.007	0.008	0.007	0.015	0.037	0.031	

Reconstructed cohort method



Reconstructed cohort method

Year	Grade							Graduates
	1	2	3	4	5	6		
2004	1000							
2005	120	873						
2006	14	197	774					
2007	2	33	248	694				
2008	0	5	53	281	626			
2009	0	1	10	71	322	534	448	
2010	0	0	2	15	100	345	289	
2011	0	0	0	3	24	130	109	
2012		0	0	0	5	38	31	
2013			0	0	1	9	8	
				0	0	2	2	
					0	0	0	
						0	0	
							0	

	991	983	975	960	920	
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Survival rate and dropout rate

Year 1:

- 100 children in grade 1

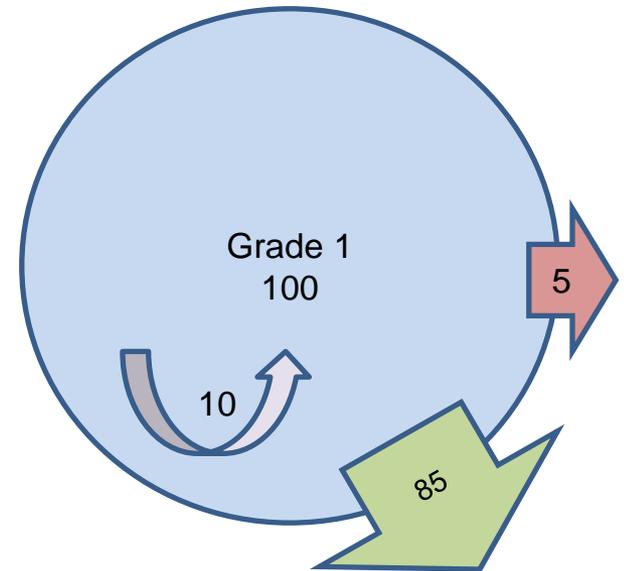
Year 2:

- 85 children promoted to grade 2
- 10 children repeating grade 1
- 5 children dropped out of school

Promotion Rate (PR) = 85%

Repetition Rate (RR) = 10%

Dropout rate (DR) = 5%



Survival rate from grade 1 to grade 2 =

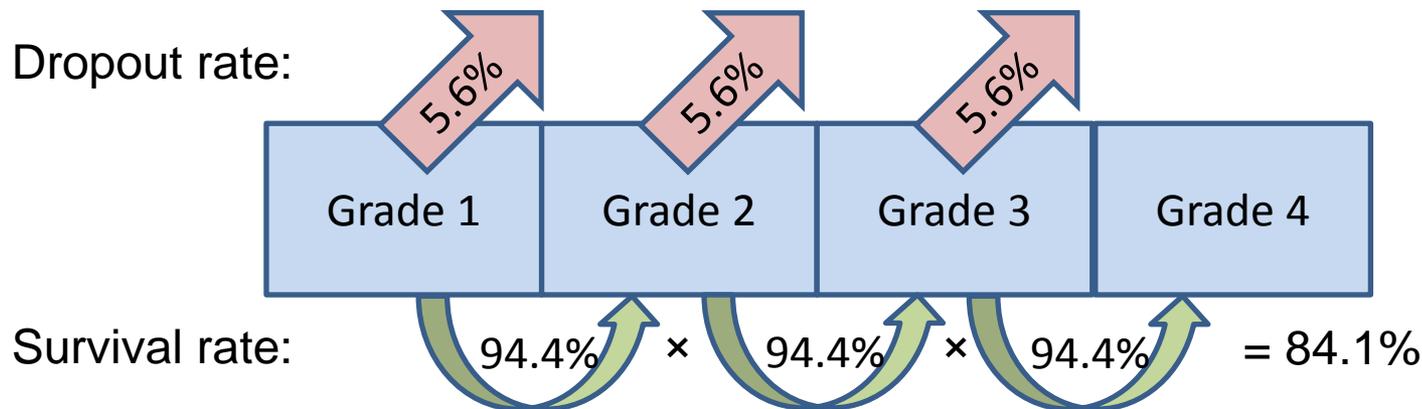
$$\text{PR to G2} / (1 - \text{RR in G1}) = 0.85 / (1 - 0.1) = 94.4\%$$

Dropout rate from grade 1 to grade 2 =

$$100\% - \text{SR from grade 1 to grade 2} = 100\% - 94.4\% = 5.6\%$$

Note that dropout rate from grade 1 to 2 is greater than 5% dropout rate from year 1 to 2 because some repeaters also drop out.

Survival rate to last grade



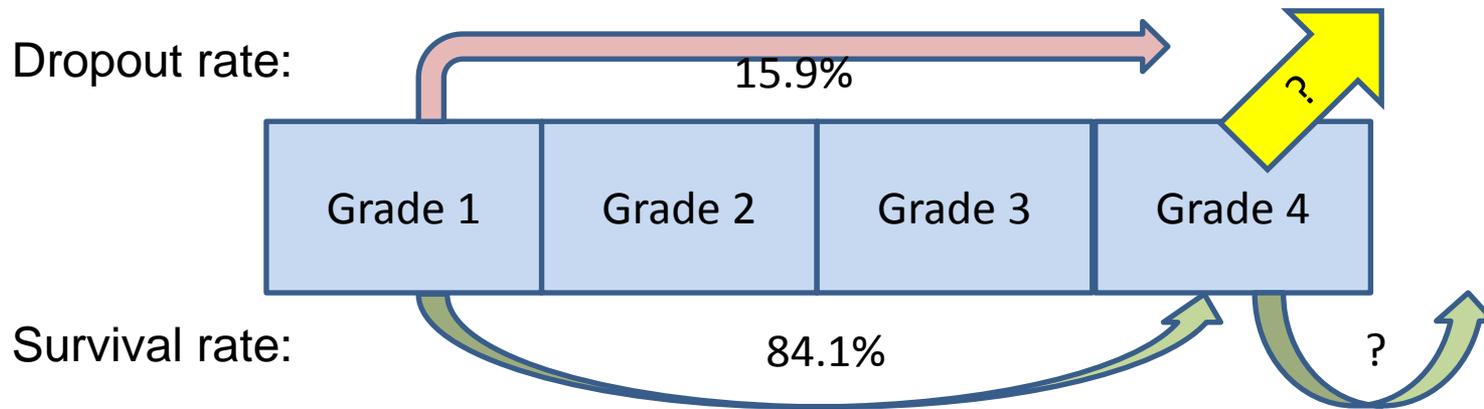
Survival rate to last grade =
product of survival rates for individual grades

Example: Assume that survival rates and dropout rates are same in grades 1 to 3

Survival rate from grade 1 to grade 4 =
Survival rate from grade 1 to grade 2 ×
Survival rate from grade 2 to grade 3 ×
Survival rate from grade 3 to grade 4 =
 $0.944 \times 0.944 \times 0.944 = 84.1\%$

Of 100 children who enter grade 1, 84 reach the last grade.

Dropout rate to last grade



Survival rate from grade 1 to grade 4 = 84.1%

Dimension 4 and 5 indicator:

Dropout rate to last grade = 100% - survival rate to last grade

Example:

Dropout rate from grade 1 to grade 4 = 100% - 84.1% = 15.9%

16% or 16 of 100 children who enter grade 1 drop out before last grade.

Note: Dropout rate from grade 4 and survival rate from grade 4 are unknown. Reason: cannot distinguish between children who did not continue their education before or after completing the last grade.

How many children in school are at risk of dropout?

Q: How many children in grade 1 are at risk of dropout?

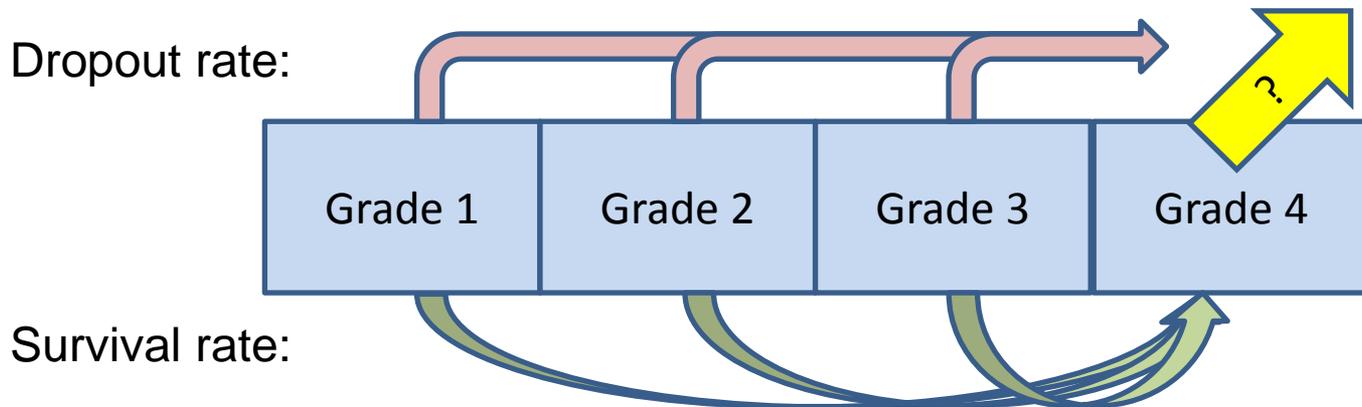
A: Dropout rate to last grade.

Q: How many children in all grades of primary or secondary school are at risk of dropout?

A: Don't know because dropout from last grade is unknown.

Q: How many children in primary or secondary school drop out before they reach the last grade?

A: Can be calculated from survival rates for all grades.



Percentage of pupils who drop out before last grade

Grade 1: 100 pupils	Grade 2: 94 pupils	Grade 3: 89 pupils	Grade 4: 84 pupils
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Survival rate 1 to 4: $94.4\% \times 94.4\% \times 94.4\% = 84.1\%$

Survival rate 2 to 4: $94.4\% \times 94.4\% = 89.1\%$

Survival rate 3 to 4: $94.4\% = 94.4\%$

84.1% or 84 of 100 children in grade 1 reach last grade, 16 drop out.

89.1% or 84 of 94 children in grade 2 reach last grade, 10 drop out.

94.4% or 84 of 89 children in grade 3 reach last grade, 5 drop out.

Percentage of children in grades 1 to 3 who drop out before last grade
= weighted average of dropout rates to last grade for grades 1 to 3.

Example: $(100 \times 0.159 + 94 \times 0.109 + 89 \times 0.056) / (100 + 94 + 89) = 11\%$.

11% or 31 of 283 children in grades 1 to 3 drop out before last grade.

Dimension 4 and 5 indicator: Percentage of pupils in school (in all

Dimensions 4 and 5: Survival rate and dropout rate

Survival rate to last grade of primary education:

Percentage of primary school entrants who reach the last grade =
$$\frac{\text{Number of primary school entrants who reach last grade}}{\text{Number of primary school entrants}}$$

Dropout rate from grade 1 to last grade of primary education:

Percentage of primary school entrants who drop out before last grade =
$$\frac{\text{Number of primary school entrants who drop out before last grade}}{\text{Number of primary school entrants}}$$

Percentage of primary pupils (excluding last grade) who drop out before last grade:

Percentage of children in primary school (excl. last grade) who drop out before last grade =
$$\frac{\text{Number of children in primary school (excl. last grade) who drop out before last grade}}{\text{Number of children in primary school} - \text{number of children in last grade}}$$

Note: For Dimension 5 replace “primary” by “lower secondary”.

Data needed (for reconstructed cohort method): enrolment by grade for two consecutive years, repeaters by grade for the second year.

Dimensions 4 and 5: Survival rate and dropout rate

UIS publishes two indicators:

- Survival rate to last grade
- Dropout rate to last grade = **estimate of the number of children in grade 1 at risk of dropout**

Third indicator (percentage of children who drop out before last grade) yields estimate of number of children in primary or secondary school (excluding last grade) in a given year who are likely to drop out before they reach the last grade = **estimate of the number of children in school at risk of dropout.**

Limitation of dropout indicators:

- Dropout from last grade is unknown.
- Both dropout indicators are proxy measures for risk of dropout to quantify Dimension 4 and 5.

Identification of risk factors for dropout

(a) Study characteristics of children who dropped out

With household survey data it is possible to develop **profiles of children who dropped out** to determine common characteristics.

Examples:

- Children from poor households
- Child labourers
- Children with disabilities
- Orphans
- Certain ethnic, linguistic or religious groups
- Children without pre-primary education
- Children who were overage for their grade

Identification of risk factors for dropout

(b) Develop indicators linked to early school leaving for children currently in school

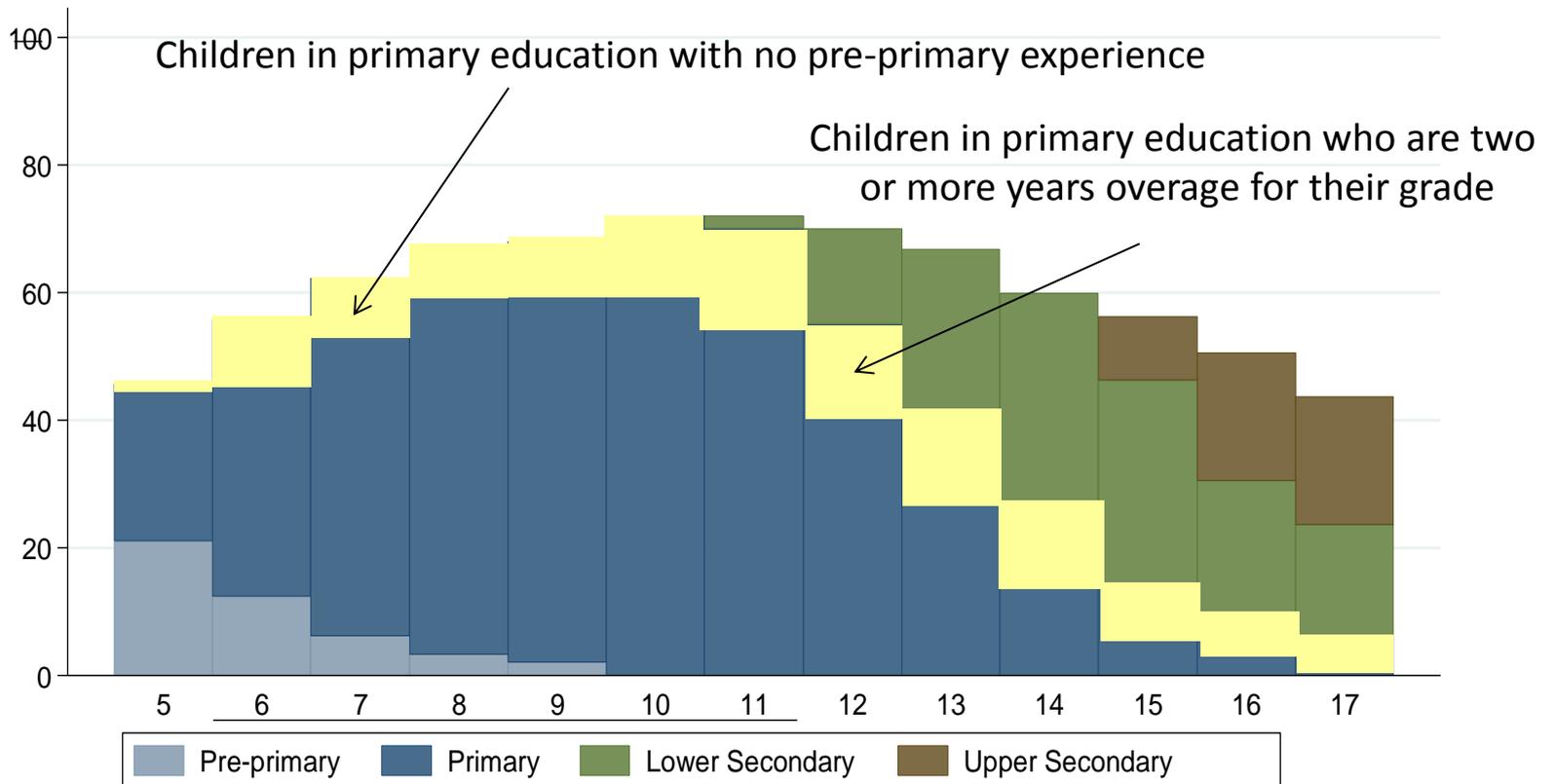
Examples:

1. Children who are **overage for their grade** (due to late entry or grade repetition).
Indicators: Repetition rate (by grade); percentage of children who are two or more years overage for their grade.
2. Children in primary education with **no pre-primary experience**.
Indicator: Percentage of new entrants to primary education without pre-primary experience.

These and other indicators can over- or underestimate the number of children at risk of dropout.

Identification of children at risk of exclusion

Example: Dimension 4: children at risk of dropping out of primary education



Summary

How many children are at risk of dropping out?

Indicators of progression and completion (Dimensions 4 and 5)

- Survival rate, survival rate to last grade
- Dropout rate, dropout rate to last grade
- Percentage of pupils who drop out before reaching last grade (*not published by UIS*)
- Primary completion rate (proxy: gross intake ratio to last grade of primary education)
- Percentage of children who are two or more years overage for their grade (*not published by UIS*)
- Percentage of new entrants to primary education without pre-primary experience

Dimensions 1, 2 and 3 are easier to quantify than Dimensions 4 and 5.

More information: Operational Manual, chapter 4, step 3.

UIS tools for OOSC indicator calculation

UIS tools for OOSC indicator calculation

Dimensions 1,2&3:

- Input tables with raw data per education level: duration, entry age, total population by age, School attendance status (*in % such as Out of school, drop out never been in school new entrants to primary school*)
- The estimates of OOSC related indicators and numbers are generated automatically

Dimensions 4&5:

- Input tables with raw data on enrollment, repeaters, in-transfers by grade,
- The estimates of students at risk of drop-out related indicators and numbers are generated automatically

[Country] [Year]

Global Initiative on Out-of-school Children -- Calculation spreadsheet for Dimensions 2 and 3

Table 1		Primary (ISCED 1)	Lower secondary (ISCED 2)	Source data											
Education system	Entry age	[Enter age]	[Enter age]	School attendance (Table 2) [Survey] [Year]											
	Duration of level (years)	[Enter age]	[Enter age]	Population by age (Table 3) [Source] [Year]											
		Primary age						Lower secondary age							
Table 2		4	5	6	7	8	9	10	11	12	13	14	15	16	17
Population by age		Total population													
Table 3		4	5	6	7	8	9	10	11	12	13	14	15	16	17
School attendance status (%)		Out of school (OOS)													
		Dropped out													
		Never been in school													
		New entrants to primary school													
Table 4		4	5	6	7	8	9	10	11	12	13	14	15	16	17
New entrants		New entrants as % of OOSC never in school in previous year													
		OOSC never in school in current year as % of OOSC never in school in previous year													
		Primary age						Lower secondary age							
Table 5		4	5	6	7	8	9	10	11	12	13	14	15	16	17
Categories of OOSC (%)		Dropped out													
		Expected to enter by age 17													
		Expected to never enter													
Categories of OOSC (population)		Dropped out													
		Expected to enter by age 17													
		Expected to never enter													
Number of OOSC		0													

Table on enrollment for Dimension 4

			Table 1						
			Enrolment - Inscrits - القيد						
Year Année السنة	Sex Sexe الجنس	Duration (years) مدة الدراسة (سنوات) Durée (années)	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
			الصف الأول 1 ^{ère} année	الصف الثامن 2 ^{ème} année	الصف الثالث 3 ^{ème} année	الصف الرابع 4 ^{ème} année	الصف الخامس 5 ^{ème} année	الصف السادس 6 ^{ème} année	الصف السابع 7 ^{ème} année
2002	MF	ذكور وإناث							
2002	M	ذكور							
2002	F	إناث							
2003	MF	ذكور وإناث							
2003	M	ذكور							
2003	F	إناث							
2004	MF	ذكور وإناث							
2004	M	ذكور							
2004	F	إناث							
2005	MF	ذكور وإناث							
2005	M	ذكور							
2005	F	إناث							
2006	MF	ذكور وإناث							
2006	M	ذكور							
2006	F	إناث							
2007	MF	ذكور وإناث							
2007	M	ذكور							
2007	F	إناث							
2008	MF	ذكور وإناث							
2008	M	ذكور							
2008	F	إناث							
2009	MF	ذكور وإناث							
2009	M	ذكور							
2009	F	إناث							
2010	MF	ذكور وإناث							
2010	M	ذكور							
2010	F	إناث							
2011	MF	ذكور وإناث							
2011	M	ذكور							
2011	F	إناث							
2012	MF	ذكور وإناث							
2012	M	ذكور							
2012	F	إناث							
2013	MF	ذكور وإناث							
2013	M	ذكور							
2013	F	إناث							
2014	MF	ذكور وإناث							
2014	M	ذكور							
2014	F	إناث							

OOSCI indicators in the UIS database

Dimensions 1,2 &3:

1. Number of out-of-school children of primary school age
2. Number of out-of-school adolescents of lower secondary school age
3. Number of out-of-school youth of upper school age
4. Out-of-school rate for children of primary school age
5. Out-of-school rate for children of primary school age (household survey data)
6. Out-of-school rate for adolescents of lower secondary school age
7. Out-of-school rate for adolescents of lower secondary school age (household survey data)
8. Out-of-school rate for youth of upper secondary school age

OOSCI indicators in the UIS database

Dimensions 4 &5:

1. Survival rate to last grade in:

- ✓ primary education and
- ✓ lower secondary general education

2. Dropout rate to last grade in:

- ✓ primary education and
- ✓ lower secondary general education

3. Percentage of children who drop out before last grade

OOSCI indicators in the UIS database

The screenshot shows the UNESCO Institute for Statistics Data Centre website. The browser address bar displays <http://www.uis.unesco.org/DataCentre/Pages/BrowseEducation.aspx>. The page header includes the UNESCO logo and the text "UNESCO INSTITUTE for STATISTICS" and "United Nations Educational, Scientific and Cultural Organization". A navigation bar contains links for "Home", "Data Centre", and "Browse by Theme". Below this, there are buttons for "VIEW PROFILES", "BROWSE BY THEME", and "CREATE A DATASET". The main content area is titled "Key Tables" and lists various indicators under the "Education" category. The "Out-of-school children" section includes links to indicators such as "Number of out-of-school children of primary school age", "Number of out-of-school adolescents of lower secondary school age", "Number of out-of-school youth of upper secondary school age", "Out-of-school rate for children of primary school age", "Out-of-school rate for children of primary school age (household survey data)", "Out-of-school rate for adolescents of lower secondary school age", "Out-of-school rate for adolescents of lower secondary school age (household survey data)", and "Out-of-school rate for youth of upper secondary school age". Other categories listed include "Entry", "Participation", "Progression", "Completion", "Literacy", "Educational attainment", "International student mobility in tertiary education", "Human resources", and "Financial resources". On the right side, there are sections for "QUICK LINKS" (Guide to education statistics, Frequently Asked Questions about education statistics, Glossary), "CUSTOM DATA" (Create a dataset), and "CATALOGUES" (View learning assessments catalogue). The bottom of the page shows a Windows taskbar with the time 7:46 PM.

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Key Tables

- Education
 - Out-of-school children
 - [Number of out-of-school children of primary school age](#)
 - [Number of out-of-school adolescents of lower secondary school age](#)
 - [Number of out-of-school youth of upper secondary school age](#)
 - [Out-of-school rate for children of primary school age](#)
 - [Out-of-school rate for children of primary school age \(household survey data\)](#)
 - [Out-of-school rate for adolescents of lower secondary school age](#)
 - [Out-of-school rate for adolescents of lower secondary school age \(household survey data\)](#)
 - [Out-of-school rate for youth of upper secondary school age](#)
 - Entry
 - Participation
 - Progression
 - Completion
 - Literacy
 - Educational attainment
 - International student mobility in tertiary education
 - Human resources
 - Financial resources

QUICK LINKS

- [Guide to education statistics](#)
- [Frequently Asked Questions about education statistics](#)
- [Glossary](#)

CUSTOM DATA

- [Create a dataset](#)

CATALOGUES

- [View learning assessments catalogue](#)

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OOSCI indicators in the UIS database

UIS dedicated web page to OOSCI (technical papers, analytical reports, and other resources):

<http://www.uis.unesco.org/Education/Pages/out-of-school-children.aspx>

Data Centre:

<http://www.uis.unesco.org/DataCentre/Pages/BrowseEducation.aspx>

Lyaloo!