

TIMSS 2011

## TIMSS 2011 Trends in Student Populations

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Because an important goal of the TIMSS 2011 assessment was to measure changes in students' mathematics and science achievement across assessment cycles, it was important to track any changes over time in population composition and coverage that might be related to student achievement. Exhibits 1 and 2 present, for each country, trends across cycles (2011, 2007, 2003, 1995 at fourth grade and 2011, 2007, 2003, 1999, and 1995 at eighth grade) in four important characteristics of the assessment populations: number of years of formal schooling, average student age, percent of students in the national target population excluded from the assessment, and overall participation rates after using replacements. Most countries and benchmarking participants were very similar with regard to these characteristics across the four assessment cycles at fourth grade and five cycles at eighth grade, although there have been changes in some countries in the age and grade structure of the assessed populations and in the exclusion rate.

Armenia has added a year to compulsory schooling and students now begin school at an earlier age than they had previously. At the fourth grade, the transition is essentially complete and the average age of these students is now less than before. However, the eighth grade population is still in transition, and the average age, which has decreased, is expected to decrease further in the future. Although Australia, since 2003, has tested only fourth grade students for the fourth grade population and only eighth grade students for the eighth grade population, in 1995 the younger assessment population contained fourth grade students from some states and fifth grade students from other states, and similarly the older population contained a mixture of eighth and ninth grade students. Because of this, Australian students were somewhat older, on average, in 1995. The Russian Federation and Slovenia have undergone structural changes in the age at which children enter schools that are reflected in their samples. In 2003, the Russian fourth grade sample contained third grade students from some regions and fourth-grade students from others, whereas all students were in fourth grade by 2007. At the eighth grade, there was still a mixture of seventh and eighth grade students in 2007, but by 2011 the sample was all eighth grade students, with correspondingly a higher average age. Slovenia has now completed the transition towards having all children begin school at an earlier age so that they all will have four years of primary schooling at the fourth grade instead of three years, as was the case in 2003.

In general, the exclusion rates do not exceed the TIMSS 2011 guidelines of 5 percent, and have not changed very much across assessments for most countries. Also, in most cases, the exclusion rates have decreased. However, the student exclusion rate was higher in 2011 than in 2007 at eighth grade in Australia, Hong Kong SAR, the Russian Federation, Singapore, the Slovak Republic, Sweden, and Yemen. At the fourth grade, those with higher exclusions since 2007 included Denmark, Hong Kong SAR, Iran, the Russian Federation, Singapore, and the United States.

**Exhibit 1: Trends in Student Populations - TIMSS Grade 4**

Country	Years of Formal Schooling*				Average Age at Time of Testing				Overall Exclusion Rates				Overall Participation Rates (After Replacement)			
	2011	2007	2003	1995	2011	2007	2003	1995	2011	2007	2003	1995	2011	2007	2003	1995
<sup>a</sup> Armenia	4		4		10.0		10.9		2.0%		2.9%		98%		90%	
Australia	4	4	4	4 or 5	10.0	9.9	9.9	10.2	4.4%	4.0%	2.7%	1.8%	93%	95%	85%	66%
Austria	4	4		4	10.3	10.3		10.5	5.1%	5.0%		2.8%	98%	97%		69%
Belgium (Flemish)	4		4		10.0		10.0		5.0%		6.3%		92%		97%	
Chinese Taipei	4	4	4		10.2	10.2	10.2		1.4%	2.8%	3.1%		99%	100%	99%	
Czech Republic	4	4		4	10.4	10.3		10.4	5.1%	4.9%		4.1%	94%	92%		86%
Denmark	4	4			11.0	11.0			6.3%	4.1%			87%	85%		
England	5	5	5	5	10.2	10.2	10.3	10.0	2.0%	2.1%	1.9%	12.1%	78%	84%	76%	83%
<sup>b</sup> Georgia	4	4			10.0	10.1			4.9%	4.8%			96%	98%		
Germany	4	4			10.4	10.4			1.9%	1.3%			95%	96%		
Hong Kong SAR	4	4	4	4	10.1	10.2	10.2	10.1	8.5%	5.4%	3.8%	2.7%	82%	81%	83%	83%
Hungary	4	4	4	4	10.7	10.7	10.5	10.4	4.2%	4.4%	8.1%	3.8%	96%	96%	93%	92%
Iran, Islamic Rep. of	4	4	4	4	10.2	10.2	10.4	10.5	4.5%	3.0%	5.7%	1.3%	99%	99%	98%	97%
Ireland	4			4	10.3			10.3	2.5%			6.9%	95%			90%
Italy	4	4	4		9.7	9.8	9.8		3.7%	5.3%	4.2%		95%	97%	97%	
Japan	4	4	4	4	10.5	10.5	10.4	10.4	3.2%	1.1%	0.8%	3.0%	96%	95%	97%	92%
Korea, Rep. of	4			4	10.4			10.3	2.5%			6.6%	98%			95%
Lithuania	4	4	4		10.7	10.8	10.9		5.6%	5.4%	4.6%		94%	94%	87%	
Morocco	4	4	4		10.5	10.6	11.0		2.0%	1.4%	2.2%		96%	77%	81%	
Netherlands	4	4	4	4	10.2	10.2	10.2	10.3	4.0%	4.8%	5.2%	4.4%	79%	91%	84%	59%
New Zealand	4.5–5.5	4.5–5.5	4.5–5.5	4.5–5.5	9.9	10.0	10.0	10.0	4.9%	5.4%	4.0%	1.3%	90%	96%	93%	95%
Norway	4	4	3	3	9.7	9.8	9.8	9.9	4.3%	5.1%	4.4%	3.1%	70%	92%	88%	91%
Portugal	4			4	10.0			10.4	2.5%			7.3%	92%			92%
Russian Federation	4	4	3 or 4		10.8	10.8	10.6		5.3%	3.6%	6.8%		98%	98%	97%	
Singapore	4	4	4	4	10.4	10.4	10.3	10.3	6.3%	1.5%	0.0%	0.0%	96%	96%	98%	98%
Slovak Republic	4	4			10.4	10.4			4.6%	3.3%			96%	97%		
Slovenia	4	4	3 or 4	3	9.9	9.8	9.8	9.9	2.6%	2.1%	1.3%	1.9%	94%	93%	91%	76%
Sweden	4	4			10.7	10.8			4.1%	3.1%			91%	97%		
Tunisia	4	4	4		10.0	10.2	10.4		2.5%	2.9%	0.9%		99%	99%	99%	
United States	4	4	4	4	10.2	10.3	10.2	10.2	7.0%	9.2%	5.1%	4.7%	80%	84%	78%	80%
Yemen	4	4			11.2	11.2			3.7%	2.0%			95%	98%		
<b>Benchmarking Participants</b>																
Alberta, Canada	4	4		4	9.9	9.8		9.8	7.5%	7.6%		–	95%	94%		91%
Ontario, Canada	4	4	4	4	9.8	9.8	9.8	9.8	5.3%	6.3%	4.8%	–	94%	92%	90%	92%
Quebec, Canada	4	4	4	4	10.1	10.1	10.1	10.3	3.7%	6.4%	3.6%	–	91%	84%	91%	81%
Dubai, UAE	4	4			9.8	10.0			5.1%	5.4%			96%	67%		

\* Represents years of schooling counting from the first year of ISCED Level 1.

<sup>a</sup> Age in 2011 lower due to educational reforms.

<sup>b</sup> Schools in South Ossetia and Abkhazia were excluded due to lack of access and absence of official statistics. Abkhazia refugee schools in other territories of Georgia were included in the sample frame.

A dash (–) indicates comparable data not available.

**Exhibit 2: Trends in Student Populations - TIMSS Grade 8**

Country	Years of Formal Schooling*					Average Age at Time of Testing				
	2011	2007	2003	1999	1995	2011	2007	2003	1999	1995
<sup>a</sup> Armenia	9		8			14.6		14.9		
Australia	8	8	8		8 or 9	14.0	13.9	13.9		14.2
<sup>c</sup> Bahrain	8	8	8			14.4	14.1	14.1		
Chile	8		8	8		14.2		14.2	14.4	
Chinese Taipei	8	8	8	8		14.2	14.2	14.2	14.2	
England	9	9	9	9	9	14.2	14.2	14.3	14.2	14.0
Finland (Grade 7)	7			7		13.8			13.8	
<sup>b</sup> Georgia	8	8				14.2	14.2			
Ghana	8	8	8			15.8	15.8	15.5		
Hong Kong SAR	8	8	8	8	8	14.2	14.4	14.4	14.2	14.2
Hungary	8	8	8	8	8	14.7	14.6	14.5	14.4	14.3
Indonesia	8	8				14.3	14.3			
Iran, Islamic Rep. of	8	8	8	8	8	14.3	14.2	14.4	14.6	14.6
Italy	8	8	8	8		13.8	13.9	13.9	14.0	
Japan	8	8	8	8	8	14.5	14.5	14.4	14.4	14.4
Jordan	8	8	8	8		13.9	14.0	13.9	14.0	
<sup>c</sup> Korea, Rep. of	8	8	8	8	8	14.3	14.3	14.6	14.4	14.2
Lebanon	8	8	8			14.3	14.4	14.6		
<sup>c</sup> Lithuania	8	8	8	8.5	8	14.7	14.9	14.9	15.2	14.3
Macedonia, Rep. of	8		8	8		14.7		14.6	14.6	
Malaysia	8	8	8	8		14.4	14.3	14.3	14.4	
New Zealand	8.5–9.5		8.5–9.5	8.5–9.5	8.5–9.5	14.1		14.1	14.0	14.0
Norway	8	8	7		7	13.7	13.8	13.8		13.9
Oman	8	8				14.1	14.3			
Palestinian Nat'l Auth.	8	8	8			13.9	14.0	14.1		
Romania	8	8	8	8	8	14.9	15.0	15.0	14.8	14.6
Russian Federation	8	7 or 8	7 or 8	7 or 8	7 or 8	14.7	14.6	14.2	14.1	14.0
Singapore	8	8	8	8	8	14.4	14.4	14.3	14.4	14.5
Slovenia	8	7 or 8	7 or 8		7	13.9	13.8	13.8		13.8
Sweden	8	8	8		7	14.8	14.8	14.9		14.9
Syrian Arab Republic	8	8				13.9	13.9			
Thailand	8	8		8		14.3	14.3		14.5	
Tunisia	8	8	8	8		14.3	14.5	14.8	14.8	
Ukraine	8	8				14.2	14.2			
United States	8	8	8	8	8	14.2	14.3	14.2	14.2	14.2
<b>Benchmarking Participants</b>										
Alberta, Canada	8			8	8	13.9			13.9	14.0
Ontario, Canada	8	8	8	8	8	13.8	13.8	13.8	13.9	14.0
Quebec, Canada	8	8	8	8	8	14.2	14.2	14.2	14.3	14.5
<sup>c</sup> Dubai, UAE	8	8				13.9	14.2			
Connecticut, US	8			8		14.1			14.0	
Indiana, US	8		8	8		14.4		13.5	14.4	
Massachusetts, US	8	8		8		14.2	14.2		14.1	
Minnesota, US	8	8			8	14.3	14.3			14.3
North Carolina, US	8			8		14.2			14.2	

\* Represents years of schooling counting from the first year of ISCED Level 1

<sup>a</sup> Age in 2011 lower due to educational reforms.

<sup>b</sup> Schools in South Ossetia and Abkhazia were excluded due to lack of access and absence of official statistics. Abkhazia refugee schools in other territories of Georgia were included in the sample frame.

<sup>c</sup> Bahrain in 2011, Korea in 2003, Lithuania in 1999, and Dubai (UAE) in 2007 tested the same cohort of students as other countries, but later in the assessment year.

A dash (-) indicates comparable data not available.

**Exhibit 2: Trends in Student Populations - TIMSS Grade 8 (Continued)**

Country	Overall Exclusion Rates					Overall Participation Rates (After Replacement)				
	2011	2007	2003	1999	1995	2011	2007	2003	1999	1995
<sup>a</sup> Armenia	1.5%		2.9%			97%		89%		
Australia	3.2%	1.9%	1.3%		0.8%	88%	93%	83%		70%
<sup>c</sup> Bahrain	1.6%	1.5%	0.0%			97%	97%	98%		
Chile	2.8%		2.2%	2.8%		95%		99%	96%	
Chinese Taipei	1.3%	3.3%	4.8%	1.6%		99%	99%	99%	99%	
England	2.2%	2.3%	2.1%	5.0%	11.3%	70%	75%	46%	77%	77%
Finland (Grade 7)	3.8%			3.7%		96%			96%	
<sup>b</sup> Georgia	4.5%	3.9%				97%	97%			
Ghana	0.6%	0.9%	0.9%			97%	98%	93%		
Hong Kong SAR	5.3%	3.8%	3.4%	0.8%	2.0%	75%	75%	80%	74%	81%
Hungary	4.4%	3.9%	8.5%	4.3%	3.8%	95%	96%	94%	93%	87%
Indonesia	3.2%	3.4%				96%	97%			
Iran, Islamic Rep. of	2.2%	0.5%	6.5%	4.4%	0.3%	99%	98%	98%	98%	98%
Italy	4.7%	5.0%	3.6%	6.7%		93%	96%	97%	97%	
Japan	2.8%	3.5%	0.6%	1.3%	0.6%	87%	91%	93%	89%	90%
Jordan	0.4%	2.0%	1.3%	3.0%		96%	96%	96%	99%	
<sup>c</sup> Korea, Rep. of	1.9%	1.6%	4.9%	4.0%	3.8%	99%	99%	98%	100%	95%
Lebanon	1.4%	1.4%	1.4%			94%	85%	91%		
<sup>c</sup> Lithuania	4.8%	4.2%	2.6%	4.5%	6.6%	92%	90%	84%	89%	83%
Macedonia, Rep. of	3.3%		12.5%	1.1%		95%		96%	98%	
Malaysia	0.1%	3.3%	4.0%	4.6%		98%	98%	98%	99%	
New Zealand	3.2%		4.4%	2.4%	1.7%	88%		90%	91%	94%
Norway	1.9%	2.6%	2.3%		2.2%	84%	86%	85%		93%
Oman	1.2%	1.2%				97%	99%			
Palestinian Nat'l Auth.	1.5%	1.0%	0.5%			98%	98%	99%		
Romania	1.3%	1.8%	0.5%	3.7%	2.8%	99%	97%	98%	97%	89%
Russian Federation	6.0%	2.3%	5.5%	1.7%	6.3%	98%	97%	96%	97%	95%
Singapore	6.0%	1.8%	0.0%	0.0%	4.6%	95%	95%	97%	98%	95%
Slovenia	2.3%	1.9%	1.4%		2.6%	92%	92%	91%		77%
Sweden	5.1%	3.6%	2.8%		0.9%	92%	94%	87%		90%
Syrian Arab Republic	1.9%	0.6%				92%	96%			
Thailand	1.5%	3.4%		3.3%		99%	99%		99%	
Tunisia	0.3%	0.0%	1.8%	0.1%		97%	98%	98%	98%	
Ukraine	2.8%	0.2%				98%	95%			
United States	7.2%	7.9%	4.9%	3.9%	2.1%	81%	77%	73%	85%	78%
<b>Benchmarking Participants</b>										
Alberta, Canada	7.4%			–	–	92%			95%	92%
Ontario, Canada	5.6%	6.2%	6.0%	5.1%	–	93%	89%	89%	93%	90%
Quebec, Canada	4.9%	13.6%	4.8%	1.3%	–	88%	77%	85%	92%	89%
<sup>c</sup> Dubai, UAE	4.0%	5.0%				95%	69%			
Connecticut, US	8.5%			5.0%		94%			90%	
Indiana, US	6.3%		7.8%	6.0%		93%		94%	79%	
Massachusetts, US	7.9%	8.4%		5.0%		96%	92%		93%	
Minnesota, US	4.3%	7.5%			–	94%	93%			–
North Carolina, US	11.4%			4.0%		93%			92%	