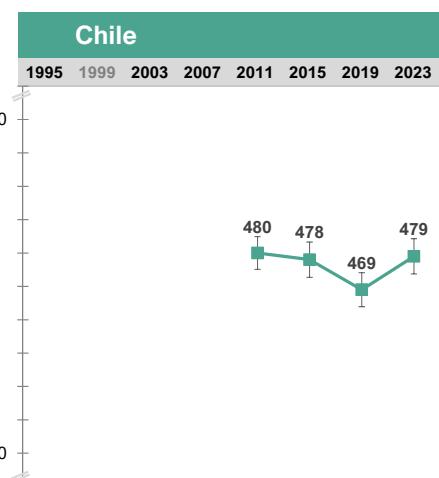
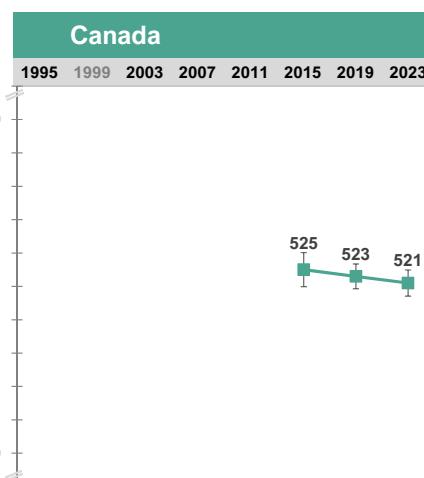
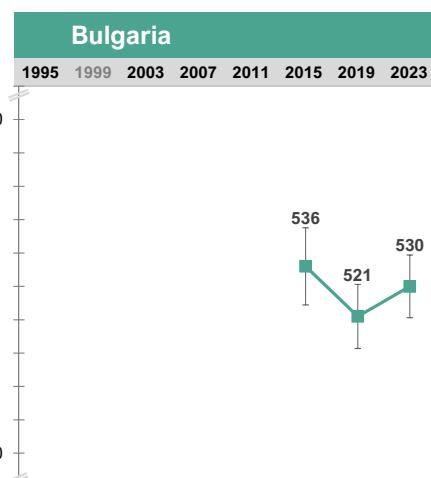
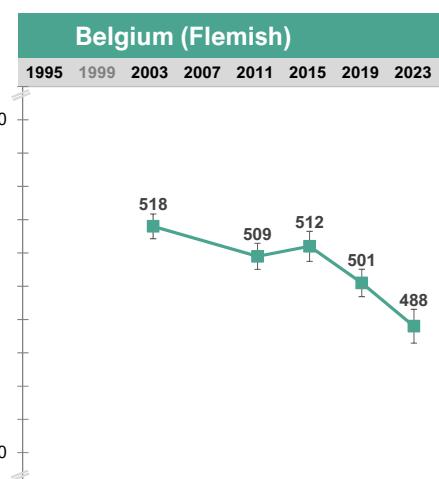
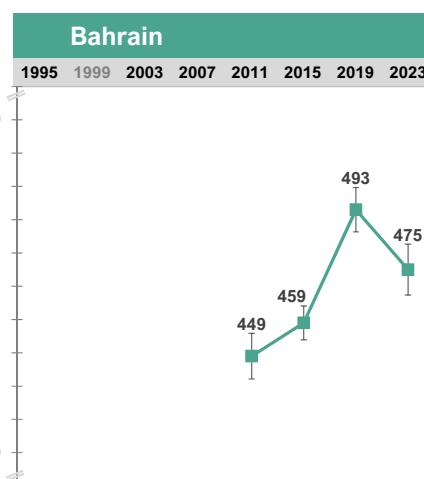
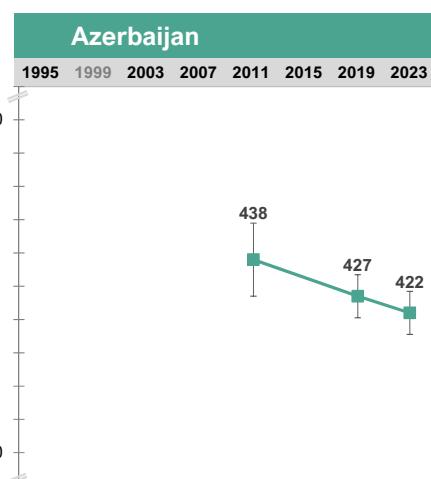
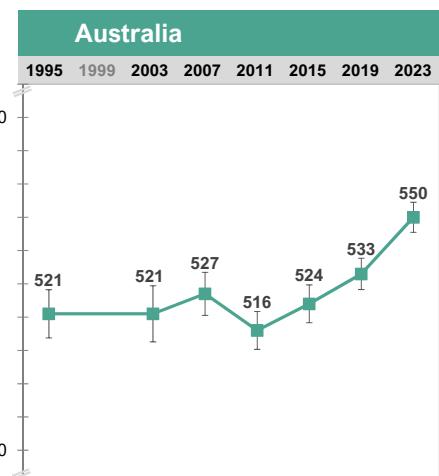
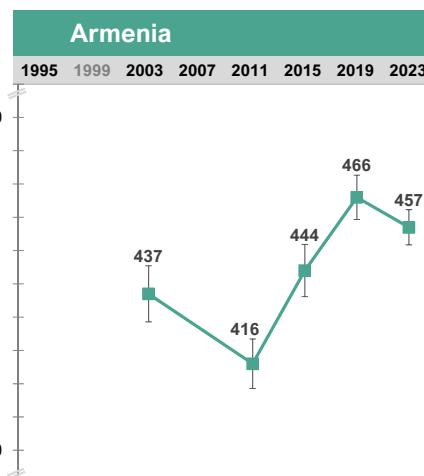
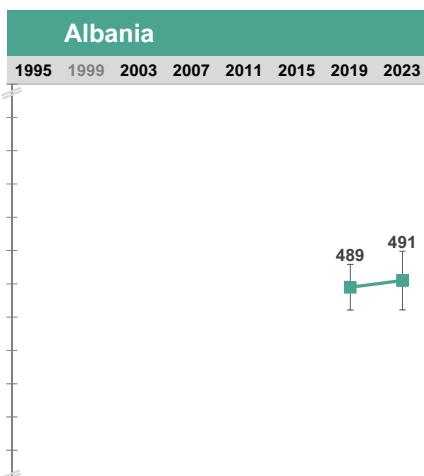


Exhibit 2.1.9: Trend Plots of Average Science Achievement[◊]

This exhibit displays changes in achievement across assessment years for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 2.1.10) provides details. The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement. See Appendix A for country participation in previous assessments.



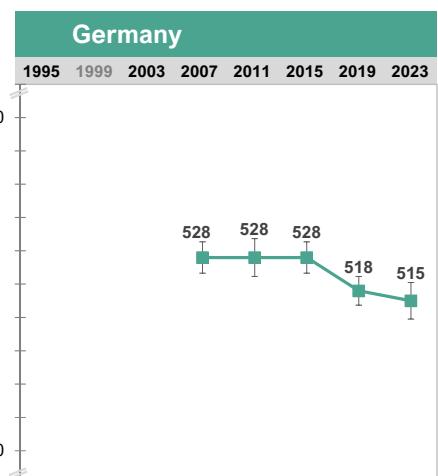
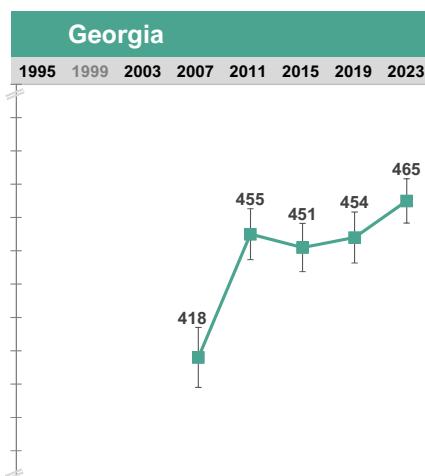
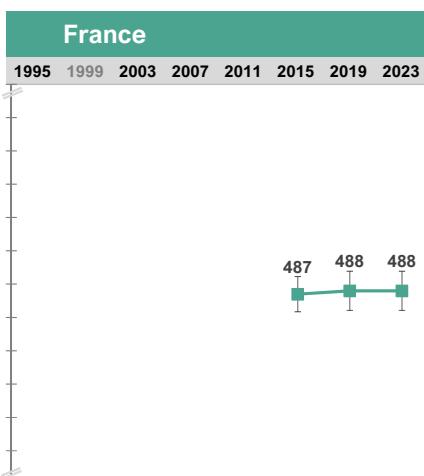
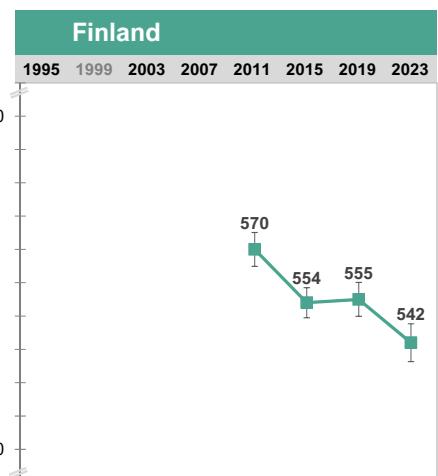
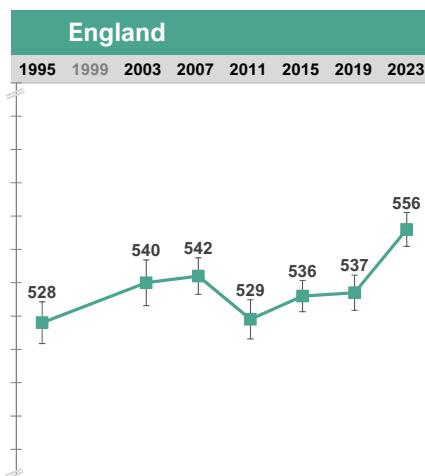
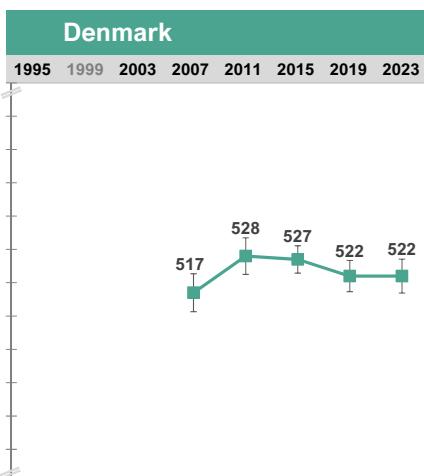
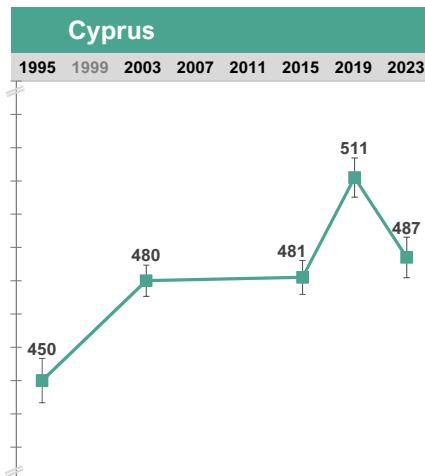
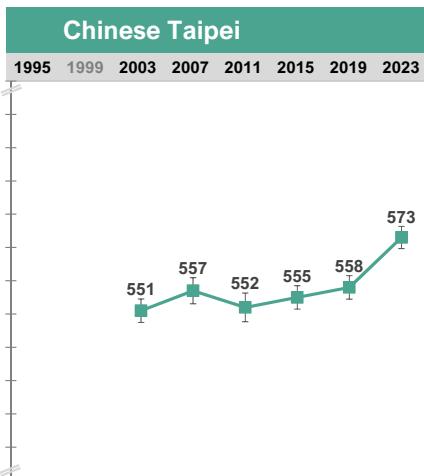
[◊] There was no TIMSS fourth grade assessment in 1999. See Appendix A for country participation in previous TIMSS assessments.
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.

I The black bars represent the 95% confidence interval.

Exhibit 2.1.9: Trend Plots of Average Science Achievement[◊]

(Continued)

This exhibit displays changes in achievement across assessment years for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 2.1.10) provides details. The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement. See Appendix A for country participation in previous assessments.



[◊] There was no TIMSS fourth grade assessment in 1999. See Appendix A for country participation in previous TIMSS assessments.

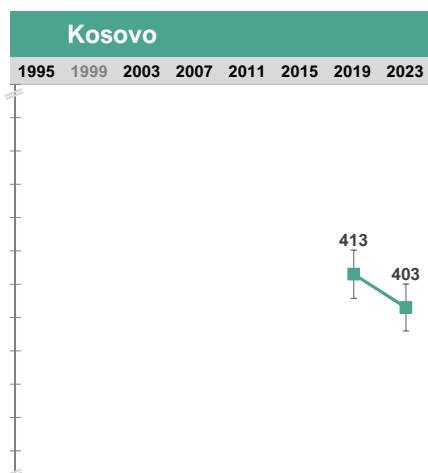
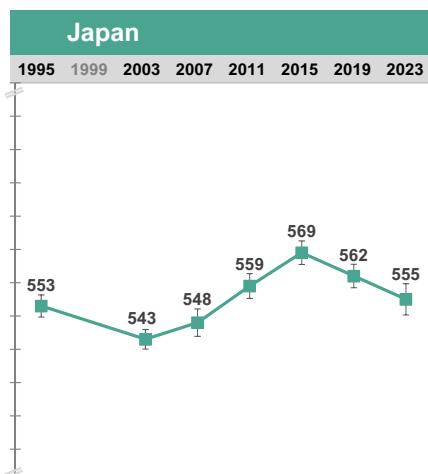
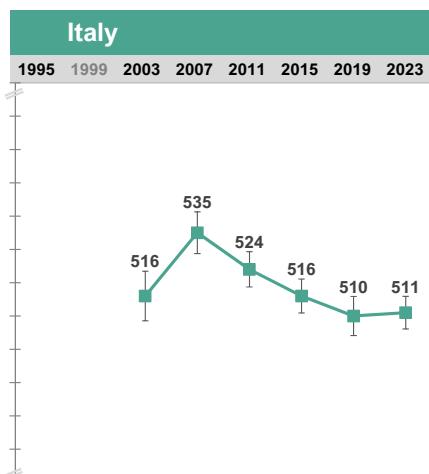
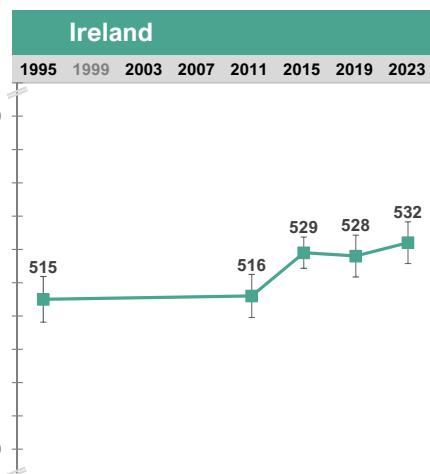
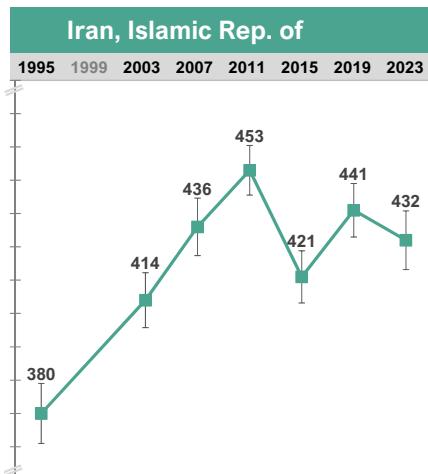
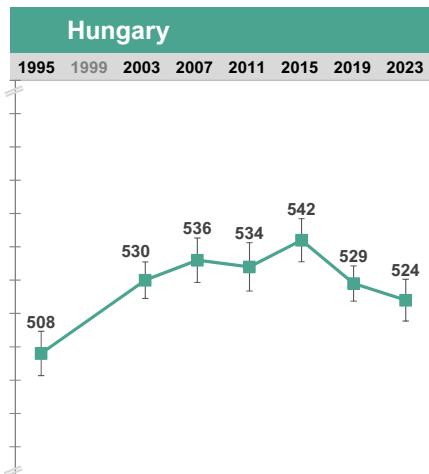
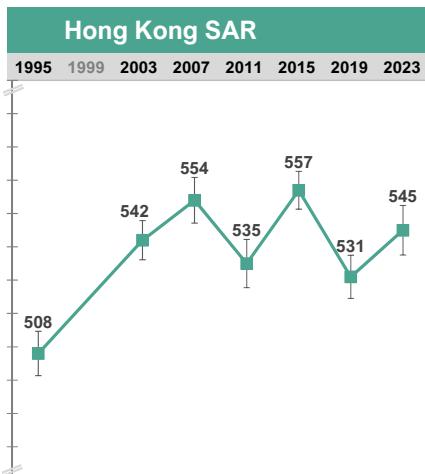
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.

I The black bars represent the 95% confidence interval.

Exhibit 2.1.9: Trend Plots of Average Science Achievement[◊]

(Continued)

This exhibit displays changes in achievement across assessment years for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 2.1.10) provides details. The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement. See Appendix A for country participation in previous assessments.



[◊] There was no TIMSS fourth grade assessment in 1999. See Appendix A for country participation in previous TIMSS assessments.

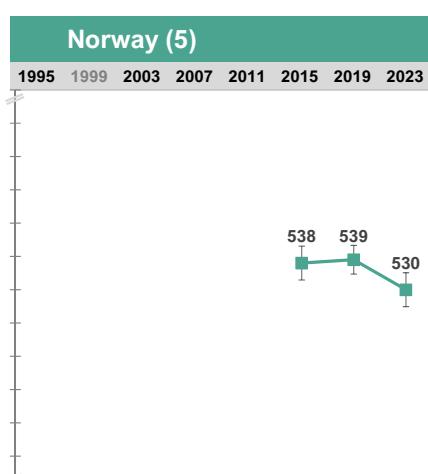
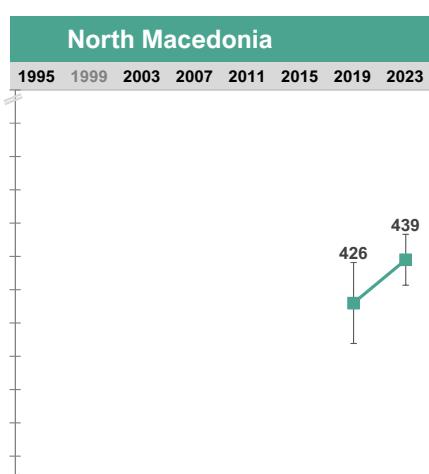
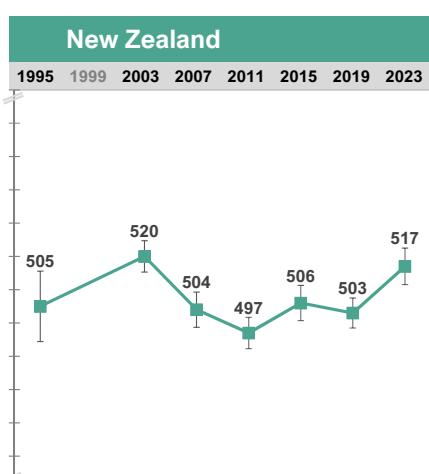
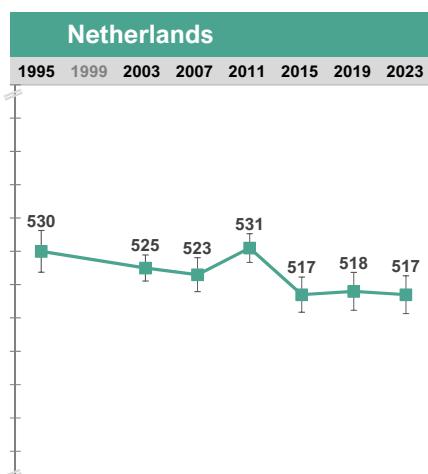
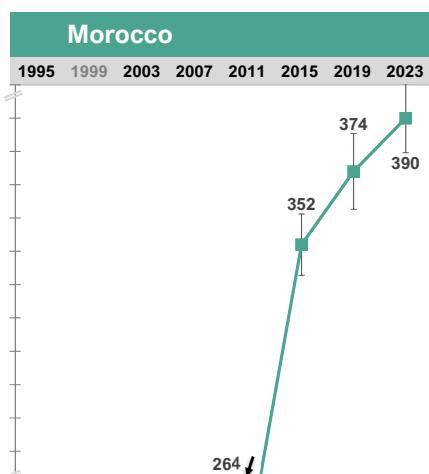
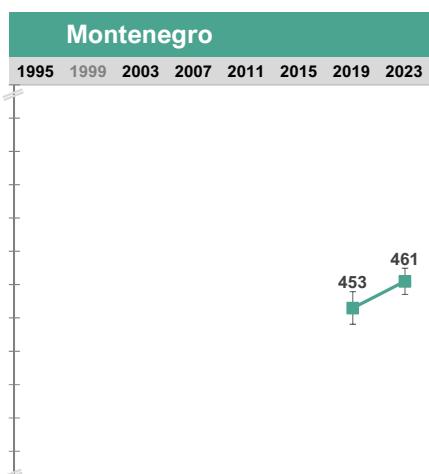
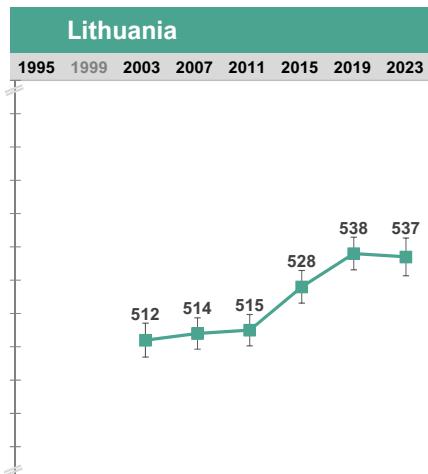
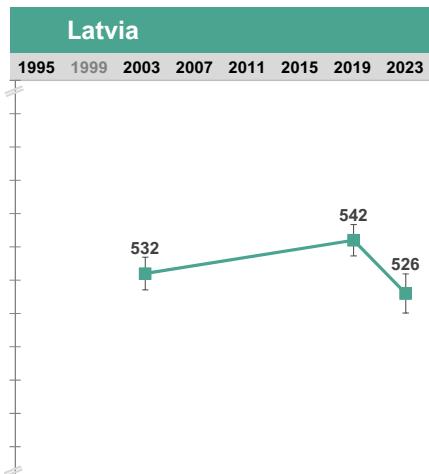
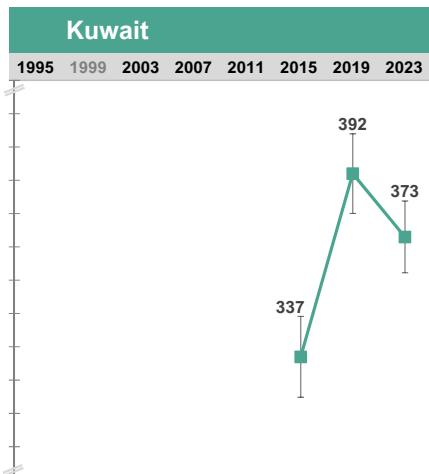
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.

[†] The black bars represent the 95% confidence interval.

Exhibit 2.1.9: Trend Plots of Average Science Achievement[◊]

(Continued)

This exhibit displays changes in achievement across assessment years for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 2.1.10) provides details. The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement. See Appendix A for country participation in previous assessments.



[◊] There was no TIMSS fourth grade assessment in 1999. See Appendix A for country participation in previous TIMSS assessments.

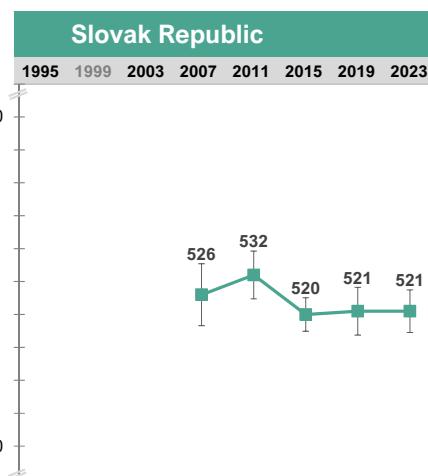
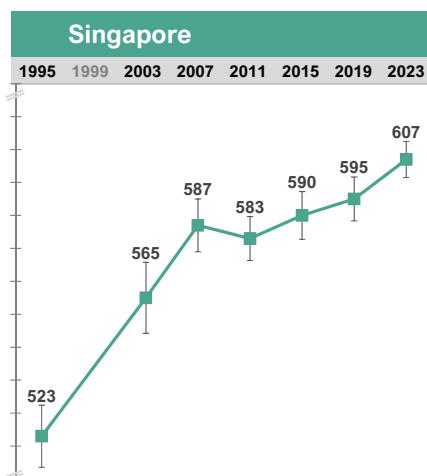
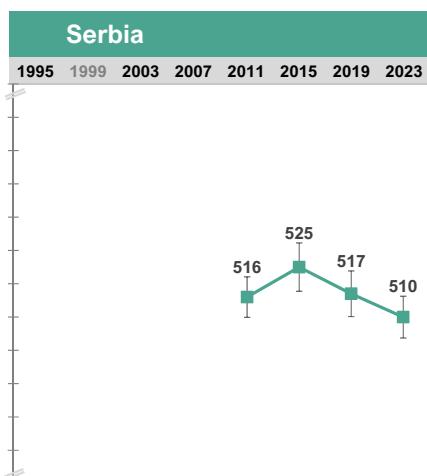
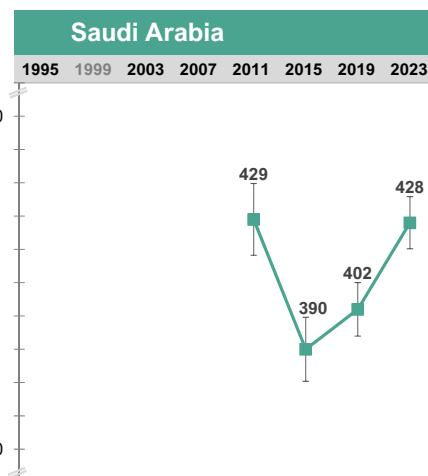
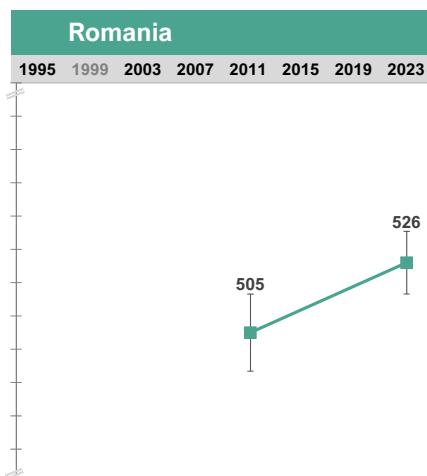
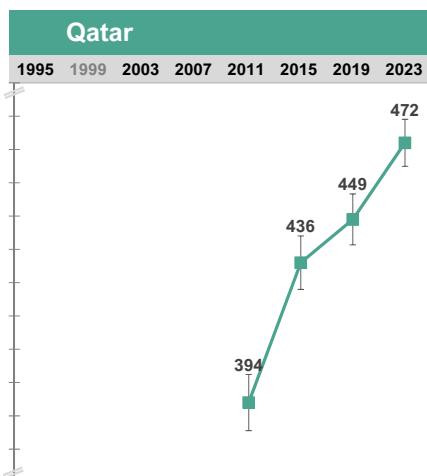
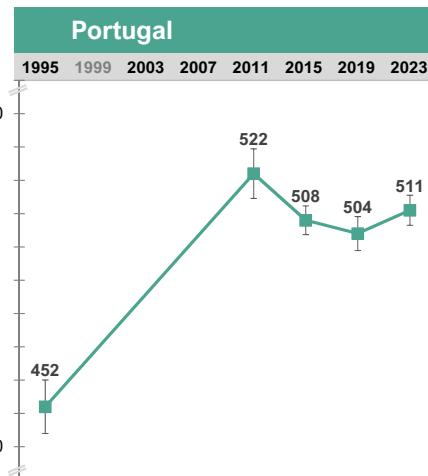
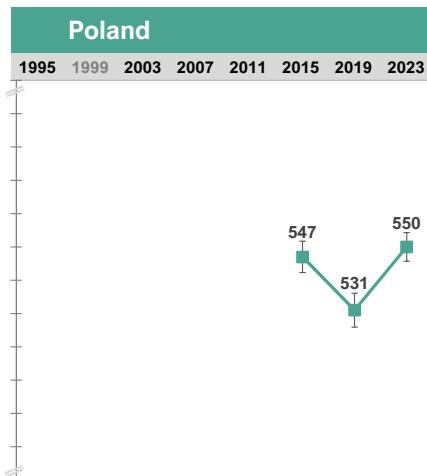
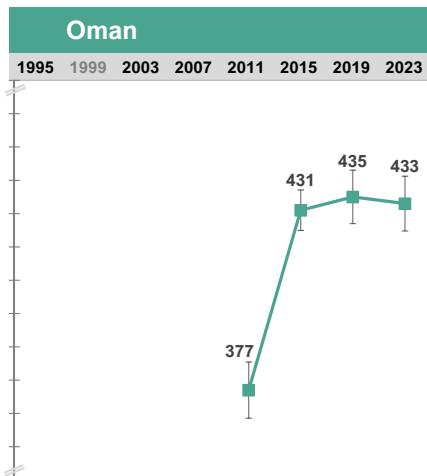
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.

[□] The black bars represent the 95% confidence interval.

Exhibit 2.1.9: Trend Plots of Average Science Achievement[◊]

(Continued)

This exhibit displays changes in achievement across assessment years for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 2.1.10) provides details. The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement. See Appendix A for country participation in previous assessments.



[◊] There was no TIMSS fourth grade assessment in 1999. See Appendix A for country participation in previous TIMSS assessments.

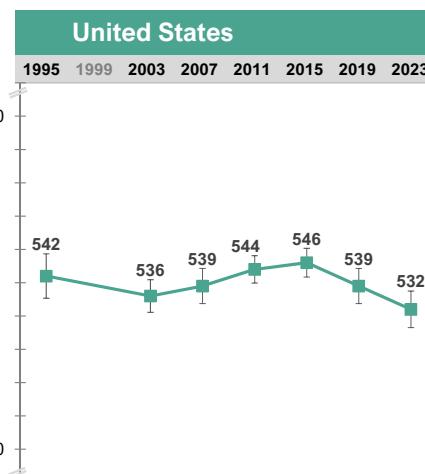
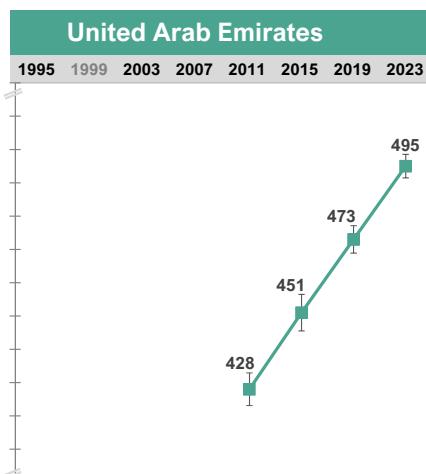
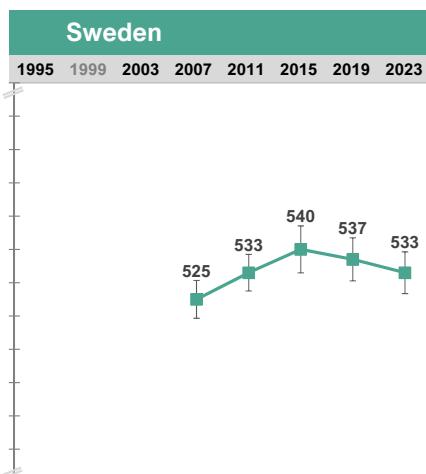
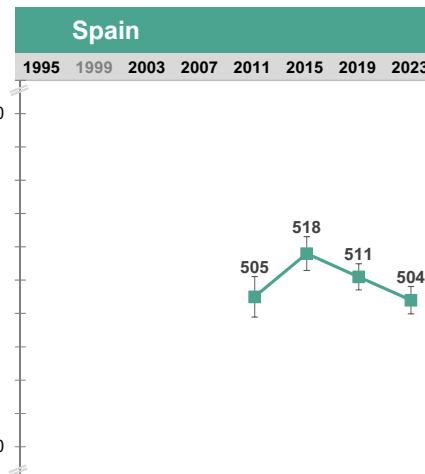
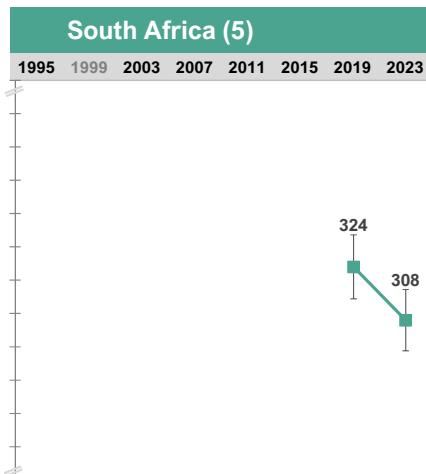
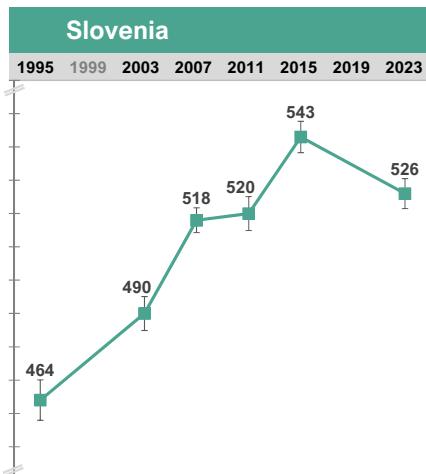
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.

I The black bars represent the 95% confidence interval.

Exhibit 2.1.9: Trend Plots of Average Science Achievement[◊]

(Continued)

This exhibit displays changes in achievement across assessment years for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 2.1.10) provides details. The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement. See Appendix A for country participation in previous assessments.



[◊] There was no TIMSS fourth grade assessment in 1999. See Appendix A for country participation in previous TIMSS assessments.

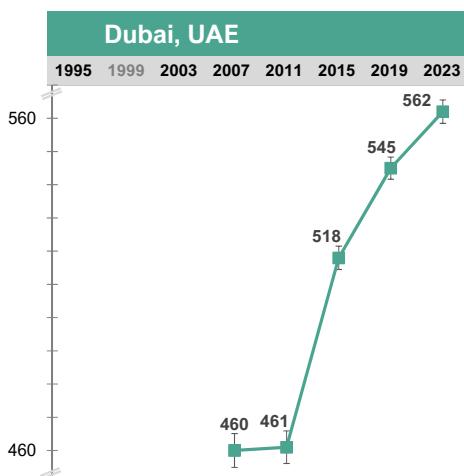
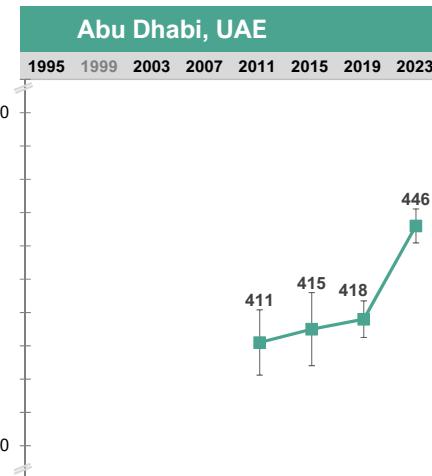
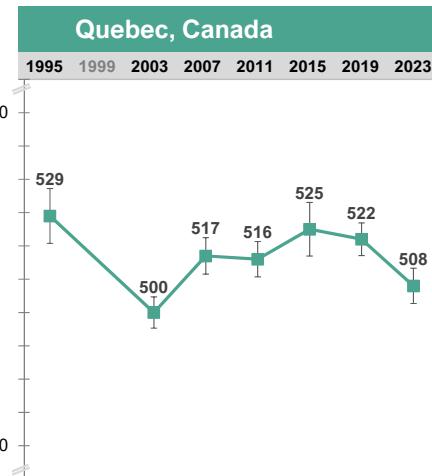
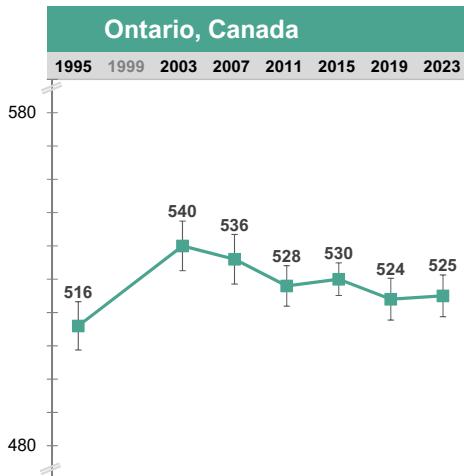
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.

I The black bars represent the 95% confidence interval.

Exhibit 2.1.9: Trend Plots of Average Science Achievement[◊]

(Continued)

This exhibit displays changes in achievement across assessment years for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 2.1.10) provides details. The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement. See Appendix A for country participation in previous assessments.

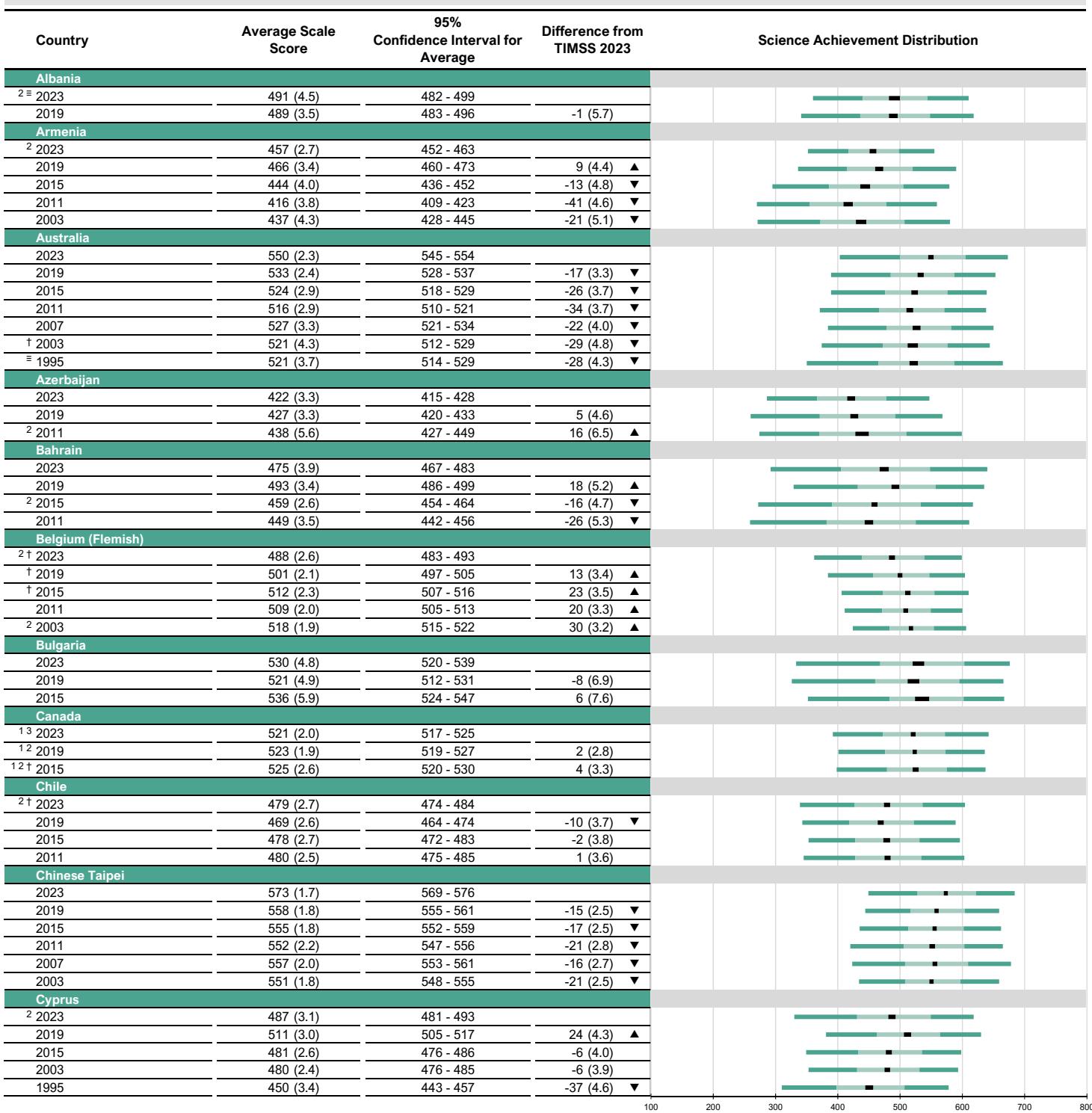
Benchmarking Participants

[◊] There was no TIMSS fourth grade assessment in 1999. See Appendix A for country participation in previous TIMSS assessments.
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.

I The black bars represent the 95% confidence interval.

Exhibit 2.1.10: Trends in Average Science Achievement and Scale Score Distributions

This exhibit reports differences in achievement across assessment years for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. Symbols indicate if the row year is significantly higher (\blacktriangle) or significantly lower (\blacktriangledown) than the performance in TIMSS 2023. See Appendix A for country participation in previous TIMSS assessments.



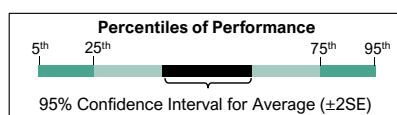
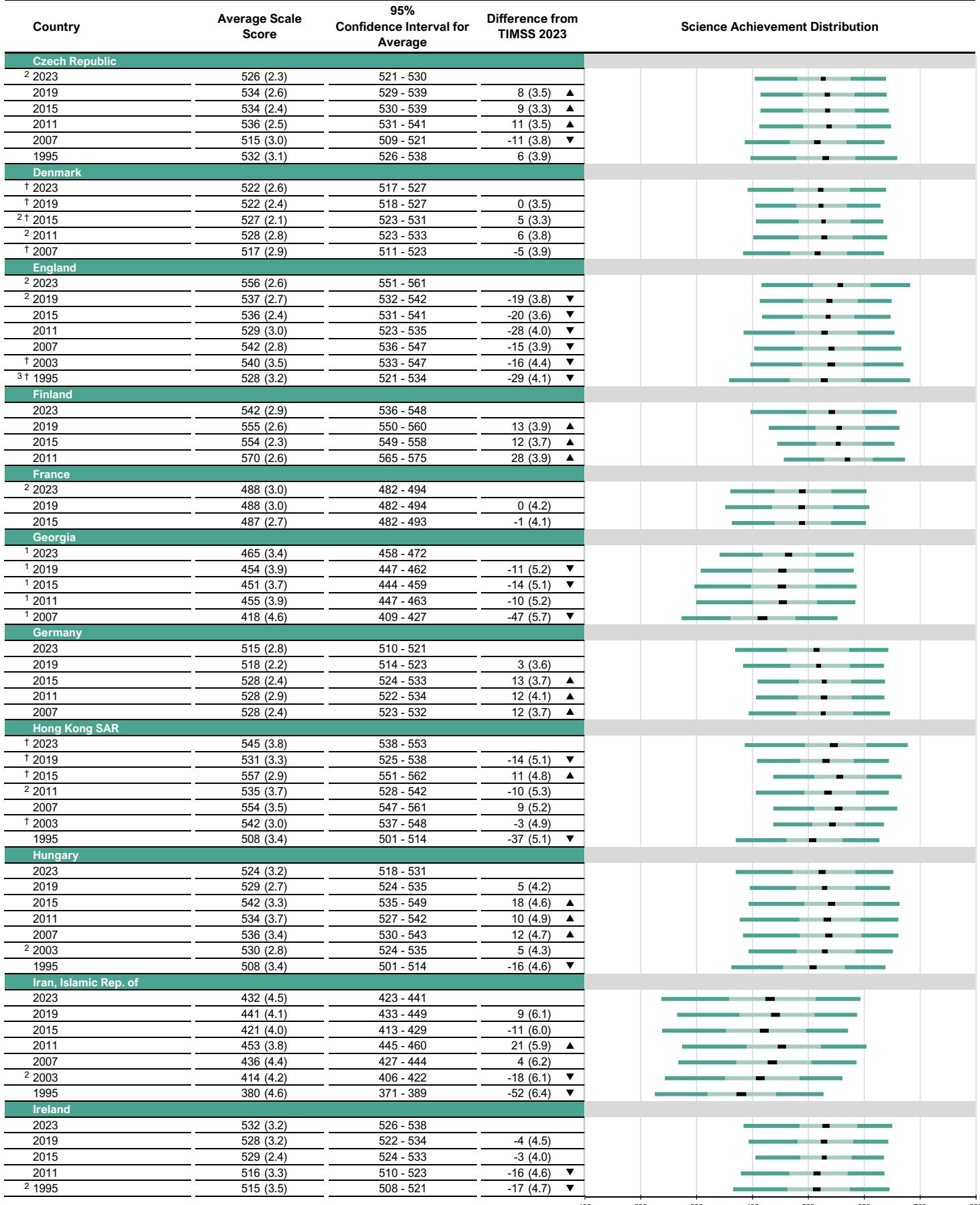
See Appendix A for country participation in previous TIMSS assessments.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

See Appendix B.2 for population coverage notes 1, 2, and 3. See Appendix B.5 for sampling guidelines and sampling participation notes \dagger , \ddagger , and \equiv .

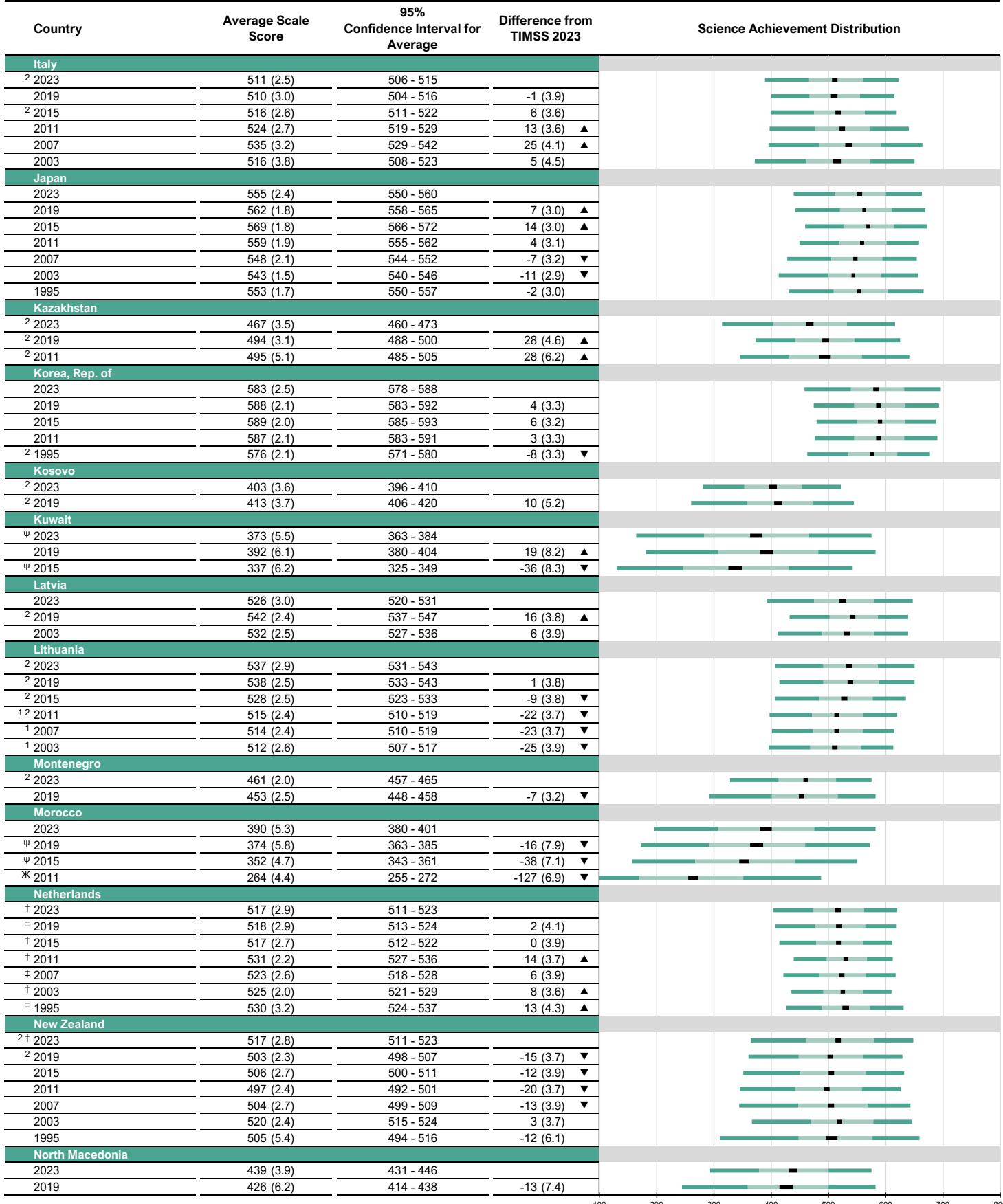
(Continued)

Exhibit 2.1.10: Trends in Average Science Achievement and Scale Score Distributions



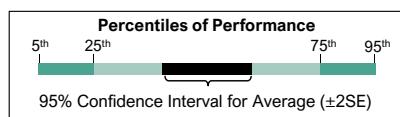
(Continued)

Exhibit 2.1.10: Trends in Average Science Achievement and Scale Score Distributions



ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.

✗ Average achievement not reliably measured because the percentage of students with achievement too low for estimation exceeds 25%.



(Continued)

Exhibit 2.1.10: Trends in Average Science Achievement and Scale Score Distributions

Country	Average Scale Score	95% Confidence Interval for Average	Difference from TIMSS 2023	Science Achievement Distribution
Norway (5)				
2 2023	530 (2.6)	525 - 535		
† 2019	539 (2.2)	535 - 544	9 (3.4) ▲	
2015	538 (2.6)	532 - 543	7 (3.7)	
Oman				
2023	433 (4.2)	424 - 441		
2019	435 (4.1)	427 - 443	2 (5.9)	
2015	431 (3.1)	425 - 437	-2 (5.3)	
2011	377 (4.3)	369 - 385	-56 (6.0) ▼	
Poland				
2 2023	550 (2.2)	545 - 554		
2019	531 (2.6)	526 - 536	-19 (3.4) ▼	
2015	547 (2.4)	542 - 552	-3 (3.3)	
Portugal				
2023	511 (2.3)	506 - 515		
2 2019	504 (2.6)	499 - 509	-7 (3.4) ▼	
2 2015	508 (2.2)	504 - 512	-3 (3.2)	
2011	522 (3.8)	514 - 529	11 (4.4) ▲	
2 1995	452 (4.1)	444 - 460	-59 (4.7) ▼	
Qatar				
2023	472 (3.6)	465 - 479		
2019	449 (3.9)	442 - 457	-23 (5.3) ▼	
2015	436 (4.1)	428 - 444	-36 (5.4) ▼	
2 2011	394 (4.3)	386 - 403	-78 (5.6) ▼	
Romania				
2 2023	526 (4.8)	517 - 536		
2011	505 (5.9)	494 - 517	-21 (7.6) ▼	
Saudi Arabia				
3 2023	428 (4.0)	420 - 435		
2 2019	402 (4.1)	394 - 410	-25 (5.7) ▼	
2015	390 (4.9)	381 - 400	-37 (6.4) ▼	
2011	429 (5.5)	419 - 440	2 (6.8)	
Serbia				
2 2023	510 (3.2)	504 - 516		
2 2019	517 (3.5)	510 - 524	7 (4.7)	
3 2015	525 (3.7)	517 - 532	15 (4.9) ▲	
2 2011	516 (3.1)	509 - 522	6 (4.5)	
Singapore				
3 2023	607 (2.8)	602 - 613		
3 2019	595 (3.4)	588 - 601	-13 (4.4) ▼	
2 2015	590 (3.7)	583 - 598	-17 (4.6) ▼	
2 2011	583 (3.4)	577 - 590	-24 (4.4) ▼	
2007	587 (4.1)	579 - 595	-21 (5.0) ▼	
2003	565 (5.5)	554 - 576	-42 (6.2) ▼	
1995	523 (4.8)	514 - 533	-84 (5.5) ▼	
Slovak Republic				
2023	521 (3.3)	514 - 527		
2 2019	521 (3.7)	513 - 528	0 (5.0)	
2015	520 (2.6)	515 - 526	0 (4.2)	
2011	532 (3.7)	524 - 539	11 (5.0) ▲	
2007	526 (4.8)	516 - 535	5 (5.8)	
Slovenia				
2023	526 (2.3)	521 - 530		
2015	543 (2.4)	538 - 547	17 (3.4) ▲	
2011	520 (2.6)	515 - 525	-5 (3.5)	
2007	518 (1.9)	515 - 522	-7 (3.0) ▼	
2003	490 (2.6)	485 - 495	-35 (3.5) ▼	
1995	464 (3.1)	458 - 470	-62 (3.9) ▼	
South Africa (5)				
* 2023	308 (4.7)	299 - 317		
* 2019	324 (4.9)	315 - 334	16 (6.8) ▲	
Spain				
2 2023	504 (2.1)	500 - 508		
2019	511 (2.0)	507 - 515	7 (2.9) ▲	
2 2015	518 (2.6)	513 - 523	14 (3.3) ▲	
2011	505 (3.1)	499 - 511	1 (3.7)	
Sweden				
2 2023	533 (3.2)	526 - 539		
2019	537 (3.3)	531 - 544	5 (4.6)	
2 2015	540 (3.6)	533 - 547	8 (4.8)	
2011	533 (2.8)	528 - 539	1 (4.2)	
2007	525 (2.9)	519 - 530	-8 (4.3)	

*X Average achievement not reliably measured because the percentage of students with achievement too low for estimation exceeds 25%.

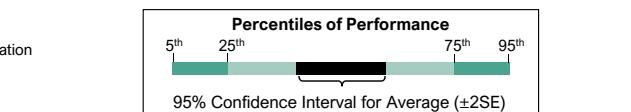
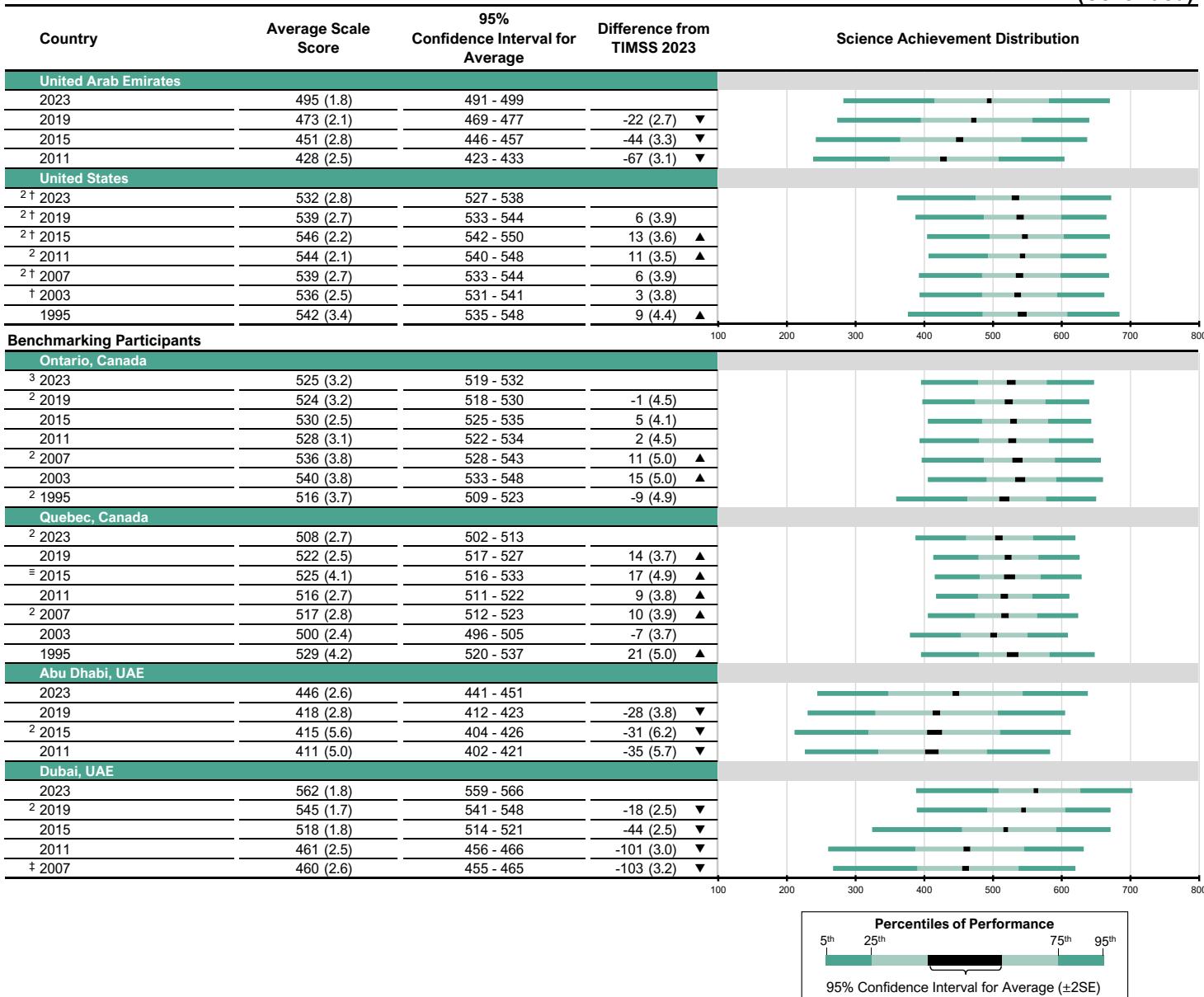


Exhibit 2.1.10: Trends in Average Science Achievement and Scale Score Distributions

(Continued)



SOURCE: IEA's Trends in International Mathematics and Science Study - TIMSS 2023
Downloaded from <https://timss2023.org/results>

