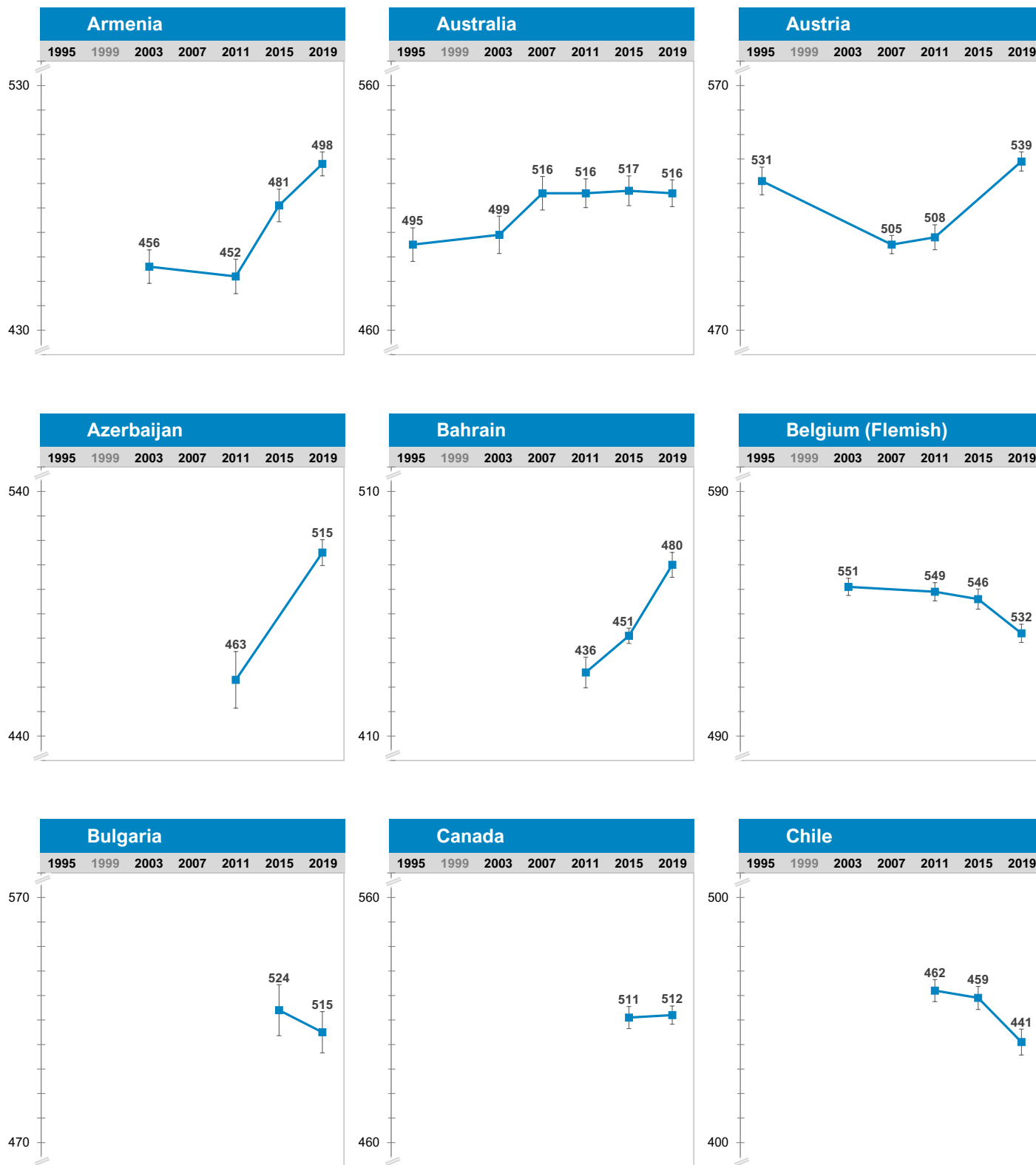


**Exhibit 1.3: Trend Plots of Average Mathematics Achievement Across Assessment Years**<sup>◇</sup>

This exhibit displays changes in achievement for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 1.4) provides details, including statistical significance. See Appendix A for country participation in previous assessments.

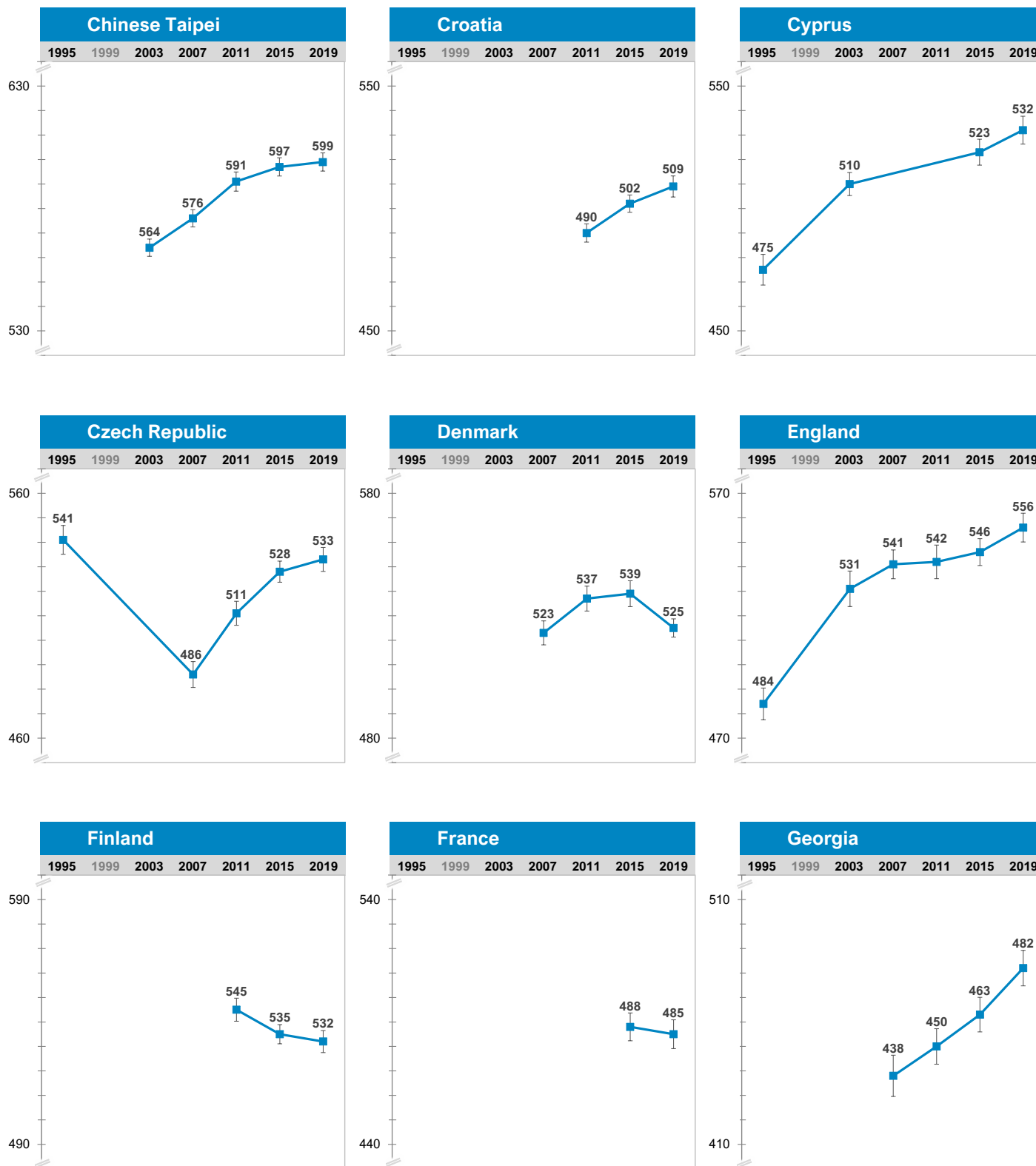


◇ There was no TIMSS fourth grade assessment in 1999. See Appendix A for country participation in previous TIMSS assessments.  
 The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.  
 I The black bars represent the 95% confidence interval.

Exhibit 1.3: Trend Plots of Average Mathematics Achievement Across Assessment Years<sup>◇</sup>

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 1.4) provides details, including statistical significance. See Appendix A for country participation in previous assessments.

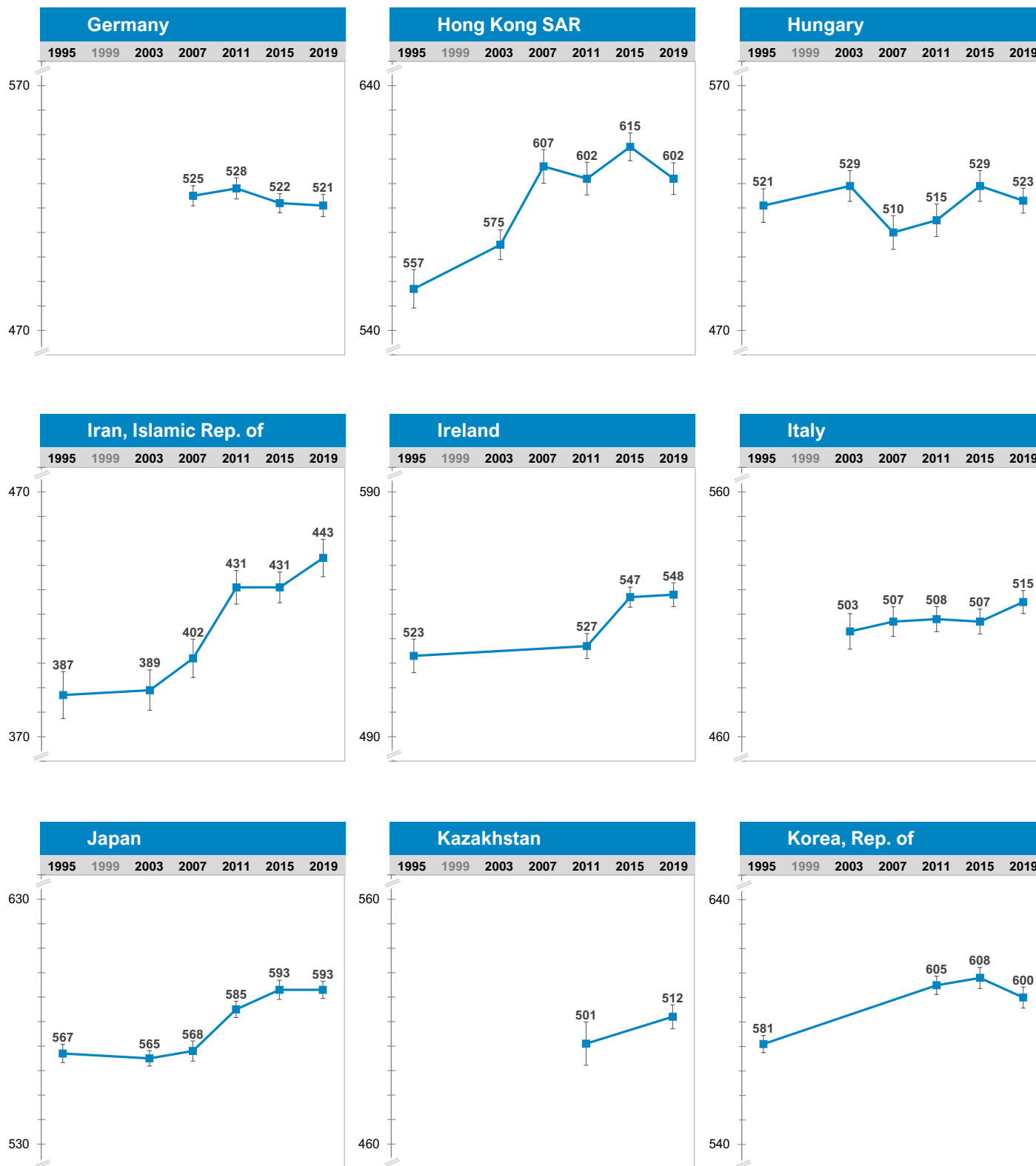


◇ There was no TIMSS fourth grade assessment in 1999. See Appendix A for country participation in previous TIMSS assessments. The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement. I. The black bars represent the 95% confidence interval.

Exhibit 1.3: Trend Plots of Average Mathematics Achievement Across Assessment Years<sup>◇</sup>

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 1.4) provides details, including statistical significance. See Appendix A for country participation in previous assessments.

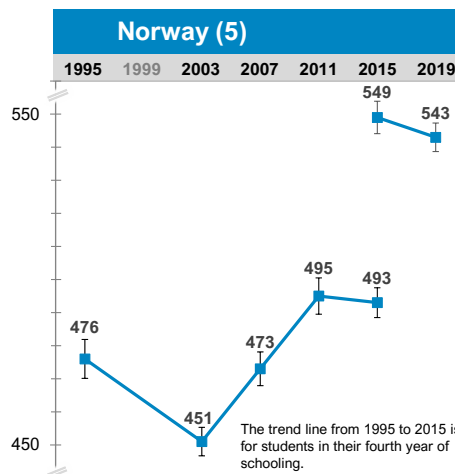
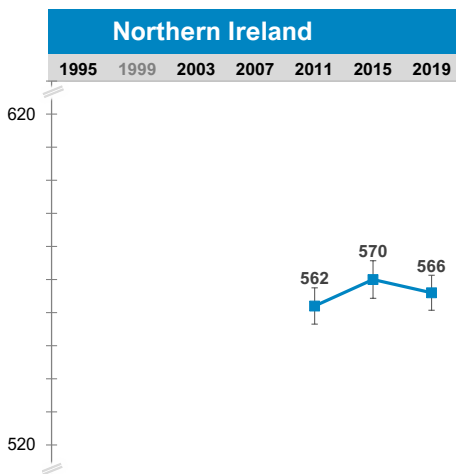
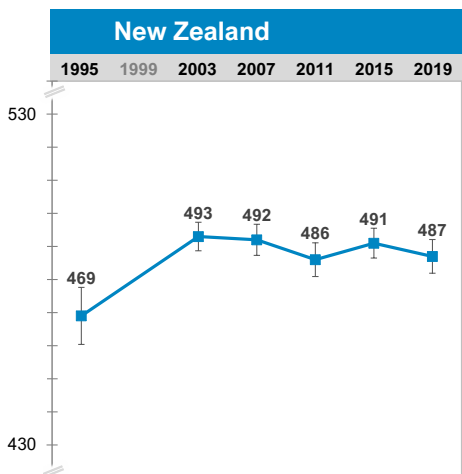
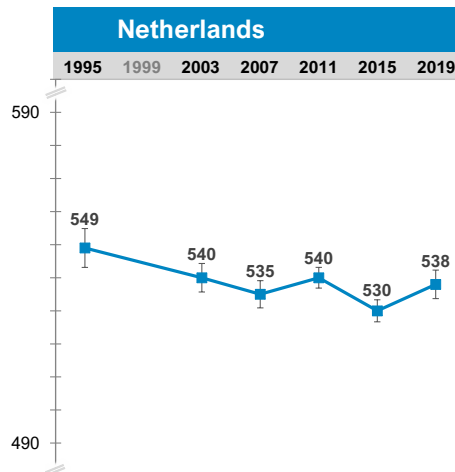
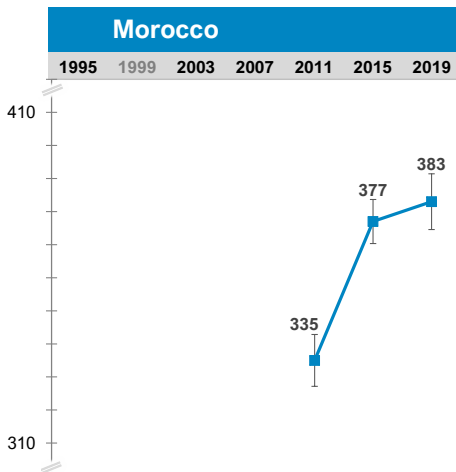
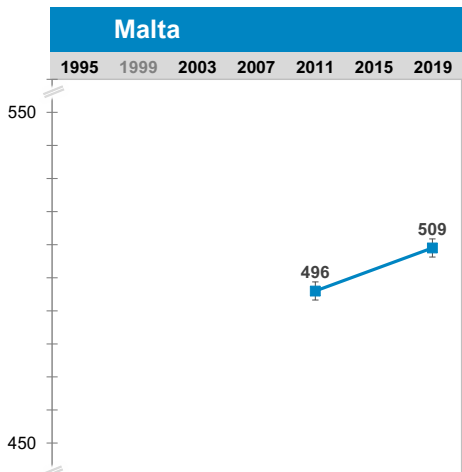
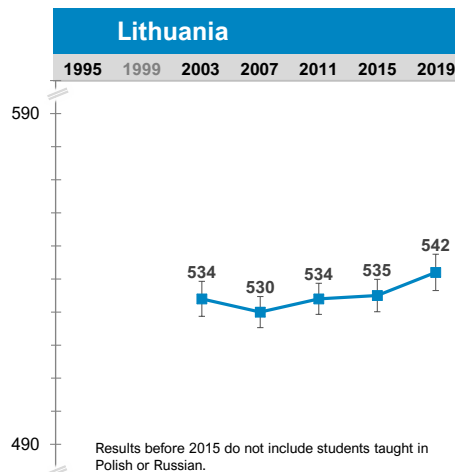
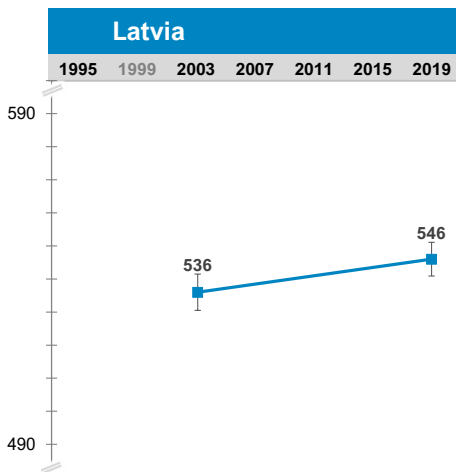
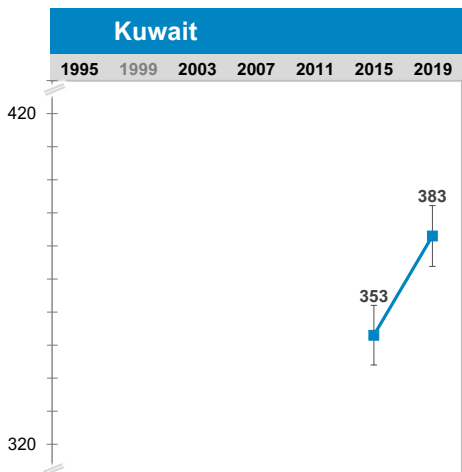


◇ There was no TIMSS fourth grade assessment in 1999. See Appendix A for country participation in previous TIMSS assessments. The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement. I. The black bars represent the 95% confidence interval.

Exhibit 1.3: Trend Plots of Average Mathematics Achievement Across Assessment Years<sup>◇</sup>

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 1.4) provides details, including statistical significance. See Appendix A for country participation in previous assessments.

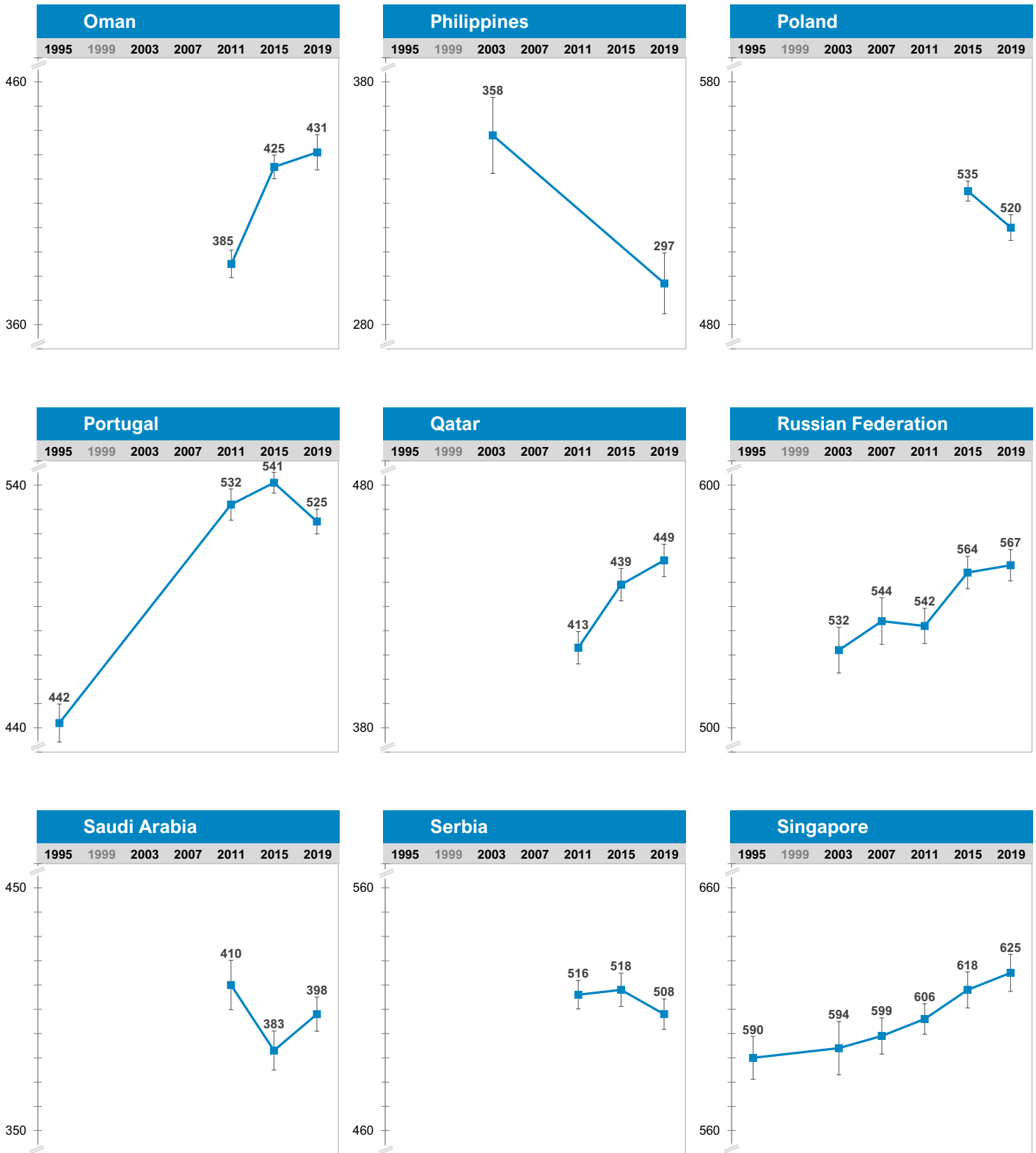


◇ There was no TIMSS fourth grade assessment in 1999. See Appendix A for country participation in previous TIMSS assessments. The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement. I The black bars represent the 95% confidence interval.

Exhibit 1.3: Trend Plots of Average Mathematics Achievement Across Assessment Years<sup>◇</sup>

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 1.4) provides details, including statistical significance. See Appendix A for country participation in previous assessments.

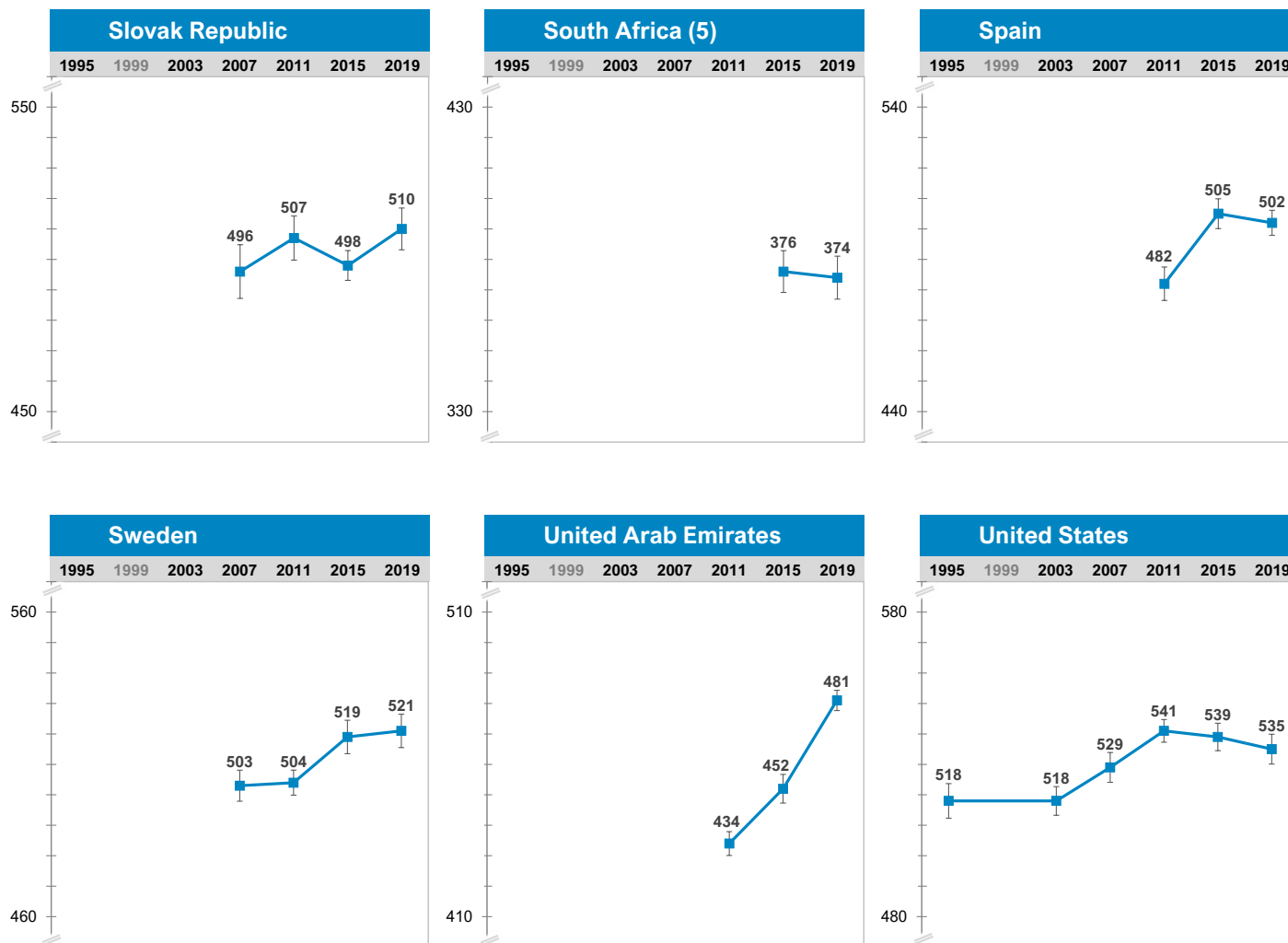


◇ There was no TIMSS fourth grade assessment in 1999. See Appendix A for country participation in previous TIMSS assessments.  
 The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.  
 I The black bars represent the 95% confidence interval.

**Exhibit 1.3: Trend Plots of Average Mathematics Achievement Across Assessment Years**<sup>◊</sup>

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 1.4) provides details, including statistical significance. See Appendix A for country participation in previous assessments.



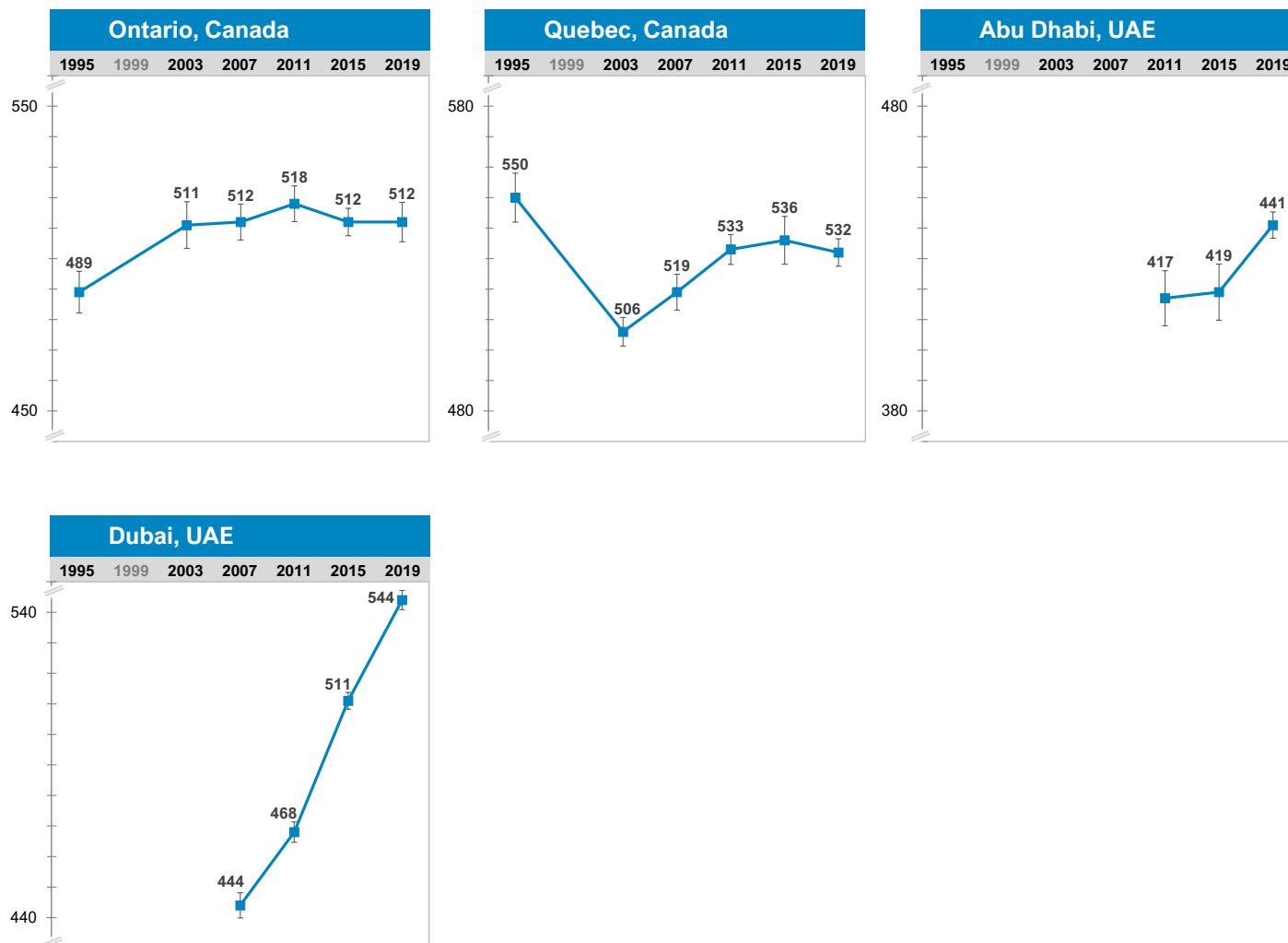
◊ There was no TIMSS fourth grade assessment in 1999. See Appendix A for country participation in previous TIMSS assessments.  
 The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.  
 I. The black bars represent the 95% confidence interval.

**Exhibit 1.3: Trend Plots of Average Mathematics Achievement Across Assessment Years**<sup>◇</sup>

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that have comparable data from previous TIMSS assessments. The accompanying table (Exhibit 1.4) provides details, including statistical significance. See Appendix A for country participation in previous assessments.

**Benchmarking Participants**

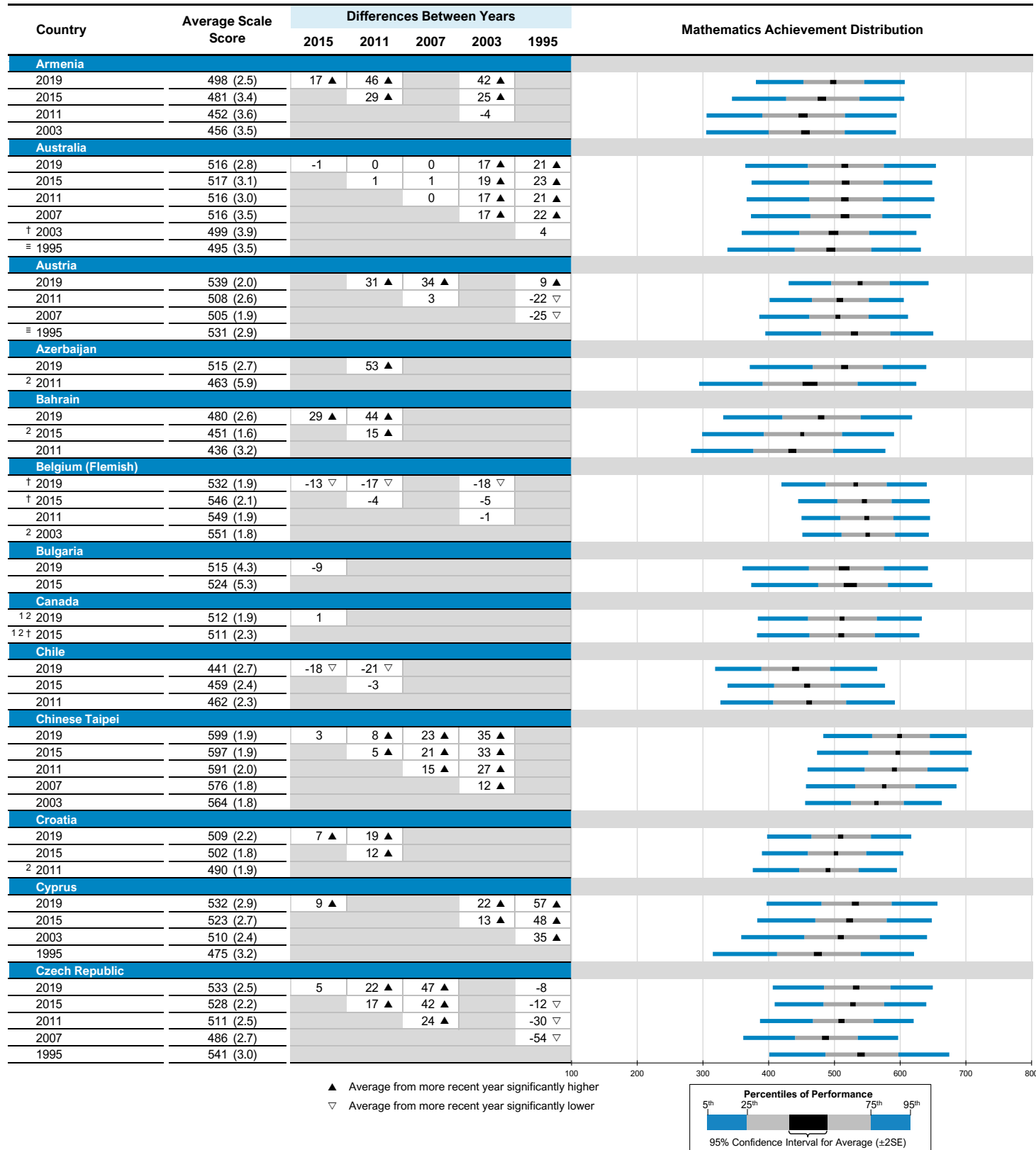


◇ There was no TIMSS fourth grade assessment in 1999. See Appendix A for country participation in previous TIMSS assessments.  
 The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.  
 I The black bars represent the 95% confidence interval.

SOURCE: IEA's Trends in International Mathematics and Science Study - TIMSS 2019  
 Downloaded from <http://timss2019.org/download>

Exhibit 1.4: Differences in Average Mathematics Achievement Across Assessment Years

Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.



See Appendix A for country participation in previous TIMSS assessments.

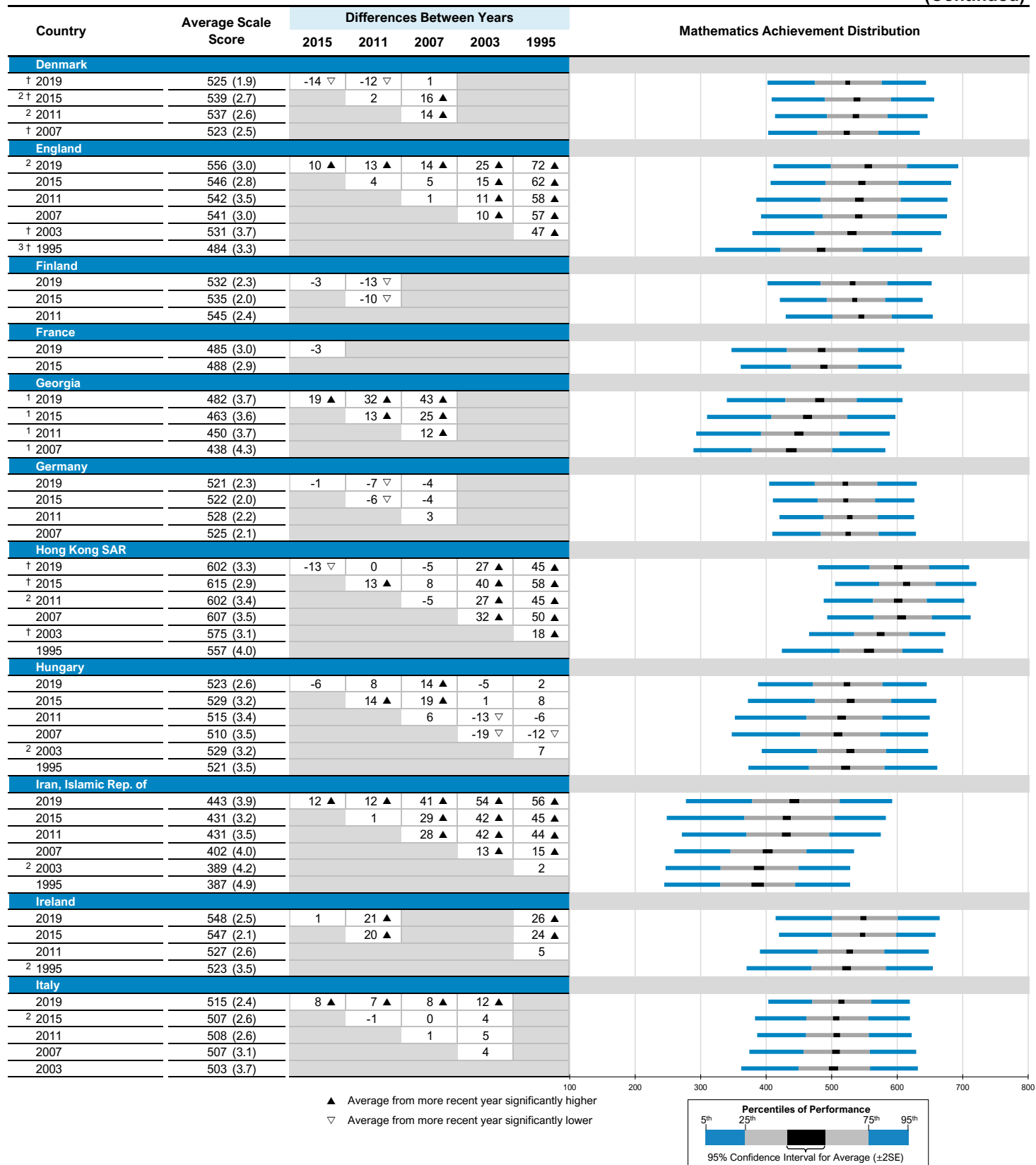
See Appendix B.2 for population coverage notes 1, 2, and 3. See Appendix B.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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



Exhibit 1.4: Differences in Average Mathematics Achievement Across Assessment Years

(Continued)



▲ Average from more recent year significantly higher  
 ▽ Average from more recent year significantly lower

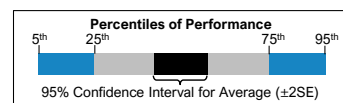
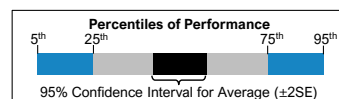


Exhibit 1.4: Differences in Average Mathematics Achievement Across Assessment Years

(Continued)

| Country                        | Average Scale Score | Differences Between Years |       |      |       |       | Mathematics Achievement Distribution |
|--------------------------------|---------------------|---------------------------|-------|------|-------|-------|--------------------------------------|
|                                |                     | 2015                      | 2011  | 2007 | 2003  | 1995  |                                      |
| <b>Japan</b>                   |                     |                           |       |      |       |       |                                      |
| 2019                           | 593 (1.8)           | 0                         | 8 ▲   | 25 ▲ | 28 ▲  | 26 ▲  |                                      |
| 2015                           | 593 (2.0)           |                           | 7 ▲   | 25 ▲ | 28 ▲  | 26 ▲  |                                      |
| 2011                           | 585 (1.7)           |                           |       | 17 ▲ | 21 ▲  | 18 ▲  |                                      |
| 2007                           | 568 (2.1)           |                           |       |      | 4     | 1     |                                      |
| 2003                           | 565 (1.6)           |                           |       |      |       | -3    |                                      |
| 1995                           | 567 (1.9)           |                           |       |      |       |       |                                      |
| <b>Kazakhstan</b>              |                     |                           |       |      |       |       |                                      |
| <sup>2</sup> 2019              | 512 (2.5)           |                           | 11 ▲  |      |       |       |                                      |
| <sup>2</sup> 2011              | 501 (4.5)           |                           |       |      |       |       |                                      |
| <b>Korea, Rep. of</b>          |                     |                           |       |      |       |       |                                      |
| 2019                           | 600 (2.2)           | -8 ▽                      | -5    |      |       | 19 ▲  |                                      |
| 2015                           | 608 (2.2)           |                           | 3     |      |       | 27 ▲  |                                      |
| 2011                           | 605 (1.9)           |                           |       |      |       | 24 ▲  |                                      |
| <sup>2</sup> 1995              | 581 (1.8)           |                           |       |      |       |       |                                      |
| <b>Kuwait</b>                  |                     |                           |       |      |       |       |                                      |
| 2019                           | 383 (4.7)           | 30 ▲                      |       |      |       |       |                                      |
| <sup>ψ</sup> 2015              | 353 (4.6)           |                           |       |      |       |       |                                      |
| <b>Latvia</b>                  |                     |                           |       |      |       |       |                                      |
| <sup>2</sup> 2019              | 546 (2.6)           |                           |       |      | 10 ▲  |       |                                      |
| 2003                           | 536 (2.8)           |                           |       |      |       |       |                                      |
| <b>Lithuania</b>               |                     |                           |       |      |       |       |                                      |
| <sup>2</sup> 2019              | 542 (2.8)           | 7                         | 8 ▲   | 12 ▲ | 8 ▲   |       |                                      |
| <sup>2</sup> 2015              | 535 (2.5)           |                           | 2     | 6    | 1     |       |                                      |
| <sup>12</sup> 2011             | 534 (2.4)           |                           |       | 4    | 0     |       |                                      |
| <sup>1</sup> 2007              | 530 (2.4)           |                           |       |      | -4    |       |                                      |
| <sup>1</sup> 2003              | 534 (2.7)           |                           |       |      |       |       |                                      |
| <b>Malta</b>                   |                     |                           |       |      |       |       |                                      |
| 2019                           | 509 (1.4)           |                           | 13 ▲  |      |       |       |                                      |
| 2011                           | 496 (1.4)           |                           |       |      |       |       |                                      |
| <b>Morocco</b>                 |                     |                           |       |      |       |       |                                      |
| 2019                           | 383 (4.3)           | 6                         | 49 ▲  |      |       |       |                                      |
| 2015                           | 377 (3.4)           |                           | 43 ▲  |      |       |       |                                      |
| <sup>✱</sup> 2011              | 335 (4.0)           |                           |       |      |       |       |                                      |
| <b>Netherlands</b>             |                     |                           |       |      |       |       |                                      |
| <sup>≡</sup> 2019              | 538 (2.2)           | 8 ▲                       | -3    | 3    | -3    | -12 ▽ |                                      |
| <sup>†</sup> 2015              | 530 (1.7)           |                           | -10 ▽ | -5   | -11 ▽ | -19 ▽ |                                      |
| <sup>†</sup> 2011              | 540 (1.6)           |                           |       | 5    | 0     | -9 ▽  |                                      |
| <sup>‡</sup> 2007              | 535 (2.1)           |                           |       |      | -5    | -14 ▽ |                                      |
| <sup>†</sup> 2003              | 540 (2.2)           |                           |       |      |       | -9 ▽  |                                      |
| <sup>≡</sup> 1995              | 549 (3.0)           |                           |       |      |       |       |                                      |
| <b>New Zealand</b>             |                     |                           |       |      |       |       |                                      |
| <sup>2</sup> 2019              | 487 (2.6)           | -3                        | 1     | -5   | -6    | 18 ▲  |                                      |
| 2015                           | 491 (2.3)           |                           | 4     | -2   | -3    | 21 ▲  |                                      |
| 2011                           | 486 (2.6)           |                           |       | -6   | -7 ▽  | 17 ▲  |                                      |
| 2007                           | 492 (2.4)           |                           |       |      | -1    | 23 ▲  |                                      |
| 2003                           | 493 (2.2)           |                           |       |      |       | 24 ▲  |                                      |
| 1995                           | 469 (4.4)           |                           |       |      |       |       |                                      |
| <b>Northern Ireland</b>        |                     |                           |       |      |       |       |                                      |
| <sup>†</sup> 2019              | 566 (2.7)           | -4                        | 3     |      |       |       |                                      |
| <sup>‡</sup> 2015              | 570 (2.9)           |                           | 8     |      |       |       |                                      |
| <sup>†</sup> 2011              | 562 (2.8)           |                           |       |      |       |       |                                      |
| <b>Norway (5)</b>              |                     |                           |       |      |       |       |                                      |
| <sup>†</sup> 2019              | 543 (2.2)           | -6                        |       |      |       |       |                                      |
| 2015                           | 549 (2.5)           |                           |       |      |       |       |                                      |
| <b>Oman</b>                    |                     |                           |       |      |       |       |                                      |
| 2019                           | 431 (3.7)           | 5                         | 46 ▲  |      |       |       |                                      |
| 2015                           | 425 (2.5)           |                           | 41 ▲  |      |       |       |                                      |
| <sup>ψ</sup> 2011              | 385 (2.9)           |                           |       |      |       |       |                                      |
| <b>Philippines</b>             |                     |                           |       |      |       |       |                                      |
| <sup>2</sup> <sup>ψ</sup> 2019 | 297 (6.4)           |                           |       |      | -62 ▽ |       |                                      |
| 2003                           | 358 (8.0)           |                           |       |      |       |       |                                      |
| <b>Poland</b>                  |                     |                           |       |      |       |       |                                      |
| 2019                           | 520 (2.7)           | -15 ▽                     |       |      |       |       |                                      |
| 2015                           | 535 (2.1)           |                           |       |      |       |       |                                      |

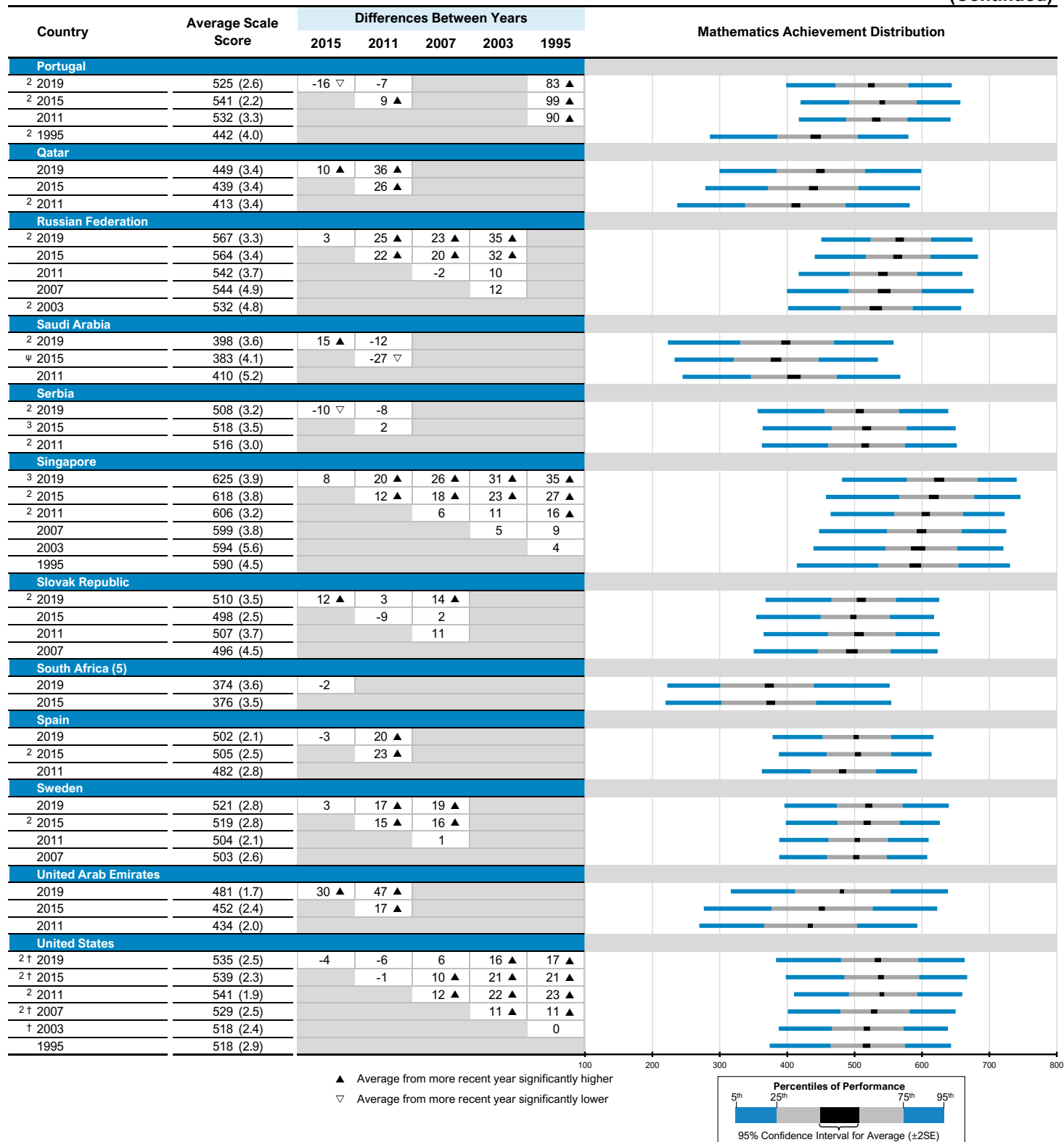
▲ Average from more recent year significantly higher  
 ▽ Average from more recent year significantly lower



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

Exhibit 1.4: Differences in Average Mathematics Achievement Across Assessment Years

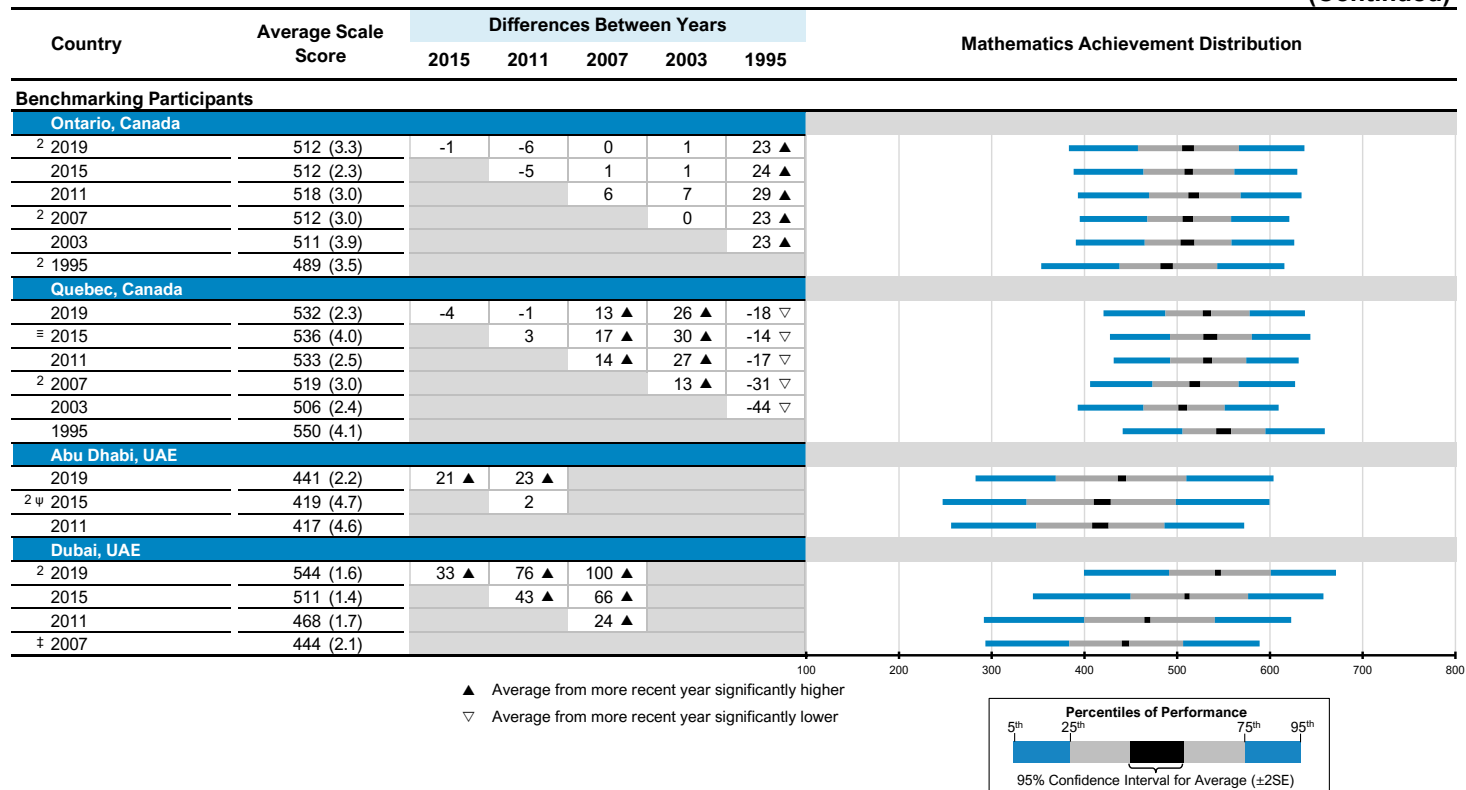
(Continued)



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

Exhibit 1.4: Differences in Average Mathematics Achievement Across Assessment Years

(Continued)



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

SOURCE: IEA's Trends in International Mathematics and Science Study - TIMSS 2019  
Downloaded from <http://timss2019.org/download>