Executive Summary

PISA defines equity in education as providing all students, regardless of gender, family background or socio-economic status, with opportunities to benefit from education. Defined in this way, equity does not imply that everyone should have the same results. It does mean, however, that students' socio-economic status or the fact that they have an immigrant background has little or no impact on their performance, and that all students, regardless of their background, are offered access to quality educational resources and opportunities to learn.

Of the 39 countries and economies that participated in both PISA 2003 and 2012, Mexico, Turkey and Germany improved both their mathematics performance and their levels of equity in education during the period.

These three countries improved both equity and performance either by reducing the extent to which students' socio-economic background predicts their mathematics performance or by reducing the average difference in performance between advantaged and disadvantaged students. Ten additional countries and economies improved their average performance between 2003 and 2012 while maintaining their equity levels.

Australia, Canada, Estonia, Finland, Hong Kong-China, Japan, Korea, Liechtenstein, Macao-China and the Netherlands and achieve high levels of performance and equity in education opportunities as assessed in PISA 2012.

Equity in education opportunities is average in 10 countries and economies and below average in 3 of the 23 countries and economies that perform above the OECD average in mathematics. In all countries and economies that participated in PISA 2012, a student's socio-economic status has a strong impact on his or her performance. Across OECD countries, 15% of the variation in student performance in mathematics is attributed to differences in students' socio-economic status. Among high-performing countries, this proportion ranges from 3% in Macao-China to 20% in Belgium. In contrast, in Bulgaria, Chile, France, Hungary, Peru, the Slovak Republic and Uruguay more than 20% of the difference in student performance can be attributed to students' socio-economic status.

Across OECD countries, a more socio-economically advantaged student scores 39 points higher in mathematics – the equivalent of nearly one year of schooling – than a less-advantaged student.

Among the 23 highest-performing countries and economies, performance differences related to socio-economic status are narrower-than-average in Canada, Estonia, Finland, Hong Kong-China, Macao-China and Viet Nam, about average in 12 countries and economies, and wider-than-average in 5. Striking performance differences are also observed between students in advantaged schools and those in disadvantaged schools: students attending socio-economically advantaged schools outscore those in disadvantaged schools by more than 104 points in mathematics, on average across OECD countries.

Across OECD countries 6% of the entire student population are "resilient", meaning that they beat the socio-economic odds against them and exceed expectations, when compared with students in other countries.

In Hong Kong-China, Macao-China, Shanghai-China, Singapore and Viet Nam 13% or more of the overall student population are resilient and perform among the top 25% across all participating countries after taking socio-economic status into account. Between 2003 and 2012, the share of resilient students increased in Germany, Italy, Mexico, Poland, Tunisia and Turkey.

The share of immigrant students in OECD countries increased from 9% in 2003 to 12% in 2012 while the difference in mathematics performance between immigrant and non-immigrant students shrank by 10 score points during the same period.

Immigrant students tend to be socio-economically disadvantaged in comparison to non-immigrant students, yet even when comparing students of similar socio-economic status, immigrant students perform worse in mathematics than non-immigrant students. In 2012, they scored an average of 37 points lower in mathematics than non-immigrant students before accounting for socio-economic status, and an average of 23 points lower after accounting for socio-economic status. In Canada, Ireland, Israel, New Zealand and the United Kingdom, however, immigrant and non-immigrant students perform equally well.

The concentration of immigrant students in a school is not, in itself, associated with poor performance.

In general, immigrant students and those who do not speak the language of assessment at home tend to be concentrated in disadvantaged schools. In the United States, for example, 40% of students in disadvantaged schools are immigrants, whereas 13% of students in advantaged schools are. Across OECD countries, students who attend schools where more than one in four students are immigrants tend to perform worse than those in schools with no immigrant students. However, the 19 score-point difference between the two groups is more than halved – to 7 points – after the socio-economic status of the students and schools is taken into account. Belgium, Estonia, Greece, Mexico and Portugal are the only countries where there are performance differences of 20 score points or more between the two groups, after accounting for socio-economic status.

Across OECD countries, students who reported that they had attended pre-primary school for more than one year score 53 points higher in mathematics – the equivalent of more than one year of schooling – than students who had not attended pre-primary education.

In all but two countries with available data, students who had attended pre-primary education for more than one year outperformed students who had not, before taking socio-economic status into account. This finding remains unchanged even after socio-economic status is accounted for, except in Croatia, Estonia, Ireland, Korea, Latvia, Slovenia and the United States.

OECD countries allocate at least an equal, if not a larger, number of mathematics teachers to socio-economically disadvantaged schools as to advantaged schools; but disadvantaged schools tend to have great difficulty in attracting qualified teachers.

In the Netherlands, the proportion of qualified teachers in advantaged schools (52%) is three times larger than the proportion of qualified teachers in disadvantaged schools (14%), while the student-teacher ratio is 28% higher in advantaged schools than it is in disadvantaged schools (18 students compared with 14 students per teacher, respectively).

■ Table II.A [1/2] ■
SNAPSHOT OF EQUITY IN EDUCATION IN PISA 2012 AND CHANGE SINCE PISA 2003

Countries/economies with mean mathematics performance above the OECD average
Countries/economies where the strength of the relationship between mathematics performance and socio-economic status is below the OECD average
Countries/economies where performance differences across socio-economic groups are below the OECD average

Countries/economies with mean mathematics performance not statistically different from the OECD average
Countries/economies where the strength of the relationship between mathematics performance and socio-economic status is not statistically different from the OECD average
Countries/economies where performance differences across socio-economic spectrum are not statistically different from the OECD average

Countries/economies with mean mathematics performance below the OECD average
Countries/economies where the strength of the relationship between mathematics performance and socio-economic status is above the OECD average
Countries/economies where performance differences across socio-economic spectrum are above the OECD average

	Mean performance in mathematics	**Strength of the relationship between mathematics performance and socio-economic status**	**Performance difference across socio-economic groups**	**Percentage of resilient students**
	Mean score	Percentage of explained variance in mathematics performance	Score-point difference in mathematics associated with a one-unit increase in ESCS[1]	Percentage of disadvantaged students who perform among the top 25% of students across all participating countries and economies, after accounting for ESCS[1]
OECD average	494	14.8	39	6.4
Macao-China	538	2.6	17	16.9
Hong Kong-China	561	7.5	27	18.1
Liechtenstein	535	7.6	28	10.1
Estonia	521	8.6	29	9.5
Finland	519	9.4	33	8.1
Canada	518	9.4	31	8.3
Japan	536	9.8	41	11.3
Korea	554	10.1	42	12.7
Netherlands	523	11.5	40	8.6
Australia	504	12.3	42	6.3
Switzerland	531	12.8	38	9.9
Singapore	573	14.4	44	15.1
Ireland	501	14.6	38	6.3
Viet Nam	511	14.6	29	16.9
Shanghai-China	613	15.1	41	19.2
Slovenia	501	15.6	42	5.9
Austria	506	15.8	43	6.1
Denmark	500	16.5	39	4.9
Poland	518	16.6	41	8.4
Germany	514	16.9	43	7.5
Chinese Taipei	560	17.9	58	12.3
New Zealand	500	18.4	52	5.3
Belgium	515	19.6	49	7.1
Norway	489	7.4	32	5.3
Iceland	493	7.7	31	5.2
United Kingdom	494	12.5	41	5.8
Latvia	491	14.7	35	6.4
Czech Republic	499	16.2	51	5.9
Portugal	487	19.6	35	7.7
France	495	22.5	57	5.4
Qatar	376	5.6	27	0.4
Kazakhstan	432	8.0	27	2.1
Jordan	386	8.4	22	0.9
Indonesia	375	9.6	20	2.5
United Arab Emirates	434	9.8	33	1.2
Thailand	427	9.9	22	6.3
Italy	485	10.1	30	6.4
Mexico	413	10.4	19	3.9
Sweden	478	10.6	36	4.3
Russian Federation	482	11.4	38	5.2
Serbia	449	11.7	34	3.6
Croatia	471	12.0	36	5.1
Tunisia	388	12.4	22	2.9
Montenegro	410	12.7	33	1.3
Malaysia	421	13.4	30	2.7
Lithuania	479	13.8	36	5.6
Cyprus*	440	14.1	38	1.9
Turkey	448	14.5	32	7.2
United States	481	14.8	35	5.2
Argentina	388	15.1	26	1.1
Colombia	376	15.4	25	1.5
Greece	453	15.5	34	3.2
Brazil	391	15.7	26	1.7
Spain	484	15.8	34	6.4
Israel	466	17.2	51	3.1
Luxembourg	490	18.3	37	6.1
Costa Rica	407	18.9	24	1.9
Romania	445	19.3	38	2.8
Bulgaria	439	22.3	42	2.1
Uruguay	409	22.8	37	2.1
Hungary	477	23.1	47	4.1
Chile	423	23.1	34	1.7
Peru	368	23.4	33	0.5
Slovak Republic	482	24.6	54	3.9

Note: Countries/economies in which the change between PISA 2003 and PISA 2012 (2012 - 2003) is statistically significant are marked in bold.
1. ESCS refers to the *PISA index of economic, social and cultural status*.
Countries and economies are presented in three groups: those whose mean performance is above the OECD average, those whose mean performance is not statistically different from the OECD average, and those whose mean performance is below the OECD average. Within each group, countries and economies are ranked in ascending order of the strength of the relationship between performance and socio-economic status observed in PISA 2012.
* See notes in the Reader's Guide.
Source: OECD, PISA 2012 Database, Tables II.2.1, II.2.7a, II.2.7b, II.2.8b and II.2.9b.
StatLink http://dx.doi.org/10.1787/888932964889

■ Table II.A [2/2] ■
SNAPSHOT OF EQUITY IN EDUCATION IN PISA 2012 AND CHANGE SINCE PISA 2003

Countries/economies with mean mathematics performance above the OECD average
Countries/economies where the strength of the relationship between mathematics performance and socio-economic status is below the OECD average
Countries/economies where performance differences across socio-economic groups are below the OECD average

Countries/economies with mean mathematics performance not statistically different from the OECD average
Countries/economies where the strength of the relationship between mathematics performance and socio-economic status is not statistically different from the OECD average
Countries/economies where performance differences across socio-economic spectrum are not statistically different from the OECD average

Countries/economies with mean mathematics performance below the OECD average
Countries/economies where the strength of the relationship between mathematics performance and socio-economic status is above the OECD average
Countries/economies where performance differences across socio-economic spectrum are above the OECD average

	Trends in mathematics performance	**Trends in the strength of the relationship between mathematics performance and socio-economic status**	**Trends in the slope of the socio-economic gradient for mathematics**	**Trends in the percentage of resilient students**
	Change between PISA 2003 and PISA 2012 in mathematics mean score (2012 - 2003)	Change between PISA 2003 and PISA 2012 in the percentage of variance in mathematics performance explained by students' ESCS[1] (2012 - 2003)	Change between PISA 2003 and PISA 2012 in the score-point difference in mathematics performance associated with a one-unit increase on ESCS[1] (2012 - 2003)	Change between PISA 2003 and PISA 2012 in the percentage of resilient students (2012 - 2003)
OECD average	**-3**	**-2.0**	0	**-0.3**
Macao-China	**11**	0.8	5	**-2.5**
Hong Kong-China	11	-0.4	-3	1.1
Liechtenstein	-1	**-14.9**	**-19**	c
Estonia	m	m	m	m
Finland	**-26**	-1.1	**5**	**-3.3**
Canada	**-14**	-0.8	1	**-1.6**
Japan	2	-2.0	-2	0.5
Korea	**12**	-4.4	5	0.6
Netherlands	**-15**	**-6.8**	0	-1.7
Australia	**-20**	-1.6	2	**-1.9**
Switzerland	4	**-5.2**	-3	0.8
Singapore	m	m	m	m
Ireland	-1	-1.1	2	-0.2
Viet Nam	m	m	m	m
Shanghai-China	m	m	m	m
Slovenia	m	m	m	m
Austria	0	0.8	2	-0.6
Denmark	**-14**	-0.8	1	**-1.7**
Poland	**27**	0.2	1	**2.5**
Germany	**11**	**-6.9**	-1	**1.3**
Chinese Taipei	m	m	m	m
New Zealand	**-24**	1.8	**8**	**-2.9**
Belgium	**-15**	-3.4	-2	**-1.2**
Norway	-6	**-4.7**	**-8**	1.1
Iceland	**-22**	0.6	5	**-1.7**
United Kingdom	m	m	m	m
Latvia	7	2.8	1	0.4
Czech Republic	**-17**	-2.3	5	-0.7
Portugal	**21**	1.1	**7**	-0.1
France	**-16**	2.2	**14**	**-2.5**
Qatar	m	m	m	m
Kazakhstan	m	m	m	m
Jordan	m	m	m	m
Indonesia	**15**	2.4	-1	0.7
United Arab Emirates	m	m	m	m
Thailand	**10**	-1.5	-1	-1.5
Italy	**20**	-2.2	-1	**1.8**
Mexico	**28**	**-6.8**	**-11**	**2.5**
Sweden	**-31**	**-3.7**	-1	**-2.9**
Russian Federation	**14**	0.8	7	-1.2
Serbia	m	m	m	m
Croatia	m	m	m	m
Tunisia	**29**	-1.4	-3	**1.5**
Montenegro	m	m	m	m
Malaysia	m	m	m	m
Lithuania	m	m	m	m
Cyprus*	m	m	m	m
Turkey	**25**	**-10.4**	**-18**	**4.4**
United States	-2	**-4.2**	**-7**	0.9
Argentina	m	m	m	m
Colombia	m	m	m	m
Greece	8	-0.5	-2	0.4
Brazil	**35**	0.7	-5	-0.2
Spain	-1	**3.2**	**6**	**-2.1**
Israel	m	m	m	m
Luxembourg	**-3**	1.7	2	-0.1
Costa Rica	m	m	m	m
Romania	m	m	m	m
Bulgaria	m	m	m	m
Uruguay	**-13**	**6.9**	3	**-1.5**
Hungary	**-13**	-2.6	-3	0.1
Chile	m	m	m	m
Peru	m	m	m	m
Slovak Republic	**-17**	1.0	6	-0.6

Note: Countries/economies in which the change between PISA 2003 and PISA 2012 (2012 - 2003) is statistically significant are marked in bold.
1. ESCS refers to the *PISA index of economic, social and cultural status*.
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