CO3.6: Percentage of immigrant children and their educational outcomes

Definitions and methodology

This indicator presents estimates of the proportion of children with immigrant background as well as their performance on cognitive scores compared with children without immigrant background. The indicator is based on three student assessment studies: 1) the OECD Programme for International Student Assessment (PISA), 2) the Progress in International Reading Literacy Study (PIRLS), and 3) the Trends in International Mathematics and Science Study (TIMSS). PISA distinguishes three types of students according to their immigrant status: i) *native students*: students born in the country of assessment with at least one parent born in the country or foreign-born students with at least one parent born in the country of assessment; ii) *second-generation students*: students born in the country of assessment with both parents foreign-born; iii) *first-generation students*: foreign-born students whose parents are also foreign-born. Students with an immigrant background include second- and first-generation students. PIRLS and TIMSS classification is based only on parents' country of birth. These studies differentiate between three types of children: i) children with both parents born in the country; ii) children with one parent born in the country; and iii) children with neither parent born in the country. For this classification, students with an immigrant background include children in the second and third group.

PISA evaluates the knowledge and skills of 15-year-old students across the OECD and other partner countries. PIRLS and TIMSS evaluations are conducted when students are enrolled in the fourth year of primary school. In most countries, students begin formal schooling at age 6, thus children in PIRLS and TIMSS are around 10 years old (on average, age ranges between 9.7 and 11.4 years in both assessment studies). TIMSS also collects information of children enrolled in eighth grade, i.e. when children are around 14 years old.

Key findings

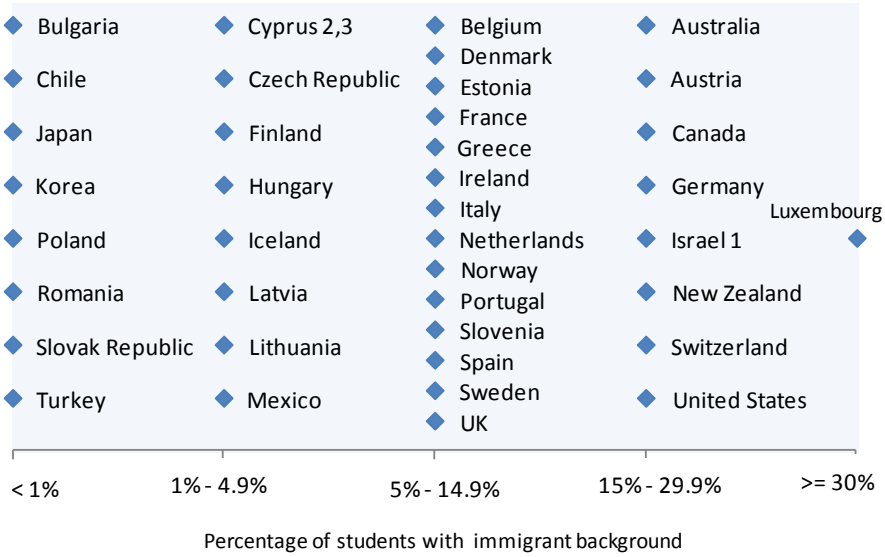
Percentage of immigrant children

Chart CO3.6.1 provides a picture of the classification of countries according to the proportion of children with an immigrant background using data from the three studies. All sources coincide with this broad classification. The largest number of countries (13 OECD countries) is concentrated in the 5 to 14.9% of immigrant children, a medium-low category. PISA non-native students and PIRLS and TIMSS children with neither parent born in the country can be directly compared by definition (see *Definitions and methodology*). Table CO3.6.1 provides estimates on the percentage of children with an immigrant background by assessment study.

In 2009, on average 10% of students aged 15 years old in OECD countries had an immigrant background (second- and first-generation students) (Chart CO3.6.2). However, cross-country differences were large. Luxembourg stood as the country with the largest percentage of 15-year olds with an immigrant background, with 40% of foreign-born students or with both parents foreign-born. In Australia, Canada, New Zealand and Switzerland the percentage of immigrant students was also high, at around 20% of 15-year-old students. By contrast, in Chile, Japan, Korea, Poland, the Slovak Republic and Turkey less than 1% of students has an immigrant background.

Other relevant indicators: CO3.3: Literacy scores by gender at age 10; CO3.5: Literacy scores by gender at age 15; SF1.4: Population by age of children and young adults, and youth-dependency ratio.

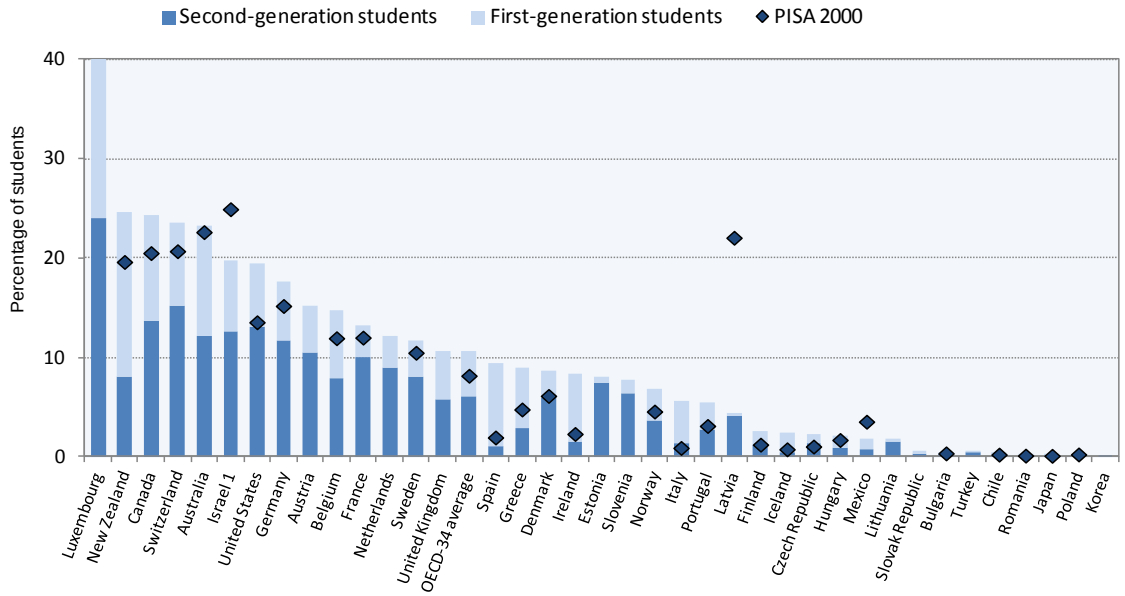
Chart CO3.6.1 Classification of countries by children's immigrant status using PISA 2009, PIRLS 2006 and TIMSS 2007



1) The data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.
Source: OECD, PISA 2009 Database, Table II.4.1.
2) Footnote by Turkey: The information in this document with reference to « Cyprus » relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognizes the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
3) Footnote by all the European Union Member States of the OECD and the European Commission: The Republic of Cyprus is recognized by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.
Source: PISA 2009, PIRLS 2006 and TIMSS 2007.

Chart CO3.6.2 Percentage of students with an immigrant background, 2009

Students aged 15 years old



Countries are ordered from left to right by decreasing order of the percentage of students with an immigrant background.
1) See note (1) for Chart CO3.6.1
Source: OECD, PISA 2009 Database, Table II.4.1.

The distribution of second- and first-generation students differs between countries. In countries with above-average proportion of immigrant students (except New Zealand), second-generation children outnumbered first-generation ones. The great majority of these countries have been historically immigrant receiving countries, hence the higher proportion of second-generation students. On the other hand, countries like Greece, Ireland, Italy, Portugal and Spain, have recently experienced important growth of inflows of immigrant population (Chart CO3.6.2). Hence, the greater proportion of first-generation students in these countries.

Second-generation students are an heterogenous group. It not only includes children with immigrant parents who arrived as adults , but also children with parents who arrived as children themselves. The latter group may find less barriers to a good performance as they have had more time to integrate into the culture of the immigrant country. Table CO3.6.2 shows considerable differences in the age of arrival of parents of native-born children across a group of European countries. While in Greece, Italy, Luxembourg and Spain more than 50% of native-born children had both parents arriving as adults to the immigrant country, in France, the Netherlands, Slovenia and the United Kingdom less than 30% of children had both parents arriving as adults.

Table CO3.6.2 Age of arrival of parents of native-born children of immigrants, 2008.

Country	At least one parent arrived as a young child	Both parents arrived later, but not both as adults	Both parents arrived as adults
Greece	..	..	78
Spain	13	19	68
Italy	15	26	59
Luxembourg	18	26	57
Belgium	38	21	41
Austria	15	46	39
Germany	25	40	36
France	33	39	28
United Kingdom	37	35	28
Slovenia	29	53	18
Netherlands	39	43	18
Latvia	53	..	..
Estonia	67	..	..

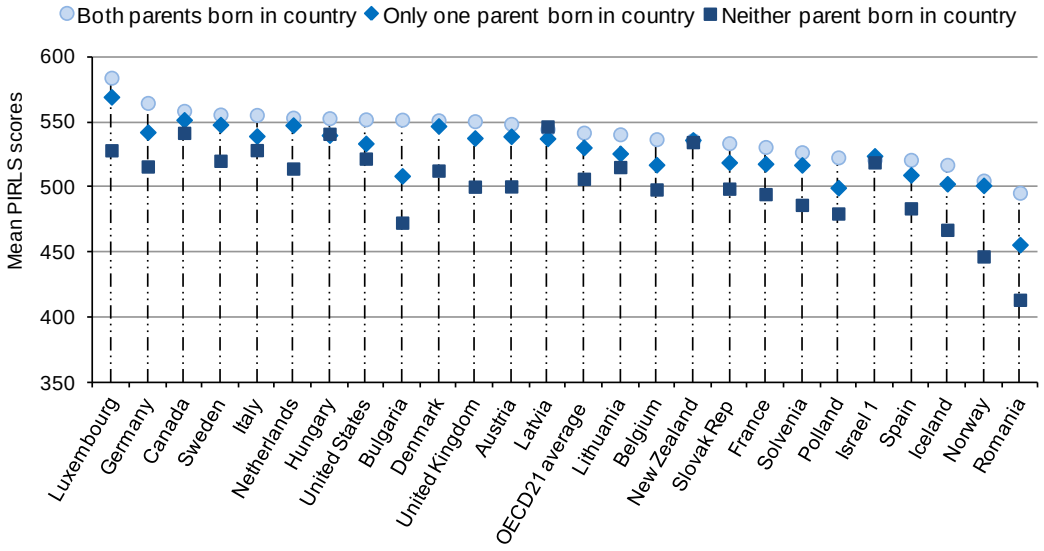
Countries are ordered by decreasing order of the percentage of children with both parents arriving as adults.
Note: "As a young child" means at most 10 years of age; adults are defined here as persons 20 years of age or older.
.. indicates estimates not sufficiently reliable to publish. Shaded cells need to be treated with caution because of low reliability.
Source: European Union Labour Force Survey, 2008 Immigrant Module.

Education outcomes of immigrant children

Chart CO3.6.3 presents differences in mean scores on reading among 10-year olds by parents' country of origin. Results show important differences across countries. On average, children with both foreign-born parents had lower reading performance than their peers with both parents born in the country of assessment (35 score-points difference). However, in general, small differences were observed between children with one parent born in the country (considered *native students* in PISA) and children with both parents born in the country. Within-country differences were largest in Luxembourg, Norway and the United Kingdom, and smallest in Canada, Hungary[1], Israel and New Zealand.

[1]Almost all migration to Hungary consists of ethnic Hungarians from neighbouring countries.

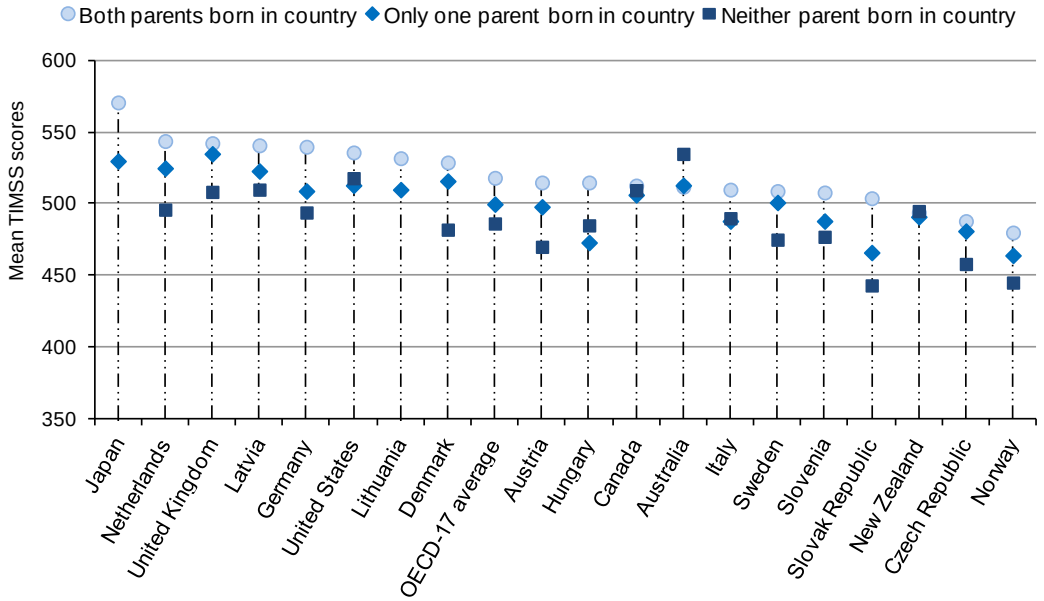
Chart CO3.6.3 Student performance in reading scores at age 10 by immigrant background, PIRLS 2006



Countries are ordered from left to right by decreasing order of the performance of children with both parents born in the country.
1) See note (1) for chart CO3.6.1.
Source: PIRLS 2006.

Chart CO3.6.4 shows cross-country mean differences in mathematics scores among 10-year olds by parents' country of origin. Similar to previous results, on average, performance in mathematics at fourth grade was lowest among students with neither parent born in the country, and highest among students with both parents born in the country (29 score-points difference between these groups). However, this was not the case in Australia, Canada and New Zealand where students with neither parent born in the country had mathematics scores similar to or higher than children with both parents born in the country of assessment.

Chart CO3.6.4 Student performance in mathematics scores at age 10 by immigrant background, TIMSS 2007



Countries are ordered from left to right by decreasing order of the performance of children with both parents born in the country.
Source: TIMSS 2007.

The PISA 2009 assessment shows that in most OECD countries, except Australia, Israel and Hungary, children with an immigrant background perform less well in reading than their non-immigrant peers (44 score-points difference) (Chart CO3.6.5). However, the performance gap between immigrant and non-immigrant children varies widely across countries. While first-generation students (foreign born with foreign-born parents) in Austria, Finland, Iceland, Mexico and Sweden underperformed significantly compared with native students (more than 85 score-points difference), this gap was small or negligible in Canada, the Czech Republic[2] and New Zealand (less than 10 score-points difference). Additionally, first-generation students in most countries had lower reading scores than second-generation students (children born in the country of assessment with foreign-born parents), except in the Czech Republic, New Zealand, Luxembourg and the Netherlands.

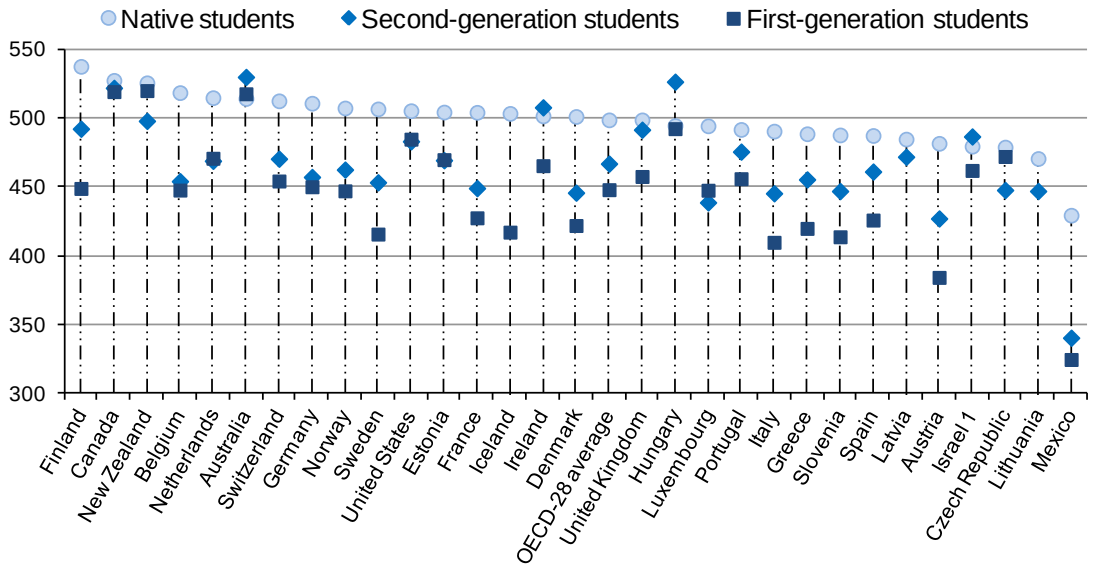
The gap in mathematics literacy between children with immigrant and non-immigrant status is of similar size to that of reading performance (44 score-points difference) (Chart CO3.6.6). Likewise, it varies considerably across the OECD. In Australia, Canada, Israel and Hungary there does not appear to be a large gap. In fact, in Australia and Hungary second-generation students outperformed native children. By contrast, first-generation students fare worse (more than 75 points) than their native peers in Austria, Denmark, France, Slovenia, Sweden and Mexico.

Comparisons between PIRLS and TIMSS and PISA should be made with caution as these assessments measure different cognitive abilities. However, provided caution is taken and the need of further analyses, the gaps in performance according to immigrant status seem to increase with age. Bradbury et al. (2011) looking at the cognitive skills of children of immigrant families in Anglophone countries found that 4 and 5 year old children with immigrant background are as likely to successfully start school than their non-immigrant peers.

The gaps in performance between migrant and non-migrant children may stem from the fact that migrant children generally are more socio-economically disadvantaged than native children. However, results from PISA show that even after controlling for socio-economic background, students with an immigrant background perform worse than their native peers. Chart CO3.6.6 suggests that low socio-economic status is an important driver of poor literacy scores in Austria, Luxembourg, the Netherlands and the United States.

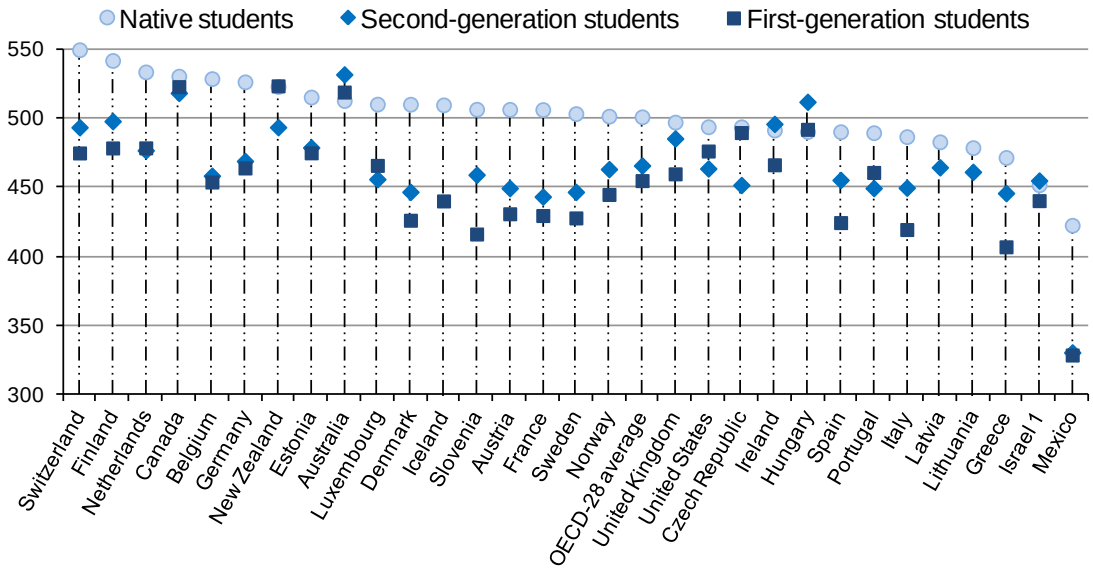
[2] Immigration in border-change countries is somewhat atypical. It may consist of persons who migrated internally before the split-up and "became" immigrants by virtue of the split-up.

Chart CO3.6.5 Student performance in reading scores by immigrant background, PISA 2009



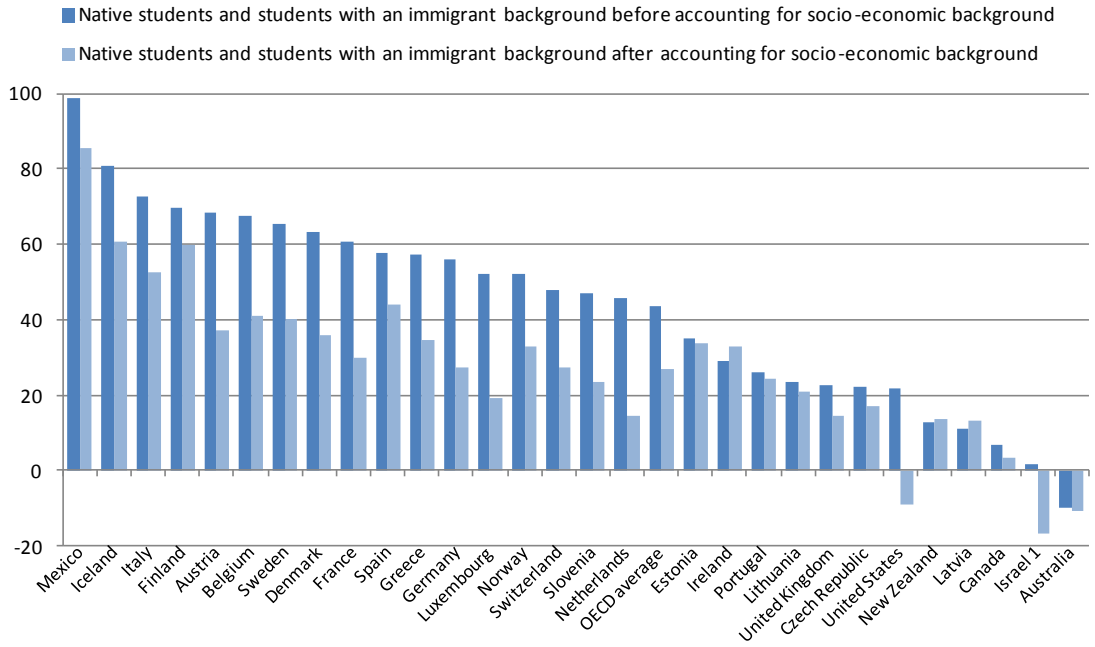
Countries are ordered from left to right by decreasing order of native-student's performance in reading scores.
1) See note (1) for chart CO3.6.1
Source: OECD (2011), PISA 2009 Results: Overcoming Social Background: Equity in Learning Opportunities and Outcomes (Volume 2).

Chart CO3.6.6 Student performance in mathematics scores by immigrant background, PISA 2009



Countries are ordered from left to right by decreasing order of native-student's performance in reading scores.
1) See note (1) for chart CO3.6.1
Source: OECD (2011), PISA 2009 Results: Overcoming Social Background: Equity in Learning Opportunities and Outcomes (Volume 2).

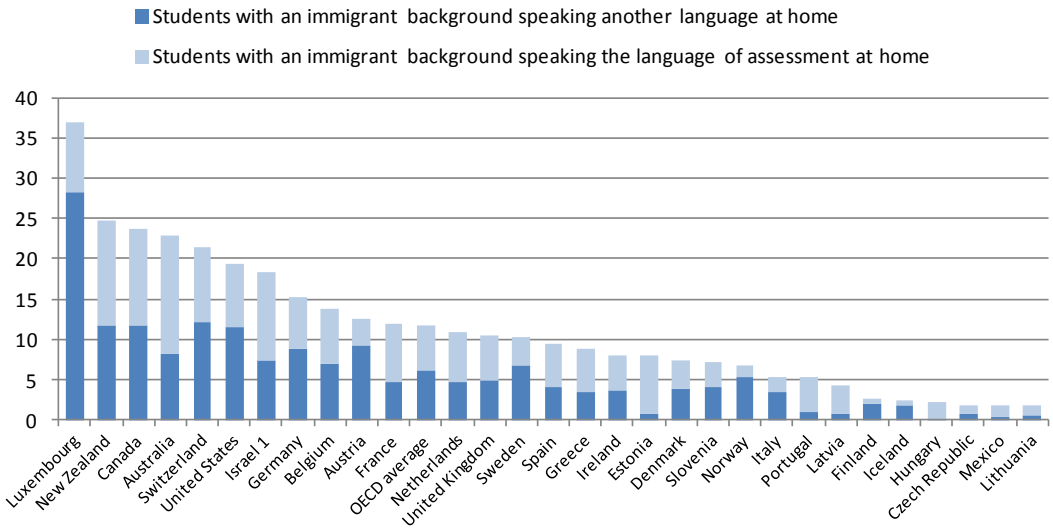
Chart CO3.6.6 Gaps in reading performance by immigrant background before and after accounting for socio-economic background



Countries are ordered from left to right by decreasing order of difference in performance before accounting for socio-economic background.
1) See note (1) for chart CO3.6.1
Source: OECD (2011), PISA 2009 Results: Overcoming Social Background: Equity in Learning Opportunities and Outcomes (Volume 2).

The language spoken at home is an additional factor that may influence children's performance in school. In many countries, students with an immigrant background are more likely to speak a language at home which is different from the language spoken in the country of assessment. Chart CO3.6.7 shows that this is especially so in Austria, Germany, Luxembourg, Switzerland and the United States.

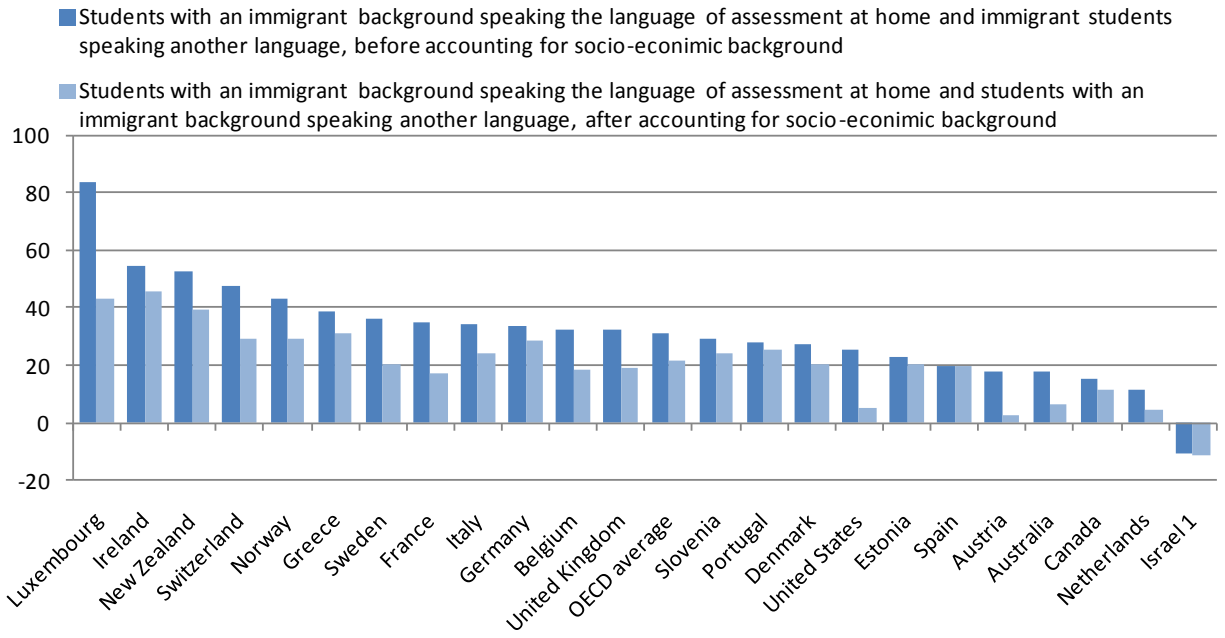
Chart CO3.6.7 Percentage of students with immigrant background by language spoken at home, PISA 2009



Countries are ordered from left to right by decreasing order of the percentage of immigrant students, calculated over the total student population.
Figures presented here do not fully coincide with those in Chart C0.3.6.2 because of missing data on language spoken.
1) See note (1) for chart CO3.6.1.
Source: OECD (2011), PISA 2009 Results: Overcoming Social Background: Equity in Learning Opportunities and Outcomes (Volume 2).

Chart CO3.6.8 shows that students with an immigrant background who speak the language of the country of assessment at home do better in reading than their immigrant counterparts who do not. This difference in performance shows that language is an additional barrier for immigrant students. In Ireland, Luxembourg, New Zealand, Norway and Switzerland the "performance gap" is considerable, 40 score points or more. By contrast, in Australia, Canada, Israel and the Netherlands the "performance gap" is relatively small. This "performance gap" is reduced upon accounting for socio-economic background in all countries. However, in some countries, it remains considerable. Policies to improve the language skills of immigrant students could help reduce one of the many challenges immigrant children face.

Chart CO3.6.8 Gaps in reading performance among students with immigrant background by language spoken at home before and after accounting for socio-economic background



Countries are ordered from left to right by decreasing order of difference in performance before accounting for socio-economic background. Only countries with more than 5% of students with immigrant background are included.
1) See note (1) for chart CO3.6.1
Source: OECD (2011), PISA 2009 Results: Overcoming Social Background: Equity in Learning Opportunities and Outcomes (Volume 2).

Comparability and data issues

PISA's classification of students by immigrant background is based on students self-reporting on their country of birth as well on that of their parents. It distinguishes three groups of students according to immigrant background. Its classification considers both the students' country of birth as well as that of their parents. By contrast, PIRLS and TIMSS only account for the parent's country of birth in their classification. Nevertheless, it is possible to compare data between these sources as by definition children with immigrant background (first- and second-generation students) in PISA coincide with children with neither parent born in the country on PIRLS and TIMSS.

The PISA assessment process devotes substantial efforts and resources to achieving cultural and linguistic balance in the assessment materials, to provide students with equal chances of successful performance. Stringent quality assurance mechanisms are applied in translation, sampling and data collection. If countries fail to meet sampling size requirements they are omitted from the published international comparisons (e.g., the Netherlands in 2000 and the United Kingdom in 2003). In 2006, reading tests in the United States were excluded from the report due to a fieldwork error that could have

affected student performance. More than 400 000 15-year old students in 57 countries were assessed for PISA 2006 and 2009. Because the results are based on probability samples, the standard errors of the estimates can also be calculated and can be found on the OECD PISA website (www.pisa.oecd.org).

PIRLS and TIMSS evaluations are conducted when students are enrolled in the fourth year of primary school. However, in some countries this is not the case. In New Zealand and the United Kingdom, where children start school at a very early age, students are tested at the fifth year of schooling. Both studies take place in around 40 different countries, including Belgium with data for two communities (Flemish and French-speaking communities), Canada with five provinces (Alberta, British Columbia, Nova Scotia (not in TIMSS), Ontario and Québec), and England and Scotland for the United Kingdom. For Belgium, Canada and the United Kingdom, overall scores were estimated using a weighted average according to population of each the province/country/community involved.

TIMSS collects information of children enrolled in eight grade (at around age 14). Information of this age group is used here for providing estimates on the proportion of immigrant children. However, performance scores are not presented because PISA gathers information on mathematics as well as other competencies of children close to this age group and has a wider coverage of OECD countries.

The EU-SILC also contains information on immigrant children among European countries. However, this survey only includes information on parents of children that live in the same household as the children. As a result, information is often missing for children who do not live with one or both their parents (thus, information is missing for the non-resident parent of all sole-parent children). Because of this substantial limitation information on immigrant children from the EU-SILC is not included in this indicator.

Sources and further reading: OECD (2011) PISA 2009 Results: Overcoming Social Background: Equity in Learning Opportunities and Outcomes (Volume 2); PIRLS and TIMSS website http://timss.bc.edu/index.html; OECD (2011) International Migration Outlook 2011, OECD Publishing, OECD, Paris (www.oecd.org/migration/imo); OECD (2011) A Profile of Immigrant Populations in the 21st Century: Data from OECD Countries; and OECD Migration Databases.

Table CO3.6.1. Percentage of students by immigrant status

Country	PIRLS 2006 children in 4th grade			TIMSS 2007 children in 4th grade			TIMSS 2007 children in 8th grade			PISA 2009 15 year old children			
	Both parents born in country	Only one parent born in country	Neither parent born in country	Both parents born in country	Only one parent born in country	Neither parent born in country	Both parents born in country	Only one parent born in country	Neither parent born in country	Native students	Second-generation students	First-generation students	Students with immigrant background
Australia	-	-	-	57.0	21.0	21.0	61.0	21.0	18.0	76.8	12.1	11.1	23.2
Austria	72.3	10.9	16.8	73.0	11.0	16.0	-	-	-	84.8	10.5	4.8	15.2
Belgium	69.8	17.8	12.4	-	-	-	-	-	-	85.2	7.8	6.9	14.8
Bulgaria	95.1	3.9	1.0	-	-	-	96.0	3.0	1.0	99.5	0.2	0.3	0.5
Canada	55.1	17.4	27.5	59.3	15.0	25.2	63.3	13.0	23.8	75.6	13.7	10.7	24.4
Chile	-	-	-	-	-	-	-	-	-	99.5	0.1	0.4	0.5
Cyprus [2,3]	-	-	-	-	-	-	82.0	13.0	5.0	-	-	-	-
Czech Republic	-	-	-	90.0	7.0	3.0	91.0	7.0	2.0	97.7	1.4	0.8	2.3
Denmark	79.0	12.3	8.7	82.0	8.0	10.0	-	-	-	91.4	5.9	2.8	8.6
Estonia	-	-	-	-	-	-	-	-	-	92.0	7.4	0.6	8.0
Finland	-	-	-	-	-	-	-	-	-	97.4	1.1	1.4	2.6
France	67.3	19.0	13.6	-	-	-	-	-	-	86.9	10.0	3.2	13.1
Germany	70.8	13.5	15.7	70.0	12.0	17.0	-	-	-	82.4	11.7	5.9	17.6
Greece	-	-	-	-	-	-	-	-	-	91.0	2.9	6.1	9.0
Hungary	93.3	4.5	2.2	91.0	6.0	3.0	94.0	4.0	2.0	97.9	0.9	1.2	2.1
Iceland	84.6	12.8	2.6	-	-	-	-	-	-	97.6	0.4	1.9	2.4
Ireland	-	-	-	-	-	-	-	-	-	91.7	1.4	6.8	8.3
Israel [1]	62.0	17.0	20.0	-	-	-	63.0	16.0	21.0	80.3	12.6	7.1	19.7
Italy	85.6	8.3	6.1	87.0	8.0	5.0	89.0	7.0	5.0	94.5	1.3	4.2	5.5
Japan	-	-	-	96.0	3.0	1.0	98.0	1.0	1.0	99.7	0.1	0.1	0.3
Korea	-	-	-	-	-	-	100.0	0.0	0.0	100.0	-	-	-
Latvia	57.6	21.2	21.2	85.0	12.0	3.0	-	-	-	95.5	4.1	0.4	4.5
Lithuania	89.0	9.4	1.6	91.0	7.0	1.0	92.0	7.0	1.0	98.3	1.6	0.2	1.7
Luxembourg	39.7	20.3	40.0	-	-	-	-	-	-	59.8	24.0	16.1	40.2
Mexico	-	-	-	-	-	-	-	-	-	98.1	0.7	1.1	1.9
Netherlands	76.9	11.2	11.9	77.0	11.0	12.0	-	-	-	87.9	8.9	3.2	12.1
New Zealand	56.5	23.3	20.2	60.0	20.0	21.0	-	-	-	75.3	8.0	16.7	24.7
Norway	82.4	11.9	5.7	85.0	10.0	5.0	84.0	9.0	7.0	93.2	3.6	3.2	6.8
Poland	96.8	2.9	0.3	-	-	-	-	-	-	100.0	-	-	-
Portugal	-	-	-	-	-	-	-	-	-	94.5	2.7	2.8	5.5
Romania	96.4	2.7	0.9	-	-	-	99.0	1.0	0.0	99.7	0.1	0.2	0.3
Slovak Republic	91.2	7.8	1.0	87.0	8.0	6.0	-	-	-	99.5	0.3	0.3	0.5
Slovenia	80.6	11.5	7.8	78.0	10.0	12.0	82.0	9.0	9.0	92.2	6.4	1.4	7.8
Spain	81.2	8.3	10.5	-	-	-	-	-	-	90.5	1.1	8.4	9.5
Sweden	72.5	14.7	12.8	74.0	12.0	14.0	77.0	11.0	12.0	88.3	8.0	3.7	11.7
Switzerland	-	-	-	-	-	-	97.0	2.0	0.0	76.5	15.1	8.4	23.5
Turkey	-	-	-	-	-	-	-	-	-	99.5	0.4	0.1	0.5
United Kingdom	71.7	16.8	11.5	74.9	15.5	10.5	80.8	10.6	8.5	89.4	5.8	4.8	10.6
United States	66.3	15.9	17.8	70.0	13.0	17.0	74.0	9.0	17.0	80.5	13.0	6.4	19.5
OECD average										**89.6**	**6.2**	**4.8**	**11.0**
Russian Federation	-	-	-	81.0	10.0	8.0	83.0	11.0	6.0	87.9	7.2	4.9	12.1

PIRLS and TIMSS data for Canada is based on selected provinces: Alberta, British Columbia, Nova Scotia (not in TIMSS), Ontario and Québec), while results for the United Kingdom are based on data for England and Scotland. PIRLS and TIMSS data for Belgium was collected separately for the Flemish- and French-speaking communities. For these three countries, overall scores were estimated using a weighted average according to population of each province/country/community.

1) See note (1) for Chart CO3.6.1.

2) See notes (2) and (3) for Chart CO3.6.12.

Sources: PIRLS 2006, TIMSS 2007 and PISA 2009.