A CROSS-NATIONAL PERSPECTIVE ON IMMIGRANT STUDENTS USING PISA

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ABSTRACT

This paper focuses on immigrant students from 16 receiving countries using data from PISA 2003 and 2006. We consider immigrant student performance, as well as immigrants' socioeconomic status, language, and educational motivations and aspirations. The findings indicate that in a majority of countries there are significant differences between immigrant and non immigrant students and that in many countries socioeconomic status alone does not explain these differences. The results also show that first and second generation students who speak a language other than the language of instruction at home have lower scores on the assessments. Finally, we turn to instrumental motivation where the results indicate that immigrant students in almost all of the case countries exhibit relatively higher levels of instrumental motivation than their native peers.

Immigrants and children of immigrants make up a growing minority of students in schools in Europe, North America, Australia and New Zealand. The successful integration of these young people is a policy and practical challenge facing these countries. School plays a central role in supporting integration by providing opportunities to learn academic skills, as well as a better understanding of the language and culture of the receiving country.

While immigrants across these countries represent a diverse group, understanding in general terms how these students are performing in schools may provide insights into where supports for these students may be needed and countries that may warrant further examination of policies and practices that may help further immigrant student success.

This article explores findings related to achievement of first and second generation immigrant students using the OECD's Programme on International Student Assessment (PISA). It draws on research we have conducted over the past five years using PISA data (see for example Christensen & Segeritz, 2008 and Stanat & Christensen, 2006). This paper focuses on immigrant students from 16 receiving countries using data from PISA 2003 and 2006 (similar results can be found using PISA 2000, see Christensen, 2004). We consider immigrant student performance, as well as immigrants' socioeconomic status, language, and educational motivations and aspirations.

USING PISA TO STUDY IMMIGRANT STUDENTS

The Organisation for Economic Cooperation and Development's (OECD) Program for International Student Assessment (PISA) is an international assessment of 15-year-old students in OECD and partner countries. The PISA data allow for descriptive international comparisons of students across countries. In 2003, students in 41 countries participated and in 2006, 57 countries

TABLE 1: Number and weighted percentage of students by immigrant background in PISA 2003 and PISA 2006

		NUMBER OF STUDENTS BY IMMIGRANT STATUS					
		NATIVE STUDENTS		SECOND-GENERATION STUDENTS		FIRST-GENERATION STUDENTS	
		WEIGHTED PERCENT	N	WEIGHTED PERCENT	N	WEIGHTED PERCENT	N
2003	Australia	75.5	9 682	11.5	1 342	10.8	1 258
	Austria	85.7	3 966	4.1	174	9.1	403
	Belgium	85.8	7 584	6.2	486	5.3	497
	Canada	70.8	23 481	8.2	1 365	9.6	1 411
	Denmark	92.0	3 891	3.4	137	3.0	126
	France	84.0	3 639	10.6	442	3.4	133
	Germany	77.3	3 685	6.3	281	7.8	349
	Israel	–	–	–	–	–	–
	Luxembourg	64.9	2 554	15.4	600	16.9	658
	Netherlands	85.0	3 434	6.8	265	3.7	147
	New Zealand	78.5	3 534	6.4	284	13.0	602
	Norway	92.9	3 773	2.2	95	3.3	133
	Sweden	87.2	4 048	5.6	241	5.8	271
	Switzerland	78.9	6 477	8.8	787	10.9	1 034
	United Kingdom	–	–	–	–	–	–
	United States	82.9	4 523	8.1	442	5.9	319
2006	Australia	78.1	11 119	12.9	1 596	9.0	1 129
	Austria	86.8	4 275	5.3	245	7.9	371
	Belgium	86.7	7 656	7.0	518	6.3	569
	Canada	78.9	19 135	11.2	1 451	9.9	1 157
	Denmark	92.4	4 145	4.2	190	3.4	158
	France	87.0	3 988	9.6	436	3.4	151
	Germany	85.8	3 946	7.7	355	6.6	302
	Israel	77.0	3 239	11.5	470	11.5	492
	Luxembourg	63.9	2 891	19.5	870	16.6	729
	Netherlands	88.8	4 256	7.8	369	3.5	162
	New Zealand	78.7	3 649	7.0	351	14.3	711
	Norway	93.9	4 296	3.0	144	3.1	145
	Sweden	89.2	3 881	6.2	273	4.7	208
	Switzerland	77.6	9 405	11.8	1 380	10.6	1 236
	United Kingdom	91.4	12 131	5.0	341	3.7	279
	United States	84.8	4 571	9.4	524	5.8	327

Source: PISA 2003 and 2006 database. Table adapted from Christensen & Segeritz, 2008 and Stanat & Christensen 2006.

participated. The focus of the assessment changes each year: in 2003 it was mathematics literacy and in 2006 it was scientific literacy, with reading and mathematics literacy as minor domains. This paper focuses on assessment outcomes in reading and mathematics as it is possible to use data from both 2003 and 2006 for these subject domains (similar results were found for science in Christensen & Segeritz, 2008). In addition, we examine motivation related to mathematics using the 2003 data.

The PISA assessment has a literacy focus meaning that students are asked to apply their knowledge and understanding to real-life situations. The assessments in each domain are scaled such that for the baseline year the average student score in OECD countries is 500 points with a standard deviation of 100 points. The same scale is then applied for the following cycles, which makes it possible to compare different years on the same scale.

The student background questionnaires administered in PISA allow for comparisons between three sub-groups: *first generation students* (foreign-born students with foreign-born parents); *second generation students* (students born in the country of the assessment with two foreign-born parents); and *native students* (students with at least one parent born in the country of the assessment). We use the term 'immigrant students' to refer to both first generation and second generation students.

Only a portion of the countries participating in the PISA have a large enough fraction of immigrant students in the sample to yield reliable estimates of their achievement levels. In this paper we include countries with a minimum of 3% in each of the immigrant subgroups (first generation and second generation). Country samples also had to include a minimum of 100 first generation and 100 second generation students. The following countries meet these criteria: Australia, Austria, Belgium, Canada, Denmark, France, Germany, Israel, Luxembourg, Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, and the United States (see Table 1 for a description of the sample in 2003 and 2006).[1]

PISA also has its share of limitations for examining immigrant students and student performance, most notably that the data are not longitudinal, making it impossible to examine the same student's performance

TABLE 2A: Performance and performance differences on the reading scale by immigrant background in PISA 2003 and PISA 2006

	2003					2006				
	Performance on the reading scale			Difference in reading performance between native students and second-generation students	Difference in reading performance between native students and first-generation students	Performance on the reading scale			Difference in reading performance between native students and second-generation students	Difference in reading performance between native students and first-generation students
	Native students	Second-generation students	First-generation students			Native students	Second-generation students	First-generation students		
	Mean score (SE)	Mean score (SE)	Mean score (SE)	Mean diff. (2nd-native) (SE)	Mean diff. (1st-native) (SE)	Mean score (SE)	Mean score (SE)	Mean score (SE)	Mean diff. (2nd-native) (SE)	Mean diff. (1st-native) (SE)
Australia	529	525	517	-4	-12	514	521	514	7	1
	(2.2)	(4.6)	(5.0)	(4.7)	(4.9)	(1.9)	(4.9)	(5.3)	(4.6)	(5.2)
Austria	501	428	425	**-73**	**-77**	499	420	451	**-79**	**-48**
	(3.8)	(13.5)	(8.0)	(13.8)	(8.5)	(3.4)	(18.8)	(12.6)	(18.8)	(12.6)
Belgium	523	439	407	**-84**	**-117**	515	434	413	**-81**	**-102**
	(2.7)	(7.5)	(11.9)	(7.2)	(11.9)	(2.9)	(9.1)	(8.2)	(8.8)	(8.1)
Canada	534	543	515	10	-19	532	532	512	0	**-19**
	(1.6)	(4.2)	(4.7)	(4.2)	(4.8)	(2.2)	(4.7)	(5.5)	(4.5)	(5.2)
Denmark	497	440	454	**-57**	**-42**	500	436	422	**-64**	**-79**
	(2.7)	(13.8)	(9.5)	(13.8)	(9.6)	(2.9)	(11.3)	(8.6)	(10.8)	(8.2)
France	505	458	426	**-48**	**-79**	495	459	449	**-36**	**-45**
	(2.6)	(6.9)	(15.3)	(7.4)	(15.5)	(4.4)	(8.7)	(12.6)	(9.8)	(13.2)
Germany	517	420	431	**-96**	**-86**	510	427	440	**-83**	**-70**
	(3.5)	(9.9)	(8.9)	(10.5)	(9.0)	(3.8)	(10.8)	(11.3)	(10.1)	(10.3)
Israel	–	–	–	–	–	447	439	447	-7	1
	–	–	–	–	–	(4.4)	(8.3)	(8.6)	(7.2)	(8.5)
Luxembourg	500	454	431	**-47**	**-69**	504	443	435	**-61**	**-69**
	(1.8)	(4.0)	(4.4)	(4.3)	(4.9)	(1.7)	(3.3)	(3.9)	(3.9)	(4.4)
Netherlands	524	475	463	**-50**	**-61**	515	454	449	**-61**	**-65**
	(2.9)	(8.2)	(8.1)	(8.7)	(8.8)	(2.7)	(11.3)	(11.1)	(11.8)	(10.5)
New Zealand	528	506	503	**-22**	**-25**	526	520	507	-7	**-19**
	(2.9)	(8.3)	(5.3)	(9.0)	(6.1)	(3.0)	(8.2)	(6.3)	(8.3)	(6.3)
Norway	505	446	436	**-59**	**-68**	491	449	427	**-42**	**-63**
	(2.7)	(11.1)	(11.5)	(11.0)	(11.3)	(2.8)	(15.3)	(12.2)	(14.7)	(12.3)
Sweden	522	502	433	**-20**	**-89**	514	486	446	**-29**	**-68**
	(2.2)	(8.7)	(11.3)	(8.2)	(11.6)	(3.6)	(6.5)	(8.7)	(6.2)	(8.6)
Switzerland	515	462	422	**-53**	**-93**	515	467	430	**-48**	**-85**
	(3.2)	(5.2)	(6.3)	(5.1)	(6.0)	(2.8)	(4.6)	(6.6)	(4.1)	(5.6)
United Kingdom	–	–	–	–	–	499	492	455	-7	**-44**
	–	–	–	–	–	(1.9)	(10.3)	(14.2)	(10.2)	(13.9)
United States	503	481	453	**-22**	**-50**	–	–	–	–	–
	(3.1)	(8.7)	(8.3)	(8.3)	(8.4)	–	–	–	–	–

Notes: Differences that are statistically significant are indicated in bold.
Source: PISA 2003 and 2006 database. Table adapted from Christensen & Segeritz, 2008.

overtime or draw causal conclusions from the data. Furthermore, across the countries listed above, there are substantial variations in the countries of origin of the immigrant students; however, very few countries include this question on the PISA student background questionnaire (see Stanat & Christensen, 2006). In turn, the advantage of PISA is that it allows for descriptive analyses of immigrant student populations generally across a range of immigrant receiving countries.

OVERVIEW OF PERFORMANCE IN PISA 2003 AND 2006

This section provides a short summary of performance differences between immigrant and non-immigrant students in reading and mathematics in 2003 and 2006. Using data from two years and two subject domains, and calculating the performance differences between first generation and native students and second generation and native students, there are eight sets of performance differences. By looking at the magnitude of the performance differences across years and subject domains, three country groupings emerge. In just over half of the countries, the performance differences (between first generation and native students and between second generation and native students) are generally more than half a standard deviation (or 50 score points). These countries include Austria, Belgium, Denmark Germany, Luxembourg, Netherlands, Norway, Sweden, and Switzerland. In a second group's countries, which includes France, the United Kingdom and the United States, the performance differences are generally statistically significant but are less than 50 points. In only four countries – Australia, Canada, Israel and New Zealand – immigrant students generally perform at levels similar to native students.

TABLE 2B: Performance and performance differences on the mathematics scale by immigrant background in PISA 2003 and PISA 2006

	2003					2006				
	Performance on the mathematics scale			Difference in mathematics performance between native students and second-generation students	Difference in mathematics performance between native students and first-generation students	Performance on the mathematics scale			Difference in mathematics performance between native students and second-generation students	Difference in mathematics performance between native students and first-generation students
	Native students	Second-generation students	First-generation students			Native students	Second-generation students	First-generation students		
	Mean score (SE)	Mean score (SE)	Mean score (SE)	Mean diff. (2nd-native) (SE)	Mean diff. (1st-native) (SE)	Mean score (SE)	Mean score (SE)	Mean score (SE)	Mean diff. (2nd-native) (SE)	Mean diff. (1st-native) (SE)
Australia	527	522	525	-5	-2	519	531	530	**12**	**11**
	(2.1)	(4.7)	(4.9)	(4.7)	(4.9)	(1.9)	(5.5)	(5.6)	(5.1)	(5.3)
Austria	515	459	452	**-56**	**-63**	515	435	450	**-81**	**-65**
	(3.3)	(8.8)	(6.0)	(9.3)	(6.0)	(3.6)	(13.6)	(8.7)	(13.8)	(9.0)
Belgium	546	454	437	**-92**	**-109**	535	451	423	**-84**	**-112**
	(2.5)	(7.5)	(10.8)	(7.6)	(10.9)	(2.7)	(10.0)	(8.3)	(9.4)	(8.5)
Canada	537	543	530	6	-7	531	524	524	-8	-7
	(1.6)	(4.3)	(4.7)	(4.4)	(4.8)	(1.8)	(4.4)	(5.4)	(4.5)	(5.5)
Denmark	520	449	455	**-70**	**-65**	519	456	439	**-63**	**-80**
	(2.5)	(11.2)	(10.1)	(11.1)	(9.8)	(2.5)	(8.8)	(7.6)	(8.4)	(7.6)
France	520	472	448	**-48**	**-72**	504	458	442	**-47**	**-62**
	(2.4)	(6.1)	(15.0)	(6.6)	(15.0)	(3.3)	(9.8)	(12.2)	(10.3)	(12.4)
Germany	525	432	454	**-93**	**-71**	519	441	454	**-78**	**-65**
	(3.5)	(9.1)	(7.5)	(9.6)	(7.9)	(3.4)	(8.4)	(7.9)	(7.7)	(7.5)
Israel	–	–	–	–	–	448	438	457	-10	9
	–	–	–	–	–	(4.2)	(7.5)	(7.5)	(6.4)	(7.4)
Luxembourg	507	476	462	**-31**	**-45**	509	464	454	**-46**	**-55**
	(1.3)	(3.3)	(3.7)	(3.7)	(4.1)	(1.5)	(2.7)	(3.8)	(3.4)	(4.2)
Netherlands	551	492	472	**-59**	**-79**	539	472	481	**-66**	**-58**
	(3.0)	(10.3)	(8.4)	(11.1)	(8.8)	(2.3)	(9.8)	(8.6)	(10.0)	(8.3)
New Zealand	528	496	523	**-32**	**-5**	524	511	530	-13	6
	(2.6)	(8.4)	(4.9)	(9.1)	(5.6)	(2.5)	(6.9)	(5.3)	(6.9)	(5.7)
Norway	499	460	438	**-39**	**-61**	495	446	437	**-49**	**-58**
	(2.3)	(11.7)	(9.3)	(11.3)	(9.4)	(2.4)	(13.4)	(9.9)	(13.1)	(9.8)
Sweden	517	483	425	**-34**	**-92**	510	467	446	**-42**	**-64**
	(2.2)	(9.8)	(9.6)	(9.1)	(9.7)	(2.4)	(7.1)	(7.2)	(6.7)	(7.2)
Switzerland	543	484	453	**-59**	**-89**	547	485	459	**-62**	**-88**
	(3.3)	(5.0)	(6.1)	(4.9)	(6.0)	(2.9)	(4.8)	(6.5)	(4.2)	(5.8)
United Kingdom	–	–	–	–	–	499	474	474	**-25**	**-25**
	–	–	–	–	–	(2.0)	(7.9)	(10.9)	(7.7)	(10.7)
United States	490	468	453	**-22**	**-36**	481	458	444	**-23**	**-37**
	(2.8)	(7.6)	(7.5)	(7.2)	(7.5)	(4.1)	(5.8)	(7.4)	(6.0)	(7.2)

Notes: Differences that are statistically significant are indicated in bold.
Source: PISA 2003 and 2006 database. Table adapted from Christensen & Segeritz, 2008.

The emergence of these groupings highlights two other findings related to immigrant student performance. First, the performance differences between the two immigrant subgroups and native students are notably similar in each domain in 2003 and 2006. In general the achievement differences between immigrant and non-immigrant students are within 10 points of each other across the two years. There are only a few cases where the achievement differences deviate by more than 20 points different between 2003 and 2006 (see Tables 2a and 2b). Second, our results show that while the performance differences between first generation and native students are somewhat larger than the performance differences between second generation and native students, the differences between the two subgroups are rarely significant (see Stanat & Christensen, 2006). Of particular concern to policy makers may be that in many countries in Europe, second generation students are performing at substantially lower levels than native students even though their entire schooling experience has been in the host country.

SOCIOECONOMIC STATUS AND IMMIGRANT STUDENT OUTCOMES

As noted above, immigrants in the sixteen countries are a diverse group of individuals varying not only in terms of country of origin, but also in terms of their educational and occupational experiences and the socioeconomic status they achieve in the receiving country. Using data from PISA it is possible to examine the socioeconomic differences between the immigrant students by using the composite index of economic, social and cultural status (ESCS) to examine socioeconomic differences between immigrant and non-immigrant students. In almost all of the countries discussed in this paper, the families of immigrant students exhibit lower levels on this index than families of native students. Using the 2006 PISA data, in every country, except Australia, second

TABLE 3: Index of economic, social and cultural status (ESCS) by immigrant background in PISA 2006

	ESCS index[2]			Difference in ESCS index between native students and second-generation students	Difference in ESCS index between native students and first-generation students		ESCS index[2]			Difference in ESCS index between native students and second-generation students	Difference in ESCS index between native students and first-generation students
	Native students	Second-generation students	First-generation students				Native students	Second-generation students	First-generation students		
	Mean score (SE)	Mean score (SE)	Mean score (SE)	Mean diff. (2nd-native) (SE)	Mean diff. (1st-native) (SE)		Mean score (SE)	Mean score (SE)	Mean score (SE)	Mean diff. (2nd-native) (SE)	Mean diff. (1st-native) (SE)
Australia	0.01	-0.07	0.05	-0.07	0.04	Luxembourg	0.30	-0.55	-0.51	**-0.85**	**-0.82**
	(0.02)	(0.05)	(0.05)	(0.05)	(0.05)		(0.01)	(0.04)	(0.04)	(0.04)	(0.04)
Austria	0.09	-0.75	-0.54	**-0.85**	**-0.64**	Netherlands	0.10	-0.92	-0.56	**-1.02**	**-0.66**
	(0.03)	(0.13)	(0.11)	(0.13)	(0.11)		(0.02)	(0.09)	(0.11)	(0.09)	(0.10)
Belgium	0.09	-0.72	-0.46	**-0.81**	**-0.55**	New Zealand	-0.01	-0.34	0.19	**-0.33**	**0.20**
	(0.02)	(0.07)	(0.10)	(0.07)	(0.09)		(0.02)	(0.07)	(0.04)	(0.08)	(0.05)
Canada	0.02	-0.13	0.02	-0.15	0.00	Norway	0.04	-0.58	-0.79	**-0.63**	**-0.84**
	(0.02)	(0.06)	(0.05)	(0.06)	(0.05)		(0.02)	(0.11)	(0.12)	(0.11)	(0.11)
Denmark	0.07	-0.89	-0.98	**-0.96**	**-1.06**	Sweden	0.05	-0.34	-0.57	**-0.39**	**-0.62**
	(0.03)	(0.10)	(0.10)	(0.10)	(0.11)		(0.02)	(0.09)	(0.10)	(0.09)	(0.10)
France	0.09	-0.61	-0.52	**-0.70**	**-0.61**	Switzerland	0.13	-0.41	-0.50	**-0.54**	**-0.63**
	(0.03)	(0.08)	(0.15)	(0.08)	(0.15)		(0.02)	(0.04)	(0.06)	(0.04)	(0.06)
Germany	0.11	-0.79	-0.53	**-0.91**	**-0.64**	United Kingdom	0.02	-0.31	-0.17	**-0.34**	-0.19
	(0.03)	(0.07)	(0.07)	(0.06)	(0.07)		(0.02)	(0.10)	(0.12)	(0.10)	(0.12)
Israel	0.07	-0.07	-0.38	**-0.14**	**-0.45**	United States	0.11	-0.54	-0.66	**-0.65**	**-0.77**
	(0.03)	(0.06)	(0.06)	(0.05)	(0.07)		(0.04)	(0.09)	(0.10)	(0.09)	(0.10)

[2] Scores standardized within each country.
Note: Differences that are statistically significant are indicated in bold.
Source: PISA 2003 and 2006 database. Table adapted from Christensen & Segeritz, 2008.

TABLE 4: Performance on the reading scale and mathematics scale by immigrant status and language spoken at home in PISA 2006

	Performance on the reading scale	Difference in reading performance				Performance on the mathematics scale	Difference in mathematics performance			
		Second-generation minus native students		First-generation minus native students			Second-generation minus native students		First-generation minus native students	
	Native students	Both sub-groups speak language of assessment at home[3]	Second generation students speak a different language at home	Both sub-groups speak language of assessment at home	First-generation students speak a different language at home	Native students	Both sub-groups speak language of assessment at home	Second generation students speak a different language at home	Both sub-groups speak language of assessment at home	First-generation students speak a different language at home
	Mean score (SE)	Mean diff. (SE)	Mean diff. (SE)	Mean diff. (SE)	Mean diff. (SE)	Mean score (SE)	Mean diff. (SE)	Mean diff. (SE)	Mean diff. (SE)	Mean diff. (SE)
Australia	514	**12**	-4	**14**	**-15**	519	**12**	16	**16**	7
	(1.9)	(4.1)	(8.4)	(5.5)	(7.5)	(1.9)	(4.3)	(9.6)	(5.8)	(6.9)
Austria	499	**-46**	**-88**	5	**-47**	515	**-57**	**-89**	**-30**	**-64**
	(3.4)	(14.2)	(23.0)	(14.9)	(15.5)	(3.6)	(15.6)	(17.4)	(14.2)	(11.5)
Belgium	515	**-49**	**-113**	**-80**	**-124**	535	**-66**	**-89**	**-96**	**-125**
	(2.9)	(8.8)	(9.7)	(11.3)	(13.9)	(2.7)	(8.3)	(10.4)	(14.6)	(14.2)
Canada	532	8	-13	-2	**-24**	531	-6	-5	-5	-5
	(2.2)	(4.4)	(7.5)	(7.2)	(5.6)	(1.8)	(4.8)	(7.0)	(7.5)	(5.9)
Denmark	500	**-31**	**-79**	**-49**	**-88**	519	**-36**	**-80**	**-52**	**-89**
	(2.9)	(13.1)	(12.3)	(13.2)	(10.4)	(2.5)	(11.3)	(12.2)	(12.4)	(9.9)
France	495	**-32**	**-30**	**-51**	-34	504	**-38**	**-50**	**-76**	**-49**
	(4.4)	(11.1)	(11.0)	(13.8)	(18.0)	(3.3)	(10.8)	(13.7)	(14.4)	(16.2)
Germany	510	**-28**	**-107**	**-40**	**-81**	519	**-34**	**-97**	**-43**	**-75**
	(3.8)	(13.4)	(12.4)	(13.8)	(11.3)	(3.4)	(11.2)	(10.0)	(10.8)	(8.7)
Israel	447	-2	5	16	-4	448	-5	1	8	13
	(4.4)	(7.6)	(18.2)	(13.9)	(9.4)	(4.2)	(6.0)	(18.0)	(12.0)	(7.3)
Luxembourg	504	**-35**	**-73**	8	**-97**	509	**-24**	**-54**	**17**	**-81**
	(1.7)	(7.0)	(5.2)	(7.5)	(4.9)	(1.5)	(6.2)	(4.3)	(7.3)	(4.9)
Netherlands	515	**-53**	**-70**	**-28**	**-85**	539	**-62**	**-67**	**-36**	**-68**
	(2.7)	(12.4)	(18.5)	(14.4)	(15.0)	(2.3)	(11.0)	(15.0)	(12.5)	(11.8)
New Zealand	526	4	**-34**	0	**-43**	524	-8	-20	7	2
	(3.0)	(8.3)	(14.5)	(7.0)	(8.8)	(2.5)	(7.5)	(13.3)	(5.8)	(8.2)
Norway	491	-30	**-46**	-40	**-60**	495	**-41**	**-52**	-36	**-55**
	(2.8)	(16.1)	(22.6)	(26.1)	(14.1)	(2.4)	(14.1)	(19.3)	(23.4)	(11.2)
Sweden	514	**-20**	**-30**	**-39**	**-72**	510	**-32**	**-44**	**-50**	**-66**
	(3.6)	(9.5)	(8.9)	(14.5)	(9.6)	(2.4)	(8.9)	(8.7)	(13.6)	(8.4)
Switzerland	515	**-26**	**-63**	**-34**	**-98**	547	**-46**	**-71**	**-49**	**-99**
	(2.8)	(5.3)	(5.5)	(10.2)	(5.6)	(2.9)	(4.6)	(5.9)	(10.0)	(6.0)
United Kingdom	499	5	-25	-20	**-54**	499	-14	**-34**	-5	**-33**
	(1.9)	(10.4)	(17.5)	(12.3)	(17.4)	(2.0)	(8.5)	(11.6)	(10.3)	(13.6)
United States	–	–	–	–		481	-4	**-34**	-17	**-44**
	–		–	–		(4.1)	(7.6)	(6.8)	(11.7)	(8.9)

[3] To be consistent with other analysis conducted with using PISA data, we combined students that speak the test language or another national language into one category.
Notes: Differences that are statistically significant are indicated in bold.
Source: PISA 2006 database.

TABLE 5: Regression of instrumental motivation[4] on immigrant status in PISA 2003

		MODEL I		MODEL II	
		COEFF.	SE	COEFF.	SE
Australia	Intercept	**.190**	-(.015)	**.160**	-(.015)
	1st Generation	**.180**	-(.034)	**.190**	-(.033)
	2nd Generation	**.160**	-(.043)	**.180**	-(.039)
	ESCS	–		**.100**	-(.018)
	R-squared	.005		.013	
Austria	Intercept	**-.530**	-(.028)	**-.510**	-(.027)
	1st Generation	**.230**	-(.074)	**.170**	-(.073)
	2nd Generation	.200	-(.104)	.130	-(.103)
	ESCS	–		**-.110**	-(.024)
	R-squared	.006		.014	
Beligium	Intercept	**-.350**	-(.016)	**-.370**	-(.018)
	1st Generation	**.380**	-(.063)	**.420**	-(.066)
	2nd Generation	**.160**	-(.069)	**.240**	-(.072)
	ESCS	–		**.080**	-(.017)
	R-squared	.008		.013	
Canada	Intercept	**.170**	-(.012)	**.130**	-(.012)
	1st Generation	**.340**	-(.041)	**.330**	-(.041)
	2nd Generation	**.190**	-(.048)	**.190**	-(.048)
	ESCS	–		**.110**	-(.012)
	R-squared	.012		.020	
Denmark	Intercept	**.370**	-(.016)	**.340**	-(.016)
	1st Generation	.000	-(.100)	.060	-(.103)
	2nd Generation	.020	-(.091)	.110	-(.094)
	ESCS	–		**.110**	-(.019)
	R-squared	.000		.010	
France	Intercept	**-.110**	-(.022)	**-.110**	-(.023)
	1st Generation	**.410**	-(.106)	**.470**	-(.108)
	2nd Generation	**.130**	-(.055)	**.190**	-(.060)
	ESCS	–		**.070**	-(.024)
	R-squared	.006		.011	
Germany	Intercept	**-.080**	-(.019)	**-.080**	-(.019)
	1st Generation	**.250**	-(.066)	**.240**	-(.072)
	2nd Generation	**.170**	-(.059)	**.170**	-(.063)
	ESCS	–		.000	-(.018)
	R-squared	.006		.006	
Luxembourg	Intercept	**-.520**	-(.023)	**-.510**	-(.025)
	1st Generation	**.480**	-(.051)	**.460**	-(.057)
	2nd Generation	**.220**	-(.051)	**.200**	-(.054)
	ESCS	–		-.030	-(.017)
	R-squared	.026		.027	
Netherlands	Intercept	**-.300**	-(.018)	**-.310**	-(.019)
	1st Generation	**.270**	-(.090)	**.290**	-(.094)
	2nd Generation	**.380**	-(.071)	**.410**	-(.073)
	ESCS	–		**.040**	-(.018)
	R-squared	.015		.016	
New Zealand	Intercept	**.250**	-(.017)	**.240**	-(.018)
	1st Generation	**.210**	-(.042)	**.200**	-(.042)
	2nd Generation	**.190**	-(.062)	**.230**	-(.065)
	ESCS	–		**.080**	-(.017)
	R-squared	.008		.014	
Norway	Intercept	**.150**	-(.020)	-.020	-(.026)
	1st Generation	.100	-(.081)	**.240**	-(.070)
	2nd Generation	.180	-(.119)	**.270**	-(.122)
	ESCS	–		**.270**	-(.022)
	R-squared	.001		.044	
Sweden	Intercept	-.010	-(.018)	**-.060**	-(.017)
	1st Generation	**.290**	-(.049)	**.390**	-(.049)
	2nd Generation	**.220**	-(.077)	**.290**	-(.076)
	ESCS	–		**.170**	-(.020)
	R-squared	.007		.030	
Switzerland	Intercept	**-.090**	-(.019)	**-.080**	-(.019)
	1st Generation	**.300**	-(.054)	**.250**	-(.054)
	2nd Generation	**.140**	-(.043)	**.090**	-(.046)
	ESCS	–		**-.080**	-(.017)
	R-squared	.009		.013	
USA	Intercept	**.160**	-(.019)	**.130**	-(.021)
	1st Generation	**.170**	-(.062)	**.210**	-(.062)
	2nd Generation	**.110**	-(.053)	**.140**	-(.055)
	ESCS	–		**.070**	-(.016)
	R-squared	.002		.006	

[4] Instrumental motivation is z-standardized within each country.
Notes: Differences that are statistically significant are indicated in bold.
Source: PISA 2003 database.

generation students exhibit significantly lower levels on the ESCS index than native students (see Table 3). First generation students show significantly lower levels on the ESCS index in all but four countries (Australia, Canada, New Zealand and the United Kingdom).

One might think that the socioeconomic differences might explain the performance differences discussed earlier. However, the findings indicate that while ESCS is significantly associated with students' performance in many countries, this alone does not explain immigrant student performance. In fact, in many countries significant performance differences remain even after accounting for student's socioeconomic background (see Segeritz and Christensen, 2008 and Stanat and Christensen, 2006). These findings using data from both PISA 2003 and 2006 indicate that there may be a need for policy interventions targeted directly at supporting immigrant students' performance to help foster these students' success in school.

THE ROLE OF LANGUAGE IN IMMIGRANT STUDENT OUTCOMES

Many immigrant students speak a language other than the language of instruction at home. These students may experience additional challenges in school if they do not master the language of instruction sufficiently. The PISA 2003 and 2006 results indicate that first and second generation students who speak a language other than the language of instruction at home have lower scores on the assessments of reading and mathematics literacy. Using the 2003 mathematics data, we found that across the case countries, first and second generation students who did not speak the test language at home score about a quarter of a standard deviation or 25 points lower than first or second generation students who did speak the test language at home (Stanat & Christensen, 2006).

The 2006 PISA results in mathematics and reading further underscore the importance of language for many immigrant students (see Table 4). In many countries, immigrant students (first or second generation) who do

not speak the language of instruction at home score 20 points lower than immigrant students who speak the language of instruction at home. In some domains and immigrant subgroups this difference is more than 40 points. These differences are particularly notable in countries with the largest achievement gaps between immigrant and non-immigrant students. The importance of language can also be seen in the results of the United Kingdom and the United States, where immigrant students who do not speak the test language at home exhibit significant performance differences from native students and immigrant students who speak the test language at home. These findings should not be taken to suggest that immigrant families should be discouraged from using their native languages at home. Research has shown that proficiency in more than one language is possible, and multilingualism can be viewed as an asset in its own right. The disadvantage associated with not speaking the language of instruction at home, however, indicates that immigrant students in many of the case countries may not have sufficient opportunities to develop their skills in the language of instruction which may help explain the performance differences observed for these students in the PISA data.

As part of the PISA thematic report *Where Immigrant Students' Succeed*, we conducted a survey in 2005 of countries' (or subnational entities in the case of federal systems) policies and practices for helping immigrant students attain proficiency in the language of instruction (see Chapter 5 of Stanat & Christensen, 2006). These survey results cannot be linked to the PISA assessment results to establish which different language support practices contribute to helping close the immigrant achievement gaps. What the survey information does show is that in countries where there are smaller achievement gaps between immigrant and non-immigrant students (e.g. Australia and Canada), language support tends to be more structured and systematic (the types of programs and supports does of course vary across the states and provinces of Australia and Canada). For example, these programs tend to have explicit standards and requirements in place with the goal of helping students acquire the language skills necessary to successfully integrate into the appropriate grade level. Furthermore, programs in these countries tend to be time intensive and offer supports as needed at both the primary and lower secondary level. In contrast, in some countries where the language support is less systematic, the performance differences between immigrant and non immigrant students are much larger. For example, in Belgium and Luxembourg, the survey results indicated that the majority of second language learners did not receive any additional language support at school. It is important to note, however, that the landscape of language support is rapidly changing and new programs are being introduced in immigrant receiving countries to help support students' language learning. In Germany, for instance, support has intensified in recent years, with special focus on pre-school and elementary school children.

MOTIVATION

While the preceding sections have highlighted the performance differences between immigrant and native students, this section explores the relative levels of immigrant and native students' motivation. Previous educational research has indicated the importance of these characteristics in relation to student performance (e.g. Eccles, Wigfield & Schiefele, 1998). In addition, studies have shown that immigrant students and their parents are highly the opportunities that the receiving country has to offer (Suárez-Orozco & Suárez-Orozco, 1995) However, US studies have also shown that over time immigrant students are at risk for academic disengagement as they are exposed to challenging personal and school situations which may lead to lower levels of motivation (e.g. Portes and Rumbaut, 2001).

PISA 2003 asks students about their instrumental motivation as it relates to mathematics and the results for immigrant students are striking. In almost every country, first and second generation immigrant students exhibit significantly higher levels of instrumental motivation (see Table 5). The exceptions are both immigrant subgroups in Denmark and Norway and second generation students in Austria, where there are not significant differences between the immigrant subgroups and their native peers. The findings remain very similar after accounting for the socioeconomic status of these students (see Model II in Table 5). Other studies using PISA have also found that immigrant students across countries have higher educational aspirations than their native peers. This finding is particularly striking when accounting for students' socioeconomic status (see Stanat, Segeritz, & Christensen, in press, and Stanat & Christensen, 2006). As indicated by these findings, that is a group of students who exhibit relatively high motivation to succeed in school. From a policy and programmatic perspective, the question is how to make use of students' motivation to ensure academic success in school. While the PISA data are not able to answer this question, research using a rich dataset on immigrant student adaptation shows that tangible and emotional school-based support (e.g. having someone at school to ask for help with schoolwork or being able to count on at least one adult at school) play a critical role for academic engagement of immigrant students (Suárez-

Orozco, Pimentel, & Martin, 2009). Studies of student mentoring among immigrant students have indicated that may be another promising strategy for helping support students' positive approaches to learning (e.g. Crul, 2007).

CONCLUSION

The PISA data indicate that in many countries with substantial immigrant populations, immigrant students perform at significantly lower levels than their non-immigrant peers. As the data does not capture countries of origin or native language, these findings mask differences that exist among diverse immigrant populations. Even in countries such as Canada, where immigrant students perform at similar levels to their native counterparts on the PISA, research has shown that there are significant differences in academic achievement for some ethnolinguistic groups (Garnett, Admamuti-Trache, & Ungergleider, 2008). The data also show that in many countries socioeconomic status alone does not explain the large achievement gaps indicating that there may be a need for further understanding of immigrant achievement gaps and possibly target policies and programs for these students. One area where particular focus may be warranted is supporting immigrant students who do not speak the language of instruction at home in gaining the language competencies they need to succeed in school. Furthermore, understanding what school practices and programs may help to make use of immigrant students' higher levels of motivation may also help to mitigate achievement difference and help immigrant students succeed in school.

LES RÉSULTATS DES ÉLÈVES IMMIGRANTS AU PISA : UNE PERSPECTIVE COMPARATIVE

Les immigrants et leurs enfants forment des minorités croissantes dans les écoles des pays d'Europe, d'Amérique du Nord, d'Australie et de Nouvelle-Zélande. Réussir l'intégration des jeunes immigrants représente un défi politique et pratique pour ces pays et passe nécessairement par l'école qui joue un rôle central dans l'intégration en favorisant le développement des compétences langagières et académiques.

Cet article s'intéresse aux données du Programme international pour le suivi des acquis des élèves (PISA) de l'OCDE sur les compétences des élèves immigrants de première et deuxième générations. Il est tiré d'une étude menée au cours des cinq dernières années portant sur les données du PISA (Christensen & Segeritz, 2008; Stanat & Christensen, 2006). Dans cet article, nous étudions les données de 2003 et 2006 du PISA sur les élèves immigrants de 16 pays d'accueil, leurs résultats scolaires, leur statut socioéconomique (SES), leur langue et leurs motivations et aspirations académiques.

Le PISA évalue principalement la littératie des élèves de 15 ans : ils doivent appliquer leurs connaissances et leur compréhension à des situations quotidiennes. Les évaluations dans chaque domaine sont pondérées afin que, pour l'année de base, la moyenne des élèves des pays de l'OCDE soit de 500 points avec un écart type de 100 points.

Les questionnaires du PISA sur les antécédents des élèves permettent de comparer trois sous-groupes : *les élèves de première génération* (élèves et parents nés à l'étranger); *de deuxième génération* (élèves nés dans le pays évalué avec deux parents nés à l'étranger) et *les élèves natifs du pays* (élèves dont au moins un parent est né dans le pays évalué). Le terme « élèves immigrants » désigne des élèves de première et de deuxième générations.

Seuls certains pays présentent assez d'élèves immigrants dans leur échantillon pour générer des estimations concluantes des niveaux de performance. Nous avons inclus les pays ayant au moins 3 % de chaque sous-groupe (première et deuxième générations). Les échantillons des pays devaient aussi inclure au moins 100 élèves de première génération et 100 de deuxième génération. Les pays suivants répondent aux critères : Australie, Autriche, Belgique, Canada, Danemark, France, Allemagne, Israël, Luxembourg, Pays-Bas, Nouvelle-Zélande, Norvège, Suède, Suisse, Royaume-Uni et États-Unis (voir le tableau 1 pour une description des échantillons de 2003 et 2006).

En utilisant les données de deux ans et deux domaines d'étude, et en calculant les différences de résultats entre les élèves de première génération et les élèves nés au pays et entre les élèves de deuxième génération et les élèves nés au pays, on a constaté huit ensembles de différences de résultats. En examinant l'ampleur des différences selon les années et les domaines, on remarque trois regroupements de pays. Dans plus de la moitié des pays, les différences de résultats (première génération vs nés au pays; deuxième génération vs nés au pays) s'élèvent généralement à plus de la moitié d'un écart type (ou 50 points). Ces pays sont : Autriche, Belgique, Danemark, Allemagne, Luxembourg, Pays-Bas, Norvège, Suède, et Suisse. Dans le deuxième regroupement incluant la France, le Royaume-Uni et les États-Unis, les différences sont généralement statistiquement significatives, mais sont de moins de 50 points. Finalement, en Australie, au Canada, en Israël et en Nouvelle-Zélande, les élèves immigrants réussissent de façon semblable aux élèves nés au pays (tableaux 2a et 2b).

On peut penser que les différences socioéconomiques expliquent les différences de résultats (tableau 3). Or, les résultats montrent qu'alors que le SES influence significativement les performances des élèves de plusieurs pays, il ne peut expliquer seul les performances des élèves immigrants. En effet, dans plusieurs pays, les différences restent significatives même si l'on tient compte du SES des élèves (Segeritz & Christensen, 2008; Stanat & Christensen, 2006). Ces données, basées sur les PISA 2003 et 2006, montrent qu'il faut des politiques d'intervention pour soutenir les élèves immigrants et favoriser leur réussite.

Plusieurs élèves immigrants parlent une autre langue que la langue d'instruction à la maison. Ils vivent un défi supplémentaire s'ils ne maîtrisent pas suffisamment la langue d'instruction. Les résultats de 2003 et 2006 du PISA indiquent que les élèves de première et deuxième générations ne parlant pas la langue d'instruction à la maison ont des résultats significativement inférieurs en lecture et en mathématiques (tableau 4). Dans le cadre du rapport thématique *Where Immigrant Students' Succeed*¸ nous avons effectué un recensement en 2005 des politiques et programmes prévus par les pays (ou les gouvernements locaux, dans les systèmes fédéraux) pour aider les élèves immigrants à maîtriser la langue d'instruction (Chapitre 5 de Stanat & Christensen, 2006). Ces résultats ne peuvent être liés aux évaluations du PISA pour déterminer les mesures d'appui linguistique qui permettent de réduire les écarts de performance des élèves immigrants. Ils montrent par contre que dans des pays où les écarts entre immigrants et non-immigrants sont petits (en Australie et au Canada), le soutien linguistique est mieux structuré et plus systématique. À l'inverse, dans certains pays où le soutien linguistique est moins systématique, les différences de résultats sont beaucoup plus grandes entre élèves immigrants et non-immigrants.

Le PISA 2003 a également interrogé les élèves sur leur motivation instrumentale liée aux mathématiques. Les résultats des élèves immigrants sont étonnants. Pratiquement partout, les élèves de première et deuxième générations ont des niveaux significativement plus élevés de motivation instrumentale (tableau 5).

Les données du PISA indiquent que dans plusieurs pays accueillant d'importantes populations immigrantes, les élèves immigrants réussissent significativement moins bien que leurs camarades non-immigrants. Elles montrent aussi que dans plusieurs pays, le statut socioéconomique ne peut expliquer à lui seul les écarts dans les résultats des immigrants. Il faudrait mieux comprendre ces écarts et prévoir des programmes et des politiques ciblés pour cette clientèle, particulièrement en ce qui a trait à l'apprentissage de la langue d'instruction, dont la maîtrise est essentielle pour réussir à l'école. En outre, en cernant les programmes scolaires qui peuvent tirer profit de la motivation élevée des élèves immigrants, on pourrait réduire les différences de résultats et aider les élèves immigrants à réussir à l'école.

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FOOTNOTES

[1] We use data for 2003 and 2006 where available. Data from 2003 is not available for Israel or the United Kingdom. Reading data for 2006 is not available for the United States.