

Online Appendix

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Appendix Table 1. Missingness across variables and countries (% missing from full sample)

	Missing Full sample belonging			Missing % language			Missing generation			Missing age % at arrival			Missing % ESCS			Missing any % (excl. Belonging)		Missing any % (incl. Belonging)	
AUS	14273	2356	16.5	1400	9.8	1397	9.8	1409	9.9	1460	10.2	1555	10.9	2475	17.3				
AUT	6802	496	7.3	45	0.7	52	0.8	55	0.8	128	1.9	158	2.3	576	8.5				
BEL	8475	880	10.4	83	1.0	80	0.9	113	1.3	163	1.9	369	4.4	976	11.5				
CAN	22653	2562	11.3	1113	4.9	1074	4.7	1115	4.9	1163	5.1	1275	5.6	2684	11.8				
CHE	5822	807	13.9	74	1.3	70	1.2	82	1.4	117	2.0	149	2.6	867	14.9				
DEU	5451	1512	27.7	639	11.7	691	12.7	698	###	795	14.6	815	15.0	1608	29.5				
DNK	7657	1211	15.8	182	2.4	180	2.4	188	2.5	226	3.0	253	3.3	1262	16.5				
FIN	5649	385	6.8	69	1.2	73	1.3	76	1.3	92	1.6	106	1.9	410	7.3				
GRC	6403	348	5.4	46	0.7	41	0.6	40	0.6	31	0.5	58	0.9	367	5.7				
LUX	5230	402	7.7	38	0.7	33	0.6	41	0.8	148	2.8	171	3.3	514	9.8				
NZL	6173	324	5.2	103	1.7	104	1.7	101	1.6	160	2.6	177	2.9	384	6.2				
Total	94588	11283	11.9	3792	4.0	3795	4.0	3918	4.1	4483	4.7	5086	5.4	12123	12.8				

Missing generation is due to missing relevant countries of birth and thus the variable measuring of country of origin has the same missingness as generation

Missingness in age at arrival only measured for first generation students

Missingness in grade was only relevant in Belgium, where 166 students (2.0 %) had missing information

Source: Own calculations based on PISA 2018.

	Belgium							Canada					
Not test language			-0.31***	-0.30***							-0.21***	-0.17***	
			(0.06)	(0.05)							(0.03)	(0.03)	
Non-national language					-0.17***	-0.15***							-0.16***
					(0.04)	(0.04)							(0.04)
Non-national language, only migrant origin							-0.10*	-0.06					
							(0.05)	(0.04)					
Non-national language, only specific origins	-0.25***	-0.19**							-0.12	-0.05			
	(0.07)	(0.07)							(0.11)	(0.12)			
Generation (majority as ref cat)													
2.5 generation			0.04	0.06	0.01	0.02	-0.03	-0.01			0.10**	0.08*	0.10*
			(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)			(0.04)	(0.04)	(0.04)
2nd generation	-0.51***	-0.26**	0.02	0.11	-0.05	0.03	-0.08	-0.01	0.04	0.44	0.11**	0.13***	0.10*
	(0.09)	(0.10)	(0.06)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.58)	(0.62)	(0.04)	(0.04)	(0.04)
1st generation	-0.69***	-0.36**	0.04	0.15	-0.03	0.07	-0.07	0.02	0.10	0.53	0.34***	0.31***	0.31***
	(0.12)	(0.14)	(0.08)	(0.08)	(0.09)	(0.08)	(0.09)	(0.09)	(0.60)	(0.62)	(0.05)	(0.05)	(0.05)
Age of migration	-0.03***	-0.03**	-0.02*	-0.02*	-0.03*	-0.03*	-0.03*	-0.03*	-0.03	-0.04*	-0.05***	-0.05***	-0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Gender	0.25***	0.25***	0.13***	0.16***	0.14***	0.16***	0.14***	0.16***	0.13***	0.16***	0.25***	0.25***	0.25***
	(0.05)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
Grade	0.35***	0.31***	0.72***	0.62***	0.73***	0.62***	0.73***	0.63***	0.77***	0.63***	0.39***	0.33***	0.39***
	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
ESCS		0.28***		0.23***		0.23***		0.23***		0.28***		0.26***	
		(0.02)		(0.01)		(0.01)		(0.01)		(0.02)		(0.01)	
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	5593	5593	8106	8106	8106	8106	8110	8110	5900	5900	21378	21378	21378

															Denmark				Finland										
Not test language															-0.25***	-0.20**			-0.30***										
															(0.06)	(0.06)			(0.06)										
Non-national language		-0.11**													-0.25***		-0.20**												
		(0.04)													(0.06)		(0.06)												
Non-national language, only migrant origin		-0.12**		-0.07													-0.21***		-0.17**										
		(0.04)		(0.04)													(0.06)		(0.06)										
Non-national language, only specific origins													-0.12		-0.07				-0.22***		-0.17**								
													(0.11)		(0.10)				(0.06)		(0.07)								
Generation (majority as ref cat)																													
2.5 generation		0.07*		0.09*		0.07		0.06		0.09		0.06		0.09		0.03		0.06		-0.07									
		(0.04)		(0.04)		(0.04)		(0.10)		(0.10)		(0.09)		(0.10)		(0.10)		(0.10)		(0.07)									
2nd generation		0.11**		0.08*		0.10**		-0.19		-0.21		-0.12		0.04		-0.12		0.04		-0.13		0.03		-0.15		-0.01		-0.34**	
		(0.04)		(0.04)		(0.04)		(0.24)		(0.25)		(0.09)		(0.09)		(0.09)		(0.09)		(0.09)		(0.09)		(0.09)		(0.11)		(0.11)	
1st generation		0.28***		0.30***		0.27***		-0.05		-0.05		-0.11		0.08		-0.12		0.08		-0.14		0.06		-0.07		0.10		0.07	
		(0.05)		(0.05)		(0.05)		(0.24)		(0.25)		(0.13)		(0.14)		(0.13)		(0.14)		(0.13)		(0.14)		(0.14)		(0.16)		(0.17)	
Age of migration		-0.05***		-0.05***		-0.05***		-0.09***		-0.09***		-0.02		-0.02		-0.02		-0.02		-0.02		-0.02		-0.02		-0.03		-0.09***	
		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.02)	
Gender		0.25***		0.25***		0.25***		0.24***		0.24***		0.22***		0.23***		0.22***		0.23***		0.22***		0.23***		0.22***		0.23***		0.46***	
		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.03)		(0.03)		(0.03)		(0.03)		(0.03)		(0.03)		(0.03)		(0.03)		(0.03)	
Grade		0.34***		0.40***		0.34***		0.37***		0.30***		0.36***		0.31***		0.36***		0.31***		0.36***		0.31***		0.37***		0.32***		0.35***	
		(0.02)		(0.02)		(0.02)		(0.03)		(0.03)		(0.05)		(0.05)		(0.05)		(0.05)		(0.05)		(0.05)		(0.05)		(0.05)		(0.04)	
ESCS		0.26***		0.26***		0.26***		0.27***		0.27***		0.29***		0.29***		0.29***		0.29***		0.29***		0.29***		0.30***		0.30***		0.30***	
		(0.01)		(0.01)		(0.01)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)	
Country of origin		YES		YES		YES		YES		YES		YES		YES		YES		YES		YES		YES		YES		YES		YES	
N		21378		21399		21399		14615		14615		7404		7404		7404		7404		7408		7408		6532		6532		5543	

														Germany	
Not test language	-0.36***													-0.43***	-0.38***
	(0.06)													(0.06)	(0.06)
Non-national language		-0.29**	-0.32***											-0.43***	-0.38***
		(0.09)	(0.10)											(0.06)	(0.06)
Non-national language, only migrant origin				-0.10	-0.17									-0.33***	-0.29***
				(0.14)	(0.14)									(0.07)	(0.06)
Non-national language, only specific origins						-0.25	-0.37*								
						(0.17)	(0.18)								
Generation (majority as ref cat)															
2.5 generation	-0.10	-0.08	-0.12	-0.14*	-0.19**			-0.09	-0.07	-0.09	-0.07	-0.16**	-0.13**		
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)			(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)		
2nd generation	-0.24*	-0.34**	-0.27*	-0.46***	-0.36**	-0.38*	-0.25	-0.16*	0.04	-0.16*	0.04	-0.20*	0.00		
	(0.11)	(0.12)	(0.12)	(0.14)	(0.13)	(0.17)	(0.16)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)		
1st generation	0.15	0.07	0.13	-0.05	0.04	0.16	0.31	0.01	0.18	0.01	0.18	-0.04	0.13		
	(0.17)	(0.18)	(0.18)	(0.19)	(0.19)	(0.23)	(0.23)	(0.14)	(0.15)	(0.14)	(0.15)	(0.14)	(0.15)		
Age of migration	-0.07***	-0.09***	-0.08***	-0.09***	-0.08***	-0.12***	-0.10***	-0.06***	-0.06***	-0.06***	-0.06***	-0.06***	-0.06***		
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)		
Gender	0.46***	0.46***	0.46***	0.46***	0.46***	0.49***	0.48***	0.19***	0.18***	0.19***	0.18***	0.19***	0.18***		
	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)		
Grade	0.30***	0.35***	0.30***	0.35***	0.30***	0.34***	0.30***	0.51***	0.42***	0.51***	0.42***	0.51***	0.43***		
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)		
ESCS	0.31***		0.31***		0.31***		0.31***		0.28***		0.28***		0.28***		
	(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	5543	5543	5543	5546	5546	5052	5052	4636	4636	4636	4636	4637	4637		

	Greece						Luxembourg						
Not test language			-0.32***	-0.28***							-0.37***	-0.30***	
			(0.08)	(0.08)							(0.04)	(0.04)	
Non-national language					-0.32***	-0.28***							-0.38***
					(0.08)	(0.08)							(0.03)
Non-national language, only migrant origin							-0.25**	-0.19*					
							(0.09)	(0.09)					
Non-national language, only specific origins	-0.47***	-0.36**							-0.38**	-0.29*			
	(0.14)	(0.14)							(0.14)	(0.13)			
Generation (majority as ref cat)													
2.5 generation			0.13**	0.09*	0.13**	0.09*	0.11**	0.08*			-0.18***	-0.17**	-0.04
			(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)			(0.05)	(0.05)	(0.05)
2nd generation	-0.94*	-0.24	-0.06	-0.04	-0.06	-0.04	-0.08	-0.06	-0.07	-0.02	-0.28***	-0.20***	0.02
	(0.39)	(0.33)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.10)	(0.10)	(0.05)	(0.05)	(0.05)
1st generation	-0.77	-0.04	-0.13	-0.16	-0.13	-0.16	-0.17	-0.21	0.01	-0.06	-0.26***	-0.17**	0.07
	(0.45)	(0.37)	(0.12)	(0.13)	(0.12)	(0.13)	(0.12)	(0.13)	(0.21)	(0.23)	(0.07)	(0.06)	(0.07)
Age of migration	-0.02	-0.03	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.03	0.00	-0.00	0.00
	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)	(0.01)	(0.01)	(0.01)
Gender	0.21***	0.22***	0.35***	0.36***	0.35***	0.36***	0.36***	0.36***	0.37***	0.36***	0.22***	0.23***	0.22***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
Grade	0.50***	0.41***	0.64***	0.50***	0.64***	0.50***	0.66***	0.52***	0.72***	0.55***	0.62***	0.56***	0.61***
	(0.03)	(0.03)	(0.10)	(0.09)	(0.10)	(0.09)	(0.11)	(0.10)	(0.11)	(0.10)	(0.01)	(0.01)	(0.01)
ESCS		0.31***		0.29***		0.29***		0.29***		0.31***		0.16***	
		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.01)	
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	3353	3353	6345	6345	6345	6345	6355	6355	5163	5163	5059	5059	5059

														New Zealand	
Not test language						-0.36***	-0.29***								
						(0.05)	(0.05)								
Non-national language	-0.31***							-0.29***	-0.21***						
	(0.03)							(0.06)	(0.06)						
Non-national language, only migrant origin		-0.35***	-0.27***							-0.23***	-0.13*				
		(0.04)	(0.04)							(0.06)	(0.06)				
Non-national language, only specific origins				-0.17*	-0.14							-0.02	0.06		
				(0.07)	(0.07)							(0.16)	(0.16)		
Generation (majority as ref cat)															
2.5 generation	-0.06	-0.12*	-0.12*			0.13**	0.06	0.12**	0.06	0.10*	0.04				
	(0.05)	(0.05)	(0.05)			(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.04)				
2nd generation	0.04	0.01	0.03	-0.08	-0.00	0.27***	0.23***	0.25***	0.22***	0.23***	0.19***	-0.90**	-0.67*		
	(0.05)	(0.05)	(0.05)	(0.37)	(0.35)	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)	(0.32)	(0.33)		
1st generation	0.09	0.06	0.08	-0.17	-0.08	0.30***	0.22**	0.29***	0.20**	0.27***	0.18**	-1.06***	-0.81**		
	(0.07)	(0.07)	(0.07)	(0.38)	(0.36)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.26)	(0.27)		
Age of migration	0.00	0.00	0.00	0.00	0.00	-0.03***	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***	-0.09***	-0.10***		
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)		
Gender	0.23***	0.22***	0.23***	0.27***	0.27***	0.24***	0.24***	0.24***	0.24***	0.25***	0.24***	0.27***	0.26***		
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)		
Grade	0.56***	0.62***	0.57***	0.58***	0.55***	0.37***	0.33***	0.37***	0.33***	0.37***	0.33***	0.29***	0.28***		
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)	(0.06)	(0.06)		
ESCS	0.16***		0.16***		0.09***		0.34***		0.35***		0.35***		0.37***		
	(0.01)		(0.01)		(0.02)		(0.01)		(0.01)		(0.01)		(0.02)		
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
N	5059	5062	5062	2795	2795	5996	5996	5996	5996	6003	6003	3579	3579		

Switzerland								
Not test language	-0.28***	-0.24***						
	(0.05)	(0.04)						
Non-national language			-0.27***	-0.22***				
			(0.04)	(0.04)				
Non-national language, only migrant origin					-0.24***	-0.17***		
					(0.05)	(0.05)		
Non-national language, only specific origins							-0.22***	-0.18**
							(0.06)	(0.06)
Generation (majority as ref cat)								
2.5 generation	0.01	-0.01	0.01	-0.01	-0.02	-0.04		
	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)		
2nd generation	-0.12*	-0.05	-0.13*	-0.06	-0.14*	-0.08	-0.00	0.02
	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.41)	(0.42)
1st generation	-0.02	0.03	-0.03	0.01	-0.05	-0.02	-0.10	-0.06
	(0.08)	(0.07)	(0.08)	(0.08)	(0.09)	(0.08)	(0.42)	(0.43)
Age of migration	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Gender	0.24***	0.23***	0.23***	0.23***	0.23***	0.23***	0.26***	0.24***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Grade	0.54***	0.46***	0.54***	0.46***	0.54***	0.46***	0.49***	0.44***
	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)	(0.04)
ESCS		0.26***		0.26***		0.26***		0.25***
		(0.02)		(0.02)		(0.02)		(0.03)
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES
N	5673	5673	5673	5673	5679	5679	3504	3504

Appendix Table 3. The estimated association of speaking a non-national language at home with reading scores: interaction by generation

	Australia	Austria	Belgium	Canada	Denmark	Finland	Germany	Greece							
Non-national language	-0.92*** (0.15)	-0.82*** (0.15)	-0.65*** (0.10)	-0.61*** (0.11)	-0.40*** (0.12)	-0.41*** (0.12)	-0.77*** (0.16)	-0.65*** (0.17)	-0.34** (0.11)	-0.29** (0.10)	-0.64*** (0.16)	-0.62*** (0.18)	-0.73*** (0.17)	-0.71*** (0.19)	-0.45 (0.24)
Generation (majority as reference category)															
2.5 generation	0.12*** (0.03)	0.06* (0.03)	-0.44*** (0.08)	-0.23** (0.08)	0.01 (0.06)	0.02 (0.06)	0.10* (0.04)	0.07 (0.04)	0.05 (0.10)	0.09 (0.10)	-0.10 (0.07)	-0.13* (0.06)	-0.08 (0.06)	-0.06 (0.05)	0.14** (0.04)
2nd generation	0.22*** (0.05)	0.18*** (0.04)	-0.49*** (0.09)	-0.24** (0.09)	-0.10 (0.07)	-0.03 (0.07)	0.06 (0.04)	0.08* (0.04)	-0.13 (0.09)	0.04 (0.09)	-0.39* (0.16)	-0.34* (0.15)	-0.19* (0.08)	-0.01 (0.08)	-0.08 (0.07)
1st generation	0.39*** (0.06)	0.33*** (0.06)	-0.48*** (0.13)	-0.18 (0.14)	-0.04 (0.10)	0.04 (0.10)	0.31*** (0.05)	0.28*** (0.05)	-0.18 (0.14)	0.00 (0.15)	-0.11 (0.21)	0.03 (0.21)	-0.26 (0.18)	0.02 (0.19)	-0.19 (0.16)
Non-national language X generation interactions															
X 2.5 generation	0.32 (0.20)	0.33 (0.20)	0.38** (0.14)	0.37** (0.14)	0.18 (0.15)	0.18 (0.15)	0.54* (0.21)	0.50* (0.22)	0.12 (0.24)	0.13 (0.23)	0.40 (0.23)	0.35 (0.24)	0.21 (0.20)	0.26 (0.21)	-0.04 (0.30)
X 2nd generation	0.63*** (0.16)	0.65*** (0.15)	0.40** (0.13)	0.42*** (0.12)	0.32* (0.13)	0.36** (0.13)	0.69*** (0.17)	0.62*** (0.17)	0.11 (0.12)	0.10 (0.12)	0.44 (0.23)	0.42 (0.24)	0.35 (0.18)	0.40* (0.19)	0.18 (0.26)
X 1st generation	0.59*** (0.15)	0.61*** (0.14)	0.22 (0.15)	0.28 (0.16)	0.24 (0.14)	0.30* (0.14)	0.60*** (0.17)	0.54** (0.17)	0.22 (0.17)	0.25 (0.18)	0.63* (0.25)	0.47 (0.25)	0.71** (0.26)	0.57* (0.26)	0.22 (0.29)
Age of migration	-0.05*** (0.01)	-0.05*** (0.01)	-0.02** (0.01)	-0.03*** (0.01)	-0.03* (0.01)	-0.03* (0.01)	-0.05*** (0.01)	-0.05*** (0.01)	-0.02 (0.01)	-0.03 (0.01)	-0.09*** (0.02)	-0.08*** (0.02)	-0.07*** (0.01)	-0.06*** (0.01)	0.01 (0.02)
Gender	0.27*** (0.03)	0.26*** (0.02)	0.22*** (0.05)	0.22*** (0.04)	0.14*** (0.03)	0.16*** (0.03)	0.25*** (0.02)	0.25*** (0.02)	0.22*** (0.03)	0.23*** (0.03)	0.46*** (0.03)	0.46*** (0.02)	0.19*** (0.03)	0.18*** (0.03)	0.36*** (0.03)
Grade	0.27*** (0.03)	0.25*** (0.03)	0.36*** (0.03)	0.33*** (0.03)	0.72*** (0.02)	0.62*** (0.02)	0.40*** (0.02)	0.34*** (0.02)	0.36*** (0.05)	0.31*** (0.05)	0.35*** (0.04)	0.30*** (0.04)	0.50*** (0.03)	0.42*** (0.03)	0.63*** (0.09)
ESCS		0.35*** (0.01)		0.28*** (0.02)		0.23*** (0.01)		0.26*** (0.01)		0.29*** (0.02)		0.31*** (0.02)		0.28*** (0.02)	
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	12718	12718	6644	6644	8106	8106	21378	21378	7404	7404	5543	5543	4636	4636	6345

Standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Source: Own calculations based on PISA 2018.

	Luxembourg		New Zealand		Switzerland		
Non-national language	-0.43*	-0.64***	-0.57***	-1.06***	-1.13***	-0.26	-0.26
	(0.19)	(0.14)	(0.14)	(0.20)	(0.22)	(0.17)	(0.16)
Generation (majority as reference category)							
2.5 generation	0.10**	-0.06	-0.06	0.11*	0.05	0.02	0.01
	(0.04)	(0.06)	(0.06)	(0.05)	(0.04)	(0.05)	(0.05)
2nd generation	-0.07	-0.06	-0.04	0.18*	0.15*	-0.14*	-0.08
	(0.07)	(0.05)	(0.05)	(0.07)	(0.06)	(0.06)	(0.06)
1st generation	-0.22	0.17*	0.18*	0.29***	0.19**	-0.02	0.01
	(0.18)	(0.07)	(0.07)	(0.07)	(0.07)	(0.10)	(0.09)
Non-national language X generation interactions							
X 2.5 generation	-0.09	0.31	0.24	0.82**	0.89**	-0.06	-0.08
	(0.25)	(0.16)	(0.16)	(0.26)	(0.27)	(0.18)	(0.18)
X 2nd generation	0.24	0.38*	0.39**	0.96***	1.09***	0.02	0.09
	(0.22)	(0.15)	(0.15)	(0.21)	(0.23)	(0.18)	(0.17)
X 1st generation	0.25	0.11	0.14	0.72***	0.93***	-0.02	0.05
	(0.25)	(0.15)	(0.15)	(0.21)	(0.23)	(0.20)	(0.19)
Age of migration	0.01	0.00	0.00	-0.04***	-0.04***	-0.02**	-0.02**
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Gender	0.36***	0.22***	0.23***	0.24***	0.24***	0.23***	0.23***
	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Grade	0.49***	0.61***	0.56***	0.37***	0.33***	0.54***	0.46***
	(0.09)	(0.01)	(0.01)	(0.05)	(0.04)	(0.04)	(0.03)
ESCS	0.29***		0.16***		0.35***		0.26***
	(0.02)		(0.01)		(0.01)		(0.02)
Country of origin	YES	YES	YES	YES	YES	YES	YES
N	6345	5059	5059	5996	5996	5673	5673

Standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Source: Own calculations based on PISA 2018.

Appendix Table 4. Model results and tests of equality of coefficients from seemingly unrelated regressions for reading scores: p-values for comparison with Canada, Denmark, New Zealand and Switzerland

	Model	Canada	Denmark	New Zealand	Switzerland
Australia	-0.16 (0.10)	0.498	0.915	0.120	0.854
Austria	-0.19** (0.06)	0.279	0.841	0.039	0.923
Belgium	-0.05 (0.10)	0.889	0.301	0.445	0.268
Canada	-0.07 (0.09)	n/a	0.343	0.345	0.305
Denmark	-0.17** (0.06)	0.343	n/a	0.050	0.915
Finland	-0.37* (0.16)	0.103	0.243	0.024	0.265
Germany	-0.36** (0.12)	0.053	0.156	0.007	0.178
Greece	-0.29 (0.15)	0.214	0.479	0.054	0.515
Luxembourg	-0.14* (0.06)	0.513	0.726	0.095	0.652
New Zealand	0.06 (0.11)	0.345	0.050	n/a	0.043
Switzerland	-0.18** (0.06)	0.305	0.915	0.043	n/a

Model replicates last model (per country) from Table S2a

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

For country comparisons: p-values less than 0.05 in bold

Appendix Table 5. The estimated association of language spoken at home (using different definitions and samples) with sense of belonging

	Australia						Austria									
Not test language	-0.01 (0.04)	0.02 (0.04)								-0.13* (0.06)	-0.11 (0.06)					
Non-national language			-0.01 (0.04)	0.02 (0.04)								-0.13* (0.06)	-0.11 (0.06)			
Non-national language, only migrant origin					-0.01 (0.05)	0.02 (0.05)								0.05 (0.07)	0.07 (0.07)	
Non-national language, only specific origins								-0.12 (0.09)	-0.10 (0.09)						0.05 (0.09)	
Generation (majority as reference category)																
2.5 generation	0.08* (0.04)	0.06 (0.04)	0.08* (0.04)	0.06 (0.04)	0.08* (0.04)	0.06 (0.04)			-0.02 (0.10)	0.03 (0.10)	-0.02 (0.10)	0.03 (0.10)	-0.09 (0.09)	-0.02 (0.09)		
2nd generation	0.23*** (0.04)	0.21*** (0.04)	0.23*** (0.04)	0.21*** (0.04)	0.23*** (0.04)	0.21*** (0.04)	0.85 (0.58)	0.92 (0.57)	0.04 (0.10)	0.12 (0.10)	0.04 (0.10)	0.12 (0.10)	-0.10 (0.10)	-0.02 (0.10)	-0.07 (0.11)	
1st generation	0.16** (0.05)	0.14** (0.05)	0.16** (0.05)	0.14** (0.05)	0.16** (0.05)	0.14** (0.05)	0.73 (0.58)	0.85 (0.58)	0.25 (0.16)	0.35* (0.16)	0.25 (0.16)	0.35* (0.16)	0.10 (0.16)	0.20 (0.16)	0.25 (0.20)	
Age of migration	-0.01* (0.00)	-0.01* (0.00)	-0.01* (0.00)	-0.01* (0.00)	-0.01* (0.00)	-0.01* (0.00)	-0.02 (0.01)	-0.02 (0.01)	-0.06*** (0.01)	-0.06*** (0.01)	-0.06*** (0.01)	-0.06*** (0.01)	-0.06*** (0.01)	-0.06*** (0.01)	-0.08*** (0.02)	
Gender	-0.16*** (0.02)	-0.16*** (0.02)	-0.16*** (0.02)	-0.16*** (0.02)	-0.16*** (0.02)	-0.16*** (0.02)	-0.17*** (0.02)	-0.17*** (0.02)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.01 (0.04)	
Grade	-0.01 (0.03)	-0.01 (0.03)	-0.01 (0.03)	-0.01 (0.03)	-0.01 (0.03)	-0.02 (0.03)	-0.02 (0.04)	-0.02 (0.04)	0.11*** (0.03)	0.10** (0.03)	0.11*** (0.03)	0.10** (0.03)	0.11*** (0.03)	0.10** (0.03)	0.13*** (0.03)	
ESCS		0.12*** (0.01)		0.12*** (0.01)		0.12*** (0.01)		0.15*** (0.02)		0.08*** (0.02)		0.08*** (0.02)		0.09*** (0.02)		
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
N	11798	11798	11798	11798	11804	11804	7080	7080	6226	6226	6226	6226	6230	6230	5260	

Standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Source: Own calculations based on PISA 2018.

	Belgium						Canada							
Not test language	-0.18***	-0.18***								-0.06	-0.04			
	(0.04)	(0.04)								(0.04)	(0.04)			
Non-national language			-0.16***	-0.16***								-0.07	-0.04	
			(0.05)	(0.05)								(0.04)	(0.04)	
Non-national language, only migrant origin					-0.23***	-0.22***								-0.08
					(0.05)	(0.05)								(0.05)
Non-national language, only specific origins	0.07							-0.31*	-0.30*					
	(0.09)							(0.14)	(0.14)					
Generation (majority as reference category)														
2.5 generation	-0.03	-0.03	-0.03	-0.03	-0.05	-0.04				0.04	0.03	0.04	0.03	0.04
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)				(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
2nd generation	0.02	0.03	0.04	0.02	0.03	0.06	0.07	0.09	0.15	0.07*	0.08*	0.07*	0.08*	0.07*
	(0.11)	(0.06)	(0.06)	(0.07)	(0.07)	(0.07)	(0.07)	(0.31)	(0.27)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
1st generation	0.38	0.03	0.05	0.03	0.04	0.06	0.08	0.06	0.12	0.12*	0.10*	0.12*	0.10*	0.12*
	(0.19)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.30)	(0.27)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Age of migration	-0.08***	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.04	-0.04	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Gender	0.01	-0.05*	-0.05*	-0.05*	-0.05*	-0.05*	-0.05*	-0.08**	-0.07**	-0.21***	-0.21***	-0.21***	-0.21***	-0.21***
	(0.04)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Grade	0.12***	0.00	-0.01	0.00	-0.01	0.01	-0.01	0.01	-0.01	-0.02	-0.05*	-0.02	-0.05*	-0.02
	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
ESCS	0.10***		0.03*		0.03*		0.03*		0.04*		0.16***		0.16***	
	(0.02)		(0.01)		(0.01)		(0.01)		(0.02)		(0.01)		(0.01)	
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	5260	7499	7499	7499	7499	7502	7502	5527	5527	19969	19969	19969	19969	19981

		Denmark						Finland						
Not test language				-0.23***	-0.21***							-0.19**	-0.20***	
				(0.06)	(0.06)							(0.06)	(0.06)	
Non-national language						-0.22***	-0.20**							-0.33***
						(0.06)	(0.06)							(0.08)
Non-national language, only migrant origin	-0.04							-0.20*	-0.18*					
	(0.04)							(0.08)	(0.09)					
Non-national language, only specific origins		0.19	0.22*							-0.18*	-0.17*			
		(0.11)	(0.10)							(0.09)	(0.09)			
Generation (majority as reference category)														
2.5 generation	0.03			0.27	0.29	0.27	0.28	0.24	0.26			0.03	0.02	0.06
	(0.04)			(0.16)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)			(0.08)	(0.08)	(0.08)
2nd generation	0.08*	-0.04	-0.08	0.34*	0.41*	0.33*	0.40*	0.33	0.40*	0.40*	0.45*	0.05	0.08	0.14
	(0.03)	(0.21)	(0.24)	(0.16)	(0.16)	(0.16)	(0.16)	(0.17)	(0.16)	(0.18)	(0.18)	(0.13)	(0.13)	(0.13)
1st generation	0.11*	-0.22	-0.23	0.27	0.34	0.26	0.34	0.25	0.33	0.22	0.28	0.44*	0.47*	0.54**
	(0.05)	(0.22)	(0.24)	(0.24)	(0.24)	(0.24)	(0.24)	(0.24)	(0.25)	(0.27)	(0.28)	(0.19)	(0.19)	(0.19)
Age of migration	-0.00	-0.01	-0.02	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.01	-0.01	-0.05**	-0.05**	-0.05**
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Gender	-0.21***	-0.19***	-0.19***	-0.30***	-0.30***	-0.30***	-0.29***	-0.30***	-0.29***	-0.30***	-0.30***	-0.20***	-0.19***	-0.20***
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Grade	-0.05*	-0.03	-0.07**	0.03	0.01	0.03	0.01	0.03	0.01	0.06	0.04	-0.01	-0.03	-0.01
	(0.02)	(0.03)	(0.03)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)
ESCS	0.16***		0.19***		0.11***		0.11***		0.11***		0.10***		0.11***	
	(0.01)		(0.01)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)	
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	19981	13707	13707	6395	6395	6395	6395	6399	6399	5642	5642	5239	5239	5239

	Germany											Greece			
Not test language						-0.09 (0.06)	-0.07 (0.06)								-0.21*** (0.06)
Non-national language	-0.33*** (0.08)								-0.09 (0.06)	-0.07 (0.06)					
Non-national language, only migrant origin		-0.14 (0.11)	-0.15 (0.11)								-0.05 (0.08)	-0.04 (0.07)			
Non-national language, only specific origins						-0.32 (0.19)	-0.36 (0.19)						-0.08 (0.14)	-0.03 (0.13)	
Generation (majority as reference category)															
2.5 generation	0.05 (0.08)	-0.01 (0.08)	-0.02 (0.08)			-0.02 (0.06)	-0.01 (0.06)	-0.02 (0.06)	-0.01 (0.06)	-0.03 (0.06)	-0.03 (0.06)				-0.05 (0.05)
2nd generation	0.16 (0.13)	0.02 (0.14)	0.04 (0.14)	0.41 (0.26)	0.44 (0.26)	0.11 (0.07)	0.16* (0.07)	0.11 (0.07)	0.16* (0.07)	0.10 (0.08)	0.15 (0.08)	0.74 (0.43)	0.84 (0.44)		-0.04 (0.08)
1st generation	0.56** (0.19)	0.41* (0.20)	0.43* (0.21)	0.76* (0.35)	0.80* (0.35)	0.04 (0.18)	0.09 (0.18)	0.04 (0.18)	0.09 (0.18)	0.02 (0.18)	0.07 (0.18)	0.68 (0.52)	0.80 (0.52)		0.00 (0.15)
Age of migration	-0.05** (0.02)	-0.06** (0.02)	-0.05** (0.02)	-0.06* (0.03)	-0.06* (0.03)	-0.05** (0.02)	-0.05** (0.02)	-0.05** (0.02)	-0.05** (0.02)	-0.05** (0.02)	-0.05** (0.02)	-0.05** (0.03)	-0.05 (0.03)	-0.05 (0.03)	-0.00 (0.02)
Gender	-0.20*** (0.03)	-0.20*** (0.03)	-0.20*** (0.03)	-0.20*** (0.03)	-0.20*** (0.03)	-0.07* (0.03)	-0.07* (0.03)	-0.07* (0.03)	-0.07* (0.03)	-0.07* (0.03)	-0.07* (0.03)	-0.07* (0.03)	-0.08** (0.03)	-0.08* (0.03)	-0.01 (0.03)
Grade	-0.03 (0.04)	-0.01 (0.04)	-0.03 (0.04)	0.01 (0.04)	-0.00 (0.04)	0.10*** (0.03)	0.08** (0.03)	0.10*** (0.03)	0.08** (0.03)	0.10*** (0.03)	0.08** (0.03)	0.12*** (0.03)	0.09** (0.03)		0.18* (0.09)
ESCS	0.11*** (0.02)		0.11*** (0.02)		0.11*** (0.02)		0.08*** (0.02)		0.08*** (0.02)		0.08*** (0.02)		0.08*** (0.02)		0.11*** (0.02)
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	5239	5241	5241	4779	4779	3843	3843	3843	3843	3843	3843	2827	2827		6036

	Luxembourg													
Not test language	-0.19**							0.06	0.11*					
	(0.06)							(0.05)	(0.04)					
Non-national language		-0.21***	-0.19**							-0.17***	-0.12**			
		(0.06)	(0.06)							(0.04)	(0.04)			
Non-national language, only migrant origin				-0.16*	-0.13							-0.09*	-0.03	
				(0.07)	(0.07)							(0.05)	(0.05)	
Non-national language, only specific origins						-0.38*	-0.34*							-0.01
						(0.15)	(0.14)							(0.08)
Generation (majority as reference category)														
2.5 generation	-0.06	-0.05	-0.06	-0.06	-0.07			-0.10	-0.10	-0.07	-0.08	-0.10	-0.11*	
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)			(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)	
2nd generation	-0.04	-0.04	-0.04	-0.06	-0.05	-0.23*	-0.22*	-0.28***	-0.22***	-0.21***	-0.19***	-0.24***	-0.24***	-0.02
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.10)	(0.09)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.54)
1st generation	-0.00	0.00	-0.00	-0.02	-0.04	0.20	0.18	-0.31***	-0.25**	-0.22**	-0.21*	-0.26**	-0.26**	-0.15
	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.27)	(0.27)	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.53)
Age of migration	-0.00	-0.00	-0.00	-0.00	-0.00	-0.02	-0.02	-0.01*	-0.01*	-0.01*	-0.01*	-0.01*	-0.01*	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Gender	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)
Grade	0.14	0.18*	0.14	0.19*	0.15	0.24*	0.19	0.11***	0.07**	0.10***	0.07**	0.10***	0.07**	0.12***
	(0.08)	(0.09)	(0.08)	(0.08)	(0.08)	(0.10)	(0.10)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
ESCS	0.10***		0.10***		0.10***		0.11***		0.12***		0.11***		0.11***	
	(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)	
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	6036	6036	6036	6041	6041	4903	4903	4716	4716	4716	4716	4718	4718	2609

	New Zealand						Switzerland						
Not test language	-0.06 (0.05)	-0.04 (0.05)							-0.03 (0.05)	-0.02 (0.05)			
Non-national language			-0.08 (0.06)	-0.06 (0.06)							0.00 (0.05)	0.02 (0.05)	
Non-national language, only migrant origin					-0.07 (0.06)	-0.05 (0.06)							
Non-national language, only specific origins	0.04 (0.08)						0.07 (0.13)	0.09 (0.12)					
Generation (majority as reference category)													
2.5 generation	0.00 (0.04)	-0.02 (0.04)	0.01 (0.04)	-0.01 (0.04)	0.00 (0.04)	-0.01 (0.04)			-0.17** (0.06)	-0.17** (0.06)	-0.17** (0.06)	-0.18** (0.06)	
2nd generation	0.01 (0.54)	0.17*** (0.05)	0.16*** (0.05)	0.18*** (0.05)	0.17*** (0.05)	0.18*** (0.05)	0.16*** (0.05)	-0.21 (0.19)	-0.15 (0.20)	-0.16** (0.06)	-0.14* (0.06)	-0.18** (0.06)	-0.15* (0.06)
1st generation	-0.11 (0.53)	0.17* (0.07)	0.15* (0.07)	0.18* (0.07)	0.15* (0.07)	0.17* (0.08)	0.15* (0.07)	-0.31* (0.15)	-0.24 (0.15)	0.09 (0.11)	0.11 (0.11)	0.07 (0.11)	0.09 (0.11)
Age of migration	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.04*** (0.01)	-0.04*** (0.01)	-0.04*** (0.01)	-0.04*** (0.01)
Gender	-0.00 (0.04)	-0.17*** (0.03)	-0.17*** (0.03)	-0.17*** (0.03)	-0.17*** (0.03)	-0.17*** (0.03)	-0.17*** (0.03)	-0.20*** (0.04)	-0.20*** (0.04)	-0.07* (0.03)	-0.07* (0.03)	-0.07* (0.03)	-0.07* (0.03)
Grade	0.09** (0.03)	0.04 (0.03)	0.03 (0.03)	0.04 (0.03)	0.03 (0.03)	0.04 (0.03)	0.03 (0.03)	0.05 (0.05)	0.05 (0.05)	0.02 (0.03)	-0.00 (0.03)	0.02 (0.03)	-0.00 (0.03)
ESCS	0.12*** (0.02)		0.09*** (0.02)		0.09*** (0.02)		0.09*** (0.02)		0.09*** (0.02)		0.08*** (0.02)		0.08*** (0.02)
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	2609	5789	5789	5789	5789	5795	5795	3463	3463	4955	4955	4955	4955

Not test language				
Non-national language				
Non-national language, only migrant origin	0.03 (0.05)	0.05 (0.05)		
Non-national language, only specific origins			0.09 (0.09)	0.10 (0.09)
Generation (majority as reference category)				
2.5 generation	-0.17** (0.06)	-0.18** (0.06)		
2nd generation	-0.19** (0.06)	-0.17** (0.06)	0.86 (0.57)	0.88 (0.58)
1st generation	0.06 (0.11)	0.07 (0.11)	1.03 (0.56)	1.05 (0.57)
Age of migration	-0.04*** (0.01)	-0.04*** (0.01)	-0.04** (0.01)	-0.04** (0.01)
Gender	-0.07* (0.03)	-0.07* (0.03)	-0.01 (0.04)	-0.01 (0.04)
Grade	0.02 (0.03)	-0.00 (0.03)	-0.00 (0.04)	-0.02 (0.04)
ESCS		0.09*** (0.02)		0.09** (0.03)
Country of origin	YES	YES	YES	YES
N	4960	4960	3067	3067

Appendix Table 6. The estimated association of speaking a non-national language at home with sense of belonging: interaction by generation

	Australia	Austria	Belgium	Canada	Denmark	Finland	Germany	Greece								
Non-national langu	-0.14 (0.14)	-0.11 (0.14)	-0.36* (0.15)	-0.34* (0.15)	-0.18 (0.15)	-0.18 (0.15)	-0.10 (0.18)	-0.01 (0.20)	-0.23* (0.11)	-0.21 (0.11)	-0.81*** (0.17)	-0.78*** (0.18)	0.05 (0.19)	0.07 (0.19)	-0.31* (0.15)	-0.29* (0.13)
Generation (majority as reference category)																
2.5 generation	0.07* (0.04)	0.05 (0.04)	0.04 (0.09)	0.10 (0.10)	-0.04 (0.06)	-0.04 (0.06)	0.04 (0.04)	0.02 (0.04)	0.27 (0.16)	0.29 (0.16)	0.04 (0.09)	0.02 (0.08)	0.00 (0.06)	0.01 (0.06)	-0.04 (0.05)	-0.06 (0.05)
2nd generation	0.22*** (0.04)	0.20*** (0.04)	-0.10 (0.10)	-0.02 (0.10)	0.04 (0.07)	0.05 (0.07)	0.06 (0.04)	0.07 (0.04)	0.33* (0.16)	0.40* (0.16)	0.16 (0.15)	0.17 (0.15)	0.09 (0.08)	0.15 (0.09)	-0.07 (0.08)	-0.07 (0.08)
1st generation	0.16** (0.06)	0.14** (0.06)	0.20 (0.17)	0.30 (0.17)	0.09 (0.10)	0.10 (0.10)	0.14* (0.06)	0.12* (0.06)	0.24 (0.26)	0.31 (0.27)	0.24 (0.23)	0.29 (0.23)	0.02 (0.18)	0.09 (0.18)	0.03 (0.18)	0.03 (0.18)
Non-national language X generation interactions																
X 2.5 generation	0.20 (0.19)	0.20 (0.19)	-0.03 (0.23)	-0.03 (0.23)	0.18 (0.17)	0.17 (0.17)	0.09 (0.23)	0.07 (0.25)	-0.01 (0.16)	-0.01 (0.16)	0.60** (0.22)	0.57* (0.23)	-0.25 (0.24)	-0.26 (0.24)	-0.02 (0.19)	-0.04 (0.18)
X 2nd generation	0.15 (0.17)	0.16 (0.16)	0.43* (0.17)	0.43** (0.17)	-0.01 (0.16)	-0.01 (0.16)	0.05 (0.19)	-0.01 (0.20)	0.03 (0.14)	0.02 (0.14)	0.45 (0.25)	0.44 (0.25)	-0.11 (0.22)	-0.11 (0.22)	0.18 (0.16)	0.20 (0.14)
X 1st generation	0.11 (0.17)	0.11 (0.17)	0.30 (0.22)	0.32 (0.22)	-0.10 (0.17)	-0.09 (0.17)	-0.01 (0.19)	-0.06 (0.21)	0.07 (0.23)	0.07 (0.23)	0.91*** (0.26)	0.84** (0.26)	-0.11 (0.27)	-0.15 (0.27)	0.06 (0.22)	0.06 (0.20)
Age of migration	-0.01* (0.01)	-0.01* (0.01)	-0.06*** (0.01)	-0.06*** (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.00)	-0.00 (0.00)	-0.03 (0.02)	-0.03 (0.02)	-0.06** (0.02)	-0.06** (0.02)	-0.05* (0.02)	-0.05* (0.02)	-0.00 (0.02)	-0.00 (0.02)
Gender	-0.16*** (0.02)	-0.16*** (0.02)	0.01 (0.03)	0.01 (0.03)	-0.05* (0.02)	-0.05* (0.02)	-0.21*** (0.02)	-0.21*** (0.02)	-0.30*** (0.03)	-0.30*** (0.03)	-0.20*** (0.03)	-0.20*** (0.03)	-0.07* (0.03)	-0.07* (0.03)	-0.01 (0.03)	-0.01 (0.03)
Grade	-0.01 (0.03)	-0.01 (0.03)	0.11*** (0.03)	0.10** (0.03)	0.00 (0.03)	-0.01 (0.03)	-0.02 (0.02)	-0.05* (0.02)	0.03 (0.05)	0.01 (0.05)	-0.02 (0.04)	-0.03 (0.04)	0.10*** (0.03)	0.08** (0.03)	0.18* (0.09)	0.13 (0.09)
ESCS		0.12*** (0.01)		0.09*** (0.02)		0.03* (0.01)		0.16*** (0.01)		0.11*** (0.02)		0.11*** (0.02)		0.08*** (0.02)		0.10*** (0.02)
N	11798	11798	6226	6226	7499	7499	19969	19969	6395	6395	5239	5239	3843	3843	6036	6036

Standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Source: Own calculations based on PISA 2018.

	Luxembourg		New Zealand		Switzerland	
Non-national language	-0.44*	-0.39	-0.39	-0.40	-0.13	-0.13
	(0.21)	(0.21)	(0.22)	(0.22)	(0.20)	(0.20)
Generation (majority as reference category)						
2.5 generation	-0.04	-0.04	0.00	-0.02	-0.17**	-0.17**
	(0.06)	(0.06)	(0.04)	(0.04)	(0.06)	(0.06)
2nd generation	-0.26***	-0.25***	0.14**	0.13*	-0.20**	-0.18**
	(0.05)	(0.06)	(0.05)	(0.05)	(0.07)	(0.07)
1st generation	-0.23*	-0.23*	0.19*	0.17*	0.06	0.08
	(0.09)	(0.09)	(0.08)	(0.08)	(0.12)	(0.12)
Non-national language X generation interactions						
X 2.5 generation	0.10	0.06	0.43	0.43	0.07	0.06
	(0.21)	(0.21)	(0.22)	(0.23)	(0.23)	(0.23)
X 2nd generation	0.36	0.37	0.42	0.45	0.17	0.19
	(0.22)	(0.22)	(0.23)	(0.24)	(0.20)	(0.20)
X 1st generation	0.29	0.30	0.23	0.28	0.15	0.16
	(0.21)	(0.20)	(0.24)	(0.24)	(0.21)	(0.21)
Age of migration	-0.01*	-0.01*	-0.01	-0.01	-0.04***	-0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Gender	-0.03	-0.03	-0.17***	-0.17**	-0.07*	-0.07*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Grade	0.10***	0.06**	0.04	0.03	0.02	-0.00
	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
ESCS		0.11***		0.09***		0.09***
		(0.02)		(0.02)		(0.02)
N	4716	4716	5789	5789	4955	4955

Appendix Table 7. Model results and tests of equality of coefficients from seemingly unrelated regressions for sense of belonging: p-values for comparison with Canada, Denmark, New Zealand and Switzerland

	Model	Canada	Denmark	New Zealand	Switzerland
Australia	-0.10 (0.09)	0.022	0.548	0.157	0.129
Austria	0.07 (0.10)	0.300	0.067	0.867	0.819
Belgium	-0.30* (0.12)	0.001	0.383	0.012	0.009
Canada	0.22* (0.10)	n/a	0.003	0.367	0.384
Denmark	-0.17* (0.08)	0.003	n/a	0.036	0.026
Finland	-0.36* (0.17)	0.004	0.330	0.023	0.019
Germany	-0.03 (0.14)	0.135	0.383	0.448	0.411
Greece	-0.34* (0.15)	0.002	0.310	0.014	0.011
Luxembourg	0.04 (0.09)	0.181	0.092	0.670	0.617
New Zealand	0.09 (0.10)	0.367	0.036	n/a	0.953
Switzerland	0.10 (0.09)	0.384	0.026	0.953	n/a

Model replicates last model (per country) from Table S3a

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

For country comparisons: p-values less than 0.05 in bold

Appendix Table 8. The estimated association of language spoken at home (using different definitions and samples) with maths scores

	Australia						Austria								
Not test language	-0.43*** (0.05)	-0.31*** (0.05)							-0.39*** (0.05)	-0.33*** (0.05)					
Non-national language			-0.37*** (0.05)	-0.25*** (0.05)							-0.39*** (0.05)	-0.33*** (0.05)			
Non-national language, only migrant origin					-0.29*** (0.05)	-0.17*** (0.05)							-0.31*** (0.07)	-0.23** (0.07)	
Non-national language, only specific origins							-0.06 (0.13)	0.00 (0.13)							-0.26** (0.09)
Generation (majority as reference category)															
2.5 generation	0.13*** (0.04)	0.07* (0.03)	0.12*** (0.04)	0.07 (0.03)	0.09* (0.04)	0.04 (0.04)			-0.53*** (0.09)	-0.32*** (0.09)	-0.53*** (0.09)	-0.32*** (0.09)	-0.67*** (0.09)	-0.44*** (0.09)	
2nd generation	0.29*** (0.05)	0.24*** (0.05)	0.27*** (0.05)	0.23*** (0.05)	0.25*** (0.05)	0.20*** (0.05)	0.20 (0.43)	0.28 (0.46)	-0.55*** (0.08)	-0.27** (0.08)	-0.55*** (0.08)	-0.27** (0.08)	-0.62*** (0.10)	-0.35*** (0.10)	-0.67*** (0.11)
1st generation	0.43*** (0.07)	0.37*** (0.06)	0.41*** (0.07)	0.35*** (0.06)	0.39*** (0.07)	0.33*** (0.06)	0.09 (0.40)	0.31 (0.44)	-0.61*** (0.11)	-0.25* (0.11)	-0.61*** (0.11)	-0.25* (0.11)	-0.70*** (0.13)	-0.34** (0.12)	-0.77*** (0.15)
Age of migration	-0.03*** (0.01)	-0.03*** (0.01)	-0.04*** (0.01)	-0.03*** (0.01)	-0.04*** (0.01)	-0.04*** (0.01)	-0.04* (0.02)	-0.05** (0.02)	-0.01 (0.01)	-0.02 (0.01)	-0.01 (0.01)	-0.02 (0.01)	-0.01 (0.01)	-0.02 (0.01)	-0.02* (0.01)
Gender	-0.10** (0.03)	-0.10*** (0.03)	-0.10** (0.03)	-0.10*** (0.03)	-0.10** (0.03)	-0.10*** (0.03)	-0.07* (0.03)	-0.09** (0.03)	-0.20*** (0.05)	-0.20*** (0.04)	-0.20*** (0.05)	-0.20*** (0.04)	-0.20*** (0.05)	-0.19*** (0.04)	-0.18*** (0.05)
Grade	0.28*** (0.04)	0.26*** (0.04)	0.28*** (0.04)	0.26*** (0.04)	0.28*** (0.04)	0.26*** (0.04)	0.25*** (0.04)	0.25*** (0.04)	0.43*** (0.04)	0.39*** (0.03)	0.43*** (0.04)	0.39*** (0.03)	0.43*** (0.04)	0.39*** (0.03)	0.41*** (0.04)
ESCS		0.35*** (0.01)		0.35*** (0.01)		0.36*** (0.01)		0.36*** (0.02)		0.31*** (0.02)		0.31*** (0.02)		0.31*** (0.02)	
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	12718	12718	12718	12718	12718	12718	7664	7664	6644	6644	6644	6644	6644	6644	5593

Standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Source: Own calculations based on PISA 2018.

	Belgium						Canada							
Not test language	-0.18**	-0.17**								-0.03	0.02			
	(0.06)	(0.06)								(0.04)	(0.04)			
Non-national language			-0.10*	-0.07								-0.05	0.01	
			(0.05)	(0.05)								(0.04)	(0.04)	
Non-national language, only migrant origin					-0.03	0.02								-0.01
					(0.06)	(0.06)								(0.05)
Non-national language, only specific origins	-0.20*									-0.11	-0.02			
	(0.09)									(0.13)	(0.13)			
Generation (majority as ref cat)														
2.5 generation	-0.01	0.01	-0.03	-0.01	-0.06	-0.04				-0.01	-0.04	-0.01	-0.04	-0.01
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)				(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
2nd generation	-0.39***	-0.10	0.01	-0.14	-0.04	-0.17*	-0.09	-0.46	0.03	-0.05	-0.03	-0.04	-0.02	-0.06
	(0.11)	(0.08)	(0.08)	(0.07)	(0.07)	(0.08)	(0.08)	(0.66)	(0.66)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)
1st generation	-0.42**	0.00	0.13	-0.04	0.08	-0.08	0.03	-0.34	0.18	0.11	0.07	0.11	0.07	0.10
	(0.15)	(0.09)	(0.08)	(0.09)	(0.08)	(0.08)	(0.08)	(0.69)	(0.68)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Age of migration	-0.02*	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02	-0.01	-0.02	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Gender	-0.18***	-0.22***	-0.19***	-0.22***	-0.19***	-0.22***	-0.19***	-0.22***	-0.18***	-0.08**	-0.09***	-0.08**	-0.09***	-0.08**
	(0.05)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Grade	0.37***	0.84***	0.71***	0.84***	0.72***	0.85***	0.72***	0.89***	0.72***	0.34***	0.27***	0.34***	0.27***	0.34***
	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
ESCS	0.30***		0.28***		0.28***		0.28***		0.34***		0.31***		0.31***	
	(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)	
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	5593	8106	8106	8106	8106	8106	8106	5900	5900	21378	21378	21378	21378	21378

		Denmark					Finland							
Not test language				-0.18*	-0.13							-0.13	-0.19*	
				(0.07)	(0.08)							(0.08)	(0.08)	
Non-national language						-0.18*	-0.13							-0.17
						(0.08)	(0.08)							(0.09)
Non-national language, only migrant origin	0.05							-0.08	-0.04					
	(0.04)							(0.08)	(0.08)					
Non-national language, only specific origins		0.06	0.11							-0.09	-0.05			
		(0.12)	(0.11)							(0.08)	(0.08)			
Generation (majority as ref cat)														
2.5 generation	-0.04			-0.11	-0.08	-0.11	-0.08	-0.14	-0.10			-0.10	-0.13	-0.09
	(0.05)			(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)			(0.07)	(0.07)	(0.07)
2nd generation	-0.04	-0.46	-0.49	-0.32**	-0.16	-0.33**	-0.16	-0.37**	-0.20	-0.37*	-0.23	-0.38**	-0.27*	-0.34*
	(0.05)	(0.33)	(0.32)	(0.12)	(0.12)	(0.12)	(0.12)	(0.14)	(0.14)	(0.15)	(0.16)	(0.14)	(0.14)	(0.14)
1st generation	0.06	-0.28	-0.29	-0.29	-0.10	-0.29	-0.10	-0.35	-0.14	-0.26	-0.09	-0.10	-0.01	-0.06
	(0.07)	(0.34)	(0.34)	(0.18)	(0.18)	(0.18)	(0.18)	(0.19)	(0.19)	(0.21)	(0.22)	(0.19)	(0.19)	(0.19)
Age of migration	-0.03***	-0.05***	-0.05***	0.01	0.00	0.01	0.00	0.00	0.00	-0.00	-0.00	-0.04*	-0.03	-0.04*
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Gender	-0.09***	-0.09**	-0.09**	-0.12***	-0.11***	-0.12***	-0.11***	-0.11***	-0.10***	-0.11***	-0.10**	0.03	0.03	0.03
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Grade	0.27***	0.30***	0.23***	0.42***	0.36***	0.42***	0.36***	0.42***	0.36***	0.43***	0.37***	0.41***	0.36***	0.41***
	(0.03)	(0.03)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)
ESCS	0.31***		0.32***		0.29***		0.29***		0.30***		0.30***		0.34***	
	(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)	
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	21378	14615	14615	7404	7404	7404	7404	7404	7404	6532	6532	5543	5543	5543

	Germany										Greece				
Not test language						-0.38***	-0.33***							-0.27**	-0.22*
						(0.06)	(0.06)							(0.10)	(0.09)
Non-national language	-0.21*							-0.38***	-0.33***						
	(0.10)							(0.06)	(0.06)						
Non-national language, only migrant origin		-0.03	-0.10							-0.24**	-0.20**				
		(0.13)	(0.13)							(0.08)	(0.07)				
Non-national language, only specific origins				-0.11	-0.25							-0.39**	-0.28*		
				(0.18)	(0.19)							(0.13)	(0.13)		
Generation (majority as ref cat)															
2.5 generation	-0.13	-0.13	-0.17**			-0.19**	-0.16**	-0.19**	-0.16**	-0.24***	-0.21***			0.13**	0.09
	(0.07)	(0.07)	(0.07)			(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.05)			(0.05)	(0.04)
2nd generation	-0.26	-0.44**	-0.33*	-0.45*	-0.31	-0.29***	-0.08	-0.29***	-0.08	-0.35***	-0.14	-1.33**	-0.58	-0.12	-0.10
	(0.13)	(0.14)	(0.14)	(0.20)	(0.20)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.08)	(0.48)	(0.43)	(0.10)	(0.10)
1st generation	0.01	-0.16	-0.06	-0.09	0.07	-0.04	0.14	-0.04	0.14	-0.12	0.07	-1.38**	-0.60	-0.13	-0.15
	(0.19)	(0.20)	(0.20)	(0.23)	(0.23)	(0.15)	(0.16)	(0.15)	(0.16)	(0.16)	(0.17)	(0.48)	(0.40)	(0.14)	(0.15)
Age of migration	-0.03	-0.05*	-0.03	-0.06**	-0.04	-0.03*	-0.03*	-0.03*	-0.03*	-0.04**	-0.04*	0.03	0.02	0.01	0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)
Gender	0.03	0.03	0.03	0.05	0.04	-0.17***	-0.18***	-0.17***	-0.18***	-0.17***	-0.18***	-0.16***	-0.16***	-0.06	-0.06
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)	(0.03)
Grade	0.36***	0.41***	0.36***	0.41***	0.37***	0.58***	0.50***	0.58***	0.50***	0.59***	0.50***	0.59***	0.50***	0.67***	0.51***
	(0.04)	(0.05)	(0.04)	(0.06)	(0.05)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.10)	(0.09)
ESCS	0.34***		0.34***		0.34***		0.30***		0.30***		0.30***		0.32***		0.32***
	(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	5543	5543	5543	5052	5052	4636	4636	4636	4636	4636	4636	3353	3353	6345	6345

															Luxembourg	
Not test language					-0.27***	-0.19***										
					(0.05)	(0.04)										
Non-national language	-0.27**	-0.22*						-0.31***	-0.23***							
	(0.10)	(0.09)						(0.04)	(0.04)							
Non-national language, only migrant origin			-0.19	-0.11						-0.28***	-0.17***					
			(0.10)	(0.10)						(0.04)	(0.05)					
Non-national language, only specific origins					-0.31	-0.20						-0.21**	-0.17*			
					(0.16)	(0.16)						(0.08)	(0.09)			
Generation (majority as ref cat)																
2.5 generation	0.13**	0.09	0.11*	0.08			-0.14*	-0.13*	-0.04	-0.06	-0.10	-0.10				
	(0.05)	(0.04)	(0.05)	(0.04)			(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)				
2nd generation	-0.12	-0.10	-0.15	-0.13	-0.14	-0.09	-0.21***	-0.11	0.03	0.06	0.02	0.03	-0.10	0.01		
	(0.10)	(0.10)	(0.10)	(0.10)	(0.12)	(0.12)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.34)	(0.31)		
1st generation	-0.13	-0.15	-0.17	-0.21	-0.15	-0.23	-0.22**	-0.12	0.04	0.07	0.03	0.04	-0.15	-0.01		
	(0.14)	(0.15)	(0.14)	(0.15)	(0.20)	(0.22)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.34)	(0.32)		
Age of migration	0.01	0.01	0.01	0.01	0.03	0.03	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00		
	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)		
Gender	-0.06	-0.06	-0.06	-0.05	-0.04	-0.04	-0.14***	-0.13***	-0.14***	-0.13***	-0.14***	-0.13***	-0.12***	-0.11**		
	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)	(0.04)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)		
Grade	0.67***	0.51***	0.68***	0.53***	0.71***	0.52***	0.66***	0.60***	0.66***	0.60***	0.67***	0.60***	0.63***	0.60***		
	(0.10)	(0.09)	(0.10)	(0.09)	(0.11)	(0.10)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)		
ESCS			0.32***	0.32***	0.34***			0.20***			0.19***	0.20***				
			(0.02)	(0.02)	(0.02)			(0.02)			(0.02)	(0.02)				
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES		
N	6345	6345	6345	6345	5163	5163	5059	5059	5059	5059	5059	5059	2795	2795		

	New Zealand						Switzerland							
Not test language	-0.26*** (0.06)	-0.18** (0.06)							-0.16** (0.05)	-0.11* (0.05)				
Non-national language			-0.15* (0.06)	-0.07 (0.06)							-0.18*** (0.05)	-0.12* (0.05)		
Non-national language, only migrant origin					-0.05 (0.06)	0.05 (0.06)							-0.14* (0.06)	-0.06 (0.06)
Non-national language, only specific origins							0.13 (0.16)	0.21 (0.16)						
Generation (majority as ref cat)														
2.5 generation	0.10* (0.05)	0.03 (0.04)	0.09* (0.04)	0.02 (0.04)	0.07 (0.04)	0.01 (0.04)			-0.10 (0.05)	-0.11* (0.05)	-0.09 (0.05)	-0.11* (0.05)	-0.11* (0.05)	-0.13** (0.05)
2nd generation	0.25*** (0.07)	0.21*** (0.06)	0.22** (0.07)	0.18*** (0.06)	0.18** (0.07)	0.14* (0.06)	-0.79 (0.40)	-0.55 (0.42)	-0.26*** (0.07)	-0.17** (0.06)	-0.24*** (0.07)	-0.17** (0.06)	-0.26*** (0.07)	-0.20** (0.07)
1st generation	0.14 (0.07)	0.05 (0.07)	0.11 (0.07)	0.02 (0.07)	0.08 (0.07)	-0.01 (0.07)	-0.98* (0.39)	-0.72 (0.40)	-0.15 (0.10)	-0.10 (0.09)	-0.14 (0.10)	-0.10 (0.09)	-0.17 (0.10)	-0.13 (0.09)
Age of migration	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01* (0.01)	-0.02* (0.01)	-0.02* (0.01)	-0.05* (0.02)	-0.06* (0.03)	-0.02* (0.01)	-0.01 (0.01)	-0.02* (0.01)	-0.01 (0.01)	-0.02* (0.01)	-0.01 (0.01)
Gender	-0.13*** (0.03)	-0.13*** (0.03)	-0.13*** (0.03)	-0.13*** (0.03)	-0.13*** (0.03)	-0.13*** (0.03)	-0.10* (0.04)	-0.11** (0.04)	-0.14*** (0.03)	-0.15*** (0.03)	-0.14*** (0.03)	-0.15*** (0.03)	-0.14*** (0.03)	-0.15*** (0.03)
Grade	0.38*** (0.05)	0.34*** (0.05)	0.38*** (0.05)	0.33*** (0.05)	0.38*** (0.05)	0.34*** (0.05)	0.29*** (0.07)	0.29*** (0.06)	0.58*** (0.04)	0.50*** (0.04)	0.59*** (0.04)	0.50*** (0.04)	0.59*** (0.04)	0.50*** (0.04)
ESCS		0.35*** (0.02)		0.35*** (0.02)		0.35*** (0.02)		0.38*** (0.02)		0.29*** (0.03)		0.29*** (0.03)		0.29*** (0.03)
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	5996	5996	5996	5996	5996	5996	3579	3579	5673	5673	5673	5673	5673	5673

Not test language

Non-national language

Non-national language,
only migrant origin

Non-national language, only specific origins	-0.11 (0.07)	-0.07 (0.08)
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Generation (majority as ref cat)
2.5 generation

2nd generation	-0.19 (0.33)	-0.17 (0.33)
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1st generation	-0.20 (0.34)	-0.16 (0.34)
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Age of migration	-0.00 (0.01)	-0.00 (0.01)
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Gender	-0.13*** (0.04)	-0.14*** (0.04)
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Grade	0.52*** (0.05)	0.46*** (0.05)
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ESCS		0.27*** (0.03)
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Country of origin	YES	YES
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N	3504	3504
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	Belgium						Canada								
Not test language	-0.27***	-0.26***													
	(0.06)	(0.06)													
Non-national language			-0.15**	-0.12*							-0.13**	-0.07			
			(0.05)	(0.05)							(0.05)	(0.04)			
Non-national language, only migrant origin					-0.09	-0.04							-0.08	-0.03	
					(0.05)	(0.05)							(0.05)	(0.05)	
Non-national language, only specific origins							-0.15	-0.07							0.00
							(0.13)	(0.13)							(0.10)
Generation (majority as reference category)															
2.5 generation	-0.01	0.01	-0.04	-0.02	-0.07	-0.05			0.04	0.02	0.03	0.01	0.03	0.01	
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)			(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	
2nd generation	-0.10	-0.00	-0.16*	-0.07	-0.18**	-0.11	-0.23	0.20	-0.02	-0.00	-0.03	-0.02	-0.05	-0.03	-0.31
	(0.07)	(0.07)	(0.06)	(0.07)	(0.06)	(0.06)	(0.46)	(0.54)	(0.04)	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)	(0.30)
1st generation	-0.09	0.03	-0.15	-0.04	-0.18*	-0.08	-0.22	0.24	0.21**	0.18**	0.19**	0.16*	0.17**	0.14*	-0.11
	(0.10)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.48)	(0.54)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.28)
Age of migration	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.01	-0.02	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***	-0.08***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Gender	-0.13***	-0.10***	-0.13***	-0.10***	-0.13***	-0.10***	-0.14***	-0.10***	0.00	-0.00	0.00	-0.00	0.00	-0.00	-0.00
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Grade	0.77***	0.65***	0.77***	0.66***	0.78***	0.66***	0.82***	0.67***	0.41***	0.36***	0.42***	0.36***	0.42***	0.36***	0.39***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
ESCS		0.26***		0.26***		0.26***		0.30***		0.26***		0.26***		0.26***	
		(0.01)		(0.01)		(0.01)		(0.02)		(0.02)		(0.02)		(0.02)	
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	8106	8106	8106	8106	8106	8106	5900	5900	21378	21378	21378	21378	21378	21378	14615

	Denmark							Finland							
Not test language	-0.24***	-0.18**								-0.22***	-0.29***				
	(0.07)	(0.07)								(0.07)	(0.07)				
Non-national language			-0.23***	-0.18**								-0.21*	-0.25*		
			(0.07)	(0.07)								(0.09)	(0.10)		
Non-national language, only migrant origin					-0.15*	-0.10								-0.03	-0.10
					(0.07)	(0.08)								(0.14)	(0.15)
Non-national language, only specific origins	0.05							-0.16*	-0.12						
	(0.10)							(0.08)	(0.08)						
Generation (majority as reference category)															
2.5 generation	-0.10	-0.06	-0.10	-0.07	-0.14	-0.09				-0.05	-0.08	-0.06	-0.10	-0.10	-0.15*
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)				(0.08)	(0.07)	(0.08)	(0.08)	(0.08)	(0.07)
2nd generation	-0.33	-0.35**	-0.17	-0.35**	-0.17	-0.39***	-0.20	-0.37**	-0.21	-0.37**	-0.26*	-0.37**	-0.29*	-0.49***	-0.38**
	(0.30)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.12)	(0.12)	(0.13)	(0.13)	(0.14)	(0.13)
1st generation	-0.11	-0.37*	-0.15	-0.37*	-0.15	-0.42*	-0.19	-0.29	-0.09	0.11	0.20	0.11	0.18	-0.00	0.09
	(0.29)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(0.19)	(0.20)	(0.19)	(0.19)	(0.20)	(0.20)	(0.22)	(0.22)
Age of migration	-0.08***	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02	-0.07***	-0.06**	-0.07***	-0.06**	-0.08***	-0.06***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Gender	-0.00	-0.05	-0.04	-0.05	-0.04	-0.05	-0.04	-0.05	-0.04	0.21***	0.21***	0.21***	0.21***	0.21***	0.21***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Grade	0.32***	0.40***	0.33***	0.40***	0.33***	0.40***	0.33***	0.41***	0.35***	0.41***	0.36***	0.41***	0.36***	0.41***	0.36***
	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
ESCS	0.27***		0.33***		0.33***		0.33***		0.34***		0.35***		0.35***		0.35***
	(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	14615	7404	7404	7404	7404	7404	7404	6532	6532	5543	5543	5543	5543	5543	5543

	Germany								Greece							
Not test language			-0.41***	-0.36***							-0.32***	-0.28***				
			(0.06)	(0.06)							(0.08)	(0.08)				
Non-national language					-0.41***	-0.36***							-0.32***	-0.28***		
					(0.06)	(0.06)							(0.08)	(0.08)		
Non-national language, only migrant origin							-0.30***	-0.26***							-0.27**	-0.21*
							(0.07)	(0.07)							(0.09)	(0.09)
Non-national language, only specific origins	-0.17	-0.32								-0.51***	-0.40**					
	(0.18)	(0.19)								(0.14)	(0.14)					
Generation (majority as reference category)																
2.5 generation			-0.18**	-0.16**	-0.18**	-0.16**	-0.24***	-0.21***			0.10**	0.07	0.10**	0.07	0.09*	0.06
			(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)			(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
2nd generation	-0.41*	-0.27	-0.37***	-0.16*	-0.37***	-0.16*	-0.41***	-0.19*	-1.12*	-0.40	-0.03	-0.02	-0.03	-0.02	-0.05	-0.03
	(0.18)	(0.18)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.08)	(0.51)	(0.42)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
1st generation	0.20	0.36	-0.05	0.13	-0.05	0.13	-0.11	0.08	-0.83	-0.08	-0.07	-0.09	-0.07	-0.09	-0.10	-0.13
	(0.25)	(0.25)	(0.16)	(0.17)	(0.16)	(0.17)	(0.17)	(0.18)	(0.56)	(0.46)	(0.13)	(0.14)	(0.13)	(0.14)	(0.13)	(0.14)
Age of migration	-0.10***	-0.08**	-0.05***	-0.05***	-0.05***	-0.05***	-0.06***	-0.05***	-0.01	-0.02	-0.01	-0.00	-0.01	-0.00	-0.01	-0.00
	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Gender	0.23***	0.23***	-0.07*	-0.07*	-0.07*	-0.07*	-0.07*	-0.07*	-0.06	-0.05	0.07*	0.07*	0.07*	0.07*	0.07*	0.07*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Grade	0.41***	0.36***	0.51***	0.42***	0.51***	0.42***	0.51***	0.42***	0.49***	0.41***	0.59***	0.47***	0.59***	0.47***	0.61***	0.48***
	(0.06)	(0.05)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
ESCS		0.35***		0.30***		0.30***		0.30***		0.31***		0.26***		0.26***		0.26***
		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	5052	5052	4636	4636	4636	4636	4636	4636	3353	3353	6345	6345	6345	6345	6345	6345

	Luxembourg								New Zealand																							
Not test language																	-0.29***	-0.20***			-0.39***	-0.31***										
																	(0.05)	(0.05)			(0.05)	(0.05)										
Non-national language																			-0.35***	-0.27***			-0.30***	-0.22***								
																			(0.04)	(0.04)			(0.06)	(0.06)								
Non-national language, only migrant origin																					-0.31***	-0.21***			-0.20***	-0.10						
																			(0.04)	(0.04)			(0.06)	(0.06)								
Non-national language, only specific origins																	-0.36**	-0.28*					-0.20**	-0.16*								
																	(0.14)	(0.14)			(0.07)	(0.08)										
Generation (majority as reference category)																																
2.5 generation																	-0.21***	-0.20***	-0.09	-0.11*	-0.16**	-0.16**	0.09	0.02	0.09	0.02	0.06	-0.00				
																	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)				
2nd generation																	-0.07	-0.03	-0.29***	-0.20***	-0.03	-0.01	-0.05	-0.03	-0.38	-0.27	0.14*	0.11	0.12	0.08	0.09	0.04
																	(0.09)	(0.09)	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.34)	(0.31)	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)
1st generation																	0.02	-0.04	-0.30***	-0.20**	-0.02	0.01	-0.04	-0.02	-0.49	-0.37	0.22**	0.13	0.20**	0.11	0.17*	0.07
																	(0.24)	(0.25)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.34)	(0.31)	(0.08)	(0.07)	(0.08)	(0.07)	(0.08)	(0.07)
Age of migration																	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	-0.02*	-0.02*	-0.02**	-0.02**	-0.02**	-0.03**
																	(0.04)	(0.04)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Gender																	0.08*	0.07*	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	0.01	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06
																	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)
Grade																	0.64***	0.49***	0.58***	0.52***	0.57***	0.51***	0.58***	0.52***	0.52***	0.49***	0.36***	0.32***	0.36***	0.32***	0.36***	0.32***
																	(0.10)	(0.09)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)
ESCS																		0.29***		0.19***		0.19***		0.19***		0.12***		0.36***		0.36***		0.37***
																		(0.02)		(0.01)		(0.01)		(0.01)		(0.02)		(0.02)		(0.02)		
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES																
N	5163	5163	5059	5059	5059	5059	5059	5059	5059	2795	2795	5996	5996	5996	5996	5996																

Switzerland										
Not test language			-0.26***	-0.22***						
			(0.05)	(0.05)						
Non-national language					-0.26***	-0.21***				
					(0.05)	(0.05)				
Non-national language, only migrant origin							-0.25***	-0.18**		
							(0.05)	(0.06)		
Non-national language, only specific origins	0.01	0.10							-0.21***	-0.18**
	(0.17)	(0.17)							(0.06)	(0.07)
Generation (majority as reference category)										
2.5 generation			-0.04	-0.06	-0.04	-0.05	-0.07	-0.08		
			(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)		
2nd generation	-0.89*	-0.64	-0.24***	-0.16**	-0.23***	-0.16**	-0.24***	-0.18**	-0.20	-0.18
	(0.42)	(0.47)	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)	(0.42)	(0.42)
1st generation	-0.99*	-0.72	-0.11	-0.07	-0.11	-0.07	-0.12	-0.09	-0.26	-0.22
	(0.41)	(0.44)	(0.10)	(0.09)	(0.10)	(0.09)	(0.11)	(0.10)	(0.43)	(0.44)
Age of migration	-0.07**	-0.08**	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00	-0.00
	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
Gender	-0.03	-0.04	-0.06*	-0.06*	-0.06*	-0.07*	-0.06*	-0.07*	-0.04	-0.06
	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)
Grade	0.28***	0.27***	0.49***	0.41***	0.49***	0.41***	0.49***	0.41***	0.43***	0.38***
	(0.06)	(0.06)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
ESCS		0.39***		0.26***		0.26***		0.26***		0.24***
		(0.02)		(0.02)		(0.02)		(0.02)		(0.03)
Country of origin	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	3579	3579	5673	5673	5673	5673	5673	5673	3504	3504