ISOTIS

INCLUSIVE EDUCATION AND SOCIAL SUPPORT TO TACKLE INEQUALITIES IN SOCIETY

Roots and Development of Achievement Gaps

A Longitudinal Assessment in Selected European Countries

Supplementary Online Appendix for

Passaretta, G., & Skopek, J. (2018). *Roots and Development of Achievement Gaps. A Longitudinal Assessment in Selected European Countries*. ISOTIS Report (D 1.3), Trinity College Dublin.

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 727069

Appendix

Separate appendix file for ISOTIS Report Deliverable D 1.3:

Passaretta, G., & Skopek, J. (2018). *Roots and Development of Achievement Gaps. A Longitudinal Assessment in Selected European Countries*. ISOTIS Report (D 1.3), Trinity College Dublin.

Find appendix tables and figures for each chapter below.

Change log

Version	Date	Amended by	Changes
1.0	18-12-2018	Jan Skopek, Giampiero Passaretta	Document finalized for submission

Partners and researchers involved

Partner number	Partner name	Researchers involved
5	Trinity College Dublin (Ireland)	Jan Skopek (leader ISOTIS WP 1) Giampiero Passaretta
1	University of Utrecht (The Netherlands)	Thomas van Huizen
13	University of Oslo (Norway)	Henrik Daae Zachrisson Luisa Ribeiro
7	University of Milano-Bicocca (Italy)	Piergiorgio Lovaglio Stefano Verzillo Giorgio Vittadini

Table of Contents

2 Germany

2.1 Weighting approach

Follows.

2.2 List of all competence assessments

Follows.

2.3 Construction of standardised scores

Follows.

2.4 Details on model specifications

Follows.

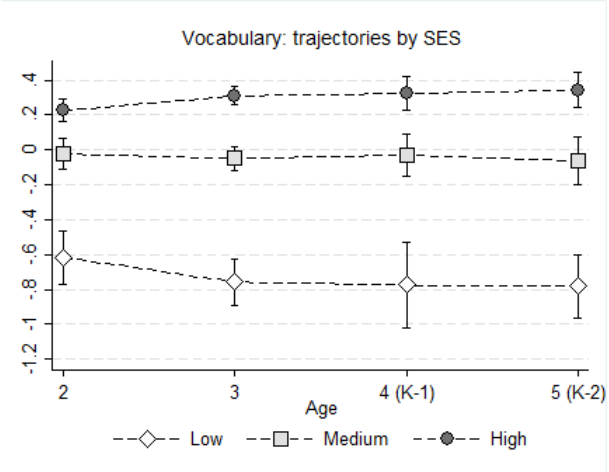
3 Netherlands

3.1 Absolute versus relative achievement gaps

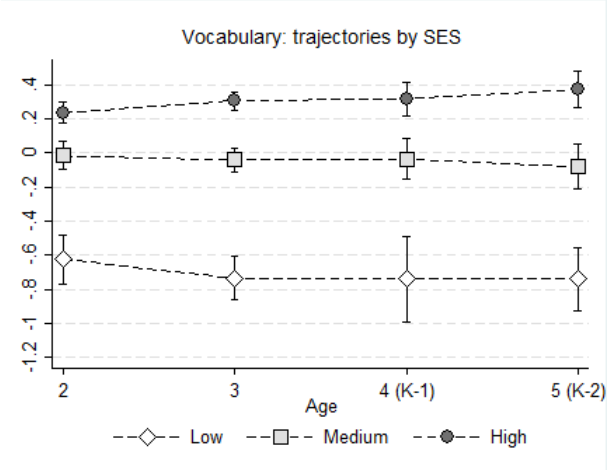
The main figures are (mostly) based on raw test scores rather than IRT scaled scores. Does this matter? Based on the vocabulary test data, there appears to be hardly any differences between the results using raw versus scaled scores (A1 versus A2). However, standardization (within wave) matters: the pattern indicates divergence when standardizing scaled scores (A2), whereas the pattern indicates convergence when not standardizing scaled scores (A3). Differences in gaps between wave 1 and wave 4 are (marginally) significant. Absolute and relative skill levels/ gaps should therefore not be confused.

The difference can be explained by the decline of the variance of the test score distribution over waves (var age 2 = 0.81, var age 5 = 0.35). The compression of the test score distribution explains why there is convergence in the absolute scores; however, analysing the relative positions over time, the results indicate persistence/divergence.

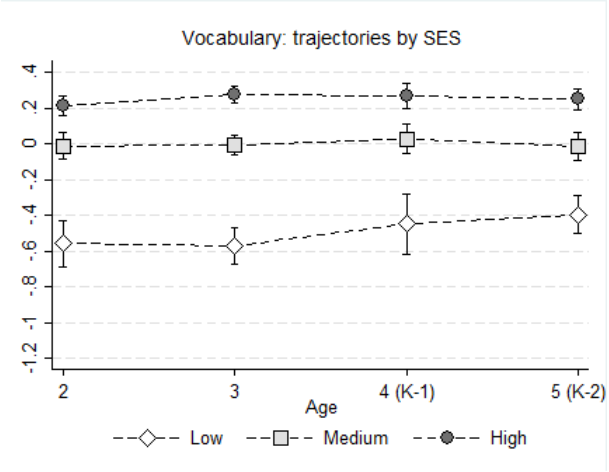
A1) Raw vocabulary scores (*standardized* within wave)



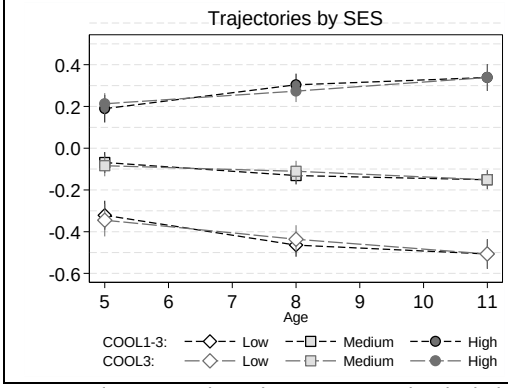
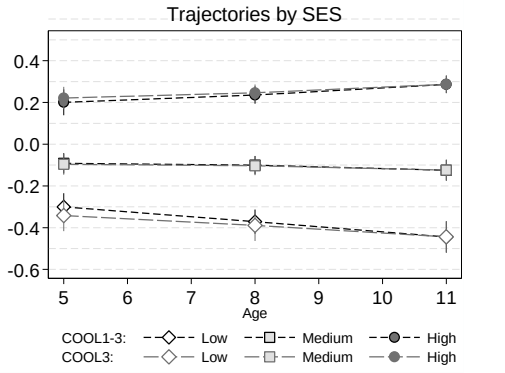
A2) IRT scaled vocabulary scores (*standardized* within wave)



A3) Scaled vocabulary scores (*not standardized* within wave)



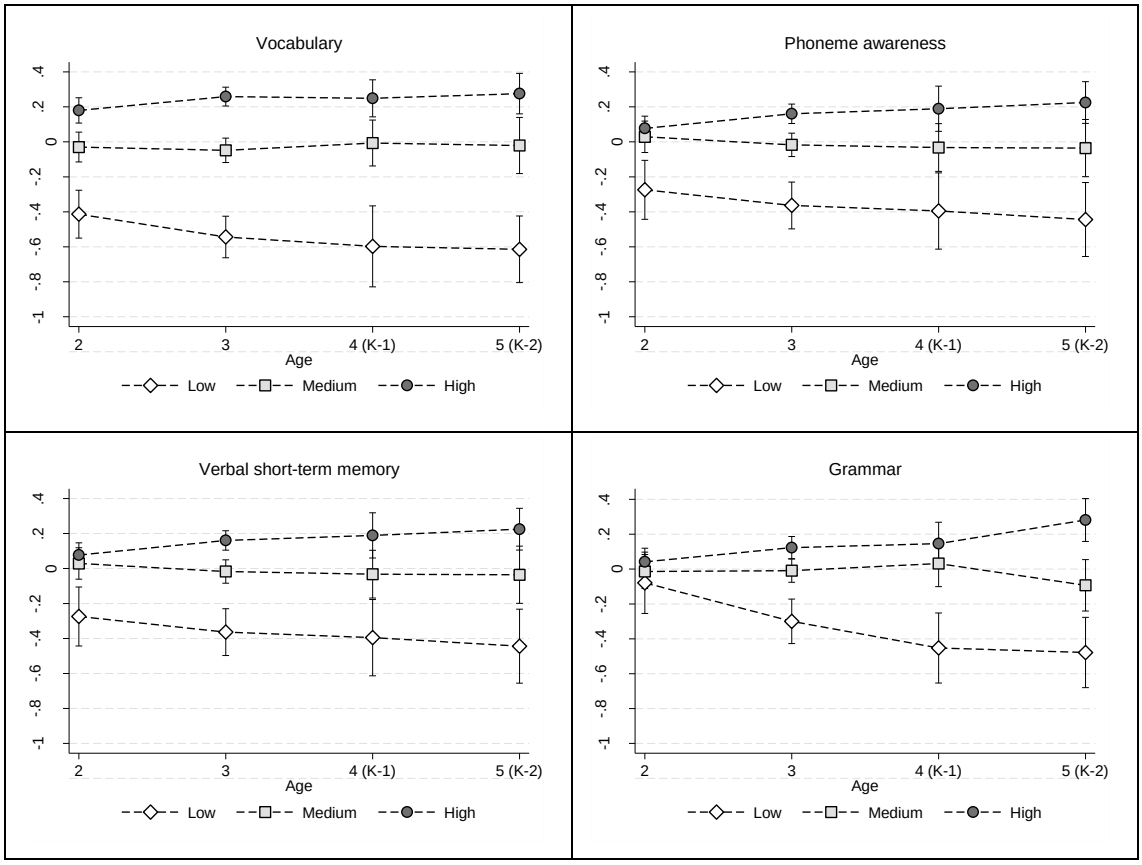
3.2 From kindergarten to end of primary school: unbalanced panel

Language	*Math*
	

Notes: Estimates are based on representative (unbalanced) samples of COOL.
Tests language: Language for Toddlers (age 5); average of two tests (vocabulary and reading comprehension; age 5 and 11); Tests Math: Ordering/Sorting (COOL 1; age 5); Math for Toddlers (COOL3); Math (3rd and 6th grade)

3.3 Additional results: Early years

Language development in the early years



3.4 SES gaps in in Cito End test scores and secondary school track recommendations

SES gaps in Cito End test scores and the role of preschool differences.

		Language Score		Total Score	
		OLS	IV	OLS	IV
SES (ref. low)					
	Medium	0.353**	0.233	0.410**	0.218
		(0.157)	(0.164)	(0.167)	(0.165)
	High	0.734***	0.512**	0.817***	0.506***
		(0.204)	(0.200)	(0.195)	(0.177)
Language score KG			0.730***		0.915***
			(0.149)		(0.138)
N		872	872	872	872
Low-Medium gap					
% preschool			*34*		*47*
% additional			*66*		*53*
Low-High gap					
% preschool			*30*		*38*
% additional			*70*		*62*

Notes: Clustered standard errors in parentheses. Significance: *** p<0.01, ** p<0.05, * p<0.1

Explaining SES differences in secondary school track recommendations.

		Test track recommendation (1=havo/vwo†)		School track recommendation (1=havo/vwo†)	
		OLS	IV	OLS	IV
SES (ref. low)					
	Medium	0.123*	0.041	0.173**	0.084
		(0.073)	(0.085)	(0.075)	(0.088)
	High	0.314***	0.223**	0.384***	0.282**
		(0.089)	(0.099)	(0.105)	(0.114)
Language score KG			0.310***		0.314***
			(0.083)		(0.063)
N		872	872	853	853
Low-Medium gap					
% preschool			67		*51*
% additional			33		*49*
Low-High gap					
% preschool			29		*27*
% additional			71		*73*

Notes: †This track recommendation gives access to the secondary school track to higher education (i.e. leading to a bachelor's degree or higher). Clustered standard errors in parentheses. Significance: *** p<0.01, ** p<0.05, * p<0.1

3.5 Migrant-native gaps in in Cito End test scores and secondary school track recommendations

Migrant-native gaps in Cito End test scores and the role of preschool differences.

	Language Score		Total Score	
	OLS	IV	OLS	IV
Panel A: Overall gaps				
Migrant (ref. native)	-0.200	0.459**	-0.279**	0.574***
	(0.132)	(0.217)	(0.118)	(0.221)
Language score KG		0.800***		0.989***
		(0.157)		(0.152)
N	872	872	872	872
Panel B: Gaps net of SES				
Migrant (ref. native)	-0.138	0.441**	-0.191	0.558***
	(0.130)	(0.201)	(0.128)	(0.210)
Language score KG		0.730***		0.915***
		(0.149)		(0.138)
N	872	872	872	872

Notes: Clustered standard errors in parentheses. Significance: *** p<0.01, ** p<0.05, * p<0.1

Explaining migrant-native differences in secondary school track recommendations.

	Test track recommendation (1=havo/vwo†)		School track recommendation (1=havo/vwo†)	
	OLS	IV	OLS	IV
Panel A: Overall gaps				
Migrant (ref. native)	-0.227***	0.063	-0.158***	0.140
	(0.059)	(0.135)	(0.052)	(0.096)
Language score KG		0.330***		0.338***
		(0.088)		(0.064)
N	872	872	872	872
Panel B: Gaps net of SES				
Migrant (ref. native)	-0.168**	0.078	-0.085	0.164**
	(0.070)	(0.122)	(0.068)	(0.078)
Language score KG		0.310***		0.314***
		(0.083)		(0.063)
N	872	872	872	872

Notes: †This track recommendation gives access to the secondary school track to higher education (i.e. leading to a bachelor's degree or higher). Clustered standard errors in parentheses. Significance: *** p<0.01, ** p<0.05, * p<0.1

4 Norway

4.1 Descriptives

Table A1 Descriptives of demographic and family characteristics and language/achievement measures for BONDS (N = 1,157) and MoBa (N=112,762).

BONDS			
	% Missing	%/M(range)	SD
Child, family & maternal characteristics			
Child gender (boy)	0	51.77%	-
Maternal education (years)	1.1	14.30 (9-18)	2.56
Western immigrant	1.47	6.75%	-
Non-Western immigrant	1.47	6.40%	-
Economic Hardship	5.27	11.86%	-
Exact age at testing 12 mo[nths a]	0	.20 (-1.36-3.24)	.54
Exact age at testing 24 mo[nths a]	0	.19(-1.43-5.27)	.62
Exact age at testing 36 mo[nths a]	0	.24(-2.03-3.06)	.67
Exact age at testing 48 mo[nths a]	0	.19(-2.50-2.96)	.63
Exact age at testing 1st grade [a]	25.06	5.64 (-18.27-12.63)	3.44
Exact age at testing 2nd grade [a]	22.90	5.62(-8.53-14.43)	3.34
MoBa			
	% Missing	%/M(range)	SD
Child, family & maternal characteristics			
Child gender (boy)	0.03	51.28%	
Maternal education (years)	13.93	14.66 (9-18)	2.58
Immigrant	13.27	11.33%	-
Economic Hardship	16.59	20.60%	-

[a] These values represent deviations in months in relation to the age at testing (for example, how many months under or over 12 months)

4.2 Fit indices

Table A2 Fit indexes for full models with predictors, BONDS and MoBA.

BONDS						
		Df	Chi sq	RMSEA	CFI	TLI
Language /communication	6 months[a]	63	91.51***	.02	.92	.89
	12 months[b]	69	130.02***	.03	.90	.87
	24 months	69	212.09***	.05	.93	.91
	36 months	69	161.45***	.04	.89	.86
	1st grade	623	2261.19***	.06	.94	.93
	2nd grade	623	1434.49***	.04	.97	.96
Overall achievement	1st grade	791	1647.49***	.03	.97	.96
	2nd grade	821	1668.87***	.04	.97	.97
MoBa						
		Df	Chi sq	RMSEA	CFI	TLI
Language /communication	6 months[a]	53	364.32***	.01	.92	.89
	18 months	24	265. 20***	.01	.99	.98
	36 months	69	317.09***	.01	.99	.99
	5 years	37	818.97***	.02	.96	.95
	8years	215	14128.03***	.04	.95	.94

Note: ****p*<.001 ** p < .01

[a] Values corresponding to the model with missing value estimation for all predictors; without missing value estimation indexes are as follows:
Chi sq (63)= 89.13, p = < .05¸CFI = .92, TLI = .90 , RMSEA = .02

[b]Values corresponding to the model with missing value estimation for all predictors; without missing value estimation indexes are as follows:
Chi sq (69)= 131.16, p = < .001¸CFI = .90, TLI = .87 , RMSEA = .03

Table A3 – Predictors of communication problems/poor language development from 6 months to 2nd grade									
	6 months	12 months	24 months	36 months	48 months	1st grade		2nd grade	
N=	1071	1077	1042	1032	897	840		860	
						LA	LB	LA	LB
Child gender (boy)	-.04(.10)	.28(.08)***	.48(.06)***	.37(.07)***	-.03(.07)	.44(.08)***	.35(.07)***	.36(.08)***	.35(.07)***
Exact age at testing	-	-.49(.07)***	-.24(.05)**	-.17(.06)**	-.14(.06)*	-.50(.15)***	-.52(.14)***	-.52(.17)***	-.53(.15)***
Parental education									
< 12 year[a]	-.46(.27)$^{+}$	-.73(.21)***	.07(.19)	.16(.22)	.32(.20)	.55(.22)**	.59(.21)**	.41(.24)$^{+}$	.38(.22)**
12 years[a]	-.30(.11)**	-.29(.09)***	.10(.08)	-.22(.08)**	.31(.07)***	.11(.10)	.05(.09)	.21(.10)*	.22(.09)*
Economic hardship[b]	-.40 (.15)**	-.27(.12)*	.08(.10)	.09(.11)	.05(.10)	.29(.13)*	.42(.11)***	.39(.13)**	.35(.12)**
Non-West immigrant[c]	-.22 (.22)	.12(.16)	.27(.14)$^{+}$	.66(.15)***	.38(.14)**	.38(.18)*	.26(.17)	.28(.20)	.21(.17)
Western immigrant	.11(.20)	-.07(.15)	.29(.13)*	.37(.10)**	.19(.13)	-.05(.17)	.02(.15)	.13(.19)	-.06(.16)

BONDS; Models using dummy codes for highest parental education <12 (not completed highschool), 12 yrs (completed highschool) and 12+ (reference category; education beyond highschool)

[a] compared to 15.5 years of education or more

[b] retrospective measure administered at 12 months asking about economic hardship in the last 6 months

[c] compared to Norwegians and West immigrants (Europe and Americas)

$^{+}$ p>.1 *p< .05 **p < .01 ***p<.001

Table A4 – BONDS; Predictors of communication problems / poor language development from 6 months to 2nd grade NB not including Economic hardship due to suppressor effects on education									
	6 months	12 months	24 months	36 months	48 months	1st grade		2nd grade	
N=	1071	1077	1042	1032	897	840		860	
						LA	LB	LA	LB
Child gender (boy)	-.06(.10)	.27(.08)***	.48(.06)***	.37(.07)***	-.03(.07)	.44(.08)***	.35(.07)***	.36(.08)***	.35(.07)***
Exact age at testing	-	-.49(.07)***	-.23(.05)**	-.15(.06)**	-.14(.06)*	-.50(.15)***	-.52(.14)***	-.52(.17)***	-.53(.15)***
Parental education									
< 12 year[a]	-.61(.26)*	-.77(.21)***	.12(.18)	.29(.21)	.32(.20)	.55(.22)**	.59(.21)**	.41(.24)$^{+}$	.38(.22)**
12 years[a]	-.31(.11)**	-.33(.09)***	.11(.07)	.22(.08)**	.31(.07)***	.11(.10)	.05(.09)	.21(.10)*	.22(.09)*

Non-West immigrant[c]	-.17 (.21)	.11(.16)	.34(.16)*	.62(.14)***	.38(.14)**	.38(.18)*	.26(.17)	.28(.20)	.21(.17)
Western immigrant	.15(.20)	-.08(.15)	.30(.13)*	.38(.14)**	.19(.13)	-.05(.17)	.02(.15)	.13(.19)	-.06(.16)

Table A5 – BONDS: Predictors of overall achievement 1st and 2nd grade		
	1st grade	2nd grade
Child gender (boy)	-.469(.07)**	-.204(.04)**
Exact age at testing	.599(.15)**	.180(.04)**
Maternal education < 12 year[a] 12 years[a]	 -.131(.03)** -.015(.03)	 -.123(.04)** -.081(.04)*
Economic hardship[b]	-.124(.04)**	-.136(.04)**
West immigrant status	-.101(.03)**	-.061(.04)

Table A6 – BONDS: Fit indexes for full models with predictors						
		Df	Chi sq	RMSEA	CFI	TLI
Language /communication	6 months[a]	68	93.79***	.03	.92	.90
	12 months[b]	74	141.15***	.03	.89	.86
	24 months	74	220.87***	.05	.93	.91
	36 months	74	168.59***	.04	.89	.86
	1st grade	648	2256.60***	.05	.94	.93
	2nd grade	648	1453.23***	.04	.97	.97
Overall achievement	1st grade	900	2650.39***	.05	.94	.93
	2nd grade	821	1668.87***	.04	.97	.97

Note: ****p*<.001 ** p < .01

[a] Values corresponding to the model with missing value estimation for all predictors; without missing value estimation indexes are as follows:
Chi sq (63)= 89.13, p = < .05¸CFI = .92, TLI = .90 , RMSEA = .02

[b]Values corresponding to the model with missing value estimation for all predictors; without missing value estimation indexes are as follows:
Chi sq (69)= 131.16, p = < .001¸CFI = .90, TLI = .87 , RMSEA = .03

Table A7– BONDS: Fit indexes for full models with predictors wo/econ hardship						
		Df	Chi sq	RMSEA	CFI	TLI
Language /communication	6 months[a]	63	94.75***	.03	.91	.88
	12 months[b]	69	133.78***	.03	.89	.87
	24 months	69	220.87***	.04	.94	.92
	36 months	74	167.81***	.04	.89	.86
	1st grade	648	2256.60***	.05	.94	.93
	2nd grade	648	1453.23***	.04	.97	.97
Overall achievement	1st grade	900	2650.39***	.05	.94	.93
	2nd grade	821	1668.87***	.04	.97	.97

5 United Kingdom

5.1 Logistic regression models for weighting

Table A1.1 Logit models predicting child participation at sweeps 3-6 conditional on 2.

	P(3|2)	P(4|2)	P(5|2)	P(6|2)
Education – low	0.000	0.000	0.000	0.000
medium	0.300***	0.227***	0.215***	0.242***
high	0.326***	0.355***	0.404***	0.418***
Income quintile (UK) 1	0.000	0.000	0.000	0.000
Income quintile (UK) 2	0.184*	0.115	0.114	0.199**
Income quintile (UK) 3	0.308**	0.277***	0.241**	0.253***
Income quintile (UK) 4	0.390***	0.266**	0.288***	0.329***
Income quintile (UK) 5	0.472***	0.375***	0.354***	0.384***
Ethnicity – White	0.000	0.000	0.000	0.000
Mixed	-0.430**	-0.285*	-0.160	-0.101
Indian	-0.343	-0.016	-0.151	0.132
Pakistani and Bangladeshi	-0.260	0.131	0.478**	0.720***
Black or Black British	-0.648***	-0.326*	-0.410***	-0.166
Other Ethnic group (inc Chinese,Other)	-0.284	-0.053	-0.167	0.235
No migration background	0.000	0.000	0.000	0.000
migration background	-0.036	-0.124	-0.201**	-0.094
Language at home - English only	0.000	0.000	0.000	0.000
English and other language(s)	-0.011	-0.119	-0.123	-0.150
other language(s) only	0.053	0.028	0.126	0.102
Religion – Christian	0.000	0.000	0.000	0.000
Muslim	-0.059	-0.243	-0.119	-0.104
Other	-0.083	-0.369*	0.209	0.009
None	-0.018	-0.105*	-0.117**	-0.045
1 kid in HH	0.000	0.000	0.000	0.000
2 kids in HH	0.530***	0.232***	0.216***	0.233***
3 or more kids in HH	0.791***	0.316***	0.365***	0.301***
Two bio parents	0.000	0.000	0.000	0.000
Single mum/dad	0.219**	0.026	0.054	0.040
Other	0.729***	0.081	-0.050	0.019
Mother's age at birth of CM	0.015**	0.017***	0.012**	0.014***
Male	0.000	0.000	0.000	0.000
Female	-0.059	0.050	0.061	0.074*
Age (days)	-0.003***	-0.003***	-0.002***	-0.002***
Bracken: School Readiness Composite	0.009**	0.012***	0.009***	0.010***
BAS Naming Vocabulary - Ability score 2	0.004	0.000	0.003	0.002
England - Advantaged	0.000	0.000	0.000	0.000
England - Disadvantaged	-0.186*	-0.144*	0.016	-0.033
England - Ethnic	-0.109	-0.083	0.005	0.032
Wales - Advantaged	-0.201	-0.061	0.052	0.105
Wales - Disadvantaged	-0.189	-0.069	-0.118	-0.053
Scotland - Advantaged	-0.232	-0.283**	-0.292***	-0.245**
Scotland - Disadvantaged	-0.384***	-0.335***	-0.425***	-0.507***
Northern Ireland - Advantaged	-0.021	-0.232	-0.262*	-0.137
Northern Ireland - Disadvantaged	-0.100	-0.087	0.063	-0.115
Constant	3.617***	3.535***	2.486***	2.190***
Observations	15653	15653	15653	15653

Notes: Outcome P(x|y) := Probability of participation at sweep x conditional on participation at sweep y. M=5 imputation datasets. Significance: * p < 0.05, ** p < 0.01, *** p < 0.001.

Table A1.2 Logit models predicting child participation at sweeps 4-6 conditional on 3.

	P(4|3)	P(5|3)	P(6|3)
Education – low	0.000	0.000	0.000
medium	0.169**	0.201***	0.204***
high	0.294***	0.381***	0.393***
Income quintile (UK) 1	0.000	0.000	0.000
Income quintile (UK) 2	0.046	0.119	0.229***
Income quintile (UK) 3	0.165	0.204*	0.222**
Income quintile (UK) 4	0.216*	0.309***	0.376***
Income quintile (UK) 5	0.395***	0.383***	0.414***
Ethnicity – White	0.000	0.000	0.000
Mixed	-0.334*	-0.169	-0.047
Indian	0.030	-0.349	0.109
Pakistani and Bangladeshi	0.209	0.486**	0.834***
Black or Black British	-0.167	-0.320*	-0.106
Other Ethnic group (inc Chinese,Other)	-0.133	-0.342	0.199
No migration background	0.000	0.000	0.000
migration background	-0.123	-0.243**	-0.102
Not participated in Sweep 2	-0.909***	-0.887***	-0.816***
Language at home - English only	0.000	0.000	0.000
English and other language(s)	-0.131	-0.019	-0.105
other language(s) only	0.050	0.168	0.129
Religion – Christian	0.000	0.000	0.000
Muslim	-0.212	-0.051	-0.013
Other	-0.105	0.613**	0.296
None	-0.118*	-0.123*	-0.057
1 kid in HH	0.000	0.000	0.000
2 kids in HH	0.137	0.101	0.117*
3 or more kids in HH	0.078	0.173*	0.108
Two bio parents	0.000	0.000	0.000
Single mum/dad	-0.079	-0.011	-0.044
Other	-0.118	-0.246**	-0.079
Mother's age at birth of CM	0.023***	0.019***	0.021***
Male	0.000	0.000	0.000
Female	0.091	0.137**	0.119**
Age (days)	-0.000	-0.001***	-0.001***
Pattern Construction ability score	0.006***	0.005***	0.004***
Picture Similarities ability score	0.003	0.003	0.003
Naming Vocabulary ability score	0.000	0.003	0.005***
England - Advantaged	0.000	0.000	0.000
England - Disadvantaged	-0.180*	-0.017	-0.049
England - Ethnic	-0.309**	-0.136	-0.113
Wales - Advantaged	-0.205	-0.108	-0.011
Wales - Disadvantaged	-0.009	-0.093	0.021
Scotland - Advantaged	-0.301**	-0.248*	-0.188*
Scotland - Disadvantaged	-0.294**	-0.414***	-0.474***
Northern Ireland - Advantaged	-0.335*	-0.345**	-0.182
Northern Ireland - Disadvantaged	-0.227*	-0.068	-0.205*
Constant	1.258*	1.928***	1.025*
Observations	15367	15367	15367

Notes: Outcome P(x|y) := Probability of participation at sweep x conditional on participation at sweep y. M=5 imputation datasets. Significance: * p < 0.05, ** p < 0.01, *** p < 0.001.

Table A1.3 Logit models predicting child participation at sweeps 5-6 conditional on 4.

		P(5|4)	P(6|4)
Education – low		0.000	0.000
	medium	0.219**	0.209***
	high	0.470***	0.433***
Income quintile (UK) 1		0.000	0.000
	Income quintile (UK) 2	0.097	0.126
	Income quintile (UK) 3	0.248*	0.144
	Income quintile (UK) 4	0.368***	0.290**
	Income quintile (UK) 5	0.279*	0.242*
Ethnicity – White		0.000	0.000
	Mixed	-0.059	-0.037
	Indian	-0.272	0.219
	Pakistani and Bangladeshi	0.355	0.698***
	Black or Black British	-0.517***	-0.267*
	Other Ethnic group (inc Chinese,Other)	-0.416	0.084
No migration background		0.000	0.000
	migration background	-0.212*	-0.074
Not participated in Sweep 2		-0.888***	-0.779***
	Language at home - English only	0.000	0.000
	English and other language(s)	-0.001	-0.050
	other language(s) only	0.311	0.134
Religion – Christian		0.000	0.000
	Muslim	0.021	0.094
	Other	0.711**	0.272
	None	-0.156**	-0.035
1 kid in HH		0.000	0.000
	2 kids in HH	0.121	0.156*
	3 or more kids in HH	0.201*	0.106
Two bio parents		0.000	0.000
	Single mum/dad	-0.047	-0.057
	Other	-0.195	-0.066
Mother's age at birth of CM		0.022***	0.026***
Male		0.000	0.000
	Female	0.168**	0.152***
Age (Months)		-0.059***	-0.045***
Word Reading Ability Score		0.002	0.002
Pattern Construction Ability Scores		0.006***	0.005**
Maths 7 raw score scaled		0.018**	0.018***
England - Advantaged		0.000	0.000
	England - Disadvantaged	0.083	-0.024
	England - Ethnic	-0.119	-0.072
	Wales - Advantaged	-0.021	0.062
	Wales - Disadvantaged	-0.143	-0.066
	Scotland - Advantaged	-0.132	-0.116
	Scotland - Disadvantaged	-0.402***	-0.496***
	Northern Ireland - Advantaged	-0.292	-0.105
	Northern Ireland - Disadvantaged	0.003	-0.172
Constant		4.926***	3.045***
Observations		13957	13957

Notes: Outcome P(x|y) := Probability of participation at sweep x conditional on participation at sweep y. M=5 imputation datasets. Significance: * p < 0.05, ** p < 0.01, *** p < 0.001.

Table A1.4 Logit model predicting child participation at sweeps 6 conditional on 5.

	P(6|5)
Education – low	0.000
medium	0.256***
high	0.428***
Income quintile (UK) 1	0.000
Income quintile (UK) 2	0.254**
Income quintile (UK) 3	0.243**
Income quintile (UK) 4	0.387***
Income quintile (UK) 5	0.391***
Ethnicity – White	0.000
Mixed	-0.013
Indian	0.335
Pakistani and Bangladeshi	0.704**
Black or Black British	-0.033
Other Ethnic group (inc Chinese,Other)	0.614*
No migration background	0.000
migration background	0.112
Not participated in Sweep 2	-0.628***
Language at home - English only	0.000
English and other language(s)	-0.162
other language(s) only	0.144
Religion – Christian	0.000
Muslim	-0.011
Other	0.015
None	-0.017
1 kid in HH	0.000
2 kids in HH	0.163*
3 or more kids in HH	0.051
Two bio parents	0.000
Single mum/dad	-0.141*
Other	-0.020
Mother's age at birth of CM	0.024***
Male	0.000
Female	0.118*
Age (months)	-0.037***
Verbal Sims ability score	0.006***
SWM Total errors 4 to 8 boxes	-0.005***
England - Advantaged	0.000
England - Disadvantaged	-0.083
England - Ethnic	-0.157
Wales - Advantaged	0.026
Wales - Disadvantaged	-0.043
Scotland - Advantaged	0.003
Scotland - Disadvantaged	-0.411***
Northern Ireland - Advantaged	-0.092
Northern Ireland - Disadvantaged	-0.227*
Constant	4.883***
Observations	13393

Notes: Outcome P(x|y) := Probability of participation at sweep x conditional on participation at sweep y. M=5 imputation datasets. Significance: * p < 0.05, ** p < 0.01, *** p < 0.001.

5.2 Estimates for Figure 1

Table A2.1 Gaps by gender (composite index).

	Age 3	Age 5	Age 7	Age 11	Age 14
Female	0.230***	0.144***	0.0860**	-0.00268	0.0260
	(0.0257)	(0.0267)	(0.0279)	(0.0233)	(0.0290)
Constant	-0.114***	-0.0712**	-0.0425	0.00133	-0.0128
	(0.0261)	(0.0259)	(0.0264)	(0.0247)	(0.0236)
R-sqr	0.013	0.005	0.002	0.000	0.000

Notes: Standard errors in parentheses. Weighted data, M=5 imputation datasets. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A2.2 Gaps by parental education (composite index).

	Age 3	Age 5	Age 7	Age 11	Age 14
medium	0.290***	0.279***	0.325***	0.284***	0.236***
	(0.0296)	(0.0293)	(0.0298)	(0.0289)	(0.0258)
high	0.649***	0.568***	0.719***	0.668***	0.694***
	(0.0364)	(0.0319)	(0.0323)	(0.0301)	(0.0339)
Constant	-0.223***	-0.202***	-0.248***	-0.226***	-0.220***
	(0.0247)	(0.0257)	(0.0243)	(0.0241)	(0.0173)
R-sqr	0.069	0.054	0.085	0.073	0.077

Notes: Medium and high versus low. Standard errors in parentheses. Weighted data, M=5 imputation datasets. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A2.3 Gaps by poverty status (composite index).

	Age 3	Age 5	Age 7	Age 11	Age 14
No poverty	0.874***	0.646***	0.629***	0.572***	0.442***
	(0.0455)	(0.0416)	(0.0417)	(0.0389)	(0.0329)
Constant	-0.720***	-0.532***	-0.519***	-0.472***	-0.364***
	(0.0459)	(0.0434)	(0.0409)	(0.0404)	(0.0282)
R-sqr	0.111	0.060	0.057	0.047	0.028

Notes: No poverty versus poverty (=below 60% median). Standard errors in parentheses. Weighted data, M=5 imputation datasets. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A2.4 Gaps by income quintiles (composite index).

	Age 3	Age 5	Age 7	Age 11	Age 14
Q 3/5	0.851***	0.645***	0.645***	0.586***	0.439***
	(0.0407)	(0.0395)	(0.0350)	(0.0340)	(0.0292)

Constant	-0.617***	-0.467***	-0.467***	-0.425***	-0.318***
	(0.0397)	(0.0389)	(0.0331)	(0.0337)	(0.0231)
R-sqr	0.145	0.083	0.083	0.069	0.039

Notes: HH income, quintiles. Upper three quintiles (3-5) versus lower two quintiles (1-2). Standard errors in parentheses. Weighted data, M=5 imputation datasets. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A2.5 Gaps by migration background (composite index).

	Age 3	Age 5	Age 7	Age 11	Age 14
Native parents	0.636***	0.411***	0.0914	0.0501	-0.0110
	(0.0684)	(0.0586)	(0.0583)	(0.0580)	(0.0419)
Constant	-0.542***	-0.350***	-0.0779	-0.0427	0.00940
	(0.0728)	(0.0612)	(0.0614)	(0.0597)	(0.0458)
R-sqr	0.051	0.021	0.001	0.000	0.000

Notes: Native parents versus at least one parent being an immigrant. Standard errors in parentheses. Weighted data, M=5 imputation datasets. * p < 0.05, ** p < 0.01, *** p < 0.001

Table A2.6 Gaps by language at home (composite index).

	Age 3	Age 5	Age 7	Age 11	Age 14
only English	1.000***	0.689***	0.240***	0.205**	0.169***
	(0.0713)	(0.0635)	(0.0636)	(0.0714)	(0.0436)
Constant	-0.898***	-0.618***	-0.215***	-0.184*	-0.152***
	(0.0707)	(0.0630)	(0.0645)	(0.0724)	(0.0408)
R-sqr	0.092	0.044	0.005	0.004	0.003

Notes: Only English spoken at home versus partly or no English. Standard errors in parentheses. Weighted data, M=5 imputation datasets. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A2.7 Gaps by ethnicity (composite index).

	Age 3	Age 5	Age 7	Age 11	Age 14
White	0.846***	0.563***	0.260***	0.203**	0.142***
	(0.0713)	(0.0655)	(0.0601)	(0.0643)	(0.0394)
Constant	-0.731***	-0.487***	-0.225***	-0.176**	-0.123**
	(0.0697)	(0.0641)	(0.0590)	(0.0632)	(0.0371)
R-sqr	0.084	0.037	0.008	0.005	0.002

Notes: White (majority) versus another ethnicity (minority). Standard errors in parentheses. Weighted data, M=5 imputation datasets. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5.3 SES-achievement gaps adjusted for migration background

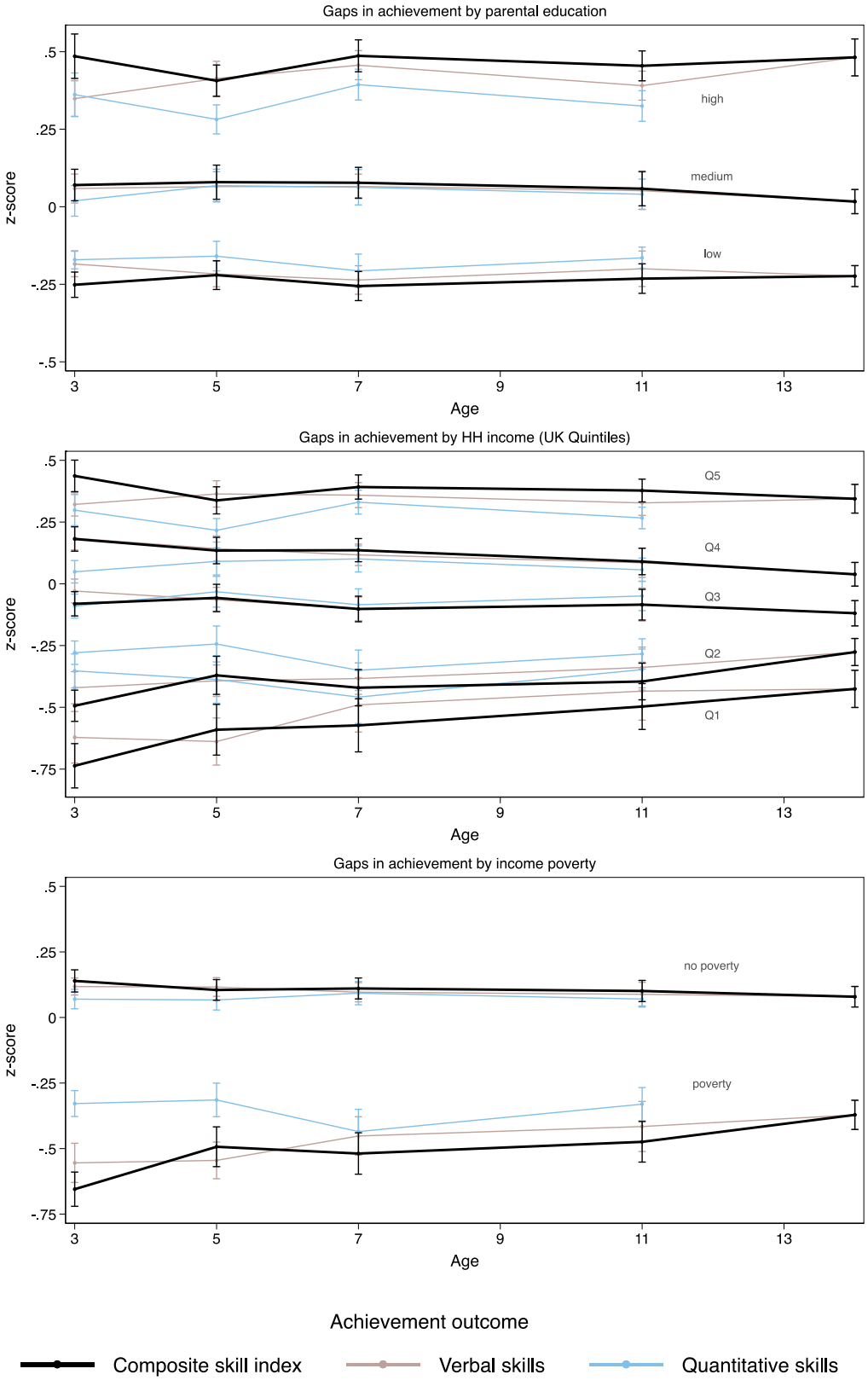


Figure A3.1 Evolution of SES-achievement gaps (net of migration background).

5.4 Estimations for Figure 4

Table A4.1 Achievement by migration background (composite index, z-score).

	Age 3	Age 5	Age 7	Age 11	Age 14
Native parent(s)	0.094	0.061	0.014	0.007	-0.002
	[0.054,0.135]	[0.020,0.102]	[-0.026,0.053]	[-0.036,0.050]	[-0.036,0.033]
1 Immigrant parent	-0.383	-0.269	-0.054	-0.004	0.046
	[-0.520,-0.245]	[-0.394,-0.144]	[-0.180,0.072]	[-0.109,0.101]	[-0.052,0.144]
2 Immigrant parents	-0.987	-0.577	-0.145	-0.150	-0.093
	[-1.168,-0.806]	[-0.733,-0.422]	[-0.305,0.016]	[-0.346,0.045]	[-0.211,0.025]
Observations	9509	9509	9509	9509	9509

95% confidence intervals in brackets. Weighted data, M=5 imputation datasets.

Table A4.2 Achievement by migration background (verbal skills, z-score).

	Age 3	Age 5	Age 7	Age 11	Age 14
Native parent(s)	0.116	0.104	-0.021	0.001	-0.002
	[0.084,0.148]	[0.069,0.139]	[-0.058,0.015]	[-0.046,0.047]	[-0.036,0.033]
1 Immigrant parent	-0.465	-0.442	0.113	0.036	0.046
	[-0.598,-0.332]	[-0.586,-0.299]	[0.013,0.213]	[-0.088,0.160]	[-0.052,0.144]
2 Immigrant parents	-1.227	-1.031	0.149	-0.114	-0.093
	[-1.414,-1.040]	[-1.201,-0.860]	[0.000,0.297]	[-0.347,0.119]	[-0.211,0.025]
Observations	9509	9509	9509	9509	9509

95% confidence intervals in brackets. Weighted data, M=5 imputation datasets.

Table A4.3 Achievement by migration background (quantitative skills, z-score).

	Age 3	Age 5	Age 7	Age 11
Native parent(s)	0.010	0.027	0.026	0.011
	[-0.025,0.045]	[-0.012,0.065]	[-0.018,0.070]	[-0.021,0.044]
1 Immigrant parent	-0.024	-0.126	-0.118	-0.043
	[-0.112,0.064]	[-0.220,-0.031]	[-0.247,0.011]	[-0.122,0.037]
2 Immigrant parents	-0.151	-0.233	-0.244	-0.123
	[-0.274,-0.028]	[-0.358,-0.108]	[-0.391,-0.097]	[-0.256,0.010]
Observations	9509	9509	9509	9509

95% confidence intervals in brackets. Weighted data, M=5 imputation datasets.

5.5 Estimations for Figure 5

Table A5.1 Achievement by migration background and ethnicity (composite index, z-score).

	Age 3	Age 5	Age 7	Age 11	Age 14
Native/Non-white	-0.231	-0.118	-0.100	-0.031	-0.079
	[-0.378,-0.084]	[-0.274,0.038]	[-0.223,0.023]	[-0.172,0.110]	[-0.185,0.027]
Native/White	0.112	0.071	0.020	0.010	0.003
	[0.071,0.153]	[0.029,0.112]	[-0.021,0.061]	[-0.035,0.054]	[-0.033,0.038]
1-IP/Non-white	-0.906	-0.658	-0.334	-0.253	-0.147
	[-1.055,-0.757]	[-0.806,-0.510]	[-0.487,-0.181]	[-0.390,-0.117]	[-0.246,-0.047]
1-IP/White	0.218	0.178	0.268	0.282	0.268
	[0.103,0.333]	[0.062,0.294]	[0.137,0.399]	[0.169,0.396]	[0.123,0.413]
2-IP/Non-white	-1.076	-0.669	-0.197	-0.229	-0.138
	[-1.252,-0.901]	[-0.821,-0.517]	[-0.369,-0.025]	[-0.442,-0.016]	[-0.259,-0.018]
2-IP/White	-0.416	0.009	0.191	0.349	0.195
	[-0.812,-0.021]	[-0.263,0.281]	[-0.053,0.434]	[0.051,0.647]	[-0.222,0.611]
Observations	9509	9509	9509	9509	9509

95% confidence intervals in brackets. Weighted data, M=5 imputation datasets.

Table A5.2 Achievement by migration background and ethnicity (verbal skills, z-score).

	Age 3	Age 5	Age 7	Age 11	Age 14
Native/Non-white	-0.278	-0.267	-0.010	0.062	-0.079
	[-0.406,-0.149]	[-0.421,-0.114]	[-0.135,0.116]	[-0.083,0.207]	[-0.185,0.027]
Native/White	0.137	0.124	-0.022	-0.003	0.003
	[0.105,0.169]	[0.089,0.159]	[-0.059,0.015]	[-0.050,0.044]	[-0.033,0.038]
1-IP/Non-white	-0.994	-0.952	0.013	-0.156	-0.147
	[-1.157,-0.831]	[-1.117,-0.788]	[-0.112,0.137]	[-0.345,0.033]	[-0.246,-0.047]
1-IP/White	0.143	0.143	0.227	0.257	0.268
	[0.043,0.242]	[0.037,0.248]	[0.090,0.364]	[0.153,0.361]	[0.123,0.413]
2-IP/Non-white	-1.338	-1.100	0.149	-0.178	-0.138
	[-1.515,-1.161]	[-1.280,-0.920]	[-0.018,0.316]	[-0.438,0.083]	[-0.259,-0.018]
2-IP/White	-0.520	-0.592	0.148	0.292	0.195
	[-0.890,-0.150]	[-0.908,-0.275]	[-0.111,0.407]	[0.057,0.527]	[-0.222,0.611]
Observations	9509	9509	9509	9509	9509

95% confidence intervals in brackets. Weighted data, M=5 imputation datasets.

Table A5.3 Achievement by Achievement by migration background and ethnicity (quantitative skills, z-score).

	Age 3	Age 5	Age 7	Age 11
Native/Non-white	0.026	-0.081	-0.025	-0.111
	[-0.121,0.174]	[-0.209,0.047]	[-0.159,0.110]	[-0.244,0.022]
Native/White	0.009	0.033	0.029	0.018
	[-0.025,0.044]	[-0.007,0.072]	[-0.016,0.074]	[-0.017,0.052]
1-IP/Non-white	-0.245	-0.352	-0.401	-0.243
	[-0.332,-0.159]	[-0.477,-0.227]	[-0.561,-0.241]	[-0.343,-0.143]
1-IP/White	0.230	0.134	0.207	0.187
	[0.110,0.350]	[0.021,0.248]	[0.078,0.336]	[0.078,0.296]
2-IP/Non-white	-0.121	-0.318	-0.322	-0.183
	[-0.267,0.025]	[-0.446,-0.190]	[-0.472,-0.173]	[-0.324,-0.042]
2-IP/White	-0.340	0.309	0.255	0.258
	[-0.586,-0.094]	[0.098,0.521]	[0.008,0.503]	[-0.049,0.565]
Observations	9509	9509	9509	9509

95% confidence intervals in brackets. Weighted data, M=5 imputation datasets.

5.6 Estimates for Figures 8 and 9 (parental education)

5.6.1 Composite index

Table A6.1 Age 7: Total and direct effects of parental education (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Low (vs. high)	-0.719***	-0.230***	-0.463***	-0.095**
	(0.032)	(0.030)	(0.031)	(0.032)
Medium (vs. high)	-0.394***	-0.145***	-0.279***	-0.075*
	(0.033)	(0.027)	(0.030)	(0.029)
Comp. index Age 5		0.861***		0.955***
		(0.025)		(0.028)
Constant	0.471***	0.156***	-0.055	0.022
	(0.028)	(0.024)	(0.088)	(0.083)
Observations	9509	9509	9509	9509

Notes: Outcome: Composite index. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A6.2 Age 11: Total and direct effects of parental education (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Low (vs. high)	-0.668***	-0.300***	-0.415***	-0.151***
	(0.030)	(0.028)	(0.032)	(0.032)
Medium (vs. high)	-0.385***	-0.197***	-0.256***	-0.110***
	(0.032)	(0.028)	(0.030)	(0.030)
Comp. index Age 5		0.649***		0.685***
		(0.026)		(0.030)
Constant	0.442***	0.205***	-0.006	0.049
	(0.025)	(0.024)	(0.079)	(0.074)
Observations	9509	9509	9509	9509

Notes: Outcome: Composite index. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A6.3 Age 14: Total and direct effects of parental education (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Low (vs. high)	-0.694***	-0.396***	-0.510***	-0.290***
	(0.034)	(0.031)	(0.032)	(0.034)
Medium (vs. high)	-0.458***	-0.306***	-0.359***	-0.237***
	(0.034)	(0.030)	(0.031)	(0.031)
Comp. index Age 5		0.525***		0.571***
		(0.027)		(0.034)
Constant	0.474***	0.282***	0.127	0.173*
	(0.031)	(0.026)	(0.074)	(0.082)
Observations	9509	9509	9509	9509

Notes: Outcome: Composite index. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.6.2 Verbal skills

Table A6.4 Age 7: Total and direct effects of parental education (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Low (vs. high)	-0.698***	-0.431***	-0.431***	-0.183***
	(0.031)	(0.035)	(0.029)	(0.035)
Medium (vs. high)	-0.394***	-0.251***	-0.277***	-0.113***
	(0.028)	(0.029)	(0.025)	(0.029)
Verbal skills Age 5		0.498***		0.753***
		(0.030)		(0.032)
Constant	0.460***	0.286***	-0.044	-0.113
	(0.025)	(0.029)	(0.085)	(0.086)
Observations	9509	9509	9509	9509

Notes: Outcome: Verbal skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A6.5 Age 11: Total and direct effects of parental education (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Low (vs. high)	-0.579***	-0.309***	-0.347***	-0.115***
	(0.029)	(0.030)	(0.031)	(0.033)
Medium (vs. high)	-0.332***	-0.187***	-0.213***	-0.076*
	(0.030)	(0.028)	(0.030)	(0.030)
Verbal skills Age 5		0.505***		0.624***
		(0.030)		(0.037)
Constant	0.383***	0.207***	-0.001	-0.049
	(0.025)	(0.029)	(0.095)	(0.096)
Observations	9509	9509	9509	9509

Notes: Outcome: Verbal skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A6.6 Age 14: Total and direct effects of parental education (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Low (vs. high)	-0.694***	-0.470***	-0.510***	-0.322***
	(0.034)	(0.031)	(0.032)	(0.034)
Medium (vs. high)	-0.458***	-0.338***	-0.359***	-0.247***
	(0.034)	(0.029)	(0.031)	(0.031)
Verbal skills Age 5		0.417***		0.506***

		(0.025)		(0.033)
Constant	0.474***	0.328***	0.127	0.088
	(0.031)	(0.027)	(0.074)	(0.076)
Observations	9509	9509	9509	9509

Notes: Outcome: Verbal skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.6.3 Quantitative skills

Table A6.7 Age 7: Total and direct effects of parental education (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Low (vs. high)	-0.569***	-0.043	-0.365***	0.010
	(0.033)	(0.048)	(0.031)	(0.049)
Medium (vs. high)	-0.310***	-0.062	-0.213***	-0.020
	(0.034)	(0.041)	(0.031)	(0.043)
Quant. skills Age 5		1.278***		1.290***
		(0.081)		(0.096)
Constant	0.372***	0.038	0.036	0.184
	(0.027)	(0.034)	(0.085)	(0.103)
Observations	9509	9509	9509	9509

Notes: Outcome: Quantitative skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A6.8 Age 11: Total and direct effects of parental education (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Low (vs. high)	-0.473***	-0.148***	-0.307***	-0.084*
	(0.030)	(0.038)	(0.033)	(0.039)
Medium (vs. high)	-0.273***	-0.120***	-0.190***	-0.075*
	(0.033)	(0.034)	(0.033)	(0.035)
Quant. skills Age 5		0.789***		0.766***
		(0.069)		(0.084)
Constant	0.313***	0.106***	-0.009	0.078
	(0.026)	(0.029)	(0.077)	(0.080)
Observations	9509	9509	9509	9509

Notes: Outcome: Quantitative skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.7 Divergent trajectory models for parental education

Table A7.1 Divergent trajectory models (Composite index).

	Age 7	Age 11	Age 14
Low (vs. high)	-0.233***	-0.303***	-0.344***
	(0.033)	(0.033)	(0.035)
Medium (vs. high)	-0.151***	-0.201***	-0.240***
	(0.032)	(0.033)	(0.034)
Skill Age 5	0.840***	0.634***	0.699***
	(0.039)	(0.047)	(0.051)
Low x skill Age 5	0.046	0.030	-0.230***
	(0.052)	(0.058)	(0.053)
Medium x skill Age 5	-0.014	-0.004	-0.209***
	(0.055)	(0.066)	(0.060)
Constant	0.163***	0.210***	0.218***
	(0.029)	(0.030)	(0.030)
Observations	9509	9509	9509

Notes: Standard errors in parentheses. Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Weighted data, M=5 imputation datasets. Significance: * p < 0.05, ** p < 0.01, *** p < 0.001.

Table A7.2 Divergent trajectory models (Verbal skills).

	Age 7	Age 11	Age 14
Low (vs. high)	-0.462***	-0.330***	-0.440***
	(0.036)	(0.035)	(0.032)
Medium (vs. high)	-0.295***	-0.216***	-0.299***
	(0.032)	(0.035)	(0.030)
Skill Age 5	0.362***	0.414***	0.521***
	(0.037)	(0.050)	(0.040)
Low x skill Age 5	0.224***	0.147*	-0.135**
	(0.053)	(0.059)	(0.044)
Medium x skill Age 5	0.077	0.057	-0.139**
	(0.062)	(0.071)	(0.052)
Constant	0.333***	0.238***	0.292***
	(0.030)	(0.034)	(0.027)
Observations	9509	9509	9509

Notes: Standard errors in parentheses. Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Weighted data, M=5 imputation datasets. Significance: * p < 0.05, ** p < 0.01, *** p < 0.001.

Table A7.2 Divergent trajectory models (Quantitative skills).

	Age 7	Age 11
Low (vs. high)	-0.082	-0.164***
	(0.052)	(0.041)
Medium (vs. high)	-0.108*	-0.130**
	(0.052)	(0.043)
Skill Age 5	1.104***	0.759***
	(0.102)	(0.097)
Low x skill Age 5	0.217	-0.027
	(0.169)	(0.143)
Medium x skill Age 5	0.188	0.056
	(0.183)	(0.168)
Constant	0.083*	0.114**
	(0.042)	(0.037)
Observations	9509	9509

Notes: Standard errors in parentheses. Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.8 Estimates for Figures 11 and 12 (HH income)

5.8.1 Composite index

Table A8.1 Age 7: Total and direct effects of HH income class (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Q 1 (vs. Q 5)	-0.963***	-0.128*	-0.597***	-0.071
	(0.058)	(0.059)	(0.068)	(0.064)
Q 2 (vs. Q 5)	-0.810***	-0.175***	-0.503***	-0.122**
	(0.042)	(0.034)	(0.045)	(0.038)
Q 3 (vs. Q 5)	-0.493***	-0.153***	-0.271***	-0.091**
	(0.032)	(0.030)	(0.031)	(0.032)
Q 4 (vs. Q 5)	-0.256***	-0.091***	-0.120***	-0.042
	(0.031)	(0.024)	(0.029)	(0.026)
Comp. index Age 5		0.860***		0.955***
		(0.026)		(0.028)
Constant	0.391***	0.095***	0.542***	0.093
	(0.025)	(0.020)	(0.071)	(0.057)
Observations	9509	9509	9509	9509

Notes: Income class: UK quintiles of HH income (reference upper quintile 5). Outcome: Composite index. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A8.2 Age 11: Total and direct effects of HH income class (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Q 1 (vs. Q 5)	-0.870***	-0.266***	-0.527***	-0.149*
	(0.052)	(0.050)	(0.058)	(0.059)
Q 2 (vs. Q 5)	-0.771***	-0.312***	-0.474***	-0.200***
	(0.041)	(0.040)	(0.045)	(0.046)
Q 3 (vs. Q 5)	-0.463***	-0.217***	-0.251***	-0.123***
	(0.037)	(0.031)	(0.037)	(0.035)
Q 4 (vs. Q 5)	-0.289***	-0.170***	-0.160***	-0.104***
	(0.030)	(0.027)	(0.030)	(0.028)
Comp. index Age 5		0.622***		0.685***
		(0.027)		(0.030)
Constant	0.377***	0.163***	0.520***	0.198**
	(0.024)	(0.023)	(0.069)	(0.064)
Observations	9509	9509	9509	9509

Notes: Income class: UK quintiles of HH income (reference upper quintile 5). Outcome: Composite index. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A8.3 Age 14: Total and direct effects of HH income class (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Q 1 (vs. Q 5)	-0.761***	-0.236***	-0.347***	-0.032
	(0.050)	(0.054)	(0.053)	(0.060)
Q 2 (vs. Q 5)	-0.616***	-0.217***	-0.259***	-0.031
	(0.037)	(0.040)	(0.041)	(0.045)
Q 3 (vs. Q 5)	-0.465***	-0.251***	-0.195***	-0.088*
	(0.038)	(0.035)	(0.035)	(0.037)
Q 4 (vs. Q 5)	-0.309***	-0.206***	-0.143***	-0.096**
	(0.035)	(0.032)	(0.032)	(0.034)
Comp. index Age 5		0.541***		0.571***
		(0.032)		(0.034)
Constant	0.344***	0.157***	0.474***	0.206**
	(0.030)	(0.025)	(0.066)	(0.062)
Observations	9509	9509	9509	9509

Notes: Income class: UK quintiles of HH income (reference upper quintile 5). Outcome: Composite index. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.8.2 Verbal skills

Table A8.4 Age 7: Total and direct effects of HH income class (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Q 1 (vs. Q 5)	-0.818***	-0.296***	-0.512***	-0.201**
	(0.061)	(0.064)	(0.067)	(0.066)
Q 2 (vs. Q 5)	-0.720***	-0.328***	-0.444***	-0.216***
	(0.037)	(0.040)	(0.042)	(0.042)
Q 3 (vs. Q 5)	-0.460***	-0.253***	-0.234***	-0.124***
	(0.035)	(0.036)	(0.033)	(0.034)
Q 4 (vs. Q 5)	-0.251***	-0.155***	-0.104***	-0.056*
	(0.033)	(0.030)	(0.031)	(0.025)
Verbal skills Age 5		0.481***		0.753***
		(0.031)		(0.032)
Constant	0.354***	0.172***	0.468***	0.087
	(0.027)	(0.029)	(0.066)	(0.067)
Observations	9509	9509	9509	9509

Notes: Income class: UK quintiles of HH income (reference upper quintile 5). Outcome: Verbal skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A8.5 Age 11: Total and direct effects of HH income class (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Q 1 (vs. Q 5)	-0.754***	-0.224**	-0.452***	-0.125
	(0.065)	(0.068)	(0.063)	(0.072)
Q 2 (vs. Q 5)	-0.662***	-0.264***	-0.390***	-0.152**
	(0.045)	(0.046)	(0.045)	(0.046)
Q 3 (vs. Q 5)	-0.413***	-0.203***	-0.228***	-0.106**
	(0.038)	(0.035)	(0.039)	(0.037)
Q 4 (vs. Q 5)	-0.245***	-0.148***	-0.133***	-0.080**
	(0.031)	(0.030)	(0.031)	(0.030)
Verbal skills Age 5		0.489***		0.624***
		(0.033)		(0.037)
Constant	0.327***	0.143***	0.452***	0.076
	(0.026)	(0.031)	(0.071)	(0.072)
Observations	9509	9509	9509	9509

Notes: Income class: UK quintiles of HH income (reference upper quintile 5). Outcome: Verbal skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A8.6 Age 14: Total and direct effects of HH income class (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Q 1 (vs. Q 5)	-0.761***	-0.308***	-0.347***	-0.080
	(0.050)	(0.052)	(0.053)	(0.057)
Q 2 (vs. Q 5)	-0.616***	-0.275***	-0.259***	-0.066
	(0.037)	(0.037)	(0.041)	(0.041)
Q 3 (vs. Q 5)	-0.465***	-0.285***	-0.195***	-0.096**
	(0.038)	(0.034)	(0.035)	(0.035)
Q 4 (vs. Q 5)	-0.309***	-0.226***	-0.143***	-0.100**
	(0.035)	(0.031)	(0.032)	(0.031)
Verbal skills Age 5		0.418***		0.506***
		(0.029)		(0.033)
Constant	0.344***	0.186***	0.474***	0.168**
	(0.030)	(0.025)	(0.066)	(0.062)
Observations	9509	9509	9509	9509

Notes: Income class: UK quintiles of HH income (reference upper quintile 5). Outcome: Verbal skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.8.3 Quantitative skills

Table A8.7 Age 7: Total and direct effects of HH income class (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Q 1 (vs. Q 5)	-0.801***	-0.021	-0.489***	-0.052
	(0.058)	(0.083)	(0.063)	(0.080)
Q 2 (vs. Q 5)	-0.688***	-0.096	-0.429***	-0.105
	(0.046)	(0.064)	(0.045)	(0.062)
Q 3 (vs. Q 5)	-0.415***	-0.102*	-0.244***	-0.112*
	(0.033)	(0.048)	(0.035)	(0.049)
Q 4 (vs. Q 5)	-0.226***	-0.073*	-0.125***	-0.070
	(0.031)	(0.036)	(0.029)	(0.037)
Quant. skills Age 5		1.262***		1.290***
		(0.087)		(0.096)
Constant	0.332***	0.056	0.526***	0.236**
	(0.024)	(0.033)	(0.071)	(0.082)
Observations	9509	9509	9509	9509

Notes: Income class: UK quintiles of HH income (reference upper quintile 5). Outcome: Quantitative skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A8.8 Age 11: Total and direct effects of HH income class (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Q 1 (vs. Q 5)	-0.615***	-0.136	-0.377***	-0.117
	(0.049)	(0.073)	(0.059)	(0.068)
Q 2 (vs. Q 5)	-0.551***	-0.187***	-0.356***	-0.164**
	(0.038)	(0.054)	(0.047)	(0.056)
Q 3 (vs. Q 5)	-0.315***	-0.123**	-0.168***	-0.089*
	(0.037)	(0.041)	(0.040)	(0.041)
Q 4 (vs. Q 5)	-0.209***	-0.115***	-0.119***	-0.087*
	(0.030)	(0.034)	(0.032)	(0.035)
Quant. skills Age 5		0.775***		0.766***
		(0.076)		(0.084)
Constant	0.267***	0.098**	0.368***	0.195**
	(0.022)	(0.031)	(0.068)	(0.072)
Observations	9509	9509	9509	9509

Notes: Income class: UK quintiles of HH income (reference upper quintile 5). Outcome: Quantitative skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.9 Divergent trajectory models for HH income

Table A9.1 Divergent trajectory models (Composite index).

	Age 7	Age 11	Age 14
Q 1/2 (vs. Q 4/5)	-0.142***	-0.237***	-0.170***
	(0.032)	(0.033)	(0.039)
Q 3 (vs. Q 4/5)	-0.094**	-0.130***	-0.108**
	(0.029)	(0.031)	(0.033)
Skill Age 5	0.931***	0.661***	0.748***
	(0.036)	(0.038)	(0.050)
Q 1/2 x skill Age 5	-0.155**	-0.090	-0.399***
	(0.054)	(0.063)	(0.051)
Q 3 x skill Age 5	-0.044	0.020	-0.210**
	(0.075)	(0.079)	(0.072)
Constant	0.037	0.079***	0.014
	(0.020)	(0.024)	(0.022)
Observations	9509	9509	9509

Notes: Income quintiles (UK): Q 1/2 = first and second income quintiles (low income), Q 3 = middle quintile, Q 4/5 = fourth and fifth quintiles (high income). Standard errors in parentheses. Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Weighted data, M=5 imputation datasets. Significance: * p < 0.05, ** p < 0.01, *** p < 0.001.

Table A9.2 Divergent trajectory models (Verbal skills).

	Age 7	Age 11	Age 14
Q 1/2 (vs. Q 4/5)	-0.267***	-0.206***	-0.222***
	(0.040)	(0.043)	(0.037)
Q 3 (vs. Q 4/5)	-0.158***	-0.132***	-0.131***
	(0.034)	(0.034)	(0.032)
Skill Age 5	0.576***	0.495***	0.605***
	(0.037)	(0.039)	(0.044)
Q 1/2 x skill Age 5	-0.180**	-0.045	-0.356***
	(0.060)	(0.062)	(0.051)
Q 3 x skill Age 5	-0.089	0.074	-0.159*
	(0.075)	(0.083)	(0.071)
Constant	0.078**	0.077*	0.034
	(0.025)	(0.030)	(0.021)
Observations	9509	9509	9509

Notes: Income quintiles (UK): Q 1/2 = first and second income quintiles (low income), Q 3 = middle quintile, Q 4/5 = fourth and fifth quintiles (high income). Standard errors in parentheses. Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Weighted data, M=5 imputation datasets. Significance: * p < 0.05, ** p < 0.01, *** p < 0.001.

Table A9.3 Divergent trajectory models (Quantitative skills).

	Age 7	Age 11
Q 1/2 (vs. Q 4/5)	-0.033	-0.195***
	(0.071)	(0.058)
Q 3 (vs. Q 4/5)	-0.075	-0.059
	(0.045)	(0.039)
Skill Age 5	1.219***	0.806***
	(0.084)	(0.089)
Q 1/2 x skill Age 5	0.092	-0.298
	(0.218)	(0.184)
Q 3 x skill Age 5	0.130	0.259
	(0.250)	(0.215)
Constant	0.032	0.042
	(0.030)	(0.026)
Observations	9509	9509

Notes: Income quintiles (UK): Q 1/2 = first and second income quintiles (low income), Q 3 = middle quintile, Q 4/5 = fourth and fifth quintiles (high income). Standard errors in parentheses. Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Weighted data, M=5 imputation datasets. Significance: * p < 0.05, ** p < 0.01, *** p < 0.001.

5.10 Estimates for Figures 14 and 15 (migration background)

5.10.1 Composite index

Table A10.1 Age 7: Total and direct effects of migration background (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
1 IP (vs. none)	-0.068	0.249***	0.023	0.075
	(0.061)	(0.041)	(0.053)	(0.044)
2 IPs (vs. none)	-0.158*	0.453***	0.063	0.131
	(0.080)	(0.054)	(0.076)	(0.070)
Comp. index Age 5		0.958***		0.955***
		(0.023)		(0.028)
Constant	0.014	-0.045**	-0.055	0.022
	(0.020)	(0.015)	(0.088)	(0.083)
Observations	9509	9509	9509	9509

Notes: 1 IP = one immigrant parent, 2 IP = two immigrant parents, none = no immigrant parent. Outcome: Composite index. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A10.2 Age 11: Total and direct effects of migration background (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
1 IP (vs. none)	-0.012	0.234***	0.055	0.093*
	(0.052)	(0.034)	(0.048)	(0.038)
2 IPs (vs. none)	-0.158	0.317***	0.037	0.086
	(0.098)	(0.072)	(0.076)	(0.077)
Comp. index Age 5		0.745***		0.685***
		(0.024)		(0.030)
Constant	0.007	-0.038	-0.006	0.049
	(0.022)	(0.020)	(0.079)	(0.074)
Observations	9509	9509	9509	9509

Notes: 1 IP = one immigrant parent, 2 IP = two immigrant parents, none = no immigrant parent. Outcome: Composite index. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A10.3 Age 14: Total and direct effects of migration background (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
1 IP (vs. none)	0.048	0.260***	0.107	0.138**
	(0.046)	(0.041)	(0.055)	(0.052)
2 IPs (vs. none)	-0.092	0.318***	0.091	0.131
	(0.058)	(0.061)	(0.079)	(0.084)
Comp. index Age 5		0.642***		0.571***
		(0.031)		(0.034)
Constant	-0.002	-0.041**	0.127	0.173*
	(0.017)	(0.015)	(0.074)	(0.082)
Observations	9509	9509	9509	9509

Notes: 1 IP = one immigrant parent, 2 IP = two immigrant parents, none = no immigrant parent. Outcome: Composite index. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.10.2 Verbal skills

Table A10.4 Age 7: Total and direct effects of migration background (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
1 IP (vs. none)	0.134**	0.504***	0.091	0.108*
	(0.048)	(0.041)	(0.049)	(0.046)
2 IPs (vs. none)	0.170*	0.938***	0.182*	0.246**
	(0.076)	(0.070)	(0.071)	(0.081)
Verbal skills Age 5		0.677***		0.753***
		(0.027)		(0.032)
Constant	-0.021	-0.092***	-0.044	-0.113
	(0.019)	(0.018)	(0.085)	(0.086)
Observations	9509	9509	9509	9509

Notes: 1 IP = one immigrant parent, 2 IP = two immigrant parents, none = no immigrant parent. Outcome: verbal skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A10.5 Age 11: Total and direct effects of migration background (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
1 IP (vs. none)	0.036	0.377***	0.071	0.142***
	(0.059)	(0.040)	(0.047)	(0.038)
2 IPs (vs. none)	-0.114	0.594***	0.055	0.206*
	(0.116)	(0.093)	(0.093)	(0.086)
Verbal skills Age 5		0.624***		0.624***
		(0.027)		(0.037)
Constant	0.001	-0.064**	-0.001	-0.049
	(0.024)	(0.023)	(0.095)	(0.096)
Observations	9509	9509	9509	9509

Notes: 1 IP = one immigrant parent, 2 IP = two immigrant parents, none = no immigrant parent. Outcome: verbal skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A10.6 Age 14: Total and direct effects of migration background (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
1 IP (vs. none)	0.048	0.351***	0.107	0.164**
	(0.046)	(0.043)	(0.055)	(0.053)
2 IPs (vs. none)	-0.092	0.537***	0.091	0.214*
	(0.058)	(0.072)	(0.079)	(0.089)
Verbal skills Age 5		0.554***		0.506***
		(0.029)		(0.033)
Constant	-0.002	-0.059***	0.127	0.088
	(0.017)	(0.015)	(0.074)	(0.076)
Observations	9509	9509	9509	9509

Notes: 1 IP = one immigrant parent, 2 IP = two immigrant parents, none = no immigrant parent. Outcome: verbal skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.10.3 Quantitative skills

Table A10.7 Age 7: Total and direct effects of migration background (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
1 IP (vs. none)	-0.144*	0.053	-0.044	-0.031
	(0.062)	(0.057)	(0.053)	(0.060)
2 IPs (vs. none)	-0.270***	0.066	-0.029	-0.012
	(0.073)	(0.070)	(0.081)	(0.084)
Quant. skills Age 5		1.297***		1.290***
		(0.072)		(0.096)
Constant	0.026	-0.008	0.036	0.184
	(0.022)	(0.025)	(0.085)	(0.103)
Observations	9509	9509	9509	9509

Notes: 1 IP = one immigrant parent, 2 IP = two immigrant parents, none = no immigrant parent. Outcome: quantitative skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A10.8 Age 11: Total and direct effects of migration background (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
1 IP (vs. none)	-0.054	0.076	0.016	0.024
	(0.042)	(0.043)	(0.049)	(0.052)
2 IPs (vs. none)	-0.134	0.087	0.004	0.014
	(0.069)	(0.069)	(0.077)	(0.083)
Quant. skills Age 5		0.852***		0.766***
		(0.063)		(0.084)
Constant	0.011	-0.012	-0.009	0.078
	(0.017)	(0.020)	(0.077)	(0.080)
Observations	9509	9509	9509	9509

Notes: 1 IP = one immigrant parent, 2 IP = two immigrant parents, none = no immigrant parent. Outcome: quantitative skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.11 Divergent trajectory models for migration background

Table A11.1 Divergent trajectory models (Composite index).

	Age 7	Age 11	Age 14
1 IP (vs. none)	0.223***	0.214***	0.259***
	(0.037)	(0.034)	(0.045)
2 IPs (vs. none)	0.348***	0.321***	0.295***
	(0.062)	(0.067)	(0.088)
Skill Age 5	1.001***	0.763***	0.646***
	(0.028)	(0.027)	(0.033)
1 IP x skill Age 5	-0.148*	-0.097	-0.008
	(0.064)	(0.059)	(0.062)
2 IPs x skill Age 5	-0.230***	-0.015	-0.044
	(0.069)	(0.105)	(0.103)
Constant	-0.047**	-0.039*	-0.041**
	(0.015)	(0.020)	(0.015)
Observations	9509	9509	9509

Notes: 1 IP = one immigrant parent, 2 IP = two immigrant parents, none = no immigrant parent. Standard errors in parentheses. Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Weighted data, M=5 imputation datasets. Significance: * p < 0.05, ** p < 0.01, *** p < 0.001.

Table A11.2 Divergent trajectory models (verbal skills).

	Age 7	Age 11	Age 14
1 IP (vs. none)	0.421***	0.329***	0.340***
	(0.039)	(0.038)	(0.048)
2 IPs (vs. none)	0.686***	0.502***	0.466***
	(0.085)	(0.085)	(0.112)
Skill Age 5	0.772***	0.667***	0.579***
	(0.033)	(0.031)	(0.037)
1 IP x skill Age 5	-0.303***	-0.161**	-0.054
	(0.056)	(0.055)	(0.058)
2 IPs x skill Age 5	-0.350***	-0.137	-0.096
	(0.068)	(0.111)	(0.096)
Constant	-0.102***	-0.069**	-0.062***
	(0.018)	(0.023)	(0.015)
Observations	9509	9509	9509

Notes: 1 IP = one immigrant parent, 2 IP = two immigrant parents, none = no immigrant parent. Standard errors in parentheses. Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Weighted data, M=5 imputation datasets. Significance: * p < 0.05, ** p < 0.01, *** p < 0.001.

Table A11.3 Divergent trajectory models (quantitative skills).

	Age 7	Age 11
1 IP (vs. none)	0.026	0.050
	(0.054)	(0.040)
2 IPs (vs. none)	0.069	0.063
	(0.120)	(0.077)
Skill Age 5	1.308***	0.884***
	(0.085)	(0.072)
1 IP x skill Age 5	-0.228	-0.247
	(0.160)	(0.131)
2 IPs x skill Age 5	0.000	-0.136
	(0.456)	(0.312)
Constant	-0.009	-0.013
	(0.025)	(0.020)
Observations	9509	9509

Notes: 1 IP = one immigrant parent, 2 IP = two immigrant parents, none = no immigrant parent. Standard errors in parentheses. Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Weighted data, M=5 imputation datasets. Significance: * p < 0.05, ** p < 0.01, *** p < 0.001.

5.12 Estimates for Figures 17 and 18 (ethnicity)

5.12.1 Composite index

Table A12.1 Age 7: Total and direct effects of ethnic minority status (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Mixed	-0.100	0.005	-0.036	-0.045
	(0.088)	(0.062)	(0.079)	(0.064)
Indian	0.031	0.391***	-0.013	0.108
	(0.107)	(0.060)	(0.111)	(0.071)
Pakistani/Bangladeshi	-0.529***	0.508***	-0.209*	0.216**
	(0.071)	(0.063)	(0.083)	(0.077)
Black	-0.308**	0.173	-0.156	0.041
	(0.114)	(0.095)	(0.104)	(0.091)
Other	-0.054	0.439***	0.057	0.168
	(0.121)	(0.093)	(0.085)	(0.092)
Comp. index Age 5		0.984***		0.955***
		(0.024)		(0.028)
Constant	0.035	-0.040**	-0.055	0.022
	(0.022)	(0.015)	(0.088)	(0.083)
Observations	9509	9509	9509	9509

Notes: Contrasts of ethnic minority groups to White ethnic majority. Outcome: Composite index. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A12.2 Age 11: Total and direct effects of ethnic minority status (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Mixed	-0.057	0.024	-0.005	-0.012
	(0.100)	(0.068)	(0.092)	(0.068)
Indian	0.115	0.391***	0.069	0.156
	(0.101)	(0.081)	(0.096)	(0.086)
Pakistani/Bangladeshi	-0.544***	0.250***	-0.255**	0.050
	(0.072)	(0.064)	(0.085)	(0.085)
Black	-0.158*	0.210**	-0.046	0.096
	(0.074)	(0.069)	(0.078)	(0.073)
Other	0.036	0.413**	0.136	0.216
	(0.160)	(0.144)	(0.131)	(0.142)
Comp. index Age 5		0.753***		0.685***
		(0.027)		(0.030)
Constant	0.028	-0.030	-0.006	0.049
	(0.023)	(0.020)	(0.079)	(0.074)
Observations	9509	9509	9509	9509

Notes: Contrasts of ethnic minority groups to White ethnic majority. Outcome: Composite index. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A12.3 Age 14: Total and direct effects of ethnic minority status (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Mixed	0.035	0.105	0.054	0.049
	(0.080)	(0.076)	(0.072)	(0.072)
Indian	-0.113	0.127	-0.156	-0.083
	(0.100)	(0.082)	(0.104)	(0.101)
Pakistani/Bangladeshi	-0.332***	0.359***	-0.080	0.174*
	(0.048)	(0.058)	(0.074)	(0.084)
Black	-0.137	0.183*	-0.086	0.032
	(0.070)	(0.077)	(0.078)	(0.080)
Other	-0.003	0.326**	0.056	0.122
	(0.125)	(0.108)	(0.120)	(0.119)
Comp. index Age 5		0.655***		0.571***
		(0.032)		(0.034)
Constant	0.019	-0.031	0.127	0.173*
	(0.020)	(0.016)	(0.074)	(0.082)
Observations	9509	9509	9509	9509

Notes: Contrasts of ethnic minority groups to White ethnic majority. Outcome: Composite index. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.12.2 Verbal skills

Table A12.4 Age 7: Total and direct effects of ethnic minority status (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Mixed	0.057	0.195*	0.097	-0.022
	(0.089)	(0.077)	(0.082)	(0.071)
Indian	0.341***	0.783***	0.221*	0.082
	(0.096)	(0.074)	(0.092)	(0.082)
Pakistani/Bangladeshi	-0.086	1.015***	0.142	0.241**
	(0.066)	(0.075)	(0.078)	(0.082)
Black	0.059	0.670***	0.158	0.169
	(0.087)	(0.085)	(0.081)	(0.087)
Other	0.022	0.845***	0.027	0.416***
	(0.162)	(0.110)	(0.138)	(0.086)
Verbal skills Age 5		0.733***		0.753***
		(0.029)		(0.032)
Constant	-0.006	-0.095***	-0.044	-0.113
	(0.020)	(0.018)	(0.085)	(0.086)
Observations	9509	9509	9509	9509

Notes: Contrasts of ethnic minority groups to White ethnic majority. Outcome: verbal skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A12.5 Age 11: Total and direct effects of ethnic minority status (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Mixed	0.068	0.190*	0.113	0.125
	(0.102)	(0.080)	(0.093)	(0.078)
Indian	0.200	0.589***	0.144	0.223*
	(0.128)	(0.116)	(0.122)	(0.113)
Pakistani/Bangladeshi	-0.523***	0.444***	-0.294**	0.078
	(0.108)	(0.095)	(0.103)	(0.102)
Black	0.119	0.656***	0.212**	0.480***
	(0.081)	(0.078)	(0.079)	(0.074)
Other	-0.058	0.666***	0.009	0.306
	(0.173)	(0.157)	(0.154)	(0.158)
Verbal skills Age 5		0.644***		0.624***
		(0.031)		(0.037)
Constant	0.014	-0.063**	-0.001	-0.049
	(0.024)	(0.023)	(0.095)	(0.096)
Observations	9509	9509	9509	9509

Notes: Contrasts of ethnic minority groups to White ethnic majority. Outcome: verbal skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A12.6 Age 14: Total and direct effects of ethnic minority status (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Mixed	0.035	0.144	0.054	0.064
	(0.080)	(0.074)	(0.072)	(0.071)
Indian	-0.113	0.234**	-0.156	-0.091
	(0.100)	(0.082)	(0.104)	(0.098)
Pakistani/Bangladeshi	-0.332***	0.533***	-0.080	0.222**
	(0.048)	(0.064)	(0.074)	(0.080)
Black	-0.137	0.342***	-0.086	0.133
	(0.070)	(0.071)	(0.078)	(0.073)
Other	-0.003	0.644***	0.056	0.297*
	(0.125)	(0.126)	(0.120)	(0.125)
Verbal skills Age 5		0.576***		0.506***
		(0.031)		(0.033)
Constant	0.019	-0.050**	0.127	0.088
	(0.020)	(0.016)	(0.074)	(0.076)
Observations	9509	9509	9509	9509

Notes: Contrasts of ethnic minority groups to White ethnic majority. Outcome: verbal skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.12.3 Quantitative skills

Table A12.7 Age 7: Total and direct effects of ethnic minority status (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Mixed	-0.083	0.090	-0.019	0.069
	(0.087)	(0.102)	(0.084)	(0.105)
Indian	-0.027	0.177	-0.028	0.063
	(0.104)	(0.104)	(0.115)	(0.116)
Pakistani/Bangladeshi	-0.650***	0.028	-0.358***	-0.080
	(0.071)	(0.086)	(0.091)	(0.099)
Black	-0.265*	0.158	-0.111	0.107
	(0.103)	(0.139)	(0.097)	(0.130)
Other	-0.137	-0.039	-0.001	-0.132
	(0.110)	(0.111)	(0.098)	(0.135)
Quant. skills Age 5		1.298***		1.290***
		(0.075)		(0.096)
Constant	0.041	-0.011	0.036	0.184
	(0.024)	(0.026)	(0.085)	(0.103)
Observations	9509	9509	9509	9509

Notes: Contrasts of ethnic minority groups to White ethnic majority. Outcome: quantitative skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A12.8 Age 11: Total and direct effects of ethnic minority status (overall/net).

	Overall		Net of covariates	
	Total	Direct (IV)	Total	Direct (IV)
Mixed	-0.158	-0.044	-0.122	-0.070
	(0.092)	(0.084)	(0.089)	(0.082)
Indian	-0.020	0.114	-0.036	0.018
	(0.093)	(0.080)	(0.093)	(0.087)
Pakistani/Bangladeshi	-0.333***	0.113	-0.107	0.058
	(0.050)	(0.065)	(0.085)	(0.076)
Black	-0.368***	-0.090	-0.284**	-0.155
	(0.067)	(0.109)	(0.086)	(0.112)
Other	0.114	0.179	0.206	0.127
	(0.125)	(0.135)	(0.123)	(0.128)
Quant. skills Age 5		0.855***		0.766***
		(0.065)		(0.084)
Constant	0.029	-0.005	-0.009	0.078
	(0.017)	(0.020)	(0.077)	(0.080)
Observations	9509	9509	9509	9509

Notes: Contrasts of ethnic minority groups to White ethnic majority. Outcome: quantitative skills. Standard errors in parentheses. IV = Instrumental variable estimation (Age 5 skill score instrumented by Age 3 score). Net of covariates: Same set of covariates as in Table 6-8 in the report. Weighted data, M=5 imputation datasets. Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

6 Italy

6.1 Data Figure 1

Math

pareduc*wave Least Squares Means					
pareduc	**wave**	**Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
1 Low	5	-0.194	0.002	-80.6	<.0001
1 Low	8	-0.280	0.002	-115.3	<.0001
1 Low	10	-0.250	0.003	-76.8	<.0001
2 Medium	5	0.103	0.002	46.3	<.0001
2 Medium	8	0.098	0.002	43.6	<.0001
2 Medium	10	0.069	0.002	29.0	<.0001
3 High	5	0.299	0.003	85.8	<.0001
3 High	8	0.429	0.003	122.7	<.0001
3 High	10	0.297	0.003	95.1	<.0001

Literacy

pareduc*wave Least Squares Means					
pareduc	wave	Estimate	Standard Error	t Value	Pr > |t|
1 Low	5	-0.233	0.002	-100.3	<.0001
1 Low	8	-0.309	0.002	-128.9	<.0001
1 Low	10	-0.274	0.003	-84.3	<.0001
2 Medium	5	0.115	0.002	53.2	<.0001
2 Medium	8	0.106	0.002	47.7	<.0001
2 Medium	10	0.074	0.002	30.9	<.0001
3 High	5	0.340	0.003	100.1	<.0001
3 High	8	0.472	0.003	136.6	<.0001
3 High	10	0.317	0.003	101.9	<.0001

6.2 Data Figure 2

Math

Grade/ wave	Pareduc A	Pareduc B	Difference A-B	St. err	t Value
5	1 Low	2 Medium	-0.30	0.003	-90.7
	2 Medium	3 High	-0.20	0.004	-47.4
	1 Low	3 High	-0.49	0.004	-116.3
8	1 Low	2 Medium	-0.38	0.003	-114.2

	2 Medium	3 High	-0.33	0.004	-79.7
	1 Low	3 High	-0.71	0.004	-166.2
10	1 Low	2 Medium	-0.32	0.004	-79.0
	2 Medium	3 High	-0.23	0.004	-57.7
	1 Low	3 High	-0.54	0.005	-120.9

Literacy

Grade/ wave	Pareduc A	Pareduc B	Difference A-B	St. err	t Value
5	1 Low	2 Medium	-0.35	0.003	-109.7
	2 Medium	3 High	-0.23	0.004	-55.8
	1 Low	3 High	-0.57	0.004	-139.2
8	1 Low	2 Medium	-0.41	0.003	-126.9
	2 Medium	3 High	-0.37	0.004	-89.3
	1 Low	3 High	-0.78	0.004	-185.3
10	1 Low	2 Medium	-0.35	0.004	-86.3
	2 Medium	3 High	-0.24	0.004	-62.0
	1 Low	3 High	-0.59	0.005	-131.2

6.3 Data Figure 3

Math

Migr*wave Least Squares Means					
Migr	**wave**	**Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Migrants	5	-0.304	0.005	-64.5	<.0001
Migrants	8	-0.298	0.004	-68.0	<.0001
Migrants	10	-0.201	0.005	-39.7	<.0001
Native	5	0.040	0.001	27.1	<.0001
Native	8	0.035	0.001	23.9	<.0001
Native	10	0.037	0.002	21.5	<.0001

Literacy

Migr*wave Least Squares Means					
Migr	**wave**	**Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Migrants	5	-0.407	0.005	-88.7	<.0001
Migrants	8	-0.440	0.004	-101.1	<.0001
Migrants	10	-0.333	0.005	-65.3	<.0001
Native	5	0.042	0.001	29.1	<.0001
Native	8	0.051	0.001	35.5	<.0001
Native	10	0.048	0.002	27.8	<.0001

6.4 Data Figure 4

Math: migrants-natives gap in each grade, net of age

	Grade/ wave	Migrant A	Migrant B	Difference A-B	Standard Error	t Value
Z-math	5	Migrants	Native	-0.34	0.005	-69.6
	8	Migrants	Native	-0.33	0.005	-71.9
	10	Migrants	Native	-0.24	0.005	-44.4

Literacy: migrants-natives gap in each grade, net of age

	Grade/ wave	Migr A	Migr B	Difference A-B	Standard Error	t Value
Z-literacy	5	Migrants	Native	-0.45	0.005	-93.2
	8	Migrants	Native	-0.49	0.005	-106.8
	10	Migrants	Native	-0.38	0.005	-70.6

Math and Literacy: Migrants-natives gaps net of parental education and age

	Grade	Migr A	Migr B	Difference A-B	Standard Error	t Value
Z-math	5	Migrants	Native	-0.33	0.005	-68.1
	8	Migrants	Native	-0.32	0.005	-70.5
	10	Migrants	Native	-0.19	0.005	-36.7
Z-literacy	5	Migrants	Native	-0.43	0.005	-91.7
	8	Migrants	Native	-0.48	0.004	-106.7
	10	Migrants	Native	-0.33	0.005	-62.3

6.5 Data Figure 5

Math

MigrBackground*wave Least Squares Means					
MigrBackground	wave	Estimate	Standard Error	t Value	Pr > |t|
I generation	5	-0.313	0.007	-46.7	<.0001
I generation	8	-0.375	0.006	-61.7	<.0001
I generation	10	-0.234	0.007	-31.9	<.0001
II generation	5	-0.298	0.007	-45.2	<.0001
II generation	8	-0.217	0.006	-34.5	<.0001
II generation	10	-0.174	0.007	-25.1	<.0001
Native	5	0.040	0.001	27.2	<.0001

Native	8	0.035	0.001	24.1	<.0001
Native	10	0.037	0.002	21.6	<.0001

Literacy

MigrBackground*wave Least Squares Means					
MigrBackground	wave	Estimate	Standard Error	t Value	Pr > |t|
I generation	5	-0.450	0.007	-69.3	<.0001
I generation	8	-0.570	0.006	-94.5	<.0001
I generation	10	-0.406	0.007	-54.9	<.0001
II generation	5	-0.369	0.006	-57.3	<.0001
II generation	8	-0.304	0.006	-48.6	<.0001
II generation	10	-0.272	0.007	-39.0	<.0001
Native	5	0.043	0.001	29.3	<.0001
Native	8	0.051	0.001	35.8	<.0001
Native	10	0.048	0.002	28.1	<.0001

6.6 Data Figure 6

Math

MigrBackground*wave Least Squares Means					
MigrBackground	**wave**	**Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
I generation	5	-0.283	0.007	-43.1	<.0001
I generation	8	-0.315	0.006	-52.8	<.0001
I generation	10	-0.272	0.007	-37.7	<.0001
II generation	5	-0.262	0.006	-40.4	<.0001
II generation	8	-0.159	0.006	-25.8	<.0001
II generation	10	-0.206	0.007	-30.3	<.0001
Native	5	0.060	0.002	37.1	<.0001
Native	8	0.081	0.001	54.3	<.0001
Native	10	-0.042	0.002	-21.6	<.0001

Literacy

MigrBackground*wave Least Squares Means					
MigrBackground	**wave**	**Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
I generation	5	-0.41	0.01	-65.1	<.0001
I generation	8	-0.50	0.01	-85.6	<.0001
I generation	10	-0.45	0.01	-62.3	<.0001
II generation	5	-0.33	0.01	-52.0	<.0001
II generation	8	-0.24	0.01	-39.4	<.0001
II generation	10	-0.31	0.01	-45.7	<.0001

Native	5	0.06	0.00	41.6	<.0001
Native	8	0.10	0.00	69.8	<.0001
Native	10	-0.05	0.00	-23.0	<.0001

6.7 Data Figure 7

Math: Migrants and natives LS-means of achievement: Pareduc=Low

Migr	wave	Estimate	Std Error	t Value	Pr > |t|
Migrants	5	-0.44	0.01	-55.7	<.0001
Migrants	8	-0.49	0.01	-64.9	<.0001
Migrants	10	-0.33	0.01	-33.9	<.0001
Native	5	-0.18	0.00	-72.3	<.0001
Native	8	-0.27	0.00	-105.8	<.0001
Native	10	-0.26	0.00	-74.4	<.0001

Math: Migrants and natives LS-means of achievement: Pareduc=High

Migr	wave	Estimate	Standard Error	t Value	Pr > |t|
Migrants	5	-0.06	0.01	-4.3	<.0001
Migrants	8	0.02	0.01	1.4	0.1707
Migrants	10	-0.03	0.01	-2.8	0.006
Native	5	0.34	0.00	94.2	<.0001
Native	8	0.48	0.00	131.6	<.0001
Native	10	0.35	0.00	105.2	<.0001

Literacy: Migrants and natives LS-means of achievement: Pareduc=Low

Migr	wave	Estimate	Standard Error	t Value	Pr > |t|
Migrants	5	-0.57	0.01	-74.7	<.0001
Migrants	8	-0.67	0.01	-91.5	<.0001
Migrants	10	-0.50	0.01	-50.9	<.0001
Native	5	-0.21	0.00	-88.0	<.0001
Native	8	-0.28	0.00	-112.2	<.0001
Native	10	-0.26	0.00	-76.7	<.0001

Literacy: Migrants and natives LS-means of achievement: Pareduc = High

Migr	wave	Estimate	Standard Error	t Value	Pr > |t|
Migrants	5	-0.11	0.01	-8.5	<.0001
Migrants	8	-0.06	0.01	-4.4	<.0001
Migrants	10	-0.13	0.01	-11.2	<.0001
Native	5	0.39	0.00	111.3	<.0001
Native	8	0.54	0.00	149.2	<.0001
Native	10	0.38	0.00	116.6	<.0001

6.8 Data Figure 8

Math: Migrants and natives Male, LS-means of achievement (net of parent educ and age)

Migr	wave	Estimate	Standard Error	t Value	Pr > |t|
Migrants	5	-0.22	0.01	-33.1	<.0001
Migrants	8	-0.15	0.01	-23.5	<.0001
Migrants	10	-0.13	0.01	-18.9	<.0001
Native	5	0.10	0.00	44.3	<.0001
Native	8	0.14	0.00	65.8	<.0001
Native	10	0.06	0.00	23.3	<.0001

Math: Migrants and natives Female, LS-means of achievement (net of par educ and age)

Migr	wave	Estimate	Standard Error	t Value	Pr > |t|
Migrants	5	-0.32	0.01	-49.5	<.0001
Migrants	8	-0.33	0.01	-54.3	<.0001
Migrants	10	-0.34	0.01	-48.6	<.0001
Native	5	0.01	0.00	6.5	<.0001
Native	8	0.02	0.00	9.5	<.0001
Native	10	-0.16	0.00	-56.3	<.0001

Literacy: Migrants and natives Male, LS-means of achievement (net of par educ and age)

Migr	wave	Estimate	Standard Error	t Value	Pr > |t|
Migrants	5	-0.42	0.01	-66.2	<.0001
Migrants	8	-0.46	0.01	-77.2	<.0001
Migrants	10	-0.50	0.01	-71.0	<.0001
Native	5	0.03	0.00	15.1	<.0001
Native	8	0.00	0.00	1.0	0.3204
Native	10	-0.17	0.00	-64.2	<.0001

Literacy: Migrants and natives Female, LS-means of achievement (net par educ and age)

Migr	wave	Estimate	Standard Error	t Value	Pr > |t|
Migrants	5	-0.32	0.01	-51.1	<.0001
Migrants	8	-0.29	0.01	-49.2	<.0001
Migrants	10	-0.26	0.01	-36.5	<.0001
Native	5	0.10	0.00	44.1	<.0001
Native	8	0.21	0.00	99.4	<.0001
Native	10	0.09	0.00	31.6	<.0001

6.9 Models for time trends in migrant gaps

$Outcome_{ig} = \alpha + Zage_{ig} + wave_{ig} + pareduc_{ig} + Migr_{ig} + Migr_{ig} \times wave_{ig} + \varepsilon_{ig}$

Table A1: Z_Math - Parameter Estimates

Effect	pareduc	Migr	wave	Estimate	Std Error	t Value	Pr > |t|
Intercept				0.3156	0.00232	135.9	<.0001
Pareduc	1 Low			-0.5822	0.0025	-232.7	<.0001
Pareduc	2 Medium			-0.2505	0.00236	-106.11	<.0001
Pareduc	**3 High**			**0**	**.**	**.**	**.**
Migr		Migrants		-0.2144	0.00523	-40.97	<.0001
Migr		**Native**		**0**	**.**	**.**	**.**
Wave			5	0.06858	0.00222	30.86	<.0001
Wave			8	0.07078	0.00221	32.05	<.0001
Wave			**10**	**0**	**.**	**.**	**.**
Migr*Wave		Migrants	5	-0.1092	0.00706	-15.46	<.0001
Migr*Wave		Migrants	8	-0.1038	0.00684	-15.18	<.0001
Migr*Wave		Migrants	10	0	.	.	.
Migr*Wave		Native	5	0	.	.	.
Migr*Wave		Native	8	0	.	.	.
Migr*Wave		Native	10	0	.	.	.
Zage				-0.0852	0.00086	-99.24	<.0001
Sigma				0.9246	0.00112	.	

Sigma = estimated $\sqrt{var(\varepsilon_{ig})}$

Z_Math: Type III Tests of Fixed Effects

Effect	Num DF	F Value	Pr > F
Pareduc	3	20211.8	<.0001
Migr	1	9830.6	<.0001
Wave	2	15.7	<.0001
Migr*wave	2	150.9	<.0001
Zage	1	9848.8	<.0001

Table A2: Z_Literacy - Parameter Estimates

Effect	pareduc	Migr	wave	Estimate	Std Error	t Value	Pr > |t|
Intercept				0.3561	0.00231	154.19	<.0001
Pareduc	1 Low			-0.6473	0.00247	-262.23	<.0001
Pareduc	2 Medium			-0.276	0.00233	-118.34	<.0001

Pareduc	**3 High**			**0**	**.**	**.**	**.**
Migr		Migrants		-0.3535	0.00524	-67.46	<.0001
Migr		**Native**		**0**	**.**	**.**	**.**
Wave			5	0.06881	0.0022	31.31	<.0001
Wave			8	0.08493	0.0022	38.62	<.0001
Wave			**10**	**0**	**.**	**.**	**.**
Migr*Wave		Migrants	5	-0.0726	0.00697	-10.42	<.0001
Migr*Wave		Migrants	8	-0.1211	0.00681	-17.78	<.0001
Migr*Wave		Migrants	10	0	.	.	.
Migr*Wave		Native	5	0	.	.	.
Migr*Wave		Native	8	0	.	.	.
Migr*Wave		Native	10	0	.	.	.
Zage				-0.0942	0.00084	-111.57	<.0001
Sigma				0.9032	0.00109	.	.

Z_Literacy: Type III Tests of Fixed Effects

Effect	Num DF	F Value	Pr > F
Pareduc	3	25781.7	<.0001
Migr	1	21653.1	<.0001
Wave	2	45.82	<.0001
Migr*WAve	2	158.2	<.0001
Zage	1	12447.8	<.0001