

Compensatory advantage and inequality in educational aspirations

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Sziráki konferencia

Intergenerational mobility and socio-economic status

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 - ▶ OECD, 2012: 52% of 25-34 year-olds have the same education level as their parents (OECD, 2015)
 - ▶ Hungary: socio-economic status (SES) explains large part of test scores, secondary school choice, highest education level (Csillag et al., 2015; OECD, 2017)

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Grade retention in Hungary

- ▶ Rare: 2 – 3% in primary school
- ▶ Rules in higher grades:
 - ▶ Absenteeism (> 250 classes) or failed at least 1 subject → grading exam → if fails, retention
 - ▶ Unauthorized absenteeism (> 250 classes) or failed 3 subjects → retention
- ▶ School board decides

▶ Literature on grade retention

Data

Data

- ▶ NABC (Kompetenciamérés) Database
 - ▶ All Hungarian students, 6 – 8 – 10th grade, 2008-2017
 - ▶ Standardized test scores (mathematics and reading comprehension), birth year and month, school type
 - ▶ Student background questionnaire: grades, parental education, household characteristics, educational aspirations (80% completion rate)
- ▶ I use first 6th, 8th, and 10th grade observations for estimations

Definition of main variables

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 - ▶ Low: neither parent has a high school diploma
 - ▶ Medium: at least one parent has a high school diploma
 - ▶ High: at least one parent has a tertiary degree
 2. Continuous: convert parental education levels to years of schooling, use highest among parents ▶ Conversion

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- ▶ **Educational aspirations**
 1. Categorical
 - ▶ At most vocational
 - ▶ Secondary or post-secondary non-tertiary
 - ▶ Tertiary
 2. Continuous: same conversion as for SES

Descriptive statistics

Educational aspirations and retention by SES

Aspirations in 6th grade	Parental education		
	Low SES	Medium SES	High SES
At most vocational	28.72	6.20	2.11
High school diploma or post-secondary non-tertiary	47.34	37.61	14.56
College or university	23.95	56.19	83.33

Table: 6th grade aspirations by socio-economic status

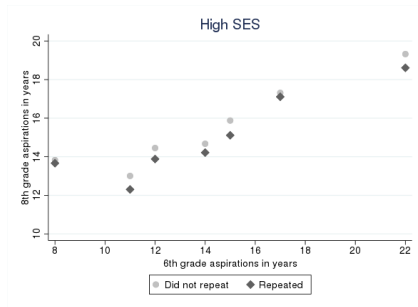
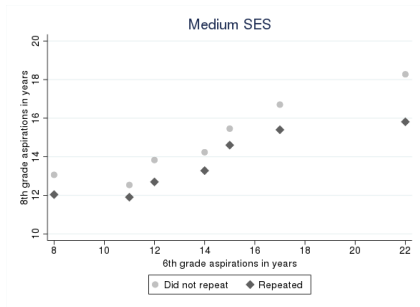
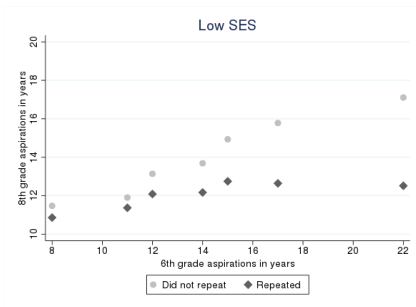
Note: column percentages.

Grade retention in 7th grade	Parental education		
	Low SES	Medium SES	High SES
Did not repeat	97.80	99.31	99.54
Repeated	2.20	0.69	0.46

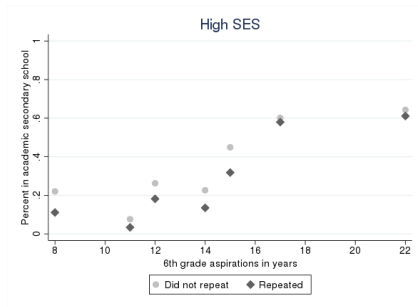
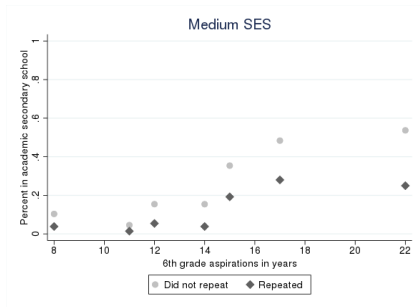
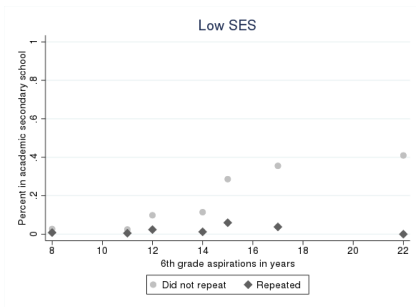
Table: Repeated in 7th grade by socioeconomic status

Note: column percentages.

Aspiration changes by SES and repeating



Percentage in academic secondary school in 10th grade



Empirical analysis

OLS regressions

Outcomes:

- ▶ 8th grade aspirations, Vocational secondary school in 10th grade, Academic secondary school in 10th grade, Missing 10th grade data

$$y_i = \beta_0 + \beta_1 \cdot \text{Repeated}_i + \beta_2 \cdot \text{SES}_i + \beta_3 \cdot \text{Repeated}_i \cdot \text{SES}_i \\ + \beta_4 \cdot \text{Aspirations6}_i + \beta_5 \cdot \text{Repeated}_i \cdot \text{Aspirations6}_i \\ + \beta_6 \cdot \text{SES}_i \cdot \text{Aspirations6}_i + \beta_7 \cdot \text{Repeated}_i \cdot \text{SES}_i \cdot \text{Aspirations6}_i + \gamma \cdot X_i + \epsilon_i$$

- ▶ β_3 shows compensatory advantage
- ▶ β_7 shows compensatory advantage by initial aspirations

Results on 8th grade aspirations

	8th grade educational aspirations in years				
	(1)	(2)	(3)	(4)	(5)
Repeated	-2.710*** (0.042)	-1.949*** (0.055)	-1.000*** (0.047)	-1.452*** (0.059)	-0.449*** (0.055)
Maximum years of education of parents		0.549*** (0.0024)	0.273*** (0.0019)	0.272*** (0.0019)	0.170*** (0.0018)
Repeated × Maximum years of education of parents		-0.0401** (0.020)	0.00480 (0.017)	0.178*** (0.020)	0.169*** (0.019)
6th grade aspirations in years			0.511*** (0.0017)	0.512*** (0.0017)	0.358*** (0.0018)
Repeated × 6th grade aspirations in years				-0.155*** (0.019)	-0.126*** (0.017)
Repeated × Maximum years of education of parents × 6th grade aspirations in years				0.0515*** (0.0056)	0.0369*** (0.0051)
Constant	15.05*** (0.017)	15.08*** (0.0079)	15.06*** (0.0049)	15.06*** (0.0056)	8.372*** (0.042)
Observations	468400	468400	468400	468400	468400
6th grade controls	no	no	no	no	yes

Standard errors are clustered on the class level. Clustered standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: Parental education and 6th grade aspirations demeaned. Mean parental education: 12.5 years, mean aspirations: 15 years.

Results on academic secondary school

	Academic secondary school in 10th grade						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Repeated	-0.240*** (0.0055)	-0.184*** (0.0094)	-0.104*** (0.0081)	-0.160*** (0.0091)	-0.0595*** (0.0084)	-0.0485*** (0.0082)	-0.0468*** (0.0083)
Maximum years of education of parents		0.0611*** (0.00051)	0.0377*** (0.00045)	0.0374*** (0.00044)	0.0245*** (0.00037)	0.0203*** (0.00037)	0.0195*** (0.00037)
Repeated ×		-0.0227*** (0.0034)	-0.0189*** (0.0028)	0.00602** (0.0030)	0.000980 (0.0028)	-0.00314 (0.0028)	-0.00338 (0.0028)
Maximum years of education of parents 6th grade aspirations in years			0.0432*** (0.00031)	0.0433*** (0.00031)	0.0209*** (0.00028)	0.0121*** (0.00028)	0.0116*** (0.00028)
Repeated × 6th grade aspirations in years				-0.0170*** (0.0024)	-0.0123*** (0.0022)	-0.00926*** (0.0022)	-0.00801*** (0.0022)
Repeated × Maximum years of education of parents × 6th grade aspirations in years				0.00849*** (0.00078)	0.00599*** (0.00070)	0.00509*** (0.00071)	0.00500*** (0.00072)
Constant	0.300*** (0.0028)	0.304*** (0.0020)	0.302*** (0.0017)	0.300*** (0.0019)	-0.609*** (0.0090)	-0.814*** (0.0090)	-0.854*** (0.0097)
Observations	468400	468400	468400	468400	468400	468400	468400
6th grade controls	no	no	no	no	yes	yes	yes
8th grade aspirations	no	no	no	no	no	yes	yes
8th grade controls	no	no	no	no	no	no	yes

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Future plans

- ▶ Exact matching on 6th grade characteristics
- ▶ Lower primary grade retention, IV regressions
 - ▶ Month of birth
 - ▶ Illness (using Admin3)

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Grade retention literature

- ▶ Previous results on the effects of grade retention - Mixed, rather negative.
 - ▶ Short-run positive effect on GPA, long run null effect (Schwerdt et al., 2017) or negative effect on high school completion (Jacob and Lefgren, 2004, 2009; Andrew, 2014)
 - ▶ By SES: Negative effect on PISA test scores, but not different by SES or achievement (Diris, 2017)
 - ▶ Expectations: primary grade retention lowers parental expectations on child's highest educational level in grade 2 (Hughes et al., 2013)

▶ Back

Conversion of education categories to years

1. Unfinished primary education: 7 years
2. Primary education: 8 years
3. Vocational and technical secondary education: 11 years
4. High school diploma: 12 years
5. Upper-secondary non-tertiary qualification: 14 years
6. College or BA degree: 15 years
7. University or MA degree: 17 years
8. Doctoral degree: 22 years

▶ Back

Probability of retention by GPA and SES

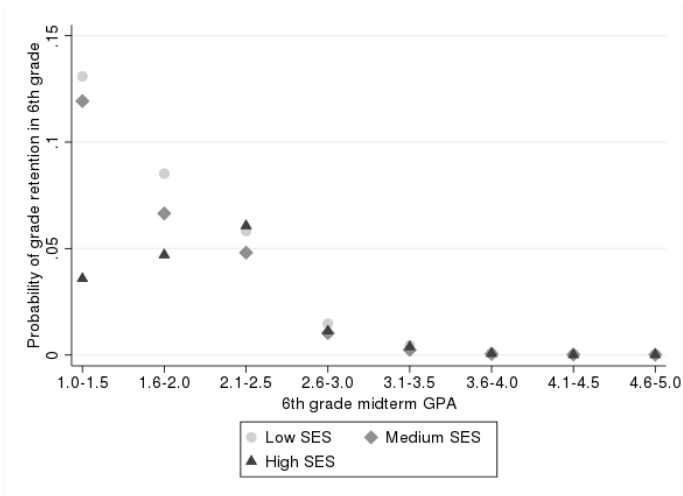


Figure: Probability of retention in 6th grade by 6th grade GPA

Numbers of observations and share of repeaters in cells

6th grade aspirations in 3 categories	Parental education			Total
	Both parents less than secondary	At least one parent secondary	Both parents tertiary	
At most vocational	0.0409 60697	0.0337 13138	0.0269 3861	0.0390 77696
High school diploma or post-secondary non-tertiary	0.0142 101946	0.0089 71165	0.0086 26334	0.0116 199445
College or university	0.0050 50786	0.0021 100459	0.0027 138826	0.0029 290071
Total	0.0196 213429	0.0070 184762	0.0042 169021	0.0109 567212

▶ Back

Retention and dropout before 10th grade

	Not found in the 10th grade database					
	(1)	(2)	(3)	(4)	(5)	(6)
Repeated	0.385*** (0.0075)	0.388*** (0.0087)	0.353*** (0.0087)	0.310*** (0.0085)	0.294*** (0.0085)	0.286*** (0.0083)
Medium SES		-0.117*** (0.0019)	-0.0837*** (0.0016)	-0.0541*** (0.0012)	-0.0466*** (0.0012)	-0.0427*** (0.0012)
High SES		-0.132*** (0.0020)	-0.0883*** (0.0016)	-0.0473*** (0.0012)	-0.0413*** (0.0012)	-0.0357*** (0.0012)
Repeated × Medium SES		-0.0755*** (0.017)	-0.0756*** (0.017)	-0.0851*** (0.017)	-0.0793*** (0.016)	-0.0738*** (0.016)
Repeated × High SES		-0.206*** (0.018)	-0.193*** (0.018)	-0.198*** (0.017)	-0.182*** (0.017)	-0.179*** (0.017)
Constant	0.0809*** (0.0011)	0.156*** (0.0020)	0.259*** (0.0033)	0.588*** (0.0084)	0.593*** (0.0084)	0.649*** (0.0093)
Observations	417061	417061	417061	417061	417061	417061
6th grade aspirations	no	no	yes	yes	yes	yes
6th grade controls	no	no	no	yes	yes	yes
8th grade aspirations	no	no	no	no	yes	yes
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