

Apart but Connected: Tutoring Online Program and Inequalities in Educational Outcomes

Michela Carlana, Harvard Kennedy School
Eliana La Ferrara, Harvard Kennedy School
Carolina Lopez, Harvard Kennedy School

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Stemming Human Capital Losses Due to COVID-19 School Closures:
Experimental Evidence Across Contexts

8th January 2023

Section 1

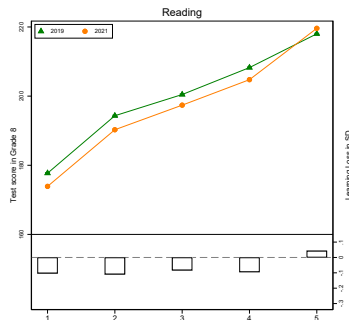
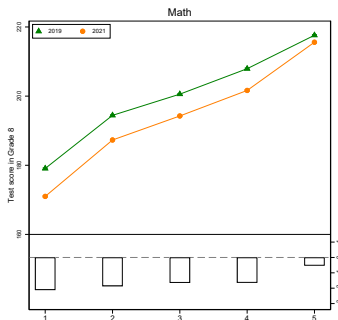
Motivation: Leaning Loss

Inequalities in Education

- School closure due to COVID-19 outbreak has exacerbated concerns about inequalities in education outcomes (Engzell et al, 2021).
 - High variation of remote instruction even within country, by socio-economic status
 - Learning losses for children: -0.3 SD test scores (Maldonado and De Witte, 2020) and -0.9 yrs of schooling for 7 months closed schools (Azevedo et al, 2020)
 - Adverse psychological effects (Orgiles et al, 2020; Golberstein et al, 2020)
- **Learning Loss:** 0.17 of a standard deviation, approximately one-half year's worth of learning (Patrinos et al., 2022).

Exacerbated Inequalities in Education in Italy (Carlana, La Ferrara, Lopez, AEA P&P 2023)

A. All



- On average: -0.14 SD in math, -0.05 in reading
- Inequalities by socio-economic status are exacerbated

Gender and Immigration Status

Mitigating Inequalities: Tutoring Online Program

- We evaluate a novel policy experiment launched in Italy in 2020 and replicated in 2022: **TOP (Tutoring Online Program)**
- **Target:** students in grades 6-8 from disadvantaged backgrounds (socio-economic status, language barriers, learning difficulties, ...)
- **Defining features of the program:**
 - 1 Tutoring entirely **online**: In-person interaction not possible during lockdown
 - 2 Tutors are **volunteer university students**, trained and supported by pedagogical experts
 - Low cost compared to hiring professionals
 - Quality of inter-personal interaction: intrinsic motivation of volunteers and closer relationship tutor-tutee

Section 2

Program and Data

Randomization

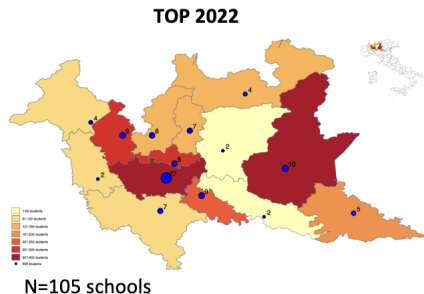
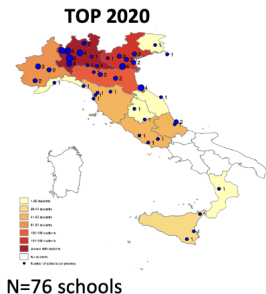
TOP2020

- **Constraint:** Budget/administrative capacity
 - Randomly assigned 530 students to a tutors out of 1059 applicants (ten block randomization)
 - **Intensity of the tutoring:** randomize whether the student receive 3h vs 6h tutoring per week
 - Tutors were randomly assigned to a students if excess availability in subject, time slot, and experience

TOP2022

- **Constraint:** Availability of tutors
 - Randomly assigned 607 students to a tutors out of 2,522 applicants (four block randomization)
 - **Individual vs. Group tutoring:** randomize whether the student receive a tutoring at individual or group level (3h per week)

Sample



Data Collection: students, parents, teachers

① Academic Outcomes & Beliefs:

- Supervised Test Score (19 questions in math, Italian, English).
- Beliefs on the number of correct questions from students, parents, teachers.
- Grades from teachers (admin + surveys).

② Aspirations: goals and self-efficacy

③ Socio-emotional skills:

- Perseverance: logic task with the possibility to choose difficult/easy/give up.
- Grit (Duckworth scale).
- Locus of control.

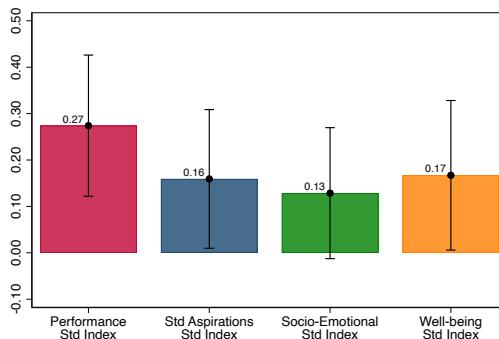
④ Well-being:

- Happiness scale.
- Children's Depression Screener (Child-S) (Fruhe et al., 2011).

Section 3

TOP2020

Summary of main results



Notes: This figure reports four OLS estimates of the assignment to the TOP tutoring treatment on the main outcomes in the paper. The mean of the control group for each index is 0 and the standard deviation is 1. Randomization round fixed effects included in all regressions. Ex-ante student baseline controls include gender, immigrant, grade, parental education for each parent, employment type for each parent, learning disability, interest for the different subjects, perseverance, importance of luck, familiarity with computers, last year grade and standardized Invalsi score (blind score). The bar shows 95% confidence intervals.

[Table](#)

Academic Outcomes & Beliefs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Performance Student	Student	Beliefs Parent	Teacher	Grade (survey) Student Teacher		Grade (admin) Endline Full sample	
Panel A: Math								
Treatment	0.052*** (0.016)	0.034** (0.014)	0.027** (0.013)	0.049** (0.023)	0.412*** (0.124)	0.465** (0.204)	0.175** (0.074)	0.117** (0.057)
Sharpened q-value	[0.009]	[0.024]	[0.038]	[0.022]	[0.088]	[0.122]	[0.282]	[0.024]
Mean Dep:	0.65	0.66	0.67	0.46	5.93	5.29	6.37	6.37
Obs	712	704	746	355	679	355	711	1058
R ²	0.254	0.177	0.227	0.314	0.308	0.296	0.370	0.357
Panel B: Italian								
Treatment	0.041** (0.017)	0.024 (0.015)	0.003 (0.011)	0.024 (0.019)	0.211* (0.122)	0.143 (0.178)	0.050 (0.062)	0.032 (0.048)
Sharpened q-value	[0.009]	[0.024]	[0.038]	[0.022]	[0.088]	[0.122]	[0.282]	[0.024]
Mean Dep:	0.46	0.64	0.72	0.50	6.32	5.59	6.49	6.49
Obs	712	701	743	439	679	439	711	1057
R ²	0.134	0.127	0.197	0.253	0.209	0.270	0.335	0.328
Panel C: English								
Treatment	0.052** (0.022)	0.040** (0.019)	0.037*** (0.013)	0.064* (0.036)	0.238* (0.127)	0.298 (0.304)	0.010 (0.072)	-0.010 (0.055)
Sharpened q-value	[0.009]	[0.024]	[0.038]	[0.022]	[0.088]	[0.122]	[0.282]	[0.024]
Mean Dep:	0.46	0.67	0.69	0.44	6.19	5.35	6.55	6.55
Obs	516	701	748	193	680	193	711	1058
R ²	0.246	0.196	0.270	0.385	0.297	0.382	0.309	0.341

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Intensive Treatment

- 27% tutors offered their availability for 6 hours per week.
- We randomly assigned 1/3 of the students who where in need of help in more than one subject to a more intense tutoring, including around 6 hours per week instead of 3 hours.
- We will now exploit this second randomization to provide evidence at the intensity margin.

Balance Tutors

Intensive Treatment: Main results

	(1)	(2)	(3)	(4)
	Performance	Aspirations Index	Socio-emotional Index	Wellbeing Index
Treatment	0.240*** (0.079)	0.154* (0.080)	0.149* (0.078)	0.155* (0.088)
Intense treatment (6h)	0.255** (0.116)	0.120 (0.118)	0.042 (0.110)	0.077 (0.120)
Treat+Intense treatment==0	0.000	0.017	0.079	0.054
wyoung FWER p-value	[0.018]	[0.163]	[0.163]	[0.163]
Sharpened q-value	[0.129]	[0.867]	[1.000]	[1.000]
Obs	712	523	636	614
R ²	0.208	0.416	0.245	0.096

Notes: This table reports OLS estimates of the assignment to the TOP tutoring treatment. Randomization round fixed effects included in all regressions. Ex-ante student baseline controls include gender, immigrant, grade, parental education for each parent, employment type for each parent, learning disability, interest for the different subjects, perseverance, importance of luck, and familiarity with computers. We control for whether the teacher requested a higher treatment intensity (more than one subject of tutoring). The mean of the dependent variable is the mean only for students in the control group. Robust standard errors in parentheses. ***, ** and * denote significance at the 1, 5 and 10 percent level, respectively. FWER adjusted p-values in square brackets, based on 10,000 replications.

Total effect of intensive treatment on performance = .49 std dev.

HTE by students' background: Performance

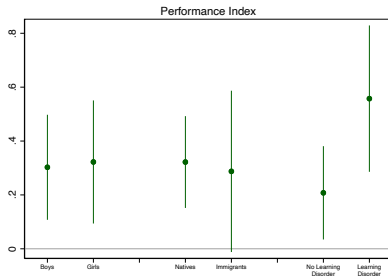


Figure: By student characteristics

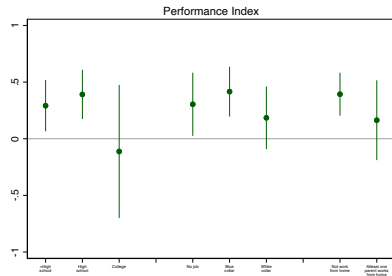


Figure: By mother's characteristics

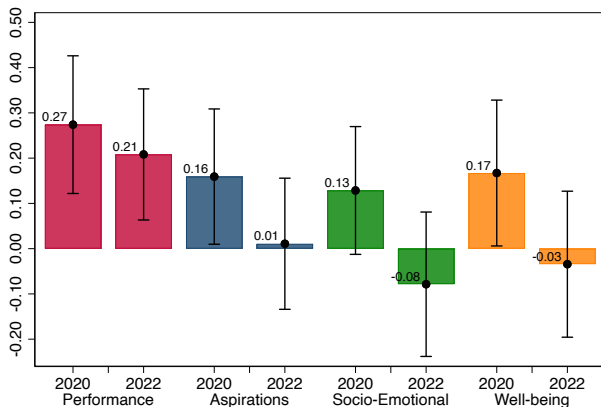
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Section 4

TOP2022

Individual Tutoring: TOP2020 vs. TOP2022

Similar effect on performance, but no effect after the pandemic in the “soft” components → “high” focus on the academic component, even more compare to the lockdown period?



Individual vs Group Tutoring in TOP2022

	(1)	(2)	(3)	(4)	(5)
	Academic		Aspirations	Socio-Emotional	Well-being
	Performance	Teachers' Grade			
Individual Tutoring	0.218*** (0.071)	0.198* (0.102)	0.012 (0.072)	-0.085 (0.077)	-0.034 (0.082)
Group Tutoring	0.075 (0.079)	0.128 (0.112)	0.119 (0.081)	0.003 (0.087)	0.082 (0.092)
p-value dif	0.095	0.573	0.221	0.348	0.247
Mean Dep Control:	0.00	5.43	-0.00	-0.00	0.00
Obs	951	1081	889	898	902
R ²	0.201	0.048	0.258	0.090	0.100

Group tutoring is not as effective as individual tutoring in raising performance.

Individual vs. Group Tutoring

Summary of main results for TOP

- **Outcomes from TOP Italy Spring 2020:** collected using admin data, surveys to students, parents, teachers (and tutors):
 - test score (+0.27 SD after the intervention, +0.1 SD one-year follow-up with admin data);
 - educational aspirations and self-efficacy (+0.16 SD);
 - socio-emotional skills (locus of control) (+0.13 SD);
 - psychological well-being (depression, happiness) (+0.17 SD);
- **Outcomes from TOP Italy 2022:** collected using surveys to students, parents, teachers (and tutors):
 - test score (+0.21 SD after the intervention);
 - no impact on aspirations, socio-emotional skills, or psychological well-being.

Section 5

Tutors TOP2020

How did TOP affect university students?

- Assignment of tutors to students was random, conditional on baseline characteristics used for allocation (subject, time availability, tutoring experience)
- We measure the impact on two outcomes:
 - 1 **Empathy**
 - Find it easy to put yourself in someone else's shoes
 - Are able to make decisions w/o being influenced by people's feelings
 - 2 **Belief in hard work**
 - Importance of income differences vs effort
 - Importance of hard work vs connections
 - Getting a good job after studying hard, independent of family background

Treatment Effect on Tutors' Outcomes

	(1)	(2)	(3)	(4)
	Empathy Index		Hardwork Index	
TOP Tutors	0.019** (0.008)	0.014* (0.008)	-0.002 (0.008)	-0.002 (0.009)
Sharpened q-value	[0.087]	[0.153]	[0.711]	[0.711]
Randomization controls:	Yes	Yes	Yes	Yes
Tutor controls:	No	Yes	No	Yes
Mean Dep:	0.67	0.67	0.65	0.65
Obs	740	740	735	735

Notes: This table reports the coefficients from a OLS regression. The randomization controls include whether the volunteer has tutoring experience and specific training (to support students with learning disorders or immigrants), their expertise in the subjects (math, Italian, English), their time availability (3 hours per week or 6 hours per week), whether they are on time in their university enrollment and if they confirmed their availability. The additional tutor controls include gender, university faculty, whether they are enrolled in a undergraduate or master, GPA, previous volunteering activities, whether they applied to TOP to help others (motivation), parental education, and familiarity with the computer. Robust standard errors in parentheses. ***, ** and * denote significance at the 1, 5 and 10 percent level, respectively. FWER adjusted p-values in square brackets for columns 1-3, and 2-4, based on 10,000 replications.

Effect on the empathy index = .27 std dev.

Section 6

Conclusion

Conclusion

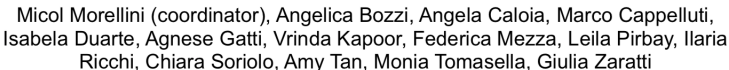
- **Learning loss** affected more negatively low SES students
- **Online tutoring** can be a simple and cost-effective intervention to mitigate inequalities in education help “teaching at the right level” (Banerjee et al. 2007)
 - Not only during COVID-19 pandemic, but more broadly to mitigate inequalities
- **Potential limitations:**
 - Internet access and Technology
 - Recruitment of volunteers
- **Advantages:**
 - Reach remote locations
 - Supply of qualified tutors, possibly from other regions (exposure to other environments)
 - Highly cost-effective: cost per pupil $< 50USD$

Appendix



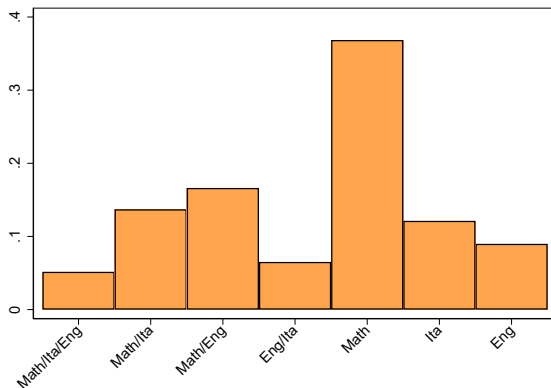
Anna Maria Carletti, Paola Catalani, Silvia Negri, Doris Valente,
Stefania Zacco, Monica Zanon

- The Bocconi/Harvard management and RA team:



Content of the tutoring

Treatment: support in doing homework assigned by students' own teachers in Math, Italian or English.



Math covered by 78% of students

TOP: Tutor Training and Support

- **Formation:** we worked with a team of pedagogical experts from University of Milan Bicocca to train and support the tutors, especially with the most difficult students and families.
 - ① **Videos and slides for self-training** on: using digital platforms and whiteboards, how to teach students with learning disorders, how to approach students, and on how to help students in Math, Italian, and English.
 - ② **Supervised Form** to ask questions
 - ③ **Counseling:** Group meetings + Individual one-to-one meetings with an expert
- **Implementation of the tutoring:**
 - TOP2020: google meet, zoom, whatsapp
 - TOP2022: WeSchool Platform

1. *Journal of Management Studies*, 1997, 34, 103-117.

Notes: This table reports OLS estimates of the assignment to the TOP tutoring treatment. Randomization round fixed effects included in all regressions. Ex-ante student baseline controls include gender, immigrant, grade, parental education for each parent, employment type for each parent, learning disability, interest for the different subjects, perseverance, importance of luck, and familiarity with computers. The mean of the dependent variable is the mean only for students in the control group. Robust standard errors in parentheses. ***, ** and * denote significance at the 1, 5 and 10 percent level, respectively. FWER adjusted p-values in square brackets, based on 10,000 replications.

Downloaded from <http://ajphaphysocpharm.sagepub.com/> at 11:01 11 November 2014

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(4) Well-being

	(1)	(2)	(3)	(4)
Panel B: Well-being				
	Reported from			
	Students		Parents	
	Depression	Happiness	Depression	Happiness
Treatment	-0.019** (0.009)	0.026 (0.018)	-0.011 (0.009)	0.038** (0.017)
wyoung FWER p-value	[0.111]	[0.278]	[0.278]	[0.111]
Sharpened q-value	[0.319]	[0.260]	[0.260]	[0.348]
Mean Dep:	0.55	0.61	0.59	0.60
Obs	642	645	642	645
R ²	0.131	0.082	0.078	0.082

Notes: This table reports OLS estimates of the assignment to the TOP tutoring treatment. Randomization round fixed effects included in all regressions. Ex-ante student baseline controls include gender, immigrant, grade, parental education for each parent, employment type for each parent, learning disability, interest for the different subjects, perseverance, importance of luck, and familiarity with computers. The mean of the dependent variable is the mean only for students in the control group. Robust standard errors in parentheses. ***, ** and * denote significance at the 1, 5 and 10 percent level, respectively. FWER adjusted p-values in square brackets, based on 10,000 replications.

Robustness checks

- The endline attrition issue seems to bias the results against finding a treatment effect. [Endline Attrition](#)
- The results are not substantially effected by selecting the controls using LASSO and inverse probability weighting [Results](#)

HTE by tutor characteristics II

	(1)	(2)	(3)	(4)
	Performance	Aspirations Index	Socio-emotional Index	Wellbeing Index
Panel D				
No volunteer exp.	0.424*** (0.131)	0.067 (0.132)	0.274** (0.114)	0.334*** (0.127)
Volunteer exp.	0.285*** (0.079)	0.219*** (0.077)	0.134* (0.076)	0.144* (0.086)
p-value (diff.=0):	[0.285]	[0.245]	[0.200]	[0.112]
Panel E				
Not help others	0.401*** (0.135)	0.028 (0.126)	0.184 (0.128)	0.170 (0.143)
Help others	0.291*** (0.078)	0.217*** (0.078)	0.157** (0.075)	0.184** (0.085)
p-value (diff.=0):	[0.406]	[0.125]	[0.829]	[0.918]

Notes: This table reports OLS estimates of the assignment to the TOP tutoring treatment. Randomization round fixed effects included in all regressions. Ex-ante student baseline controls include gender, immigrant, grade, parental education for each parent, employment type for each parent, learning disability, interest for the different subjects, perseverance, importance of luck, and familiarity with computers. GPA scores have been standardized for each faculty: education, humanities, stem, economics, other faculties. Additionally, we control for missing GPA values and faculty in the regression. The p-value reported is the p-value of this post-estimation test of the differences between the two groups (e.g., male vs. female tutors). Robust standard errors in parentheses. ***, ** and * denote significance at the 1, 5 and 10 percent level, respectively. FWER adjusted p-values in square brackets, based on 10,000 replications.

HTE causal forest algorithm: Median of Predicted Impact by Tutor Characteristics

	Performance Index		Aspirations Index		Socio-Emotional Index		Well-being Index	
Baseline characteristics of tutors								
	p(50)	p(100)	p(50)	p(100)	p(50)	p(100)	p(50)	p(100)
Female	0.708	0.696	0.701	0.678	0.708	0.684	0.707	0.689
Volunteering before	0.812	0.836	0.817	0.805	0.806	0.808	0.826	0.790
Tutoring before	0.949	0.952	0.945	0.950	0.947	0.946	0.956	0.935
Training immigrants	0.008	0.014	0.011	0.014	0.009	0.013	0.009	0.018
Training Learning Disorders	0.028	0.050	0.022	0.033	0.036	0.034	0.037	0.029
Motivation TOP: help others	0.833	0.823	0.839	0.854	0.840	0.838	0.827	0.855
Hardwork more important than Luck	0.506	0.547	0.491	0.504	0.486	0.521	0.516	0.490
Faculty: Humanities	0.136	0.128	0.134	0.133	0.138	0.127	0.141	0.114
Faculty: STEM+ Medical	0.340	0.326	0.344	0.333	0.327	0.318	0.330	0.315
Faculty: Economics	0.301	0.286	0.295	0.305	0.288	0.312	0.287	0.317
Faculty: Education	0.056	0.077	0.055	0.050	0.068	0.065	0.056	0.073
Tutor voluteered to teach math	0.771	0.774	0.770	0.766	0.760	0.794	0.735	0.800
Tutor voluteered to teach Italian	0.600	0.627	0.603	0.598	0.608	0.616	0.620	0.592
Tutor voluteered to teach English	0.602	0.619	0.609	0.618	0.625	0.622	0.628	0.638
Tutor has english language certificate	0.660	0.664	0.658	0.655	0.684	0.678	0.679	0.678
GPA (normalized by faculty)	0.061	0.032	0.060	0.079	0.061	0.073	0.065	0.042
Tutor is familiar with computers	0.916	0.926	0.909	0.912	0.924	0.921	0.912	0.919
Gender match Tutor-Student: Female	0.311	0.294	0.345	0.287	0.295	0.319	0.276	0.328
Gender match Tutor-Student: Male	0.178	0.182	0.172	0.208	0.186	0.179	0.205	0.167
Male Tutor, Female Student	0.109	0.117	0.122	0.107	0.103	0.129	0.085	0.135

Summary Statistics on Tutors' Characteristics

	All Tutors	3h Tutor	6h Tutor	P-value	Normalized diff.
Female	0.700	0.688	0.730	0.353	0.092
Born in Italy	0.983	0.992	0.957	0.007	-0.269
Tutor study area: Education	0.065	0.055	0.092	0.126	0.150
Tutor study area: Humanities	0.138	0.113	0.206	0.006	0.270
Tutor study area: Economics	0.287	0.327	0.177	0.001	-0.331
Tutor study area: STEM	0.337	0.356	0.284	0.121	-0.152
English language certificate	0.666	0.646	0.721	0.104	0.159
University GPA	26.727	26.823	26.455	0.101	-0.165
Has volunteering experience	0.822	0.817	0.837	0.594	0.052
Motivation: help others	0.831	0.845	0.794	0.169	-0.136
Has tutoring experience	0.958	0.971	0.922	0.013	-0.244
Training immigrants	0.013	0.003	0.043	0.000	0.348
Training Learning Disorders	0.038	0.037	0.043	0.755	0.031
Observations	523	382	141		

Notes: This table shows the characteristics of all tutors (column 1), those who offered their availability for 3 hours of tutoring per week (column 2) vs. 6 hours of tutoring per week (column 3). P-values for difference in means between column 2 and 3 are reported in the third column. The last column reports the standardized difference between group averages.

Summary Statistics of Outcomes

	count	mean	sd	min	max
1. Academic and Beliefs (average of all subjects)					
Outcomes reported by Students					
Performance	712	0.56	0.18	0.05	1.00
Beliefs right perc.	705	0.67	0.15	0.00	1.00
Overconfidence Students	705	0.64	0.48	0.00	1.00
Grade - Self Rate	680	6.29	1.38	1.00	10.00
Outcomes reported by Parents					
Beliefs - Parent	756	0.71	0.14	0.16	1.00
Overconfidence Parents	618	0.70	0.46	0.00	1.00
Outcomes reported by Teachers					
Beliefs right perc.	702	0.49	0.20	0.00	1.00
Overconfidence Teachers	520	0.36	0.48	0.00	1.00
Teacher's grade - All subjects	792	5.65	1.87	1.00	10.00
Outcomes from administrative data					
GPA 2019/2020	1059	6.86	0.80	4.50	10.00
Grade in maths 2019/2020	1058	6.40	1.09	4.00	10.00
Grade in Italian 2019/2020	1057	6.51	0.91	4.00	10.00
Grade in English 2019/2020	1058	6.53	1.04	3.00	10.00
Blind score math (8th grade)	341	176.63	31.22	89.60	284.15
Blind score ita (8th grade)	342	178.69	26.87	100.85	252.06
Blind score Eng (8th grade)	343	191.02	31.58	108.29	272.74
2. Aspirations					
Aspirations Index					
Aspirations Index	523	0.07	1.00	-1.08	2.35
Outcomes reported by Students					
Self efficacy: university	674	0.39	0.49	0.00	1.00
Thinks he/she can go to university at	682	0.23	0.42	0.00	1.00
Endline					
High school choice: Professional	681	0.28	0.45	0.00	1.00
High school choice: Top-track	681	0.15	0.36	0.00	1.00
Outcomes reported by Parents					
Child will go to university	765	0.35	0.48	0.00	1.00
Thinks he/she can go to university at	772	0.33	0.47	0.00	1.00
Endline (Parent)					
Outcomes reported by Teachers					
Thinks he/she can go to university	839	0.14	0.34	0.00	1.00
Outcomes from administrative data					
Top track	363	0.08	0.28	0.00	1.00
Technical	272	0.43	0.50	0.00	1.00
Professional	272	0.25	0.44	0.00	1.00
3. Socio-Emotional Skills					
Socio-Emotional Skills					
Socio-Emotional Skills	636	0.07	0.95	-2.90	2.66
Outcomes reported by Students					
Grit	685	0.59	0.49	0.00	1.00
Grit: gave up	685	0.12	0.32	0.00	1.00
Grit	673	0.69	0.13	0.32	1.00
Locus of control - Student	685	0.72	0.11	0.25	1.00
Outcomes reported by Parents					
Grit (Parent)	736	0.67	0.13	0.25	1.00
4. Well-being					
Well-being Index					
Well-being Index	614	0.10	0.95	-3.57	2.79
Outcomes reported by Students					
Depression	669	0.54	0.12	0.25	0.97
Happiness	665	0.62	0.22	0.00	1.00
Outcomes reported by Parents					
Depression	731	0.58	0.10	0.28	0.92
Happiness	741	0.62	0.21	0.00	1.00

Notes: This table shows the summary statistics of all outcome variables, as reported in the endline questionnaire from students, parents, and teachers. All outcomes refer to children even when reported by parents or teachers. It also included the mean in the entire sample for the indices, standardized to have mean 0 and standard deviation 1 for the control group.

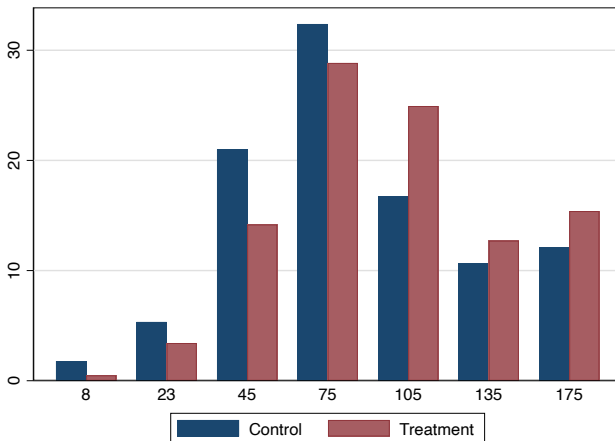
Summary stats: help in doing homework

Who helped you with homework?	Before school closure	After school closure
I do it on my own	55.3%	62.1%
Sibling(s)	6.9%	7.4%
Mother	21.2%	24.0%
Father	2.0%	3.0%
Grandparents	1.8%	0.7%
Other	12.8%	2.9%

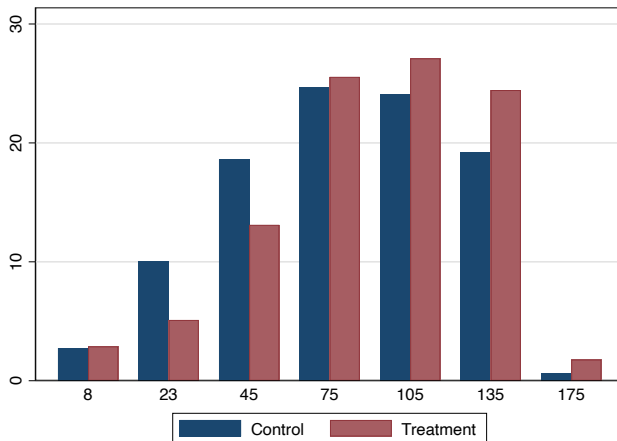
Data from students' questionnaire

Presentation

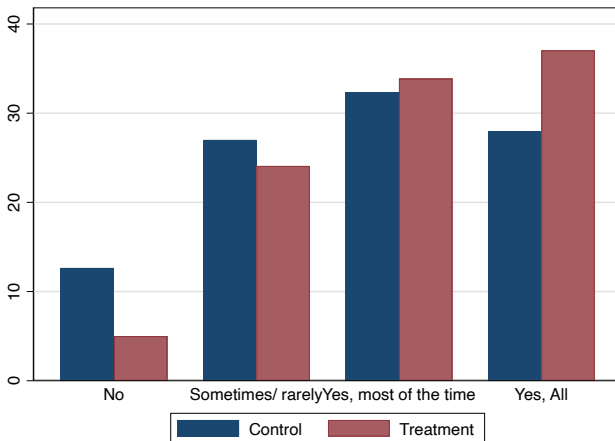
Time devoted to HW by student at endline (reported by student)



Time devoted to HW by student at endline (reported by parents)



Frequency students return homework at endline (reported by teachers)



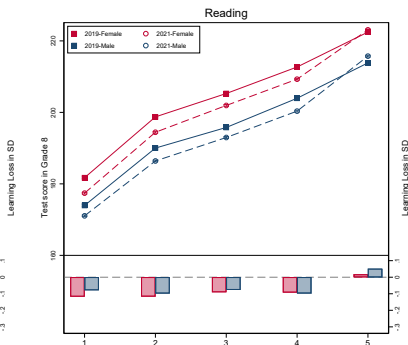
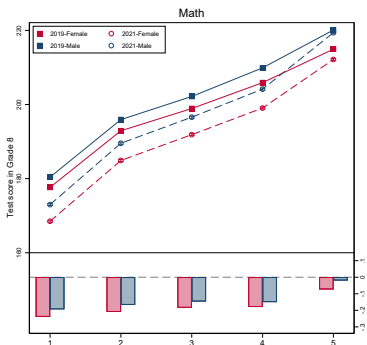
Balance Table at province level

Variable	(1) No TOP	(2) TOP	(3) Diff.	(4) Std. Diff.
Macro-area: North	0.313 (0.467)	0.650 (0.483)	0.337*** (0.095)	0.501
Macro-area: Center	0.209 (0.410)	0.200 (0.405)	-0.009 (0.082)	-0.016
Macro-area: South and Islands	0.478 (0.503)	0.150 (0.362)	-0.328*** (0.091)	-0.529
Level of education: Elementary	0.305 (0.026)	0.287 (0.027)	-0.017*** (0.005)	-0.453
Level of education: Middle school	0.300 (0.024)	0.297 (0.023)	-0.003 (0.005)	-0.079
Level of education: Diploma	0.297 (0.028)	0.309 (0.020)	0.012** (0.005)	0.354
Level of education: University	0.101 (0.015)	0.109 (0.023)	0.008** (0.004)	0.296
Covid-19 cases March'20 (1000 inhabitants)	1.477 (1.799)	2.234 (2.199)	0.757* (0.391)	0.266
Covid-19 cases April'20 (1000 inhabitants)	2.889 (3.024)	4.399 (3.376)	1.511** (0.631)	0.333
Covid-19 cases May'20 (1000 inhabitants)	3.209 (3.418)	4.961 (3.800)	1.752** (0.712)	0.343
Immigrants 2020	0.070 (0.033)	0.096 (0.030)	0.026*** (0.006)	0.592
Unemployment rate (2019)	11.678 (5.908)	8.316 (4.912)	-3.362*** (1.111)	-0.438
Observations	67	40	107	

Notes: This table shows the characteristics of provinces that had at least one treated school ("TOP province") compared to provinces with no treated schools ("No TOP Province"). The first two columns show the mean for the two groups, the third column shows the difference in means, while the last column provides the standardized difference between group averages.

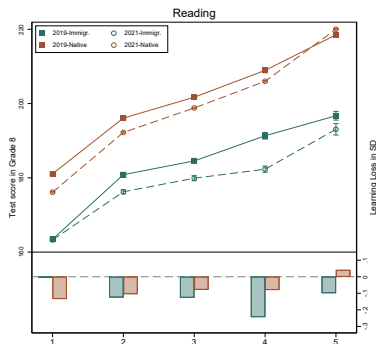
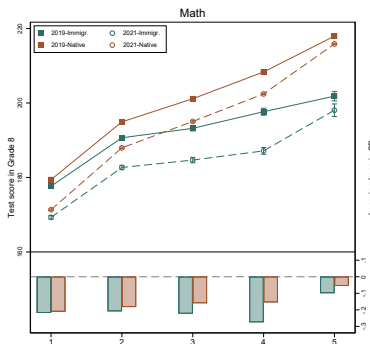
Learning Loss in Italy, by SES status (Carlana, La Ferrara, Lopez, AEA P&P 2023)

B. By Gender



Learning Loss in Italy, by SES status (Carlana, La Ferrara, Lopez, AEA P&P 2023)

C. By Immigration Status


[Back](#)

Balance Table

	Control	Treatment	P-value	Std diff.
Students				
<i>Survey data</i>				
Male	0.620	0.587	0.284	-0.067
Is immigrant	0.205	0.217	0.628	0.029
Has learning disability	0.337	0.312	0.404	-0.053
Grade 6	0.325	0.313	0.677	-0.026
Grade 7	0.338	0.342	0.914	0.008
Grade 8	0.336	0.345	0.763	0.019
How much do you like Math?	2.772	2.724	0.431	-0.049
How much do you like Italian?	3.023	3.104	0.115	0.097
How much do you like English?	3.107	3.143	0.592	0.034
Perseverance	0.801	0.809	0.756	0.020
Importance Luck (vs. Effort)	0.054	0.054	0.973	0.000
Familiarity with computers	3.097	3.135	0.524	0.039
<i>Admin data</i>				
Grade in maths (2018/2019)	6.194	6.050	0.044	-0.132
Grade in Ita (2018/2019)	6.510	6.445	0.777	-0.072
Grade in Eng (2018/2019)	6.513	6.421	0.922	-0.089
Low/Medium SES	0.583	0.595	0.190	0.024
Low SES	0.322	0.354	0.604	0.067
Parents				
Child lives with single parent	0.253	0.217	0.164	-0.086
Mother Edu: High-School	0.582	0.547	0.261	-0.071
Mother Edu: Degree	0.113	0.107	0.782	-0.019
Father Edu: High-School	0.442	0.443	0.984	0.002
Father Edu: Degree	0.084	0.063	0.196	-0.078
Mother has blue collar job	0.567	0.551	0.660	-0.032
Mother has white collar job	0.394	0.391	0.926	-0.006
Father has blue collar job	0.643	0.629	0.666	-0.029
Father has white collar job	0.325	0.332	0.820	0.015
Observations	529	530		

Balance Table (sample: final test score)

	Control	Treatment	P-value	Std diff.
Students				
Male	0.620	0.576	0.270	-0.089
Immigrant	0.237	0.223	0.662	-0.033
Learning disorders	0.322	0.319	0.459	-0.006
Grade in Math	6.282	6.274	0.847	-0.007
Grade in Italian	5.939	5.906	0.456	-0.025
Grade in English	6.318	6.225	0.549	-0.067
Grade 6	0.367	0.317	0.677	-0.106
Grade 7	0.335	0.336	0.914	0.002
Grade 8	0.298	0.347	0.763	0.104
How much do you like Math?	2.788	2.704	0.553	-0.081
How much do you like Italian?	2.943	3.077	0.056	0.153
How much do you like English?	3.114	3.120	0.389	0.005
Perseverance	0.816	0.814	0.805	-0.005
Importance Luck (vs. Effort)	0.058	0.056	0.971	-0.011
Familiarity with computers	3.163	3.101	0.606	-0.062
Parents				
Child lives with single parent	0.249	0.212	0.262	-0.089
Edu Mother: High-School	0.490	0.428	0.117	-0.124
Edu Mother: Degree	0.110	0.099	0.625	-0.036
Edu Father: High-School	0.359	0.364	0.899	0.010
Edu Father: Degree	0.102	0.062	0.056	-0.151
Mother has blue collar job	0.363	0.373	0.807	0.021
Mother has white collar job	0.163	0.161	0.927	-0.005
Father has blue collar job	0.584	0.520	0.107	-0.128
Father has white collar job	0.224	0.212	0.701	-0.029
Observations	245	467		

Attrition between baseline and endline

Dependent variable: Dummy for endline completion				
	Full Surveyed at endline (1)	Full Surveyed at endline (2)	Treatment Surveyed at endline (3)	Control Surveyed at endline (4)
trust	0.418*** (0.028)	0.422*** (0.026)		
Learning disabilities	-0.006 (0.020)	-0.006 (0.021)	-0.015 (0.021)	-0.020 (0.020)
Immigrant	0.068* (0.035)	0.028 (0.039)	0.028 (0.039)	0.088 (0.060)
Male	-0.014 (0.020)	-0.029 (0.020)	-0.029 (0.020)	0.010 (0.048)
Mother's edu: High school	-0.003 (0.032)	-0.010 (0.036)	-0.010 (0.036)	-0.011 (0.056)
Mother's edu: Degree	-0.092* (0.049)	-0.098 (0.062)	-0.098 (0.062)	-0.116 (0.079)
Father's edu: High school	0.012 (0.031)	0.019 (0.032)	0.019 (0.032)	0.015 (0.053)
Father's edu: Degree	0.129** (0.056)	0.098 (0.055)	0.098 (0.055)	0.155 (0.094)
Mother is bluecollar	-0.038 (0.032)	-0.048 (0.036)	-0.048 (0.036)	-0.028 (0.054)
Mother is whitecollar	0.062 (0.039)	0.020 (0.043)	0.020 (0.043)	0.110* (0.066)
Father is bluecollar	0.042 (0.030)	0.024 (0.042)	0.024 (0.042)	0.024 (0.068)
Father is whitecollar	-0.033 (0.046)	-0.025 (0.055)	-0.025 (0.055)	-0.063 (0.081)
Grade 6	0.009 (0.074)	0.072 (0.061)	0.072 (0.061)	0.141 (0.162)
Grade 7	0.027 (0.051)	0.017 (0.060)	0.017 (0.060)	0.049 (0.100)
How much do you like maths	0.015 (0.015)	-0.004 (0.016)	-0.004 (0.016)	0.029 (0.027)
How much do you like Italian	-0.042** (0.017)	-0.020 (0.018)	-0.020 (0.018)	-0.098** (0.030)
How much do you like English?	0.009 (0.015)	0.005 (0.017)	0.005 (0.017)	0.015 (0.023)
Persistence (Baseline)	0.047 (0.020)	0.037 (0.046)	0.037 (0.046)	0.044 (0.057)
Importance of luck	0.124* (0.073)	0.131* (0.067)	0.131* (0.067)	0.168 (0.139)
Student's IT skills	0.021 (0.011)	-0.000 (0.018)	-0.000 (0.018)	0.049* (0.025)
Std. blind score math 5th grade	0.001 (0.018)	-0.020 (0.020)	-0.020 (0.020)	0.020 (0.030)
Std. blind score Ita 5th grade	0.006 (0.017)	-0.009 (0.020)	-0.009 (0.020)	0.013 (0.031)
Std. blind score Eng 5th grade	-0.008 (0.023)	0.026 (0.028)	0.026 (0.028)	-0.036 (0.035)
Grade maths 2018/2019	-0.035 (0.022)	0.017 (0.027)	0.017 (0.027)	-0.081** (0.037)
Grade Ita 2018/2019	0.088*** (0.024)	0.029 (0.028)	0.029 (0.028)	0.001** (0.043)
Grade English 2018/2019	-0.004 (0.021)	-0.020 (0.026)	-0.020 (0.026)	0.021 (0.037)
Dep var mean	0.72	0.72	0.81	0.63
Obs.	1059	1059	530	529
R ²	0.202	0.200	0.088	0.118

Balance Table: 3 hours vs. 6 hours tutoring

	3h Tutoring	6h Tutoring	P-value	Std diff.
Students				
<i>Survey data</i>				
Male	0.577	0.563	0.797	-0.028
Is immigrant	0.254	0.225	0.525	-0.067
Has learning disability	0.324	0.355	0.528	0.066
Grade in Math	6.232	6.238	0.960	0.006
Grade in Italian	5.820	5.867	0.730	0.036
Grade in English	6.222	6.014	0.158	-0.145
Grade 6	0.342	0.315	0.579	-0.057
Grade 7	0.338	0.315	0.629	-0.049
Grade 8	0.320	0.371	0.301	0.108
How much do you like Math?	2.699	2.787	0.404	0.086
How much do you like Italian?	3.089	3.120	0.724	0.036
How much do you like English?	3.185	2.972	0.051	-0.201
Perseverance	0.791	0.783	0.857	-0.020
Importance Luck (vs. Effort)	0.051	0.068	0.368	0.097
Familiarity with computers	3.114	3.120	0.954	0.006
<i>Admin data</i>				
Grade in maths (2018/2019)	6.030	5.941	0.377	-0.085
Grade in Ita (2018/2019)	6.391	6.318	0.379	-0.086
Grade in Eng (2018/2019)	6.355	6.306	0.444	-0.049
Std Blind Score (maths) 5th grade	-0.160	-0.317	0.196	-0.156
Std Blind Score (Ita) 5th grade	-0.180	-0.132	0.824	0.047
Std Blind Score (Eng) 5th grade	-0.162	-0.249	0.710	-0.094
Low SES	0.353	0.364	0.685	0.023
Parents				
Child lives with single parent	0.246	0.210	0.399	-0.086
Mother Edu: High-School	0.507	0.587	0.127	0.160
Mother Edu: Degree	0.107	0.072	0.266	-0.123
Father Edu: High-School	0.435	0.428	0.887	-0.014
Father Edu: Degree	0.063	0.058	0.836	-0.021
Mother has blue collar job	0.538	0.566	0.658	0.056
Mother has white collar job	0.397	0.364	0.587	-0.068
Father has blue collar job	0.642	0.636	0.908	-0.013
Father has white collar job	0.310	0.314	0.947	0.009
Observations	284	143		

Notes: This table shows the characteristics of treated students randomly assigned to the 3 hours or 6 hours tutoring in the initial sample at baseline. The sample in this table is restricted only to students identified by the school as in need for help in more than one subject (427 observations). P-values for difference in means are reported in the third column. The last column also reports the standardized difference between group averages.

Balance Table Tutors (sample of all tutors at baseline) I

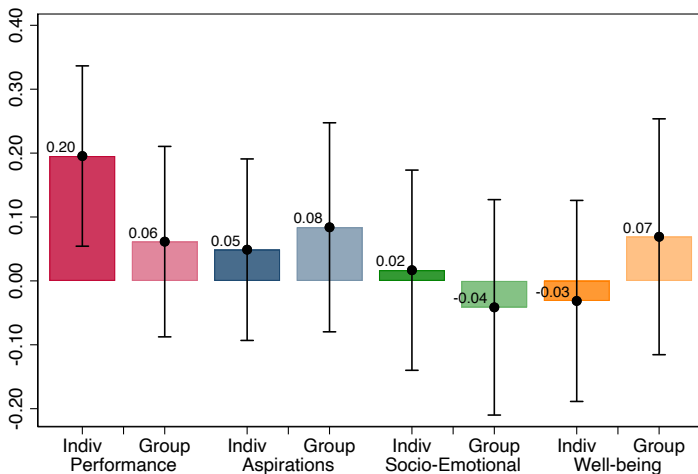
Variable	(1) No TOP	(2) TOP Tutor	(3) Diff.	(4) Std. Diff.
Number of modules	1.120 (0.367)	1.325 (0.575)	0.205*** (0.022)	0.300
Training DSA	0.003 (0.051)	0.038 (0.192)	0.036*** (0.005)	0.179
Training Immigrants	0.007 (0.081)	0.013 (0.115)	0.007 (0.005)	0.049
Subjects: Math	0.151 (0.358)	0.201 (0.401)	0.050*** (0.019)	0.093
Subjects: Eng	0.191 (0.393)	0.034 (0.182)	-0.157*** (0.018)	-0.362
Subjects: Ita	0.230 (0.421)	0.052 (0.221)	-0.178*** (0.019)	-0.375
Subjects: Math, Eng	0.071 (0.257)	0.149 (0.357)	0.078*** (0.014)	0.177
Subjects: Math, Ita	0.046 (0.210)	0.140 (0.347)	0.093*** (0.013)	0.230
Subjects: Ita, Eng	0.249 (0.433)	0.134 (0.341)	-0.116*** (0.021)	-0.210
Subjects: Math, Ita, Eng	0.063 (0.242)	0.291 (0.454)	0.228*** (0.016)	0.443
Tutoring before	0.717 (0.450)	0.958 (0.201)	0.241*** (0.020)	0.488
Female	0.719 (0.450)	0.700 (0.459)	-0.019 (0.023)	-0.029

Balance Table Tutors (sample of all tutors at baseline) II

Variable	(1) No TOP	(2) TOP Tutor	(3) Diff.	(4) Std. Diff.
Tutor's Major - STEM	0.158 (0.365)	0.337 (0.473)	0.179*** (0.020)	0.299
Tutor's Major - Humanities	0.158 (0.365)	0.138 (0.345)	-0.020 (0.018)	-0.040
Tutor's Major - Education	0.058 (0.234)	0.065 (0.247)	0.007 (0.012)	0.020
Tutor's Major - Economics	0.307 (0.462)	0.287 (0.453)	-0.021 (0.023)	-0.032
Degree Type: Bachelor's	0.510 (0.500)	0.472 (0.500)	-0.038 (0.025)	-0.053
GPA	26.386 (4.263)	26.011 (4.845)	-0.375* (0.224)	-0.058
Volunteering Before	0.777 (0.417)	0.822 (0.383)	0.045** (0.021)	0.080
Hours studying per day	5.332 (2.179)	5.076 (2.043)	-0.256** (0.109)	-0.086
Familiarity with computer	3.247 (0.677)	3.323 (0.632)	0.076** (0.034)	0.082
Do you have younger siblings?	0.502 (0.500)	0.549 (0.498)	0.047* (0.025)	0.066
Tutor's Mother: Completed high school	0.429 (0.495)	0.480 (0.500)	0.051** (0.025)	0.073
Tutor's Mother: Completed College	0.420 (0.494)	0.384 (0.487)	-0.036 (0.025)	-0.052
Tutor's Father: Completed high school	0.405 (0.491)	0.434 (0.496)	0.029 (0.025)	0.042
Tutor's Father: Completed College	0.399 (0.490)	0.384 (0.487)	-0.015 (0.025)	-0.022
Motivation TOP: help others	0.783 (0.412)	0.830 (0.376)	0.047** (0.020)	0.083
Observations	1,532	523	2,055	

Notes: Column 1 and 2 shows the mean for the control group and treatment group, respectively. Column 3 shows the difference between the treatment and the control group. The last column reports the standardized difference between group averages. The sample includes all tutors who applied to be part of TOP as volunteers. If a tutor was assigned but then decided not to participate, he/she is considered among the "No TOP" tutors.

Individual vs Group Tutoring in TOP2022



Balance Table Tutors (endline survey)

Variable	(1) Control	(2) Treat	(3) Coef.	(4) Std. Diff.
Female	0.720 (0.450)	0.710 (0.454)	0.022 (0.047)	-0.015
Tutor's Major - STEM	0.126 (0.332)	0.333 (0.472)	0.058 (0.040)	0.360
Tutor's Major - Humanities	0.172 (0.378)	0.140 (0.347)	0.018 (0.036)	-0.063
Tutor's Major - Education	0.053 (0.224)	0.068 (0.252)	0.049** (0.025)	0.044
Tutor's Major - Economics	0.342 (0.475)	0.286 (0.452)	-0.073 (0.047)	-0.086
Degree Type: Bachelor's	0.541 (0.499)	0.471 (0.500)	-0.064 (0.052)	-0.099
GPA	26.594 (4.491)	26.083 (4.694)	-0.601 (0.472)	-0.079
Volunteering Before	0.753 (0.432)	0.825 (0.380)	0.020 (0.042)	0.126
Hours studying per day	5.517 (2.099)	5.091 (2.054)	-0.120 (0.217)	-0.145
Familiarity with computer	3.296 (0.692)	3.319 (0.635)	-0.145** (0.069)	0.025
Do you have younger siblings?	0.534 (0.499)	0.549 (0.498)	-0.023 (0.052)	0.022
Tutor's Mother: Completed high school	0.426 (0.495)	0.486 (0.500)	0.029 (0.052)	0.085
Tutor's Mother: Completed College	0.400 (0.490)	0.379 (0.486)	-0.012 (0.051)	-0.030
Tutor's Father: Completed high school	0.395 (0.489)	0.438 (0.497)	-0.035 (0.052)	0.062
Tutor's Father: Completed College	0.404 (0.491)	0.379 (0.486)	0.005 (0.051)	-0.037
Motivation TOP: help others	0.806 (0.396)	0.833 (0.373)	0.017 (0.040)	0.051
Observations	453	486	939	

Notes: Column 1 and 2 shows the mean for the control group and treatment group, respectively. Column 3 shows the coefficient and standard error of a regression that includes the controls that were used to assign the tutors to students (i.e., weekly availability for 3 or 6 hours, specific training for learning disabilities, subject availability, tutoring experience, whether the tutor was born before 1994, and whether the tutor confirmed their availability). The sample includes all tutors who completed the endline survey (either in June or in September).

Presentation

Notes: Randomization round fixed effects included in all regressions. The controls included for each regression and selected with LASSO are listed in the following tables. The results with inverse probability weighting include all standard controls as in our main tables.

Estimation of the impact of TOP tutoring on indices

	(1)	(2)	(3)	(4)
	Performance	Aspirations Index	Socio-emotional Index	Wellbeing Index
Treatment	0.245** (0.103) []	0.218** (0.108) []	0.134 (0.097) []	0.074 (0.101) []
Sharpened q-value	[0.076]	[0.076]	[0.124]	[0.283]
Mean Dep:	-0.00	0.00	-0.00	-0.00
Obs	383	278	355	346
R ²	0.130	0.344	0.224	0.062

Notes: This table reports OLS estimates of the assignment to the TOP tutoring treatment. Randomization round fixed effects included in all regressions. Ex-ante student baseline controls include gender, immigrant, grade, parental education for each parent, employment type for each parent, learning disability, interest for the different subjects, perseverance, importance of luck, and familiarity with computers. The mean of the dependent variable is the mean only for students in the control group. Robust standard errors in parentheses. ***, ** and * denote significance at the 1, 5 and 10 percent level, respectively. FWER adjusted p-values in square brackets, based on 10,000 replications.

LASSO selected variables: performance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Performance	Students			Parents		Teachers		
		Beliefs	Overconfidence	Grade	Beliefs	Overconfidence	Beliefs	Overconfidence	Grade
Self-efficacy: university		✓		✓	✓		✓		✓
How much do you like maths?				✓					
Has learning disability					✓				
How much do you like English?					✓				
Homework time before lockdown (Square-Root)									✓

LASSO selected variables: aspirations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Aspirations Index	Aspirations	Self-efficacy	Students High school vocational	High school top track	Parents Aspirations	Parents Self-efficacy	Teachers Aspirations
Has learning disability	✓							
Homework time before lockdown	✓							
Self-efficacy: university	✓		✓			✓	✓	✓
Goal: university (parent) - Enroll in a technical institute (istituto tecnico)	✓	✓				✓		
Goal: Professional institute	✓	✓		✓		✓	✓	
High school preference 1: natural sciences high-school	✓				✓			✓
High school preference 1: professional high-school	✓			✓				
Continue study length - Enroll in a technical institute (istituto tecnico)	✓	✓				✓		
Goal: vocational high-school	✓	✓		✓		✓		
Continue study length - Enroll in high school (liceo)		✓						
High school preference 2: vocational high-school				✓				
High school: scientific high-school					✓			
High school preference 2: natural sciences high-school					✓			
Goal: university (parent) - Work after finishing school						✓		
Goal: university (parent) - Enroll in high school (liceo)						✓		

LASSO selected variables: socio-emotional skills

	(1)	(2)	(3)	(4)	(5)	(6)
	Socio-Emotional Index	Perservance: difficulty	Students Perseverance: give up	Grit	Locus of control	Parents Grit
Has learning disability	✓					
Self-efficacy: university	✓			✓	✓	✓
Barriers: own ability	✓			✓		✓
Who helps child with homework - during closure (Person 1) - I do	✓					
Goal: Professional institute						
Logic question: correct+Perseverance		✓				
Perseverance			✓			

LASSO selected variables: well-being

	(1)	(2)	(3)	(4)	(5)
	Well-being Index	Students		Parents	
		Depression	Happiness	Depression	Happiness
Self-efficacy: university	✓				
Barriers: own ability	✓	✓		✓	
Two statements q2 - Fate - Happen will happen	✓				
Who helps child with homework - during closure (Person 1) - I do					
Two statements q2 - Fate - Take action		✓			
Locus of control 1				✓	

1. *Journal of Management Studies*, 1997, 34, 10, 1031-1046.

Heterogeneity on subject performance by tutor characteristics

	(1)	(2)
	Dep. var.: student's performance in a given subject	
Panel A: Math		
Not volunteer in math	0.051** (0.025)	
Volunteer in math	0.053*** (0.017)	
Degree not STEM		0.047*** (0.018)
Degree is STEM		0.063*** (0.022)
F-value of difference:	0.941	0.444
Mean Dep:	0.65	0.65
Obs	712	711
R ²	0.254	0.255
Panel B: Italian		
Not volunteer in Italian	0.038* (0.023)	
Volunteer in Italian	0.043** (0.019)	
Degree not Humanities		0.044** (0.018)
Degree is Humanities		0.021 (0.034)
F-value of difference:	0.844	0.486
Mean Dep:	0.46	0.46
Obs	712	711
R ²	0.134	0.136
Panel C: English		
Not volunteer in English	0.060** (0.030)	
Volunteer in English	0.047* (0.026)	
No English certificate		0.033 (0.031)
English certificate		0.064** (0.025)
F-value of difference:	0.701	0.348
Mean Dep:	0.46	0.46
Obs	516	514
R ²	0.246	0.246

Notes: This table reports OLS estimates of the assignment to the TOP tutoring treatment on math performance (Panel A), Italian performance (Panel B), and English performance (Panel C). Randomization round fixed effects included in all regressions. Ex-ante student baseline controls include gender, immigrant, grade, parental education for each parent, employment type for each parent, learning disability, interest for the different subjects, perseverance, importance of luck, and familiarity with computers. Robust standard errors in parentheses. ***, ** and * denote significance at the 1, 5 and 10 percent level, respectively.

Treatment Effect on Tutors

	(1)	(2)	(3)	(4)	(5)	(6)
	Income as Incentive vs. Income equality	Hard work vs. Luck	Work to Natives over Immigrants	If Effort Well-paid job	Easy to put in others' shoes	Make decisions irrespective others' feelings
Panel A: Sample –second endline for all tutors						
Treatment	0.151 (0.195)	0.118 (0.200)	0.327 (0.232)	-0.279 (0.223)	0.499** (0.238)	-0.200 (0.228)
Mean Dep:	4.46	3.47	1.81	2.98	3.15	2.79
Obs	739	742	738	738	740	740
Panel B: Sample – second endline with imputed values from first endline						
Treatment	-0.026 (0.181)	-0.020 (0.183)	0.377* (0.213)	-0.485** (0.209)	0.373* (0.219)	-0.361* (0.206)
Mean Dep:	4.46	3.47	1.81	2.98	3.15	2.79
Obs	933	936	933	936	937	937

Notes: This table reports the coefficients from an ordered logit regressions. Panel A restricts the sample only to tutors that replied to the second endline. Panel B imputes the values from the first endline for those who did not reply to the second endline. All columns include the controls that were used to assign the tutors to students: whether the volunteer has tutoring experience and specific training (to support students with learning disorders or immigrants), their expertise in the subjects (math, Italian, English), their time availability (3 hours per week or 6 hours per week), whether they are on time in their university enrollment and if they confirmed their availability. We also include the additional tutor controls (gender, university faculty, whether they are enrolled in a undergraduate or master, GPA, previous volunteering activities, whether they applied to TOP to help others (motivation), parental education, and familiarity with the computer). The mean of the dependent variable reported in the table is for the control group of tutors. Robust standard errors in parentheses. ***, ** and * denote significance at the 1, 5 and 10 percent level, respectively.

Tutors' Satisfaction, Students' and Tutors' Characteristics

Dep. Var.	(1)	(2)	(3)	(4)
	Satisfaction		Tutoring again?	
	Coeff.	SE	Coeff.	SE
Student Characteristics				
Learning Disorders	-0.027	(0.224)	0.227	(0.230)
Immigrant	-0.309	(0.263)	0.126	(0.288)
Male	0.205	(0.208)	0.564	(0.227)
Grade 6	1.200	(0.679)	-0.442	(0.880)
Grade 7	0.122	(0.380)	-0.039	(0.377)
Edu Mother: High-School	-0.007	(0.237)	-0.353	(0.242)
Edu Mother: Degree	-0.404	(0.349)	0.039	(0.374)
Edu Father: High-School	-0.281	(0.224)	-0.111	(0.244)
Edu Father: Degree	0.082	(0.441)	-0.543	(0.384)
Mother has blue collar job	0.120	(0.221)	0.656	(0.246)
Mother has white collar job	-0.015	(0.295)	0.471	(0.279)
Father has blue collar job	0.366	(0.228)	0.441	(0.262)
Father has white collar job	0.143	(0.286)	0.585	(0.320)
Tutor Characteristics				
Female	-0.004	(0.113)	0.026	(0.110)
Faculty: Education	-0.097	(0.127)	0.202	(0.139)
Faculty: Economics	0.098	(0.102)	-0.057	(0.105)
Faculty: STEM+ Medical	0.301	(0.229)	0.052	(0.270)
University GPA	-0.607	(0.485)	1.180	(0.500)
Volunteering	0.043	(0.117)	-0.184	(0.106)
Motivation TOP: help others	0.450	(0.144)	0.083	(0.162)
Tutoring before	1.654	(1.169)	0.035	(1.213)
Training Immigrants	-0.057	(0.184)	0.200	(0.173)
Training Learning Disorders	0.000	(0.000)	0.000	(0.000)
Importance Hardwork	0.010	(0.142)	-0.282	(0.153)
Mean Dep:	3.69		2.15	
Obs	451		451	

Notes: This table reports the coefficients from an ordered logit regression. The sample is limited to tutors who completed the questions in the endline. Robust standard errors in parentheses. ***, ** and * denote significance at the 1, 5 and 10 percent level, respectively.

Questionnaire: Grit (Duckworth scale)

Here are a number of statements that may or may not apply to you. There are no right or wrong answers, so please answer truthfully, considering how you compare to most people.

- 1 I like schoolwork best which makes me think hard, even if I make a lot of mistakes.
- 2 Setbacks discourage me.
- 3 If I think I will lose in a game, I do not want to continue playing.
- 4 If I set a goal and see that it's harder than I thought I easily lose interest.
- 5 When I receive a bad result on a test I spend less time on this subject and focus on other subjects that I'm actually good at.
- 6 I work hard in tasks.
- 7 I prefer easy homework where I can easily answer all questions correctly.
- 8 If I'm having difficulty in a task, it is a waste of time to keep trying. I move on to things which I am better at doing.

Questionnaire: Children's Depression Screener (ChID-S) (Fruhe et al., 2011)

For each item please mark whether you agree or disagree with the statement.

- ① I am happy
- ② I worry a lot
- ③ I feel sad
- ④ I get upset quickly
- ⑤ I am not in the mood for anything
- ⑥ I often think I did something wrong
- ⑦ It's often hard for me to concentrate
- ⑧ I feel lonely
- ⑨ I enjoy a lot of things

Presentation

Selection of students in the Program

Variable	(1) Control		(2) Treated		(3) No TOP		T-test P-value		
	N/[Clusters]	Mean/SE	N/[Clusters]	Mean/SE	N/[Clusters]	Mean/SE	(1)-(2)	(1)-(3)	(2)-(3)
Immigrant	529 [76]	0.172 (0.017)	530 [73]	0.175 (0.022)	22754 [76]	0.145 (0.011)	0.879	0.180	0.181
Student is male	529 [76]	0.624 (0.022)	530 [73]	0.589 (0.019)	22754 [76]	0.517 (0.003)	0.182	0.000***	0.000***
Father was born in Italy	429 [74]	0.809 (0.021)	436 [71]	0.794 (0.027)	19317 [76]	0.836 (0.010)	0.579	0.198	0.094*
Mother was born in Italy	439 [75]	0.745 (0.024)	441 [71]	0.746 (0.028)	19616 [76]	0.804 (0.010)	0.968	0.017**	0.032**
Mother edu: High-school	407 [73]	0.332 (0.027)	411 [69]	0.324 (0.020)	18400 [76]	0.385 (0.008)	0.780	0.054*	0.006***
Mother edu: Degree	407 [73]	0.022 (0.009)	411 [69]	0.029 (0.008)	18400 [76]	0.027 (0.002)	0.455	0.537	0.789
Father edu: High-school	402 [74]	0.271 (0.022)	406 [70]	0.281 (0.019)	18149 [76]	0.343 (0.008)	0.732	0.002***	0.004***
Father edu: Degree	402 [74]	0.010 (0.005)	406 [70]	0.012 (0.005)	18149 [76]	0.019 (0.002)	0.752	0.105	0.268
Low SES	448 [75]	0.326 (0.023)	450 [70]	0.342 (0.021)	19685 [76]	0.231 (0.016)	0.515	0.000***	0.000***
Invalidi score maths, national scale - 5th grade	455 [75]	189.670 (2.169)	458 [70]	184.216 (2.078)	19594 [76]	209.281 (1.218)	0.006***	0.000***	0.000***
Invalidi score Italian, national scale - 5th grade	455 [75]	187.635 (2.047)	440 [70]	185.848 (2.153)	19574 [76]	208.599 (1.072)	0.389	0.000***	0.000***
Invalidi score English, national scale - 5th grade	294 [66]	198.096 (2.414)	286 [66]	191.333 (2.328)	12852 [76]	209.578 (1.034)	0.027**	0.000***	0.000***
Grade in maths (2018)	355 [72]	6.203 (0.091)	365 [71]	6.038 (0.086)	15014 [76]	7.144 (0.033)	0.030**	0.000***	0.000***
Grade in Italian (2018)	355 [72]	6.417 (0.069)	365 [71]	6.436 (0.074)	15016 [76]	7.211 (0.032)	0.718	0.000***	0.000***
Grade in English (2018)	354 [72]	6.432 (0.072)	365 [71]	6.425 (0.073)	15011 [76]	7.207 (0.040)	0.911	0.000***	0.000***

Notes: The value displayed for t-tests are p-values. Standard errors are clustered at variable school_id. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.