The short-term effect of COVID-19 on schoolchildren's generosity

HUBERT JÁNOS KISS – TAMÁS KELLER

ABSTRACT

We conduct two waves (W1 and W2) of an unincentivized online survey to measure the change in altruism of primary school students (N=983) toward classmates and schoolmates during the school closures due to COVID-19. The W1 responses arrived, on average, after 39 days of online education, while W2 responses arrived, on average, 31 days after W1. There is a small, but insignificant decline in generosity both towards classmates and schoolmates between waves. Students with better cognitive abilities are less likely to become selfish toward schoolmates.

Hubert János Kiss
Institute of Economics, Centre for Economic and Regional Studies. 1097 Budapest, Tóth Kálmán utca 4.
and
Department of Economics, Corvinus University of Budapest. 1093 Budapest Fővám tér 8.
e-mail: kiss.hubert@krtk.mta.hu

Tamás Keller
Computational Social Science - Research Center for Educational and Network Studies, Centre for Social Sciences. 1097 Budapest, Tóth Kálmán utca 4.
and
Institute of Economics, Centre for Economic and Regional Studies. 1097 Budapest, Tóth Kálmán utca 4.
e-mail: keller.tamas@tk.mta.hu

A COVID-19 rövid távú hatása diákok nagylelkűségére

KISS HUBERT JÁNOS – KELLER TAMÁS

ÖSSZEFOGLALÓ

Nem ösztönzött online felmérést végzünk két hullámban, hogy megmérjük általános iskolai diákok (N=983) osztály- illetve iskolatársaikkal szembeni nagylelkűségében bekövetkezett változást a COVID-19 következtében történt iskolabezárások ideje alatt. Az első hullámbeli válaszok átlagosan a távoktatás 39 napján érkeztek be, míg a második hullámbeli válaszok átlagosan 31 nappal az első hullámbeli válaszok után érkeztek be. Enyhe, de nem szignifikáns csökkenés tapasztalható a két hullám között mind az osztály- és iskolatársak felé. Jobb kognitív képességgel rendelkező diákok kevésbé váltak önzővé az iskolatársaik felé.

The short-term effect of COVID-19 on schoolchildren's generosity

Hubert János Kiss[a,b], Tamás Keller[a,c]

[a]*Institute of Economics, Centre for Economic and Regional Studies, 1097 Budapest, Tóth Kálmán u. 4.*
[b]*Corvinus University of Budapest, 1093 Budapest, Fővám tér 8, Hungary.*
[c]*Computational Social Science - Research Center for Educational and Network Studies, Centre for Social Sciences, 1097 Budapest, Tóth Kálmán u. 4, Hungary.*

Abstract

We conduct two waves (W1 and W2) of an unincentivized online survey to measure the change in altruism of primary school students (N=983) toward classmates and schoolmates during the school closures due to COVID-19. The W1 responses arrived, on average, after 39 days of online education, while W2 responses arrived, on average, 31 days after W1. There is a small, but insignificant decline in generosity both towards classmates and schoolmates between waves. Students with better cognitive abilities are less likely to become selfish toward schoolmates.

Keywords: altruism, children, generosity, social preferences
JEL: code, C99, D91, I24

1. Introduction

In recent decades special attention has been given to the evolution of preferences in the childhood as they are more malleable at younger ages (Ertac, 2020). Here we focus on social preferences that have two main sets of determinants: sociodemographic factors and shocks. Experimental games have been used to study the effect of age, gender, family background and cognitive abilities on altruism. Sutter et al. (2019) (see references therein) contains a summary about the main findings: i) generosity increases with age; ii) girls are more altruistic than boys, iii) evidence is mixed concerning socioeconomic status (SES); iv) there is some evidence that better cognitive abilities associate with more generosity. Evidence is mixed on how shocks or extreme events (natural disasters or civil wars) affect social preferences, as some studies report a negative effect (e.g. Fisman et al., 2015), while others document the opposite (e.g. Voors et al., 2012).

We ask how the COVID-19 affected altruism of schoolchildren. There may be several channels. The lack of daily physical contact with peers may lead to enhanced selfishness as testified by Buso et al. (2020) who find that stronger social isolation associates with more selfish behavior. Worsening economic situation may also affect generosity, e.g. if parents become unemployed it may reduce altruism of the children.

Section 2 describes the data collection and the variables. Section 3 contains the findings. Section 4 concludes.

2. Data

Due to COVID-19, on March 16, 2020 schools were closed in Hungary and students switched to online education that remained in force for 91 days, until the end of the academic year 2019/2020.

Before COVID-19 one of the authors (Tamás Keller) carried out a randomized control trial with a large pool of primary school students from many schools. We contacted the students from these schools and asked them to complete a 25-minute online survey, without incentives. Subjects in grades 4-8 were from 126 classrooms in 28 rural Hungarian primary schools.[1] We

---

[1]The school performance of the students in our sample was 0.2 standard deviations below the national average for math and reading-comprehension tests.

collected data in two waves (W1 and W2). Participation was voluntary, the average response rate was 60%.

In both waves, students had flexibility in completing the survey in an unsupervised environment. Consequently, there is variation in when the students completed W1. Moreover, the number of days between W1 and W2 varies also between students. W1 started 32 days after the beginning of remote learning and the median response arrived on day 37. W2 began 8 days after closing W1 and for the median respondent there were 32 days (range: 12 - 48 days) between the two responses.

The following question measured altruism: "Imagine that you are going to the zoo with some of your classmates. One of your classmates has forgotten to bring money for the entrance ticket. You have enough money for two entrance tickets. Would you lend your classmate the money for the entrance ticket? 'Yes', 'No', or 'I do not know'". We repeated the same question, but replaced classmates with schoolmates. Generosity is binary variable =1 if they lend money and 0 otherwise. The category "I do not know" is coded as 0. By distinguishing between classmate and schoolmate we can measure if social distance affects altruism.[2]

The following question captures SES: "How many books do you have? You should count the number of books you and your parents possess together. Please do not include your coursebooks and newspapers". Answer categories: less than one shelf 0-50; one shelf ca. 50; 2-3 shelves (ca: 150); 4-6 shelves (ca: 300); 2 bookcases (ca: 300-600 books); 3 bookcases (ca: 600-1000 books); more than 1000 books.[3]

We use teacher-reported data on students' grades in the core subjects to calculate the grade point average (GPA), our proxy for cognitive abilities. As a robustness check, we also use grade-specific math tests developed by the Hungarian Educational Authority.[4]

---

[2]It is well-known that individuals give more to other individuals who are "closer" to them (e.g. Branas-Garza et al., 2010).

[3]Fuchs and Wößmann (2008) provide evidence that this measure is adequate.

[4]Students had to answer four questions. We code this variable as the percentage of the correct answers.

3. Results

The top panel of Table 1 indicates the proportion of respondents who would lend their classmate or schoolmate in W1 and W2.[5] After about a month of remote learning 85% / 47% were willing to lend to a classmate / schoolmate. About a month later (depending on the dates of completion) these rates fell to 84% / 46%, the difference being insignificant (see confidence intervals).[6] In column 4 and 7, we exploit the fact of having matched pairs of observations and use McNemar's test (reporting the corresponding p-values) to see if there is a change in lending between W1 and W2 within-subject. There was no significant change neither to a classmate, nor to a schoolmate, suggesting that overall COVID-19 did not alter the altruism of our respondents in the short run.

In the second panel, we investigate if there is a gender difference in the effect of social isolation. Girls were more likely to lend to classmates in both waves (in line with the literature), but the differences are not significant. Interestingly, boys were more generous than girls with schoolmates in both waves, but differences are insignificant. The within-subject test shows that neither girls', nor boys' generosity toward classmates or schoolmates changed between waves.

The third panel shows the relationship between the age quartiles and lending behavior. Contrary to the literature, we do not see any age trend. We fail to see a significant within-subject difference in lending behavior between waves both for classmates and schoolmates in any of the age quartiles.

The fourth panel contains the associations between lending and SES (proxied by the number of books at home). The within-subject analysis indicates that there is no significant change in lending behavior between waves, except for children in the highest SES group / for children with two bookcases at home when considering lending to classmates / to schoolmates. The p-values are relatively high, so if we use the Bonferroni correction for multiple testing, then the significance vanishes.

The bottom panel shows the relationship between GPA ($\sim$ cognitive abil-

---

[5]We remove students from the data with missing answer to any of the altruism questions.

[6]McNemar's test indicates that social distance matters in the expected way: in both waves students are more generous to classmates than to schoolmates (p-values<0.001 in both cases).

Table 1: Lending behavior along several dimensions

	Lending to classmate			Lending to schoolmate		
	Wave 1	Wave 2	H0: W1=W2	Wave 1	Wave 2	H0: W1=W2
Overall	0.852	0.838	0.2504	0.465	0.460	0.7861
(N=983)	(0.829 - 0.874)	(0.814 - 0.861)		(0.433 - 0.497)	(0.428 - 0.492)	
Gender						
Female	0.858	0.856	1.0000	0.445	0.443	1.0000
(N=499)	(0.824 - 0.887)	(0.822 - 0.885)		(0.401 - 0.490)	(0.399 - 0.488)	
Male	0.847	0.820	0.1360	0.486	0.477	0.7826
(N=484)	(0.812 - 0.878)	(0.783 - 0.853)		(0.440 - 0.531)	(0.432 - 0.523)	
Age						
Age quartile 1	0.858	0.862	1.0000	0.488	0.508	0.6147
(N=246, mean age=10.98)	(0.808 - 0.899)	(0.812 - 0.902)		(0.424 - 0.552)	(0.444 - 0.572)	
Age quartile 2	0.841	0.817	0.3915	0.447	0.455	0.8877
(N=246, mean age=12.25)	(0.790 - 0.885)	(0.763 - 0.863)		(0.384 - 0.512)	(0.392 - 0.520)	
Age quartile 3	0.842	0.838	1.0000	0.453	0.417	0.2529
(N=247, mean age=13.44)	(0.791 - 0.885)	(0.786 - 0.882)		(0.390 - 0.518)	(0.355 - 0.481)	
Age quartile 4	0.869	0.836	0.2005	0.471	0.459	0.7877
(N=244, mean age= 14.69)	(0.820 - 0.909)	(0.784 - 0.880)		(0.407 - 0.536)	(0.395 - 0.524)	
Socioeconomic status						
Less than one shelf: 0-50	0.859	0.869	0.8601	0.554	0.526	0.5323
(N=213)	(0.805 - 0.903)	(0.816 - 0.911)		(0.485 - 0.622)	(0.456- 0.594)	
One shelf: ∼ 50	0.895	0.877	0.5811	0.456	0.462	1.0000
(N=171)	(0.839 - 0.936)	(0.818 - 0.922)		(0.380 - 0.534)	(0.386- 0.540)	
2-3 shelves: ∼ 150	0.859	0.841	0.5847	0.405	0.423	0.6440
(N=227)	(0.807 - 0.902)	(0.787 - 0.886)		(0.341 - 0.472)	(0.358- 0.490)	
4-6 shelves: ∼ 300	0.801	0.809	1.0000	0.376	0.411	0.4049
(N=141)	(0.726 - 0.864)	(0.734 - 0.870)		(0.296 - 0.461)	(0.329- 0.497)	
2 bookcases: ∼ 300-600	0.892	0.849	0.2891	0.505	0.398	0.0309
(N=93)	(0.811 - 0.947)	(0.760 - 0.915)		(0.400 - 0.611)	(0.298- 0.505)	
3 bookcases: ∼ 600-1000	0.786	0.786	1.0000	0.443	0.514	0.2668
(N=70)	(0.671 - 0.875)	(0.671 - 0.875)		(0.324 - 0.567)	(0.392- 0.636)	
More than 1000 books	0.861	0.722	0.0625	0.500	0.472	1.0000
(N=36)	(0.705 - 0.953)	(0.548 - 0.858)		(0.329 - 0.671)	(0.304- 0.675)	
Cognitive abilities						
GPA quartile 1	0.843	0.864	0.5327	0.525	0.504	0.6353
(N=242, mean GPA=2.56)	(0.791 - 0.886)	(0.814 - 0.904)		(0.460 - 0.589)	(0.439- 0.569)	
GPA quartile 2	0.849	0.828	0.5034	0.448	0.396	0.1742
(N=192, mean GPA=3.58)	(0.790 - 0.896)	(0.767 - 0.879)		(0.376 - 0.521)	(0.326- 0.469)	
GPA quartile 3	0.852	0.825	0.2810	0.430	0.449	0.5831
(N=263, mean GPA=4.31)	(0.803 - 0.892)	(0.774- 0.869)		(0.369 - 0.492)	(0.388- 0.511)	
GPA quartile 4	0.859	0.832	0.4421	0.408	0.440	0.3449
(N=184, mean GPA=4.93)	(0.800 - 0.906)	(0.769- 0.883)		(0.336 - 0.482)	(0.367- 0.515)	

95% confidence intervals in brackets. Column 4 and 7 indicate the p-values of McNemar's test on if lending in wave 1 = lending in wave 2.

ities) and lending. When considering the within-subject change in lending between waves, there is no significant change in none of the quartiles, neither for classmates, nor for schoolmates.[7]

3.1. Regression analysis

To see what determines if there is a decrease in altruism between the waves, we use a linear probability model in which the dependent variable is if a student in W1 was willing to lend to a class- or schoolmate while in W2 she / he was not.[8] We compare these students who become less altruistic to those who lend in both waves. We use class fixed effects and cluster standard errors on class level.

---

[7]Qualitatively identical results emerge if instead of GPA we consider the average of the math tests in the surveys.

[8]Out of 983 students, 767 / 88 did / did not lend to classmate in both waves. There were 57 / 71 who became more / less altruistic between waves. Regarding schoolmates, 346 / 420 did / did not lend in both waves, while 106 / 111 students became more / less altruistic between waves.

Table 2: Determinants of the change of lending to classmates / schoolmates. Linear probability models with class fixed effects.

VARIABLES	Dep. var.: respondent becomes less altruistic to classmate					Dep. var.: respondent becomes less altruistic to schoolmate				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Girl	-0.0244				-0.0250	-0.0533				-0.0300
	(0.0297)				(0.0336)	(0.0572)				(0.0567)
Age		-0.000546			-0.00666		0.0427			0.0320
		(0.0173)			(0.0184)		(0.0458)			(0.0467)
Books (One shelf)			-0.0257		-0.0265			0.00738		-0.0169
			(0.0371)		(0.0420)			(0.0954)		(0.0999)
Books (2-3 shelves)			-0.00596		0.000484			-0.0754		-0.0222
			(0.0444)		(0.0489)			(0.0786)		(0.0921)
Books (4-6 shelves)			-0.0501		-0.0480			-0.101		-0.0921
			(0.0386)		(0.0450)			(0.100)		(0.114)
Books (2 bookcases)			-0.0320		-0.0287			0.0312		0.0587
			(0.0711)		(0.0690)			(0.128)		(0.141)
Books (3 bookcases)			-0.0852*		-0.0817			-0.201*		-0.164
			(0.0476)		(0.0527)			(0.117)		(0.129)
Books (More than 1000)			-0.00249		0.0133			0.0794		0.178
			(0.0745)		(0.0867)			(0.175)		(0.195)
GPA				-0.0129	-0.0103				-0.109***	-0.103**
				(0.0240)	(0.0234)				(0.0364)	(0.0413)
Start W1	0.00215	0.00236	0.00193	0.00148	0.00151	-0.00764	-0.00841	-0.00834	-0.0143	-0.0141
	(0.00712)	(0.00707)	(0.00737)	(0.00707)	(0.00749)	(0.0115)	(0.0118)	(0.0122)	(0.0118)	(0.0121)
W1-W2	-0.00345	-0.00332	-0.00352	-0.00357	-0.00358	-0.0117	-0.0119	-0.0115	-0.0131	-0.0124
	(0.00480)	(0.00478)	(0.00513)	(0.00495)	(0.00517)	(0.00978)	(0.0100)	(0.0110)	(0.0101)	(0.0111)
Constant	0.0756	0.0580	0.0954	0.148	0.254	0.924	0.388	0.954	1.605**	1.175
	(0.401)	(0.461)	(0.429)	(0.418)	(0.512)	(0.685)	(0.896)	(0.758)	(0.685)	(0.924)
Observations	426	426	426	390	390	426	426	426	390	390
R-squared	0.222	0.219	0.229	0.218	0.231	0.226	0.226	0.242	0.252	0.272

Robust standard errors clustered on class level in parentheses.

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Neither gender, nor age play a role in understanding why students become more selfish. Relative to the baseline group (less than a shelf of books at home) students from higher SES groups often are less likely to become more selfish, and for a group (3 bookcases) this difference is marginally significant in sparse specifications. Cognitive abilities exhibit a consistent negative association, suggesting that smarter students are less likely to become selfish. Moreover, this relationship is significant when considering lending to a schoolmate, even if we consider all the other variables.[9] The variable Start W1 denotes the length between the closure of schools and when the respondent completed W1. We observe no relationship between this variable and the change in altruism. Similar finding emerges when considering the days elapsed between completing the surveys in W1 and W2 (variable W1-W2).

4. Conclusion

We carry out two waves of a large online survey to assess how COVID-19 affected altruism of schoolchildren in the short term. Overall, we find only a minuscule decrease in generosity both towards classmates and schoolmates. We interpret it as a good message, indicating that COVID-19 did not have a harmful impact on altruism in the short run. When considering subsamples based on gender, age, socioeconomic status or cognitive abilities, we do not find significant differences in the change of altruism. A regression analysis shows that students with better cognitive abilities are less likely to become selfish towards schoolmates.

---

[9]If instead of GPA we use the math test results we obtain qualitatively the same finding.

References

Branas-Garza, P., Cobo-Reyes, R., Espinosa, M.P., Jiménez, N., Kovářík, J., Ponti, G., 2010. Altruism and social integration. Games and Economic Behavior 69, 249–257.

Buso, I.M., De Caprariis, S., Di Cagno, D., Ferrari, L., Larocca, V., Marazzi, F., Panaccione, L., Spadoni, L., 2020. The effects of covid-19 lockdown on fairness and cooperation: Evidence from a lablike experiment. Economics Letters 196, 109577.

Ertac, S., 2020. The formation and malleability of preferences and noncognitive skills. Handbook of Labor, Human Resources and Population Economics , 1–27.

Fisman, R., Jakiela, P., Kariv, S., 2015. How did distributional preferences change during the great recession? Journal of Public Economics 128, 84–95.

Fuchs, T., Wößmann, L., 2008. What accounts for international differences in student prformance? a re-examination using pisa data, in: The economics of education and training. Springer, pp. 209–240.

Sutter, M., Zoller, C., Glätzle-Rützler, D., 2019. Economic behavior of children and adolescents–a first survey of experimental economics results. European Economic Review 111, 98–121.

Voors, M.J., Nillesen, E.E., Verwimp, P., Bulte, E.H., Lensink, R., Van Soest, D.P., 2012. Violent conflict and behavior: a field experiment in burundi. American Economic Review 102, 941–64.