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USE OF TIME AND CHILDREN'S BEHAVIOR AT THE TIME OF COVID

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Abstract

In this paper, we study the effect of time use on children's behaviors six months after the lock down in Italy, in October 2020, when infections were growing again and new restrictions were going to be imposed. In particular, we look at the effect of usages of time that have increased or decreased due to the pandemic: recent literature shows that time with parents and time with digital devices has increased, while time with other peers and in extracurricular activities has decreased. Have these changes affected children's non-cognitive development? Through what channels has inequality among children grown? By using representative data on one thousand 9-year-old Italian children, we find that children benefit from participation in extracurricular activities, that the suspension or reduction of these activities has not canceled out their benefits. The time spent on digital devices is, instead, correlated with more behavioral problems. Finally, time spent with dads in stimulating activities leads to improved behaviors. These three usages of time, however, are distributed differently across households, thereby posing questions about inequality.

1. Introduction

Italy was one of the first European countries hit by COVID-19 in early 2020. Schools of all grades were suspended in the last week of February and were not re-opened until the following academic year. The whole country lived through a full lock down from March until May 2020, with extreme restrictive measures that hindered mobility: people were forced to stay at home, most business activities closed, and only essential workers were allowed to physically go to work.

The pandemic suddenly changed the habits of adults and children in 2020, with a slow return to the usual way of living observed only a couple of years thereafter. Due to the closure of the schools during the spring of 2020, children and their parents were the ones who changed how they use their time the most. However, even with the re-opening of Italian schools in autumn 2020, time spent at home with the family has been far greater than that spent outside the home. Many parents have continued to work in smart working and many children, outside of school hours, have experienced a time that was limited in extracurricular activities and in social activities with other children; this was due to the restrictive measures that limited mobility and that prohibited most of the out-of-school activities for the whole academic year 2020/2021.

Due to such measures, the use of children's time in sedentary activities increased and it also decreased for physical and sporting activities. In many cases, time spent with parents increased while time with other children decreased (Mangiavacchi et al., 2021; Tulchin-Francis et al., 2021).

This paper's objective is to study the effect of this change in the use of time on children's behavior. We use a sample of Italian children, aged around 9-years-old, who were interviewed in October 2020. We describe children's use of time six months after the initiation of the lock down, estimate the effects of use of time on children's behavior, and underline inequalities in use of time across children from different family backgrounds. Compared to other papers dealing with this topic, we have the advantage of having a representative sample of the Italian population, of having very detailed data on the use of time, and questions about children's behavior: the time spent in the various activities is measured through a weekly time diary; as a measure of children's behavior, we use the Strength and Difficulty questionnaire, which assesses five socio-emotional dimensions of children (emotional symptoms, conduct problems, hyperactivity/inattentiveness, peer relationship problems, and pro-social behavior). We study the association between time spent doing different activities – extracurricular activities, such as sports and art, on tablets and/or pc, time spent with parents and with other children – and these five outcomes.

We found that Italian children were spending very little time on extra school activities in October 2020. Instead, a lot of time was devoted to playing with the tablet and/or computer, and more time

was spent with the parents, both mother and father. We found that time spent with children is positively associated with decreased peer relationship problems. Time spent with the father in stimulating activities is also positively associated with better social-emotional outcomes, whereas time spent with the mother seems less important. Children who spend more time on digital devices show more behavioral problems while extracurricular activities are confirmed to be important: we observe that children who could continue with their extracurricular activities – despite the closures – but also children who stopped only because of COVID had fewer behavioral problems than those who do not (and who did not) do any extracurricular activity. Overall, we can say that and that the break in extracurricular activities that most children experienced (from March to October 2020) has not displaced their beneficial effect.

The rest of the paper continues as follow: in Section 2 we report the related literature, in Section 3 we describe the data collection, in Section 4 we present the methods, and we communicate the results in Section 5. Conclusions follow in Section 6.

2. Related literature

The changes in the use of children's time are the consequence of three factors influenced by the pandemic. Firstly, the closure of schools. Secondly, the possibility of working at home for many parents and, therefore, the possibility of spending more time with them. Third, the impact of COVID-19 on family income (due to a job reduction or loss) or on family mental well-being (due to health, family income, couple-related concerns, etc.) and this may have affected the type of activities children did or the quality of time spent with parents.

Several papers show that the most evident, changed use in children' time included an increase in hours of TV per day from 1 hour and 26 minutes to 2 hours and 55 minutes (Mangiavacchi et al., 2021),¹ an increase in time spent reading from 58 minutes per day to 1 hour and 12 minutes (Mangiavacchi et al., 2021), a decrease in learning time of almost 4 hours per day (Grewenig et al., 2021),² a decrease of time involved in extracurricular activities from 36 minutes per week to 8 minutes (Mangiavacchi et al., 2021), a decrease in participation in organized sports from 80% to 12%

¹ Mangiavacchi et al. (2021) use data for Italy, collected in April 2020, on 3,619 children under age 16.

² Grewenig et al. (2020) use data for Germany, collected in June-July 2020, on 1,099 children aged – on average – 12 years old.

(Tulchin-Francis et al., 2021),³ and a majority of time spent (80%) in sedentary activities (Pombo et al., 2021).⁴

At the same time, the use of parents' time has changed: less work outside the home, sometimes less work in general, and more time for household and childcare activities (Golin, 2021; Jessen, 2021). We observe greater participation in these activities if the number of working hours has decreased and if the work activity could be carried out from home for both mothers and fathers (Mangiavacchi et al., 2021; Golin, 2021; Pabilonia and Vernon, 2022). In particular, fathers were found to participate more equally in childcare (taking all work characteristics described above into account), and less in household chores (Mangiavacchi et al., 2021; Del Boca et al., 2020; Sevilla and Smith, 2020).

Some studies have already looked at the effects of these changes on children's outcomes. It can be seen that school closures negatively influenced the understanding of mathematics, particularly for children from weaker family backgrounds, in a study conducted on third grade Italian children that compared the COVID-19 cohort with the previous one (Contini et al., 2021). The effects are even more relevant when the closure went beyond the 4 "Italian" months: there was a negative effect on linguistic development and an increase in socio-emotional difficulties for Chile, where formal childcare was closed for almost a year, according to data obtained comparing the COVID-19 cohort with a previous one (Abufhele et al., 2022). A good number of studies have used data from the COVID-19 survey and the follow-up waves of the Understanding Society (UK) for these purposes. For England, Blanden et al. (2021) find an increase in behavioral difficulties for children who spent more time away from school by comparing primary schools with different return priorities. Looking then at the activities undertaken during the time spent at home of Italian and French children aged between 3 and 18 years old, a positive association between time spent on digital devices and behavioral problems can be observed, whereas the opposite association is found with reading (Champeaux et al., 2020). From a gender perspective, Mendolia et al. (2021) find that the negative influence on the non-cognitive dimension is stronger for girls than it is boys (aged 10-15 years old), while the difference is not significantly different between younger female and male children (aged 5-8 years old).

The negative effects that the COVID-19 may have had on parents' work and health also need to be considered when examining children's wellbeing for the potential negative effects on them too. Tani et al. (2020) find a negative impact on parents' mental health, due to growing financial insecurity and a childcare burden which may have had implications for children. Using data from the Understanding

³ Tulchin-Francis et al. (2021) use data for Texas, collected in April-June 2020, on 625 children in primary school.

⁴ Pombo et al. (2021) use data for Portugal, collected in March 2020, on 932 children aged 6-12 years old.

Society survey, for the UK, Hupkau et al. (2020) find that the loss of income, due to the COVID-19 pandemic, has reduced children's learning opportunities and has increased the chances of family quarrels. Conversely, a greater involvement in childcare activities by fathers is found to have beneficial effects on children's emotional states and on family relationships (Mangiavacchi et al, 2021).

The effect of time use on children's cognitive and non-cognitive abilities has already been studied in "normal" times. It was generally found that time spent playing sports, participating in social activities, and reading had a positive impact on children's academic performance and behaviors, whereas time spent on digital devices had a negative effect (Hofferth and Sandberg, 2001; Caetano et al., 2019; Meroni et al., 2021). Concerning time with parents, Fiorini and Keane (2014) found that time spent with parents in educational activities was the most productive for cognitive skill development.

While the onset of COVID-19 has led to major changes for everyone, not all of the changes have been of the same magnitude; consequently, they have not all had the same effects. First of all, we might expect heterogeneity in the decrease in learning time, in the availability of technology to attend lessons remotely, and in terms of the support offered by an adult, in the substitution of educational and social time with time during which children were left entertaining themselves with a tablet. All of this happened differently in different countries, between children with relatively higher/lower skills, and across families with different levels of education and income (Grewenig et al., 2020; Asadullah and Bhattacharjee, 2022; Datta and Gandhi Kingdon, 2022). How did this shift manifest itself in terms of policies? Childcare policies that supported families were almost non-existent during the period of closure, given the need to limit contacts. However, where there have been, the adverse effects – in terms of family malaise - have been contained (Schüller and Steinberg, 2022).

3. The survey

The data was collected in the second half of October 2020 by the survey company Doxa. The sample is made up of a thousand children (and their families) born in 2011 and, therefore, who attended the fourth year of primary school. The sample is representative of Italian children of that age.

The survey's objective was to study the relationship between children's time use and both their well-being and social-emotional development.

The interview was organized in the following way. The interviewer contacted the family and made an appointment for an initial visit. During the first visit, s/he conducted a short interview, in which

the family members' main social demographic information was requested: date of birth, gender, work or study activity of both parents and children, and relationships between the family members.

At the end of the visit, the interviewer delivered a questionnaire to the child born in 2011 and another questionnaire to one parent, providing precise instructions about how to fill it in. Children were given a time use diary. Each child could indicate what activity s/he was doing, with whom, where, if s/he had enjoyed that moment for each day of the working week, starting from 4.30pm to 10.30pm, at 15-minute intervals. The diary ran from 10.30 am to 10.30 pm with 30-minute intervals on Saturdays and Sundays.

An example of the time diary is provided in the Appendix. There are 14 possible activities: 1) I'm moving from place to place or shopping; 2) I'm doing homework; 3) I am at a medical/specialist visit; 4) I help prepare a meal, I put my room in order, I prepare my school bag; 5) I wash myself and get ready; 6) I play by either moving and running; 7) I play a quiet game; 8) I do sport; 9) I do an artistic activity; 10) I learn a foreign language; 11) I read; 12) I entertain myself with the mobile TV tablet; 13) I am eating; or 14) I chat with someone/participate in a social event. Children were then asked about where the activity took place (at school, at home, at the home of friends and relatives, in the open air, in the parish, or in another place) and with whom (alone, with mum, with dad, with other children, or with other adults). Finally, two emoticons allow the child to indicate whether they liked the activity or not. If, for example, the first visit that the interviewer arrived happened to be on Wednesday, the child was supposed to fill the diary beginning with the following day (Thursday) proceeding to the following Wednesday.

The last part of the questionnaire for the child included questions about school, her/his friends, the specific extracurricular activities carried out (football rather than basketball, piano rather than guitar), and the use of digital devices (to play games, to watch videos on YouTube).

The questionnaire submitted to the parents asked about the school attended by the child, any extra activities offered after school, how decisions are made with respect to the choice of the extra activities, and a battery of questions regarding the child's behavior.

The interviewer returned after 8-10 days in order to collect the questionnaires. The questionnaires were also submitted to siblings (up to 3 years younger, up to 3 years older), but the low number did not allow for them to be used within-the-family analyses.

Originally, the survey should have been carried out starting from the last week of February 2020. However, the announcement of the closure of schools, the day before the official start of the survey and the subsequent worsening of the situation, meant that the survey was postponed until the autumn. Some questions were added: questions were added on the use of distance learning (during the lockdown and at the time of the interview), on the comparison between extracurricular activities

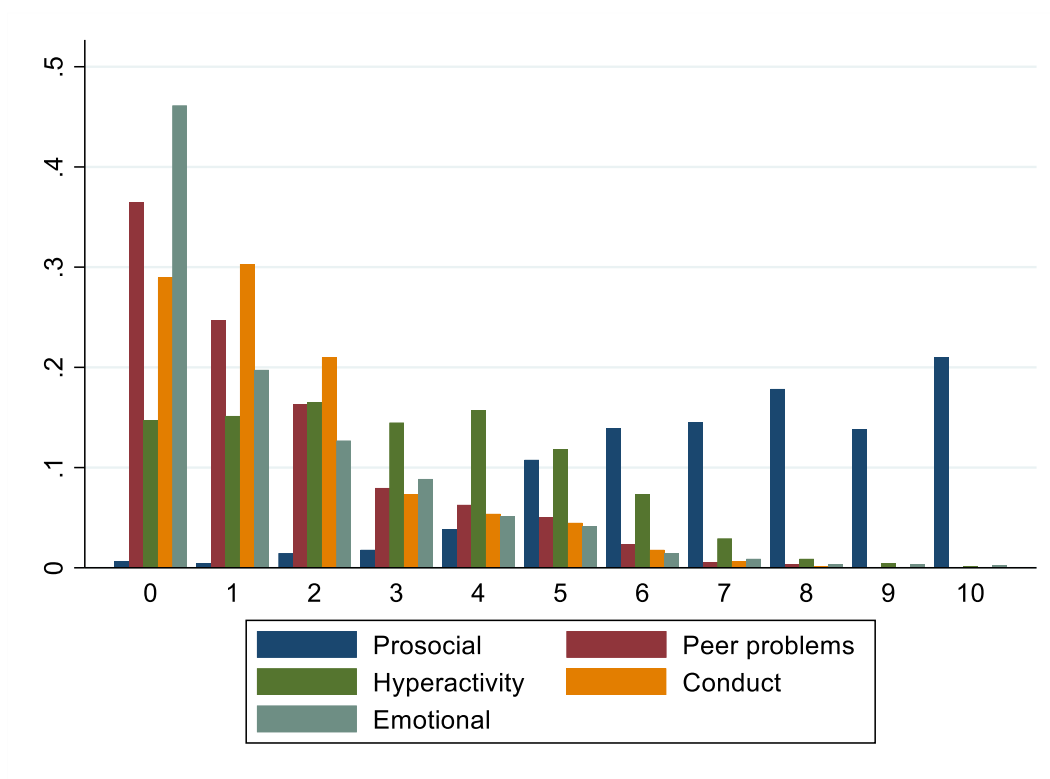
carried out before the lock down and at the time of the interview, and on the parents' work and income changes attributable to the lockdown.

On the one hand, the survey's potential was reduced due to the fact of living through a completely exceptional time, in particular with respect to the limitations that children have had in the opportunities for activities outside the home. On the other hand, it provided the opportunity to describe children's use of time and their behavioral development at this particular moment, as well as the association between the two.

Our main outcomes of interest are children's socio-emotional skills. We analyze children's pro-social behavior, peer relationship problems, hyperactivity, conduct problems, and emotional symptoms. Five questions – concerning the child's behavior – were asked to the parent for each dimension. This battery of questions, called Strength and Difficulties Questionnaire (SDQ), was devised by UK child psychiatrist Robert Goodman (Goodman, 1997). For example, for the peer relationship problems outcome, the questionnaire proposes five descriptions of situations in which the child may find her/himself: 1) s/he is rather solitary, prefers to play alone; 2) has at least one good friend; 3) is generally liked by other children; 4) is picked on or bullied by other children; and 5) gets along better with adults than with other children (the complete list of questions is reported in the Appendix A). For each description, the parent can indicate a level of agreement: "not true" (giving a score of 0), "somewhat true" (giving a score of 1), and "certainly true" (giving a score of 2). Given that each behavioral dimension made of 5 items, raw variables vary between 0 and 10, and have been standardized so to have a 0 mean and 1 standard deviation. Lower scores identify positive traits for the four dimensions measuring peer relationship problems, hyperactivity, conduct problems, and emotional symptoms, while a higher score identifies more positive traits in terms of pro-social behavior. Since the first four have a negative connotation, the lower their score, the less problematic the child's behavior is, while it is desirable to have a large score in the pro-social behavior.

Figure 1 plots the raw outcomes in our working sample, showing the proportion of children with a given score: we see that more than 40% of the sample does not exhibit any emotional problems (score is equal to 0), but that only 15% do not show hyperactivity problems for example.

Figure 1: Distribution of the raw outcomes in the working sample



NOTE: The figures plots the distribution of the raw outcomes in the working sample. For each outcome variable the graphs show the proportion of kids in each score. **Source:** Authors own calculations.

4. Methods

We aimed to study the relationship between use of extra-schooling time and children’s non-cognitive development in a specific historical moment. We, therefore, estimate the following equation:

$$y_i = \alpha + time_uses_i * \beta_1 + \beta_2 * reduction + \beta_3 * extra * reduction + \gamma controls_i + \mu_i$$

Y represents one of the five behavioral dimensions under study: pro-social behavior, peer relationship problems, hyperactivity, conduct problems, and emotional symptoms.

As main determinants (*time_uses*), in addition to children’s time in extracurricular activities we include time spent on digital devices: these are two uses of time that have changed because of the pandemic(s). Next, *time_uses* also includes people with whom they spend time: parents, mom and dad separately (with whom the time spent together can be increased thanks to smart working policies), and children (with whom time can be decreased given the greater restrictions), which are included in the regression as number of hours spent with mother, father, and with other children. For the mother

and father we distinguish between activities that the child has to do (going to visit people, putting the room in order, etc. and these activities 1-5 have been defined in Section 3) and activities that the child may like to do (doing sports, playing, etc. and these activities 6-14 have been defined in Section 3). We call the first “functional” activities and the second “stimulating” activities.

For the extra-curricular activities, we also include a variable that indicates whether the child was doing more extracurricular activities one year earlier (October 2019, at the beginning of the previous schooling year, before COVID), and s/he is now doing less due to COVID (*reduction*). We also include the interaction between hours currently practiced (*extra*) and the reduction of these activities following COVID-19 in order to better understand the effect of the suspension of extracurricular activities. This model uses children who are not doing any activity at the time of the interview and did not reduce the time spent in such activities as baseline, so that the related dummy variables are equal to 0. With respect to this baseline, we can define another 3 groups of children: (i) children engaged in some activities in October 2020 who have not reduced this time compared to October 2019; (ii) children who were not doing any activity in October 2020, but were doing some activities in October 2019; and (iii) children who were doing some activities in October 2020, but reduced the amount of time spent on them. The estimated effect b_1 expresses the effect of each hour spent in extracurricular activities for children (i), the estimated effect b_2 expresses the effect of the reduction for children (ii), and $hours * b_1 + b_2 + hours * b_3$ expresses the overall effect for children (iii).

We then control for a number of variables that may be correlated with the selected uses of time and that could influence the outcomes themselves: for example, having more educated parents may have an impact upon the time that children spend on digital devices, and – at the same time – on their behaviors. We, therefore, include variables concerning being a girl, living with both parents, and having at least one parent with tertiary education. Finally, we consider one variable closely related to COVID: if at least one parent has suffered a decrease in salary, subsequent to the work reduction due the COVID restrictions, then this variable may impact directly on the child’s behavior and on her/his use of time.

The original sample was composed by 1,023 children. We excluded 104 children who did not complete the time use questionnaire, 5 children who had missing values in the outcomes, and 23 children who did not reply to question about whether they were doing less activities with respect to the previous year. Our working sample was composed of 891 children.

Table 1 shows a description of the variables included in the analysis, measured in October 2020: on average, children were spending only 1.7 hours on extracurricular activities. 75% of the sample stated that – due to COVID – they were participating in more extracurricular activities that one year previously, compared to now. We can also observe the change of time spent in extracurricular

activities: over 75% of children who reduced this use of time, 35% of whom were not practicing at all at the time of the interview, while 40% could still practice. Only 17% of the sample did not reduce this time, and kept participating in extracurricular activities, as they had done in the previous year. Finally, 7.6 of the sample were spending 0 hours doing extra school activities prior to the arrival of COVID-19.

As for the other variables related to time use, children were on average spending 12 hours using digital devices, 26 hours per week with the mother, of which 9 doing functional activities and 17 carrying on stimulating activities; 17 with the father, of which 4 involved functional activities and 13 involved stimulating activities. On average, 12 hours per week were spent with other children.

As for other control variables, our sample is composed of 49% of female children; 88% live with both parents, 26% with at least one parent with tertiary education, and at least one parent declared a salary reduction in 51% of the cases.

5. Use of time and behavioral outcomes

Results are reported in Table 2 for the 5 outcomes. More hours on extracurricular activities are associated with higher pro-social behavior, and fewer peer relationship, conduct, and emotional problems for the children who did not reduce time spent on activities. No effect is found on hyperactivity problems.

We also observed large beneficial associations between the reduction in activities, due to COVID-19, and all behavioral outcomes. This suggests that, conditional on the time now spent on extracurricular activities, 75% of the kids who were doing more activities in the past still show favorable outcomes. The inclusion of the interaction indicates that there is no difference in the behaviors between children who reduced to 0 hours and the ones who reduced to a few more hours, given that the sum of the coefficient β_1 and β_3 is never significantly different from zero. Moreover, the estimated effect β_1 multiplied by the number of hours carried out by the children in group (i), that is, 3.8, is never significantly different from β_2 . The results suggest that all of the other 3 groups of children were doing better in all of the outcomes considered with respect to children who were spending 0 hours in extracurricular activities, both at the time of the survey and prior to the pandemic.

Time spent using devices (such as tablet, phones, etc.) is detrimental for most of the outcomes, is associated with lower pro-social behavior, and more peer relationship, hyperactivity, and conduct problems.

We found that additional time spend with other kids is associated with lower peer relationships problems. Time spent with parents doing functional activities has no effect on any of the outcomes, whereas time spent with the father in stimulating activities had a beneficial effect on all of the outcomes. On the other side, time with the mother in stimulating activities generally had no effects, and even possibly incurred a detrimental effect on peer relationship problems. These results lead to a number of considerations. The result that stimulating activities carried out with dads has a beneficial effect on children has been found in other papers, in relation to the lockdown period (Mangiavacchi et al., 2021). Why does the father's time affect this and not the mother's? Is there a “novelty” effect: something that did not happen prior to the pandemic that this strange circumstance has facilitated?

The second consideration – with respect to the time with the mother – is more of a methodological issue. The residual time, once considered the time with other children, mom, and dad, is the time managed by the child him/herself. It is possible that children who are less able to manage their time ask their mother for more time (which is more elastic than their father’s time). Alternatively, mothers, aware of these difficulties, might devote more time to these children. This type of reverse-causality could explain the null effects or even the negative effect observed for peer relationship problems: children who have more difficulty with other children spend more time playing with their mother, for example.

Variable related to the household’s economic and socio-economic condition do not seem to matter: whether the parents have a high level of education, whether both parents live in the household, and whether their salary was reduced did not relate to socio-emotional outcomes. Females show lower hyperactivity problems and higher pro-social behavior.

6. Inequalities in use of time

We study which background variables influenced the time spent in the different activities. Results are presented in Table 3. Each column reports the results of a different regression using the number of hours spent in a given activity as outcomes,⁵ and the following variables as regressors: whether at least one parent has a tertiary degree, whether there are siblings, the gender of the child, and the family income level.

⁵ Instead of hours, in the first column, we show results related to the outcome variable “Reduction in activities due to COVID-19”.

Results suggest that having more educated and wealthy parents reduces the time spent using devices and increases the time spent in extracurricular activities. Income also determines the allocation of time with the mother and the father: higher income reduces the time spent with the mother, but only in functional activities, and increases the time spent doing stimulating activities with the father. As expected, having siblings reduces the time spent with each parent, but increases the time spent with other children. By jointly considering these results, and the ones concerning the effect of different uses of time, we reveal some inequalities across children: education and income increase time in extracurricular activities and stimulating time with the father (which have beneficial effects) and a decrease time in video screen activities (which would have detrimental effects).

7. Conclusions

This research paper employs a unique dataset that represents 9-year-old Italian children who were interviewed in October 2020 at the start of the country's second major lockdown due to the COVID-19 pandemic. Our focus was on comprehending the connection between children's use of time and the children's socio-emotional outcomes. We focused on emotional symptoms, peer relationship problems, hyperactivity, conduct problem, and pro-social behavior, all of which were assessed using the Strengths and Difficulties method.

In this study, we observed that the time devoted to extracurricular activities was considerably low just before the second lockdown, and that most children reported a decrease in their engagement in activities due to COVID-19. On average, they spent only 1.7 hours a week on sports or on art-related activities and over 11 hours playing with tablets or PCs.

We found that spending time, or having spent time, in extracurricular activities was positively correlated with better children's behaviors, while we do not find evidence that the interruption in these activities (between March and October 2020) has displaced these benefits.

Our results indicate a negative impact of the hours spent using tablets or PCs on most outcomes. Interestingly, the time spent with the father, which likely increased during the lockdown period, was "beneficially" correlated with all outcomes.

Additionally, we investigated the characteristics that determine the varied use of time during the lockdown and found that household composition (e.g., presence of siblings) and socio-economic characteristics (e.g., parental income and education) explain a significant portion of the differences between how children allocate their time to various activities. Children from higher socio-economic backgrounds tend to spend their time in a more enriching way.

The results of this paper suggest two main policy implications. Education policies should generally prioritize the provision of extracurricular activities, such as sports and arts, because they have been

found to have positive effects on children's socio-emotional outcomes, in particular by reducing the disparities observed in the use of time across households of different socio-economic backgrounds. Second, policies should encourage fathers' involvement in the care of children, which are associated with improved child behaviors.

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Table 1: Descriptive statistics

Variable	Mean	Sd
Extra school activities (hours)	1.69	2.16
Reduction in activities due to COVID-19 (%)	75.4	
Currently activities, no reduction (%)	16.9	
Currently activities, reduction (%)	39.7	
No current activities, reduction (%)	35.7	
No current activities, no reduction (%)	7.6	
Tablet, PC, TV, ... (hours)	11.77	6.70
Time with other children (hours)	12.52	13.62
Total time with mother (hours)	25.94	10.85
Functional time with mother (hours)	8.71	5.36
Stimulating time with mother (hours)	17.20	8.02
Total time with father (hours)	17.28	9.65
Functional time with father (hours)	3.64	3.88
Stimulating time with father (hours)	13.63	7.71
Salary reduced due to COVID (%)	51.9	
Both father and mother in the house (%)	88.7	
At least one parent with tertiary education (%)	26.8	
Girl (%)	49.6	
Observations	891	

NOTE: The Table reports the mean and the standard deviations (only for continuous variables) for the main variables used in the regression. Source: Authors' own calculation using the working sample

Table 2: Use of time and children's behaviors

	(1)	(2)	(3)	(4)	(5)
	Pro-social	Peer	Hyperactivity	Conduct	Emotional
Extra school activities (beta 1)	0.124*** (0.027)	-0.089*** (0.026)	-0.021 (0.029)	-0.065** (0.027)	-0.081*** (0.027)
Reduction in activities due to COVID-19 (beta 2)	0.470*** (0.103)	-0.644*** (0.099)	-0.223** (0.108)	-0.397*** (0.100)	-0.488*** (0.101)
Extra school activities* Reduction in activities due to COVID (beta3)	-0.124*** (0.033)	0.114*** (0.031)	0.062* (0.034)	0.079** (0.032)	0.102*** (0.032)
Tablet, PC, TV	-0.028*** (0.006)	0.013** (0.006)	0.016** (0.006)	0.021*** (0.006)	0.008 (0.006)
Time with children	0.002 (0.002)	-0.009*** (0.002)	0.004 (0.003)	0.002 (0.002)	-0.001 (0.002)
Time with mother (functional)	0.007 (0.008)	0.002 (0.008)	0.008 (0.008)	0.005 (0.008)	0.009 (0.008)
Time with mother (stimulating)	-0.009 (0.006)	0.016*** (0.006)	-0.002 (0.007)	0.000 (0.006)	0.004 (0.006)
Time with father (functional)	-0.015 (0.011)	0.008 (0.010)	0.005 (0.011)	0.002 (0.010)	-0.002 (0.011)
Time with father (stimulating)	0.020*** (0.007)	-0.026*** (0.007)	-0.015** (0.007)	-0.013* (0.007)	-0.018*** (0.007)
Reduced salary	-0.009 (0.066)	0.015 (0.064)	0.013 (0.070)	-0.018 (0.064)	-0.071 (0.065)
Both parents in the hh	0.145 (0.119)	0.046 (0.114)	-0.161 (0.125)	-0.045 (0.116)	0.026 (0.116)
One parent with tertiary education	-0.093 (0.073)	0.084 (0.071)	-0.016 (0.077)	-0.056 (0.071)	-0.073 (0.072)
Girl	0.227*** (0.064)	0.047 (0.062)	-0.287*** (0.067)	-0.060 (0.062)	0.083 (0.062)
Constant	-0.389** (0.166)	0.349** (0.161)	0.301* (0.175)	0.205 (0.162)	0.353** (0.163)
Observations	891	891	891	891	891

NOTE: The table reports the estimates of Equation (1) on the five relevant outcomes. Each column is a different regression. Standard errors in reported in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Authors' own calculation estimating Equation (1) on the working sample.

Table 3: Inequalities in the use of time

Determinants	Reduction in activities due to COVID	Extra school activities	Tablet, pc, tv	Time with mother (stimulating)	Time with mother (functional)	Time with father (stimulating)	Time with father (functional)	Time with other children
One parent with tertiary education	0.042 (0.033)	0.524*** (0.164)	-1.922*** (0.510)	-1.383** (0.614)	-0.345 (0.410)	-0.146 (0.590)	0.381 (0.299)	1.517* (0.813)
Siblings	0.011 (0.030)	0.399*** (0.148)	0.960** (0.462)	-0.764 (0.556)	-1.072*** (0.372)	0.513 (0.534)	0.123 (0.271)	18.015*** (0.736)
Girl	0.005 (0.029)	-0.116 (0.142)	-0.504 (0.443)	0.707 (0.533)	0.699* (0.357)	0.771 (0.513)	0.001 (0.260)	0.144 (0.707)
Income <2,000 ref Income 2,000-3,000	0.007 (0.036)	-0.125 (0.178)	-0.977* (0.555)	0.619 (0.668)	0.542 (0.447)	2.184*** (0.643)	0.892*** (0.325)	0.779 (0.886)
Income > 3,000	-0.081* (0.047)	0.546** (0.235)	-1.819** (0.731)	0.304 (0.880)	-1.186** (0.589)	2.179** (0.846)	-0.269 (0.429)	0.507 (1.166)
Income missing	0.134*** (0.039)	-0.472** (0.193)	-1.777*** (0.601)	2.864*** (0.724)	-0.780 (0.484)	3.052*** (0.696)	-0.188 (0.353)	0.323 (0.960)
Constant	0.714*** (0.032)	1.533*** (0.161)	13.131*** (0.501)	16.612*** (0.603)	9.028*** (0.403)	11.446*** (0.580)	3.298*** (0.294)	5.030*** (0.799)
<i>Observation</i>	891	891	891	891	891	891	891	891

NOTE: The table reports the estimates of a linear regression of the determinants on the different time uses. Each column is a different regression. Standard errors in reported in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Authors' own calculation on the working sample.

Appendix A: Strengths and Difficulties Questionnaire

The Strength and Difficulties questionnaire (SDQ) is a brief emotional and behavioural screening questionnaire for children and young people (aged 4 to 16 years old), first developed by Goodman (1997) to measure psychological adjustment. One version of the questionnaire is designed to be filled out individually by parents, teachers, and older children. It can be used for various purposes, including clinical assessment, evaluation of outcomes, research and screening. The questionnaire used in the paper, is filled out individually by the parents.

The SDQ contains 25 items, divided across 5 scales of 5 items each (the emotional symptoms subscale, conduct problems subscale, hyperactivity/inattention subscale, peer relationships problem subscale, and prosocial behaviour subscale). The five subscales have been refined through exploratory factor analyses (Goodman 1997) and supported by subsequent analysis.

Parents are asked to think about the behaviour of their child over the previous six months, and for each item, answer according to a 3-point response scale (“Not true” = 0, “Somewhat true” = 1, “Certainly true” = 2). The groups of five answers are combined into a single total score for each socio-emotional dimension, ranging from 0 to 10. Lower scores identify positive traits for the first four dimensions, while a higher score identifies more positive traits in terms of prosocial behaviour.

The 25 questions of the questionnaire are as follows:

[Child name]

1. Considerate of other people's feelings
2. Restless, overactive, cannot stay still for long
3. Often complains of headaches, stomach-aches or sickness
4. Shares readily with other children (treats, toys, pencils etc.)
5. Often has temper tantrums or hot tempers
6. Rather solitary, tends to play alone
7. Generally obedient, usually does what adults request
8. Many worries, often seems worried
9. Helpful if someone is hurt, upset or feeling ill
10. Constantly fidgeting or squirming
11. Has at least one good friend
12. Often fights with other children or bullies them
13. Often unhappy, down-hearted or tearful
14. Generally liked by other children
15. Easily distracted, concentration wanders
16. Nervous or clingy in new situations, easily loses confidence

17. Kind to younger children
18. Often lies or cheats
19. Picked on or bullied by other children
20. Often volunteers to help others (parents, teachers, other children)
21. Thinks things out before acting
22. Steals from home, school or elsewhere
23. Gets on better with adults than with other children
24. Many fears, easily scared
25. Sees tasks through to the end, good attention span