

# Unleveling the Playing Field? Experimental Evidence on Parents' Willingness to Give Their Child an Advantage

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# UNLEVELING THE PLAYING FIELD? –EXPERIMENTAL EVIDENCE ON PARENTS’ WILLINGNESS TO GIVE THEIR CHILDREN AN ADVANTAGE

Oda K. S. Sund \*

## Abstract

Parents play a pivotal role in shaping the opportunities and outcomes of their children. This paper provides unique evidence on parents’ willingness to give their child an advantage. I report from a large-scale lab-in-the-field experiment with 921 pairs of parents and their adolescent children, which is linked to high quality administrative data. In a situation with equal opportunities, parents are given the opportunity to increase the likelihood of their child winning in a competition. I find that a significant share of parents prioritizes their own child’s success at the expense of another child’s opportunity to succeed. A considerable share of parents helps their own child because they believe that the other parent also does so, in which case helping ensures a level playing field. However, I also find evidence suggestive of parents holding self-serving beliefs about the helping decision of other parents, which they use to justify helping their own child. Finally, I provide evidence of the helping decision in the experimental situation being strongly associated with children doing particularly well at school in situations where parents can directly influence their grade. Taken together, the paper provides the first set of systematic evidence on parents’ willingness to give their own children an advantage, and the findings provide new insights on parents’ role in human capital accumulation.

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**JEL: C9, C91, C93, D01, D63, I24**

**Key words:** Behavior, Fairness, preferences, inequality, experiment, beliefs, meritocracy, self-serving beliefs, cognitive dissonance

*“They want equal opportunities for everyone else’s children, extra for their own”*  
(Young, 1958, p.22).

Parents want the best for their children, but how far are they willing to go in order to see them succeed? Will they go as far as granting their children unmerited advantages, potentially undermining the principles of meritocracy, as proposed by Young (1958) in his seminal work on meritocracy?

In light of the prevailing role of the meritocratic fairness ideal in Western societies (Almås et al., 2021, 2020), recent work emphasizes the necessity to rethink how we judge success and failure (Sandel, 2020). The reassessment is particularly crucial when considering the influential role parents have in shaping opportunities for their children (Bowles et al., 2009; Piketty, 2020; Reeves, 2018). The 2019 US college admissions scandal, in which privileged parents resorted to fraudulent means to secure college admissions for their children, serves as anecdotal evidence of the extreme measures some parents are willing to take in order to benefit their children (Jennifer Medina, 2019). Parents may also be pivotal in less extreme cases. Children with highly educated parents may enjoy an advantage when it comes to receiving help with homework. While this may unlevel the playing field, parental investments are deemed efficient if they contribute to increased human capital. Without enhancing learning, they might merely diminish the quality of ability matching, thus reducing efficiency. However, we lack systematic evidence on the extent to which parents are willing to give their own child an advantage in what could otherwise be a meritocratic competition, and the mechanisms at play.

To study parents’ willingness to give their child an academic advantage, I conduct a lab-in-the-field experiment in secondary schools throughout Norway. The controlled setting allows me to answer two main research questions. First, to what extent are parents willing to forgo the principle of equal opportunities in order to give their own child an advantage in what would otherwise be a meritocratic competition? Second, how are parents’ willingness to interfere influenced by other parents’ opportunity to unlevel the playing field?

A total of 921 pairs of 10<sup>th</sup> grade students and their parents participate in the experiment. To create a situation where every child initially has an equal opportunity of success, I arrange a mathematics competition where every child compete against another child with the same math ability for a monetary price. Parents are given the opportunity to help their child by making the math problems *easier* for their child, without the child being informed about their decision. By decreasing the complexity of the math problems, parents can increase their child's likelihood of winning. In addition to observing parents' behavior, I elicit their expectations about the other parents' behavior, and link the experimental data to high-quality register data at the individual level.<sup>1</sup>

Parents are randomly allocated to one out of two treatment conditions; the non-strategic or the strategic. In the non-strategic condition, parents are made aware that the competitor of their child will not receive any help. Thus, it is highly salient that helping implies giving their own child an advantage. In the strategic condition, parents are informed that the other parent is given the same opportunity as themselves to help their own child. Helping may thus be necessary to keep a level playing field.

The paper provides three main findings. First, I find that a substantial share of parents (35.0%) are willing to forgo the principle of equal opportunities by helping their child in the competition even when they know it is at the expense of another child's opportunity to succeed. Second, comparing parents' willingness to help across the two treatment conditions, I find that the chance of another parent unlevelling the playing field causes a significant increase in parents' willingness to interfere in the competition. More specifically, knowing that the other parent has the opportunity to help causes a 73.6% increase in the average amount helped. Additionally, it causes a 70.8% increase in the share of parents helping their child in the competition. Third, I find suggestive evidence of parents manipulating their expectations about the other parent's behavior in a self-serving manner. While parents know that the other parent is unable to help in the non-strategic condition, the strategic condition lends itself to self-serving belief manipulation. Comparing

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<sup>1</sup>The main analysis of the paper was committed to the Registry for Randomized Controlled Trials operated by the American Economic Association prior to the start of the data collection (AEARCTR-0006609).

parents' helping behavior to their stated beliefs about the other parent's helping behavior, I find that only 12% help more than what they expect the other parent to help. Seen in context with the finding that 35% of parents are willing to help their child *knowing* the other parent cannot help (i.e., in the non-strategic condition), the finding suggests that parents may not be willing to admit—even to themselves—that they help to give their child an advantage.

The paper speaks to several strands of the literature. The highly influential literature of intergenerational mobility illustrates the significance of family background in shaping long-term outcomes and opportunities (Carneiro et al., 2021; Chetty et al., 2014; Corak, 2013). Furthermore, the normative work of Roemer (2004) argues that the disparities in opportunities and advantages resulting from family background are inherently unjust. The present paper builds on this literature by exploring a less examined mechanisms explaining how family background may influence children's opportunities—specifically, by intentionally undermining meritocratic processes. The study provides evidence suggesting that parents generally value children having equal opportunities, but also that a relatively large share are willing to give their child an advantage. In addition, the study finds that parents' willingness to help their children in the competition is not associated with their socio-economic status.

Moreover, the study ties into the growing literature aiming to understand parental decision making and interactions between parents and their children (Almås et al., 2016; Brenøe and Epper, 2019; Chowdhury et al., 2020; Dohmen et al., 2012; Houser et al., 2016; Khadjavi and Nicklisch, 2014; Sutter and Untertrifaller, 2020; Sutter et al., 2019; Tungodden and Willén, 2023; Zumbuehl et al., 2013), as well as the established theoretical literature on parenting and parenting styles (Becker and Tomes, 1979; Bisin and Verdier, 2001; Cappelen et al., 2020; Doepke and Zilibotti, 2017). Doepke and Zilibotti (2017) argue that the combination of rising economic inequality and the emergence of a winner-takes-all culture has led parents to become increasingly worried about their children being left behind. Wanting the best for their children, Doepke and Zilibotti (2017) provide evidence that parents adopt their parenting styles to the economic environment. This paper demonstrates that even in Norway—a welfare state with low levels of inequality and a high prevalence of the meritocratic and egalitarian fairness ideal (Almås et al., 2022)—

parents involve themselves in what would otherwise be a meritocratic competition between children. The paper also points to an important dimension of parenting style not studied in the existing literature, namely parents willingness to unlevel the playing field in favor of their own child.

Finally, the study relates to the behavioral literature on cognitive dissonance (Festinger, 1957; Konow, 2000; Rabin, 1994), and self-serving beliefs (Babcock and Loewenstein, 1997; Babcock et al., 1996; Dahl and Ransom, 1999; Di Tella et al., 2015; Haisley and Weber, 2010; Messick and Sentis, 1979; Rabin, 1995), particularly in the context of strategic (Ging-Jehli et al., 2020), and fairness considerations (Haisley and Weber, 2010; Konow, 2000; Rabin, 1995). This literature argues that individuals may subconsciously alter their beliefs in a self-serving manner to accommodate their own interests. The current paper offers novel suggestive evidence on cognitive dissonance and self-serving beliefs of parents with regards to making a choices affecting their children’s opportunities of success. The study also show how participants may not form their beliefs about a randomly matched opponent based on their beliefs about the average participant’s behavior, as often assumed in economic research.

The outline of the paper is as follows. Section 1 outlines the theoretical model used to model parents’ helping behavior in the experimental setting. Section 2 describes the design of the study. Section 3 provides the main empirical strategy, and Section 4 reports the empirical results. Finally, section 5 concludes the paper.

## **1 Theoretical framework**

This section outlines the theoretical model. The model aims to explain a parent’s choice of whether to help their child in competition, and if so, by how much.<sup>2</sup> The institutional setting in which I investigate parents’ helping behavior is the following: two children of an equal performance level (measured by the number of correctly solved math problems in a pretest) compete for a monetary prize. The child that has solved the most math problems correctly in the competition, is the winner of a monetary prize. If both solve an equal number of math problems, a

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<sup>2</sup>The model is not as sophisticated as to incorporate self-serving belief manipulation/ cognitive dissonance such as the model of Konow (2000).

winner is randomly drawn.

The parent of each child is allowed to help their child in the competition. The help takes the form of how many (if any) math problems to have simplified for their child in the competition. The form of help has two crucial elements: i) as the help will be directly implemented the help entails no cost in terms of effort or money for the parent, ii) it does not increase learning. The help only increases the likelihood of their child succeeding in the competition.

### 1.1 General framework

Parents are to make a choice of whether to help their child, and if so, how much help,  $h$ , to provide,  $h \in [0, H]$ . Helping entails no cost to the parent.<sup>3</sup>

I assume the parent to be motivated by i) utility of their child winning the competition, and possibly ii) adhering to a fairness consideration, which is captured by the following utility function:

$$E[u(h_i, h_j, m)] = E\left[ \underbrace{v(h_i - h_j) \times 1}_{\text{Utility of child winning}} - \underbrace{\beta_i(h_i - m)^2}_{\text{Disutility of behaving unfairly}} \right], \quad (1)$$

where  $h_i$  is the amount of help provided by the parent,  $h_j$  is how much the other parent helps,  $v(h_i - h_j)$  is the subjective probability of their child winning as a function of the difference between how much they help and the other parent helps their child,  $\beta_i \geq 0$  is the weight individual  $i$  assigns to the fairness consideration, and  $m$  is what is considered the fair amount of help in this situation. The bonus of the winning child is normalized to 1.<sup>4</sup>

In the model, the level of help provided to the opponent of their child,  $h_j$  is

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<sup>3</sup>This is naturally a simplification. It is reasonable to assume that when parents help their child with school related work, it entails some cost whether it be in terms of time, money or effort. Such cost may of course vary between individuals. However, I choose to abstract from such costs in this setting. Therefore the help in the experiment is free, and the model assumes no such cost. The parent only needs to decide how many math problems should be simplified.

<sup>4</sup>I assume that a parent's utility gained from the child winning the competition is independent of the difference in amount helped. I consider this a reasonable assumption as the child is unaware of his advantage. If this was not the case, one could expect the parent's joy of the child's success being negatively correlated with the amount helped.

an important factor for parent  $i$ 's decision. The theoretical model can be used to analyze situations both with and without certainty about  $h_j$ . In a situation without uncertainty, the parent makes his decision based on  $h_j$ , e.g., knowing with certainty that the opponent will not receive any help  $h_j = 0$ . However, when there is uncertainty about the other parent's helping behavior, parents base their decision on the expected amount helped,  $E[h_j]$ .

I introduce the following assumptions on parents' subjective probability of their child winning the competition<sup>5</sup>:  $v'(h_i - h_j) \geq 0$  for  $s \in [-H, H]$  and  $v''(h_i - h_j) > 0$  if  $h_i < h_j$ ,  $v''(h_i - h_j) \leq 0$  if  $h_i \geq h_j$ . Given that the competing students are of the same math ability, students will have equal opportunities of winning the competition given  $h_i = h_j$ , i.e.,  $v(0) = \frac{1}{2}$ .

Although the parents can increase the likelihood of their child winning the competition by helping their child, they may refrain from doing so. The second term of the utility function is the fairness consideration. Depending on the weight placed on the fairness consideration,  $\beta_i$ , the parent will experience a dis-utility from deviating from the fairness ideal,  $m$ . The cost of deviating from the fairness ideal is quadratic, meaning that the parent equally dislikes helping more or less than the fairness ideal.

**Fair amount of help** *The fair amount of help,  $m$ , is defined by the amount of help that ensures equal opportunities for both students in the competition, i.e.,  $m = h_j$ .*

Defining  $e = h_i - m = h_i - E[h_j]$ , i.e., the deviation between the amount helped and the fair amount, the optimization problem becomes:

$$\max_{h_i} E[u(e)] = \int [v(h_i - h_j) - \beta_i(h_i - h_j)^2] f(h_j) dh_j. \quad (2)$$

Assuming the parent maximizes the proposed utility function, the interior solution for the optimal additional help provided by the parent  $i$  is:

$$h_i^* = E[h_j] + \frac{E[v'(h_i^* - h_j)]}{2\beta} \quad (3)$$

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<sup>5</sup>It can be shown that such properties could arise from the probability distribution of performance being normally distributed.



If the parent focuses solely on the fairness consideration,  $i$  will help the amount needed to provide equal opportunities, i.e., the amount matching their expectation about the help provided by the other parent, as  $\beta_i \rightarrow \infty, h \rightarrow E[h_j]$ .<sup>6</sup>

The model predicts a corner solution of the parent providing the maximum amount of help  $H$  if either  $\beta$  goes to 0, as  $\frac{\partial v(e)}{\partial h_i} \geq 0$ , or if  $v'(e)$  is sufficiently high.

He will also provide the maximum amount of help, if  $E[h_j] = H$ .

In a situation where the parent with certainty knows that the other parent did not provide any help, i.e.,  $E[h_j] = h_j = 0$ , the fair amount of help,  $m$ , would equal zero. The optimal solution in such a case would equal:

$$h_i^* = \frac{v'(h_i^*)}{2\beta_i} \quad (4)$$

The theoretical model provides the following three predictions:

**Prediction I:** *A parent will never help less than they believe is needed to provide equal opportunities, i.e.  $h_i^* \geq E[h_j]$ .*

**Prediction II:** *A parent's optimal amount of help,  $h_i^*$ , is increasing in the expected help provided by the other parent,  $\frac{\partial h_i^*}{\partial E[h_j]} \geq 0$*

Prediction II implies that the optimal choice of help given by parent  $i$  in a situation with uncertainty about the other parent's helping behavior, compared to a situation where the parent with certainty knows that the other parent will not help their child, only differs by their expectation about the other parent's helping behavior,  $E[h_j]$ , as seen by comparing the optimal solutions 4 to 3.<sup>7</sup>

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<sup>6</sup>The parent need not form a belief about the other child's ability, as they know with certainty that their child is matched with another child based on math ability.

<sup>7</sup>The same predictions can be drawn from a reduced form model of parents' behavior, e.g., assuming parents are maximizing the following utility function:

$$u(h_i, E[h_j])_i = \underbrace{v(h_i - E[h_j])}_{\text{Joy of child winning}} \times 1 - \underbrace{\beta_i(h_i - m)^2}_{\text{Fairness}}$$

## 2 Study design

The study combines experimental data from a lab-in-the-field experiment with high-quality administrative registry data for both the parents and the children. This section outlines the study design, both with regards to the recruitment and implementation of the experiment, the experimental design, description of the registry data, and a description of the final sample.

### 2.1 Recruitment

The study was conducted in 24 secondary schools throughout Norway during the academic school year of 2020-2021.<sup>8</sup> Participants were recruited through the respective school of the child. Through the school, students in Grade 10 were invited to take part in a one hour in-class experiment, and their parents to partake in a short survey the day of the experiment of their child.<sup>9</sup> As the students are 15–16 years of age, parents had to consent, both for themselves and on behalf of the child, as well for allowing the data gathered to be connected to registry data from Statistics Norway (SSB). Parents were incentivized in monetary terms as participation came with the chance of winning one out of seven travel gift cards worth 5000 NOK (\$600). For the study to take place, at least half of the school class had to participate. On average, the final participation rate is 51% per school class, and 87% of parents who signed up, answered the survey-experiment.

### 2.2 Implementation

One day prior to the experiment, parents receive a generic reminder via SMS. The SMS reminded the parents that they had signed for the study the next day, and contained information about when they would receive the link and by what time they would need to answer. In addition, the SMS informed them that if both parents had signed up, only one would receive the link to participate. For parents who provided contact information on both parents, I randomized whether it is the father or the mother who received the link to participate in the survey-experiment.

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<sup>8</sup>Figure A.1 in the Appendix A shows the location of the schools participating in the study.

<sup>9</sup>A translated version of the invitation letter is found in Appendix B.1.

Figure 1 shows the implementation the day off the experiment, and the implementation partially follows Tungodden and Willén (2023). To limit the opportunity for parents to communicate with their child during the study, the parent receives an SMS with an individualized link to the experiment only when the child has left for school. After the parents’ deadline to answer (12:30 a.m.), the mathematics competition commences at the child’s school, and the parental helping choice was implemented.<sup>10</sup>

For students, the study was implemented online in the class room. Students were given an individual participation code, making it possible to directly connect their study to the study of their parent. The teacher read a script telling the students their rights to withdraw at any time and to not communicate with their classmates during the study.<sup>11</sup> The study lasted about 35 minutes on average for the children, and 7 minutes on average for the parent.

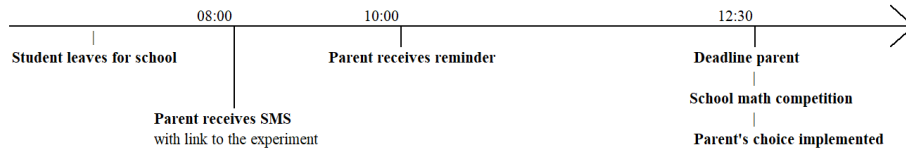


Figure 1: Time line of the implementation of the experiment

*Note: Figure 1 shows the timeline for the implementation of the experiment. Schools participated on different dates, but the data collection was implemented following the outlined timeline.*

## 2.3 Experimental design

### 2.3.1 Parents

Parents are given the opportunity to help their child in the competition. They are first presented with settings of the competition and that in the case of a tie, a winner will be randomly drawn. They are informed that their child will compete for the

<sup>10</sup>A more detailed timeline is provided in Figure A.2 in the appendix.

<sup>11</sup>A full translation of the script read by the teacher can be found in Appendix B.5.

prize of 50 NOK against another student of an equal performance level in the trial round.

The experiment has a between-subject design. Parents are randomized into one of two conditions: i) strategic or ii) non-strategic. Dependent on the condition, the parent is informed that the parent of the opponent of their child will be given the opportunity to help (strategic) or will not be able to help their child (non-strategic). In the non-strategic, parents thus know that their child's opponent will not receive any help, and as the opponent is of an equal ability, any help they provide will give their child a relative advantage. In the strategic condition, parents do not know how much help their child's opponent will receive, and thus beliefs are (at least weakly) manipulated upwards.

Having been presented with the situation, the parent is informed that they can help their child in the competition. The help takes the form of having the experimenter simplifying the math problems. They are given a concrete example of a simplification. Instead of five one-digit numbers, the simplified version consists of summations of two one-digit numbers. The parent can choose to simplify any number of questions, between 0–10. Parents are assured that their decision will not be disclosed to their child, teachers, students, or the other parents.

Having made their decision, parents are asked to answer some incentivized and non-incentivized questions. First, parents are asked to evaluate how difficult it was to make their helping decision on a scale from very difficult (0) to very easy (10). I then implemented an incentivized elicitation of the following beliefs: i) how effective the help is, ii) the percentage of parents who helped their child in the competition, and iii) how much the parents who helped, helped on average, as well as their beliefs regarding their child's preference for iv) competing, v) working under pressure, and vi) dislike of losing.<sup>12</sup> For parents in the strategic condition beliefs regarding how much they believe the parent of their child's competitor helped is also elicited. By answering correctly, parents earn two additional lottery tickets per correct answer. 5 lottery tickets are randomly drawn earning the winners a gift

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<sup>12</sup>Parents are first asked about their expectation about the average parent's helping behavior in their own treatment condition. Only later are they presented with the conditions under which the parents in the other treatment condition made their helping decision under, and asked about their expectations about the average parent's behavior in that treatment condition.

card worth 5000 NOK (\$ 600) each.

### **2.3.2 Students**

Students first answer a questionnaire about study habits and time use. To enable eliciting parents' beliefs in an incentivized manner, students are asked about their preferences for competition and working under pressure, as well as how much they disliked losing.<sup>13</sup>

To be used as a trial round, students are asked to solve as many math questions as possible within two minutes. Before the time starts, students are shown an example of the math questions; summations of five one-digit numbers as in Niederle and Vesterlund (2007). To avoid any strategic behavior, students are unaware that the challenge will be used as a trial round. Only after having completed the trial round, students are informed about the competition, the bonus and how it is determined. They are told that the competition will consist of similar math problems, and that they would compete against another student having solved as many math problems as themselves in the trial round. Entering the competition, the helping choice of the parent was implemented without the child's awareness.

## **2.4 Registry data**

Though connecting the experimental data to registry data, I gain access to additional information about the participants. The registry data is collected from Statistics Norway (SSB), and the participants actively gave consent for us to get access. The data includes information about the student's school achievements (national tests from 9<sup>th</sup> grade, final grades from the 10<sup>th</sup> grade), choice of educational program at high school, as well as the parent's income, occupation and education. A full list of the registry data collected is found in Appendix C.

## **2.5 Sample description**

The participants in this study are 10<sup>th</sup> grade students and their parents. The final sample includes 921 sets of parents and children, and is restricted to pairs where

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<sup>13</sup>All translated instructions of the experiment can be found in Appendix B.

both the child and parent participated in the study, and consented to giving me access to their registry data. Table 1 shows the descriptive characteristics of the participants in the study. Overall, the sample is balanced across treatment conditions ( $p = 0.469$ ).

Table 1 provides an overview of the descriptive statistics of the final sample. On average, parents are 48 years old, 83% are born in Norway, 70% have obtained a higher education (college or university), and on average, they have a yearly income of 564 032 NOK. The sample consists of a majority of mothers (69.0%). This stems from the combination of mothers being both more likely to register for the study, and more likely to participate, conditionally on being randomized to part-take in the study.

The children are all in their final year of the mandatory education, and are thus 15–16 years of age. The sample consists of approximately the same fraction of boys (48%) and girls (52%). On average, they have 1.83 siblings, only 5% of children are an only-child, and 65% and 64% have at least one brother or sister, respectively. Regarding their performance in mathematics, the average grade of the sample is 4.06, on a scale going from 1 to 6, where 6 is the best possible obtained grade. The math score is, importantly, balanced across treatment conditions ( $p = 0.98$ ). On average, the children have a score of 8.86 correct summations on the pretest, however, the average score on the pretest is slightly higher in the non-strategic condition (9.08) compared to the strategic condition (8.62), albeit the difference is not statistically significant at the conventional 5% significance level.

Table 1: Descriptive statistics

	Scale	Full sample	Non-strategic	Strategic	p-value
<b>Parental background characteristics</b>					
Mother	Dummy	0.69	0.68	0.69	(0.60)
Parent age	Years	48.08	48.23	47.93	(0.37)
Norwegian origin	Dummy	0.83	0.82	0.83	(0.75)
Income	NOK	564033	578877	548620	(0.15)
College educated parent	Dummy	0.70	0.72	0.69	(0.29)
Left wing	Dummy	0.40	0.41	0.39	(0.49)
<b>Parental beliefs about child</b>					
Belief like compete	Dummy	0.67	0.65	0.69	(0.25)
Belief like pressure	Dummy	0.40	0.41	0.39	(0.55)
Belief dislike lose	Dummy	0.72	0.70	0.74	(0.29)
Important to handle defeat	Dummy	0.93	0.93	0.93	(0.85)
<b>Child background characteristics</b>					
Daughter	Dummy	0.52	0.53	0.51	(0.47)
Only child	Dummy	0.05	0.05	0.04	(0.52)
Number siblings	Numerical	1.83	1.81	1.84	(0.61)
Child has brother	Dummy	0.65	0.65	0.66	(0.71)
Child has sister	Dummy	0.64	0.65	0.63	(0.55)
Math grade	Numerical	4.06	4.06	4.06	(0.98)
Score pretest	Numerical	8.86	9.08	8.62	(0.09)
Observations	921	470	451	921	

*Note:* The table provides descriptive statistics on the parent sample, and tests for observable differences across treatment conditions. Columns 2–4 provides the means, and column 5 reports the p-values from a *t*-test.

### 3 Main empirical strategy

This section outlines the empirical strategy of the main analysis. The empirical strategy of the main study was specified and committed to the AEA RCT Registry (registry number AEARCTR-0006609) prior to the data collection.<sup>14</sup>

The main variable of interest is the parent’s helping decision; both measured as the amount of help provided  $h_i \in [0, 10]$ , and at the extensive margin,  $e_i \in [0, 1]$ , taking the value 1 if parent  $i$  chose to help their child and 0 if no help was provided.

The main regression analysis uses Ordinary Least Square with robust standard errors. To investigating the treatment effect on parents’ helping behavior the following regression model specification is used:

$$h_i = \beta_0 + \beta_1 T_i + \beta_2 \mathbf{X}_i + \varepsilon_i \quad (5)$$

where  $h_i$  is parent  $i$ ’s helping decision (0–10),  $T_i$  is an indicator of the treatment condition taking the value one if the parent was randomized to the strategic condition, and  $\mathbf{X}_i$  is a vector of individual pre-specified control variables including the age, gender, income, education and immigration status of the parent, and  $\varepsilon_i$  is the error term. The main parameter of interest is  $\beta_1$  representing the estimated average treatment effect of being in a strategic environment instead of a non-strategic environment on the parent’s helping decision. As preregistered, results are reported both with and without the control variables included in  $\mathbf{X}_i$ , and model specification (5) is also reported for the extensive margin (0-1).

To test whether the treatment effect is robust across subgroups, I run the following regression model:

$$h_i = \beta_0 + \beta_1 T_i + \beta_2 S_i + \beta_3 S_i \times T_i + \beta_4 \mathbf{X}_i + \varepsilon_i \quad (6)$$

where the variables are as defined for for equation (5), and  $S_i$  is an indicator of the relevant sub-group for which the heterogeneity analysis is conducted. The subgroups include: gender of the parent, gender of the student, political orientation

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<sup>14</sup>For full transparency, Section D, outlines deviations from the pre-plan, and points to exploratory analysis reported in the paper.



of the parent, and math ability of the child.

The second part of the empirical analysis focuses on how parents' helping behavior relates to their beliefs about the other parents' behavior. Parents in the strategic treatment condition are asked about both the other parent's behavior (meaning the parent of their child's opponent) as well as the average parent's behavior. Both belief measures takes values between 0-10, where the belief about the average parent is rounded up to the closes integer. The belief measure of the average parent's behavior combines a parent's beliefs regarding how many out of a hundred parents helped their child (*ex*) and how much they think parents who helped, helped on average (*in*). The measures are combined in the following way to obtain a measure of the average parent's helping behavior:

$$b_i = \frac{ex_i}{100} \times in_i. \quad (7)$$

## 4 Results

In this section, the main results from the study are presented. Section 4.1 focuses on parents' willingness to help their child in the competition and how the inclination to do so is causally affected by manipulating the other parent's opportunity to help their child. Section 4.2 explores the relationship between parents' helping behavior and their beliefs about the other parents' helping behavior, and whether parents exhibit self-serving beliefs. Finally, Section 4.3 studies how parents' decision of whether or not to help their child in the competition relates to *real* educational advantages for the children.

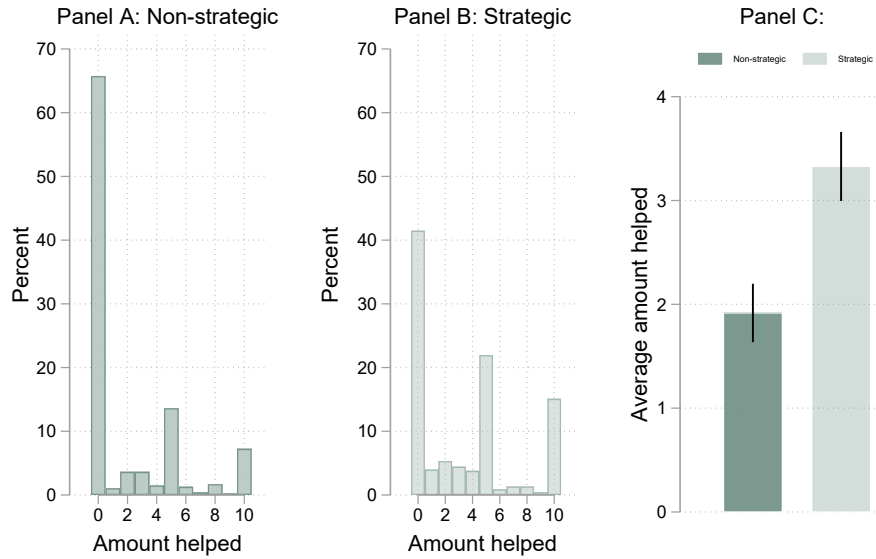
### 4.1 Parents' helping behavior

Panel A of Figure 2 shows the distribution of the helping decisions implemented by the parents in the non-strategic treatment condition. As parents in this condition are informed that the other parent is not given the opportunity to help, they know that helping their child gives their child an *advantage* in the competition. As shown in the figure, there is substantial heterogeneity in parent's willingness to give an advantage. Sixty-five percent of parents refrain from helping their child in the

competition —keeping a level playing field. On the other end of the spectrum, 7.2% of parents give their child the largest possible advantage by helping their child with all ten questions. Finally, about 25% of the parents make an intermediate choice, which in light of the theoretical model may be interpreted as making a trade-off between adhering to the ideal of equal opportunities and giving their child an advantage, with helping with half the questions being a local focal point.

Panel B of Figure 2 shows the distribution of parents' helping behavior in the strategic condition. We observe that when both parents are given the opportunity to help their child in the competition, significantly fewer parents refrain from helping. The distribution has a clear rightward shift, with both more parents providing maximum help and more parents providing intermediate help. The possibility of another parent interfering in the competition causes a substantial increase in the share of parents helping their child in the competition; from 35.15% in the non-strategic condition to 61.6% in the strategic condition. Panel C of Figure 2 shows the treatment effect on the average amount helped. Whereas parents on average help with 2.0 math questions when they know the other parent is not given the opportunity to help, they help with 3.3 math questions on average if both parents are given the same opportunity to help their child. Hence, the average amount helped increases by 65 percent when the other parent also is given the opportunity to help.

Figure 2: Helping behavior by treatment condition



Note: Panel A and B shows the distributions of the amount help parents gave to their child in the competition, 0–10 simplification. Panel A shows the distribution of parents’ helping behavior in the non-strategic condition and Panel B shows the distribution of parents’ helping behavior in the strategic treatment condition. Panel C shows the average amount helped in the strategic and non-strategic condition, separately. Error bar marks 95% confidence intervals.

Table 2 presents the corresponding regression analysis of the treatment effect on parents’ helping behavior. Columns 1–4 report regression estimates of the treatment effect on the extensive margin, while columns 5–8 reports estimates for the treatment effect on the average amount helped. We observe that the treatment effect is sizable and statistically significant ( $p < 0.001$ ) on both margins. In columns 2–4 and 6–8, we observe that the estimated causal effects on parents’ helping behavior remain largely unaffected by the inclusion of the background characteristics of the parent (columns (2) and (6)), characteristics of the child (columns (3) and (7)), and both sets of background characteristics (columns (4) and (8)). Taken together, this analysis provides the basis for the first main result of the paper:

**Result I:** *A large share of parents are willing unlevel the playing field by giving their child an advantage. The possibility that the other child may also receive help*

*from their parent causes a significant increase in both the share of parents that help their children and the average amount helped.*

Table 2: Estimated treatment effect on parents' helping behavior

	Extensive margin				Amount helped			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Strategic	0.243*** (0.032)	0.234*** (0.033)	0.237*** (0.031)	0.230*** (0.033)	1.411*** (0.222)	1.371*** (0.232)	1.385*** (0.217)	1.353*** (0.230)
<b>Parent, characteristics</b>								
Mother		0.039 (0.038)		0.049 (0.038)		0.176 (0.265)		0.255 (0.259)
Parent age		-0.002 (0.003)		-0.001 (0.004)		-0.022 (0.025)		-0.014 (0.025)
Norwegian origin		-0.051 (0.046)		-0.057 (0.046)		-0.591* (0.349)		-0.592* (0.351)
Log income		0.003 (0.022)		0.011 (0.023)		-0.100 (0.177)		-0.043 (0.184)
College educated parent		-0.114*** (0.038)		-0.080** (0.039)		-0.591** (0.268)		-0.341 (0.271)
Left wing		0.051 (0.034)		0.052 (0.034)		0.263 (0.240)		0.265 (0.236)
Belief like compete		-0.029 (0.039)		-0.000 (0.038)		-0.535* (0.294)		-0.350 (0.291)
Belief like pressure		-0.065* (0.035)		-0.029 (0.036)		-0.416* (0.248)		-0.160 (0.246)
Belief dislike lose		-0.074* (0.040)		-0.073* (0.039)		-0.239 (0.289)		-0.254 (0.283)
Handle defeat		-0.219*** (0.067)		-0.213*** (0.067)		-1.230** (0.495)		-1.207** (0.491)
<b>Child, characteristics</b>								
Daughter			0.033 (0.031)	0.015 (0.033)			0.190 (0.216)	0.004 (0.227)
Only child			0.072 (0.089)	0.053 (0.095)			0.926 (0.703)	0.548 (0.766)
Child has brother			-0.017 (0.038)	-0.046 (0.041)			-0.292 (0.262)	-0.436 (0.283)
Child has sister			0.029 (0.038)	0.007 (0.040)			0.134 (0.254)	-0.043 (0.270)
<Median math			0.120*** (0.036)	0.104*** (0.039)			0.957*** (0.246)	0.816*** (0.277)
Score pretest			-0.020*** (0.004)	-0.017*** (0.004)			-0.121*** (0.028)	-0.103*** (0.030)
Observations	921	838	921	838	921	838	921	838
R-squared	0.059	0.102	0.116	0.140	0.042	0.084	0.103	0.122

*Note:* The table reports regression estimates based on equation 5 with robust standard errors reported in parentheses. Column (1)–(4) report regression estimates using the extensive margin as the dependent variable, taking the value 1 if a parent helped their child, and 0 if it refrained from helping. Column (5)–(8) reports regression estimates using the amount helped as the dependent variable. The variable takes values from 0–10, where 10 reflects the parent helping with 10 math questions. The controls are as defined in table 1. Robust standard errors reported in parentheses. \*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$

We now turn to studying parental helping behavior by subgroups. Table 3 reports the heterogeneity analysis of the treatment effect on the extensive margin (panel A) and amount helped (panel B) for different subgroups, estimated according to Equation 5. The most telling feature of this analysis is the consistency of the estimated treatment effect. For all sub-groups, except parents with only one child, the estimated treatment effect is positive and statistically significant on both margins.

The fact that patterns in helping behavior are similar across subgroups is also reflected in all interactions between the treatment and the background characteristics being statistically insignificant, with the exception of the interaction with the gender of the parent. Although the treatment causes both fathers and mothers to increase their helping behavior (albeit the estimated treatment effect for fathers is only significant at the 10% level,  $p = 0.075$ ), it causes mothers to increase their average amount helped with one more math questions on average, compared to fathers ( $p = 0.041$ ). From panel A we also observe that there is a larger increase in the share of mothers, compared to fathers, who help their child in the competition (10.0pp), but this difference is not statistically significant.

**Result II:** *Across most subgroups, the possibility of another parent unleveling the playing field causes a significant increase in parents' willingness to help their child in the competition.*

In addition to the striking robustness of the treatment effect across sub-groups, Table 3 also highlights the consistency in parents' willingness to give their child an advantage, i.e., their helping behavior in the non-strategic condition. Only when comparing parents based on the mathematics level of their children, do their willingness to give an advantage differ. Parents whose children have a below-median grade in mathematics are more inclined to give their child an advantage (11.7 pp) and help with more math questions on average, compared to parents with children who have median or above median grades in mathematics.

Table 3: Heterogeneity analysis of treatment effect

Panel A (Dependent Variable: Extensive Margin)									
	Mother	High income	College	Left	Daughter	Only child	Brother	Sister	<Median Math
Strategic	0.169*** (0.059)	0.220*** (0.044)	0.240*** (0.062)	0.211*** (0.041)	0.264*** (0.047)	0.249*** (0.033)	0.253*** (0.056)	0.218*** (0.054)	0.241*** (0.040)
Group	0.004 (0.049)	0.037 (0.045)	-0.069 (0.055)	0.012 (0.045)	0.046 (0.045)	0.162 (0.116)	-0.039 (0.056)	-0.013 (0.055)	0.117** (0.052)
Group $\times$ Strategic	0.100 (0.071)	0.050 (0.062)	-0.003 (0.072)	0.069 (0.066)	-0.049 (0.064)	-0.243 (0.159)	-0.023 (0.068)	0.032 (0.067)	-0.013 (0.068)
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Treatment effect (on group)	0.270*** (0.039)	0.271*** (0.043)	0.237*** (0.038)	0.280*** (0.052)	0.215*** (0.045)	0.006 (0.156)	0.230*** (0.039)	0.249*** (0.040)	0.228*** (0.056)
Observations	838	894	838	838	838	838	838	838	838
R <sup>2</sup>	0.175	0.183	0.173	0.174	0.173	0.176	0.173	0.173	0.166

Panel B (Dependent variable: Amount Helped)

Panel B (Dependent variable: Amount Helped)									
	Mother	High income	College	Left	Daughter	Only child	Brother	Sister	<Median Math
Strategic	0.710* (0.405)	1.408*** (0.310)	1.473*** (0.438)	1.277*** (0.286)	1.608*** (0.323)	1.466*** (0.228)	1.626*** (0.416)	1.269*** (0.392)	1.385*** (0.264)
Group	-0.212 (0.328)	0.335 (0.297)	-0.267 (0.362)	0.089 (0.298)	0.234 (0.292)	1.308 (0.902)	-0.394 (0.388)	-0.267 (0.385)	0.841** (0.351)
Group $\times$ Strategic	0.995** (0.486)	0.103 (0.426)	-0.116 (0.513)	0.289 (0.462)	-0.414 (0.443)	-1.658 (1.358)	-0.358 (0.487)	0.188 (0.481)	0.025 (0.492)
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Treatment effect (on group)	1.705*** (0.272)	1.512*** (0.298)	1.358*** (0.266)	1.566 (0.366)	1.194*** (0.311)	-0.191 (1.345)	1.268*** (0.264)	1.457*** (0.278)	1.410*** (0.421)
Observations	838	894	838	838	838	838	838	838	838
R <sup>2</sup>	0.152	0.155	0.147	0.148	0.148	0.150	0.148	0.147	0.147

Note: The table reports regression estimates based on equation 6. Panel A reports regression estimates for the extensive margin (taking the value 1 if the parent chooses to help her child, and 0 otherwise). Panel B reports the regression estimates using the amount help (0–10) as the dependent variable. Control variables are as defined in table 1, and the same as used in 2. Column headers show the indicator variable that is used to define the Group, where Group takes the value one if the indicator variable in the heading of the respective column takes the value one: *Mother* (the parent being female), *High income* (the parent earning above the median income), *College* (the parent being highly educated), *Left* (the parent being defined being politically left wing oriented), *Daughter* (the child being female), *Siblings* (the child having siblings), *Brother* (the child having at least one brother), *Sister* (the child having at least one sister), and *< Median Math* (the child having a below median grade in mathematics). Robust standard errors reported in parentheses. \*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$

## 4.2 Behavior and beliefs

How is the treatment difference in parents' helping behavior related to their beliefs about the other parents' behavior? In the non-strategic condition, parents know that the other parent cannot help their child. In the strategic condition, however, they may believe that the other parent will help, which leave *ceteris paribus* would leave their child at a disadvantage.

Figure 3 shows the relationship between the expectation about the other parent's helping behavior and their own helping behavior. The figure conveys three important aspects of how parents' behavior relates to their expectations. First, as observed by the estimated linear relationship, the degree to which parents chose to help their child is strongly and positively associated with their expectation of the other parent's helping behavior ( $\rho = 0.66$ ). In fact, 45.9% of the observations are on the diagonal, which implies that the parent helps just as much as they expect the other parent to help.

Second, we observe, in contrast to the theoretical prediction, that a sizable share of parents (42.6%) help less than what they expect the other parent to help; seemingly leaving their child at an expected disadvantage. 22.2% of parents even refrain from helping their child in the competition although they expect the other parent to help their child. As a result, parents, on average, tend to help significantly *less* than expect is necessary to ensure a level playing field.<sup>15</sup> The observation that parents tend to help less than they expect the other parent to help, is consistent across various subgroups (see Figure A.8 in the Appendix).

Third, we observe a relatively small share of parents (11.3%) helping more than they expect the other parent to help. This is in stark contrast to what we observe in the strategic condition, where 34.3% of the parents give their child an advantage by providing some help (knowing that the other parent cannot help). The apparent discrepancy in parents' willingness to give their child an advantage between the two conditions may partially be explained by a ceiling effect, i.e., that any parent that believes that the other parent will also help with the maximum amount is unable to give their child an advantage. However, even when accounting

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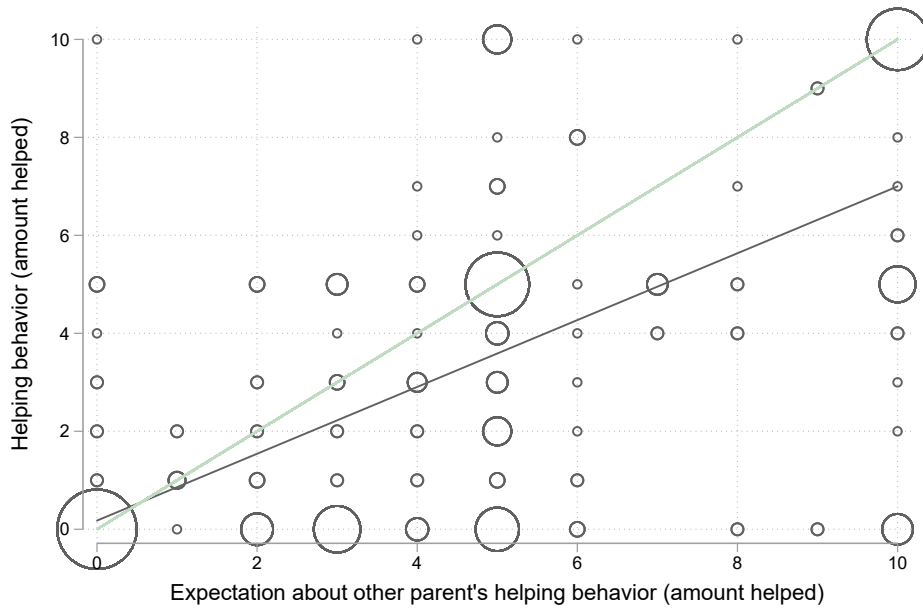
<sup>15</sup>A Wilcoxon Signed Rank test confirms a significant difference in parents' behavior and their expectation about the other parent ( $Z = -7.24, p = 0.000$ ).



for this, only 21.1% of parents in the strategic condition help weakly more than they expect the other parent to help.

**Result III:** *Parents' helping behavior is highly associated with how they expect the other parent to behave, but on average, parents help less than what they believe is needed to ensure a level playing field in the strategic condition.*

Figure 3: The relationship between behavior and expectations in the strategic condition



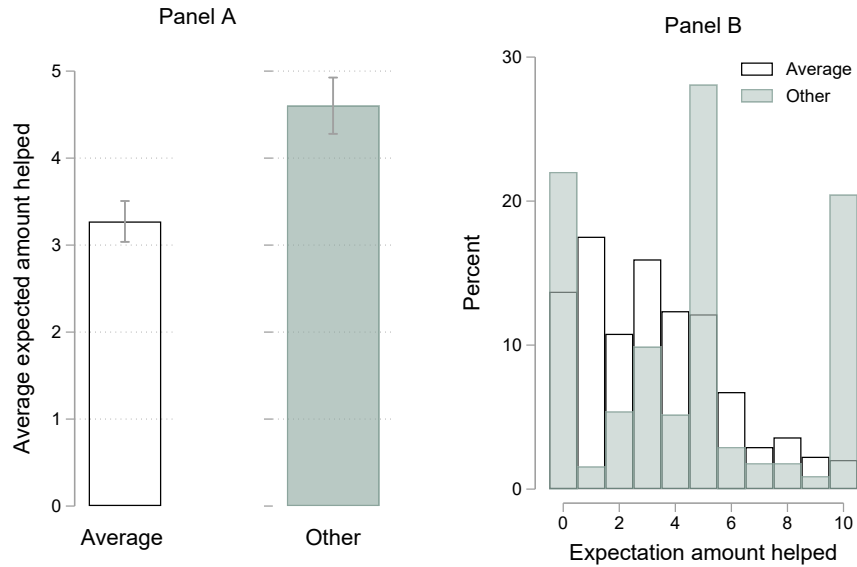
*Notes:* The figure shows the relationship between the amount helped and their expectations about the amount helped by the parent of the opponent of their child, in the strategic treatment condition. The black line shows the estimated linear relationship between these two variables. The green line represents the 45° line. Size of the circle reflects the frequency of the observed combination of the behavior and expectation.

A potential explanation for the unexpected finding that fewer parents give their own child an advantage in the strategic condition may be that parents adjust their expectations about the other parent's behavior in a self-serving manner. While parents know for sure that the other parent is not helping in the non-strategic condition, the strategic condition lends itself to self-serving belief manipulation—allowing parents to help without acknowledging that they are giving their child an advantage.

To study the potential role of self-serving beliefs, parents in the strategic condition are asked to state both their expectation about the other parent's behavior (1–10) *and* about the average parent's behavior (0–10). To study whether parents may distort their beliefs, I compare the two expectations. Given the assumption that the expected beliefs about other parents' behavior are independent of their own child's math ability, it follows that parents on average should have the same expected beliefs about the other parent's and the average parent's helping behavior (see Section A.1 in the Appendix for a more formal explanation).

Figure 4 compares parents' expectations of the other parent's behavior to their expectations about the average parent. From panel A, we observe that parents on average expect the other parent to help *more* than they expect parents to help on average ( $p < 0.001$ ). On average, parents expect the other parent to help with 43.8% more math questions than the average parent. Panel B shows the distributions of the two belief variables. Parents' expectations about the average parent is more evenly distributed than their expectations about the other parent's behavior ( $p < 0.001$ ). In particular, Panel B shows that there is a striking difference when comparing these beliefs for maximum helping behavior: only a negligible share of parents (1.5%) believes that the average parent helped with 10 math questions, 20% of parents holds the same belief about the parent they themselves are matched with.

Figure 4: Expectations about the other parent's and the average parent's helping behavior

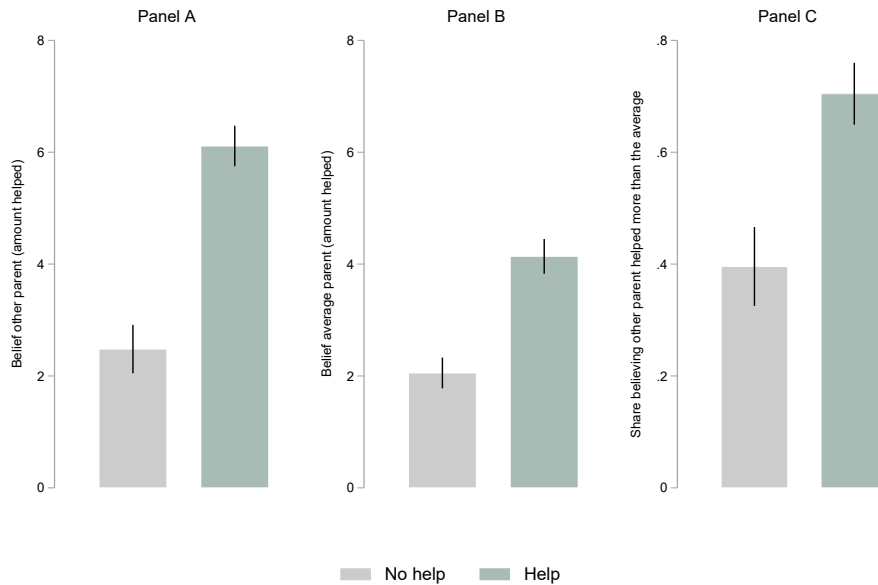


*Note:* Panel A shows the average belief about the average parent and the other parent's helping decision, separately. Error bars show the 95% confidence intervals. Panel B shows the distributions of the same two belief variables, i.e., the expectations of the helping behavior of the average parent, and the other parent.

Figure 5 compares the expectations of parents who interfered in the competition to those of parents who refrained from helping. In Panel A, I compare expectations in terms of the other parent's helping behavior, and in Panel B in terms of the average parent's behavior. Comparing the two panels, we note that whereas parents who refrained from helping tend to expect the other parent to help as much as the average parent, parents who helped their child in the competition tend to think the parent they are matched with help substantially more than the average parent. From Panel C we note that the share of parents who expect the other parent to help more than the average parent is considerably larger for the parents who helped their child in the competition compared to those who refrained from helping. In fact, 70.5% of parents who help their children believe that the other parent will

help more than the average parent, compared to only 39.6% of the parents who do not help their child. The fact that believing the other parent helps more than the average parent is the case for a majority of parents who help, but only the case for a minority of parents who refrained from helping is consistent across subgroups.<sup>16</sup>

Figure 5: Expectations by parents' helping decision



*Note: The figure compare the beliefs of parents who helped their child in the competition (teal) and the parents who refrained from helping (gray), all in the strategic treatment condition. Panel A shows the average amount they believe that the other parent helped. Panel B shows the average amount they believe that the average parent helped with, and Panel C shows the share of parents who believe that the other parent helped more than the average parent. Error bars marks 95% confidence intervals.*

Having made the decision of how much to help their child in the competition, parents are asked to evaluate how difficult they found making the decision. Assuming, as in the theoretical model (given  $\beta_i > 0$ ), that a parent cares about helping their child succeed in the competition *and* adheres to the fairness ideal of equal opportunities, the conflicting desires could create a cognitive dissonance, i.e., a discomfort

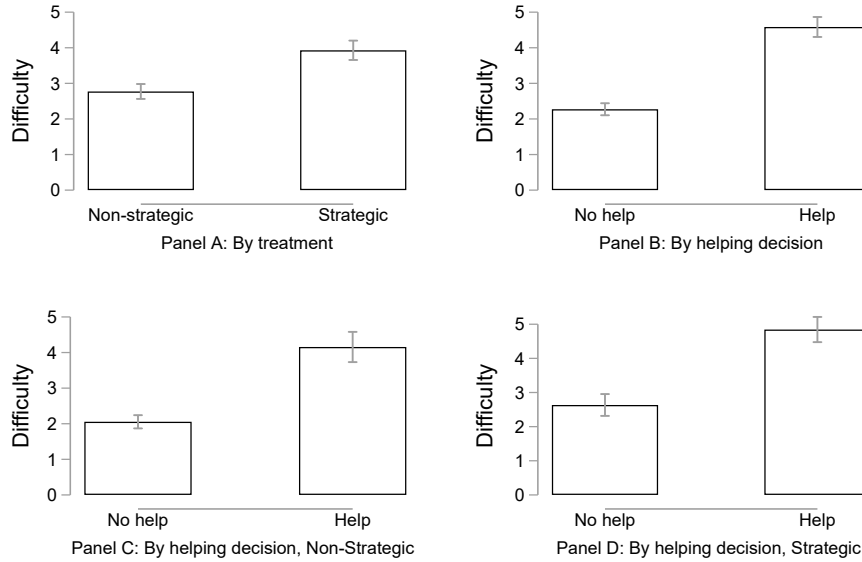
<sup>16</sup>See Figure A.9 in the appendix.

resulting from one's behavior not aligning with one's ideals. In the present framework, a parent in the strategic condition may reduce the cognitive dissonance by either assigning absolute priority to the fairness consideration, adjusting their beliefs about the other parent's behavior in a self-serving manner, or a combination of the two.

According to the theory of cognitive dissonance, parents whose behavior do not align with their fairness ideal will struggle more to make the decision. Further, they will have a higher demand for distorting their beliefs about the other parent's behavior in a self-serving manner, as expecting the other parent to help (more) would allow them to help (more) without facing tension with the fairness ideal.

Figure 6 shows how difficult parents, on average, find making the decision by treatment condition (Panel A) and by whether or not they chose to help their child in the competition (Panel B). We observe that parents, on average, find it more difficult to make the decision in the strategic than in the non-strategic condition ( $p < 0.001$ ), and that parents who help find making the decision more difficult than parents who refrained from helping ( $p < 0.001$ ). From Panel C and Panel D we observe that both in the Strategic and in the Non-Strategic condition do parents who helped their child struggle more to make the decision, as parents who helped their child tend to find it approximately twice as difficult to make the decision compared to parents who refrained from helping their child.

Figure 6: Difficulty of making helping decision



*Note:* The figure shows the average self-evaluation of how difficult it was to make the decision of how much to help their child in the competition, measured on a scale from very easy(0) to very difficult (10). Panel A shows the average degree of difficulty by treatment condition. Panel B shows the average degree of difficulty by the extensive margin, for the pooled sample. Panel C shows the average degree of difficulty by the extensive margin for the the non-strategic treatment condition only.

Table 5 in Appendix A reports the regression results estimating the extent to which parents have distorted their beliefs in a self-serving manner (proxied by expecting the other parent to help more than the average parent) on how difficult they found making the decision. As observed from the first row of the table, there is a positive association between finding it difficult to make the decision and expecting the other parent helped more than the average parent ( $p < 0.001$ ). Column (2) shows that the result is robust to including a rich set of individual controls, none of which seem to be important for explaining adjusting one's expectations about the other parent's helping behavior in a seemingly self-serving manner.

**Result IV:** Evidence suggests that parents manipulate their beliefs about the

*other parent's behavior in a self-serving manner: parents who help their child are i) more likely to believe the other parent helped more than the average parent, and ii) have a harder time making the decision, compared to parents who refrained from helping.*

### **4.3 Helping decision and educational advantages**

In this section, I study how parents' decisions of whether or not to help their child in the mathematics competition relates to the educational outcomes of the children. To this end, I use information on the educational outcomes of the children obtained from the high-quality administrative data.

More specifically, I examine the relationship between parents' decision to help their child in the experiment and the grade differential between the mathematics grade obtained from an externally graded exam and the final grade assigned by the teacher. The idea is that whereas parents can only affect the former through increased learning, they can affect the final grade by also giving their child more direct advantages throughout the school year, e.g., by correcting their child's homework or negotiating on behalf of their child to the teacher. The grade differential is therefore used as a proxy variable for parents providing their child with real educational advantages, which in the following is related to the parents' willingness to give their child an advantage in the experiment.

Table 4 provides the regression estimates of the relationship between parents decision of helping their child in the experiment and the child's grade differential. Panel A shows the relationship in both treatment conditions, and Panel B only for the non-strategic condition where parents knew helping entailed providing their child with an advantage. From the table, we can observe a positive relationship between parents who help their child in the experiment and the grade differential, i.e., children whose parents helped them in the competition are also more likely to perform better on the teacher given grade relative to the exam, compared to children whose parents refrained from helping. However, without including controls, and for parents whose children do not struggle with mathematics (as defined by having a below average math grade), the relationship between parents' helping behavior and the grade differential is weak, and the difference not statistically signifi-

cant. For children whose mathematics grade fall below the median grade (columns 3–4), the relationship is strong ( $p < 0.001$ ) and sizable. For children who perform below average in math, having a parent who helped their child in the experiment is associated with being approximately 14pp ( $p < 0.001$ ) more likely to obtain a higher grade in mathematics set by the teacher compared to on the externally graded exam, compared to children whose parents did not help them in the competition.<sup>17</sup> A potential explanation why we only observe this strong relationship for children performing below median is that this form of parental investments being more efficient at the lower end of performance compared to equivalent investments at higher performance levels. Additionally, such investments will inherently have no impact for children whose performance results in top grades.

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<sup>17</sup>The estimate is based on a regression of the same type as reported in Table 4 where the dependent variable is an indicator variable taking the value one if the child obtained a higher mathematics grade on the final grade given by the teacher than on the externally graded exam, and zero otherwise.



Table 4: External validity of parents' helping decision

	Full sample		< median math grade		≥ median math grade	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A (Dependent Variable: Grade Differential)						
Helped child	-0.015 (0.064)	0.125** (0.059)	0.345*** (0.102)	0.339*** (0.106)	0.021 (0.070)	0.029 (0.071)
Controls		✓		✓		✓
Observations	838	838	279	279	559	559
$R^2$	0.000	0.242	0.039	0.105	0.000	0.069
Panel B: (Dependent Variable: Grade Differential)						
Helped child	-0.023 (0.096)	0.138 (0.086)	0.389*** (0.146)	0.338** (0.155)	0.018 (0.111)	0.002 (0.106)
Controls		✓		✓		✓
Observations	426	426	144	144	282	282
$R^2$	0.000	0.300	0.048	0.180	0.000	0.134

*Note:* The table provides OLS regression estimates of the grade differential between the math grade given by the teacher and the math grade given on an externally graded exam. *Helped child* is an indicator variable, taking the value one if the parent decided to help their child in the experiment, and 0 if the parent refrained from helping. Control variables are the same as used in Table 2. Panel A provides estimates using data from both treatment conditions, whereas Panel B only uses data from the non-strategic treatment condition, meaning that parents who helped their child knew they were giving their child an advantage. Robust standard errors reported in parentheses. \*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$

## 5 Concluding remarks

This paper studies parents' willingness to interfere in a competition between children. Through an experiment run in Norwegian secondary schools, I causally identify that the expected helping behavior of other parents is an important reason as to why parents themselves choose to help their children in the competition. Although a majority of parents act as to ensure equal opportunities, a relatively large share of parents chooses to give their child an advantage at the expense of another child's opportunity to succeed. The study also shows how parents may not always

be aware that they help their children as a means to give them an advantage, as I find evidence suggesting that parents who help tend to bias their beliefs about the other parent's behavior in a seemingly self-serving manner.

Overall, the study shows how institutional factors can have important consequences for parents' role in creating unequal opportunities between children, and as a result undermine meritocratic processes. Importantly, findings from the study indicate that the educational outcomes of children may not only reflect merit but also the parents' willingness to give their child an advantage. When designing institutions or policy interventions aimed at creating equal opportunities for children, it is thus important to factor in the role of parents. The study also highlights an important tension in any meritocratic society: the tradeoff between the freedom of parents to help their children as they see fit and creating equal opportunities for all children.

The study opens up several new potential research avenues. The present experiment holds economic incentives and the form of help constant. Manipulating the stakes associated with winning would enable to test the theoretical prediction of the model and macroeconomic models (Doepke and Zilibotti, 2017) suggesting that increased stakes lead to an increase in parents' interference. In addition, in the current setting, parents can only affect opportunities but never inequality of outcomes as there always is one winner and a loser. If parents could equalize outcomes in terms of redistributing the monetary price *ex post*, would they, and if so would the opportunity of equalizing outcomes cause an increase or decrease in parents' willingness to give their child an advantage? To get a better understanding as to what degree, how, and why parents make compromises between the interests of their own children and that of others, more research is clearly needed.

Starting the paper with a quote from Young (1958)—a sociologist who painted meritocracy as a dystopia—I will end with the words of a man reflecting on his role as a parent in a meritocratic society: “To be a parent is to be compromised. You pledge allegiance to justice for all, you swear that private attachments can rhyme with the public good, but when the choice comes down to your child or an abstraction—even the well-being of children you don't know—you'll betray your principles to the fierce unfairness of love. Then life takes revenge on the conceit that your child's fate lies in your hands at all.” (Packer, 2019, para.1).

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# A Complementary analysis to the paper

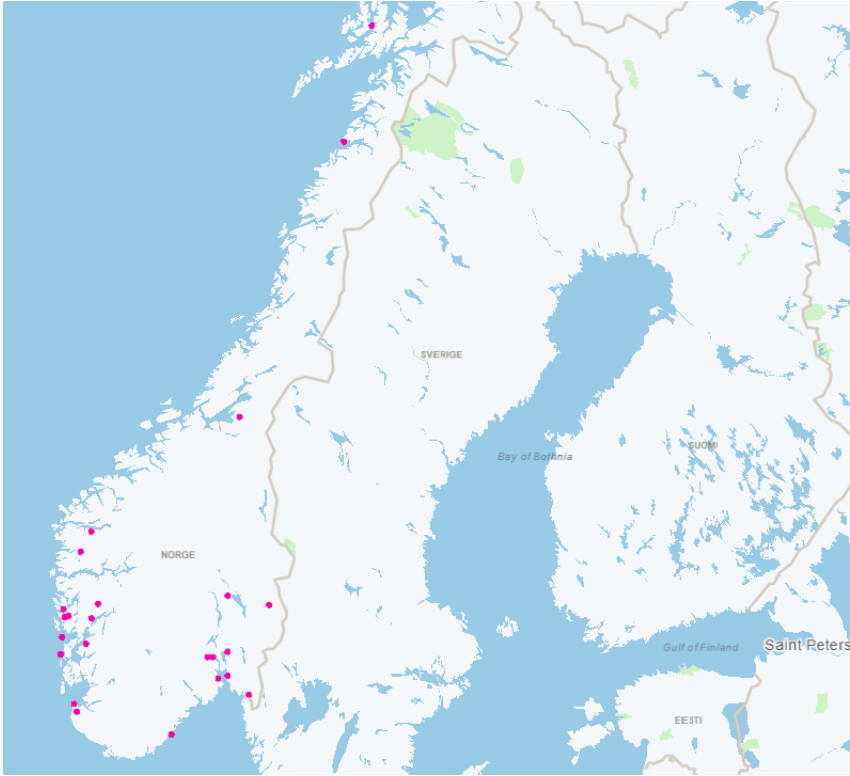
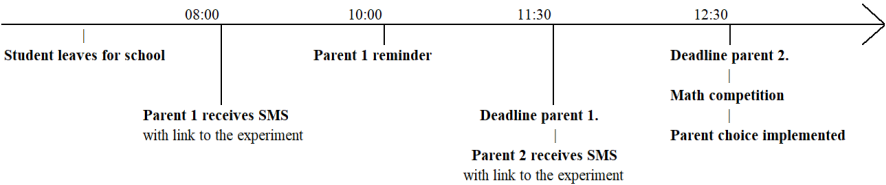


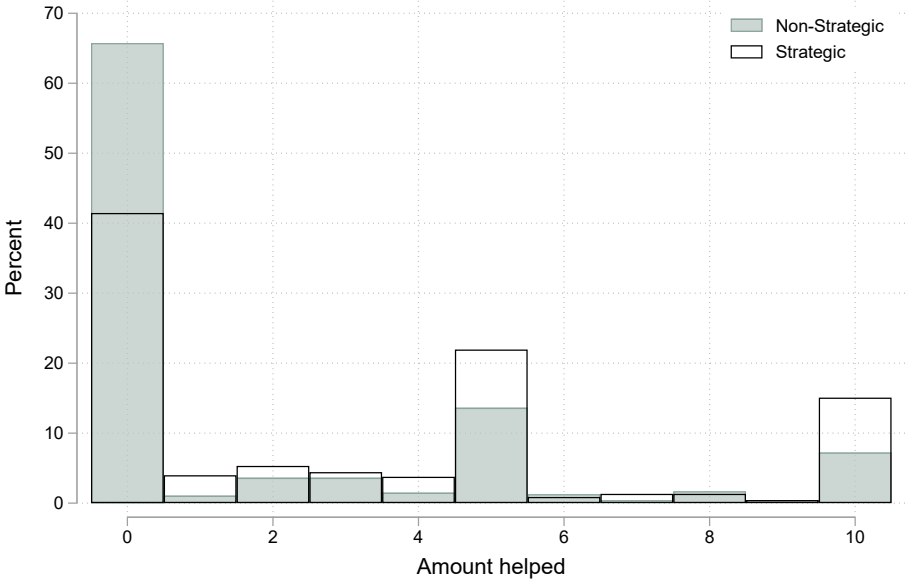
Figure A.1: Map with locations of the 24 schools participating in the study

Figure A.2: Detailed time line of the implementation of the experiment



*Note:* The figure shows the detailed timeline for the implementation of the experiment. Schools participated on different dates, but the data collection was implemented following the outlined timeline.

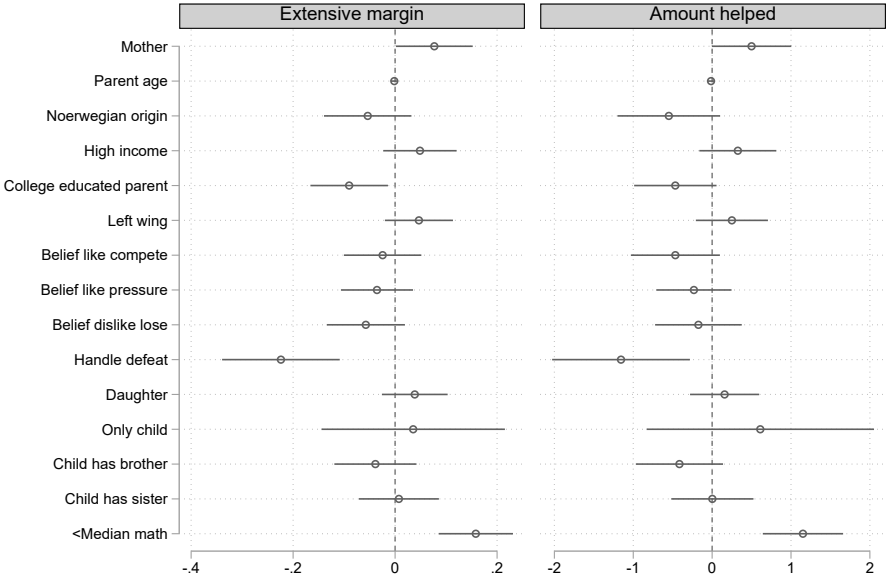
Figure A.3: Distributions of helping behavior shown for each treatment condition separately



*Note:* The figure shows the distribution of the amount helped for the Strategic and the Non-strategic treatment condition, separately.

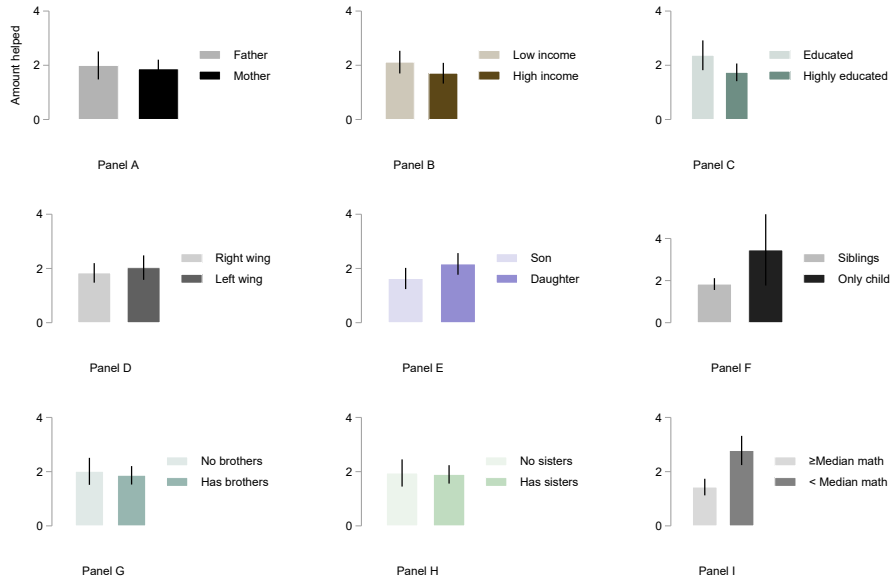


Figure A.4: Regression estimates of parents helping behavior in the non-strategic condition



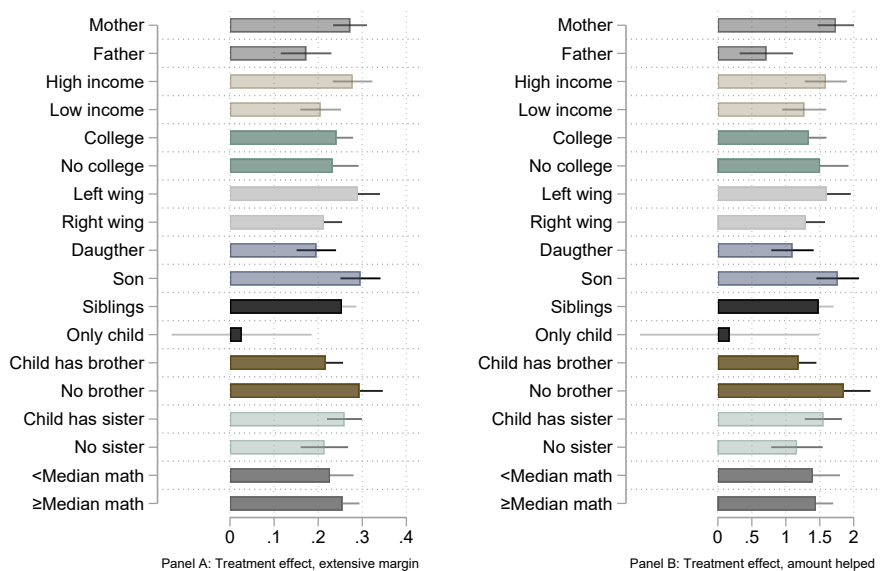
Note: the figure shows regression estimates for helping behavior in the non-strategic condition. Panel A gives estimates for the extensive margin, and panel B gives estimates for the amount helped. Except for "Parent age", all dependent variables are indicators.

Figure A.5: Behavior in the non-strategic condition by subgroups



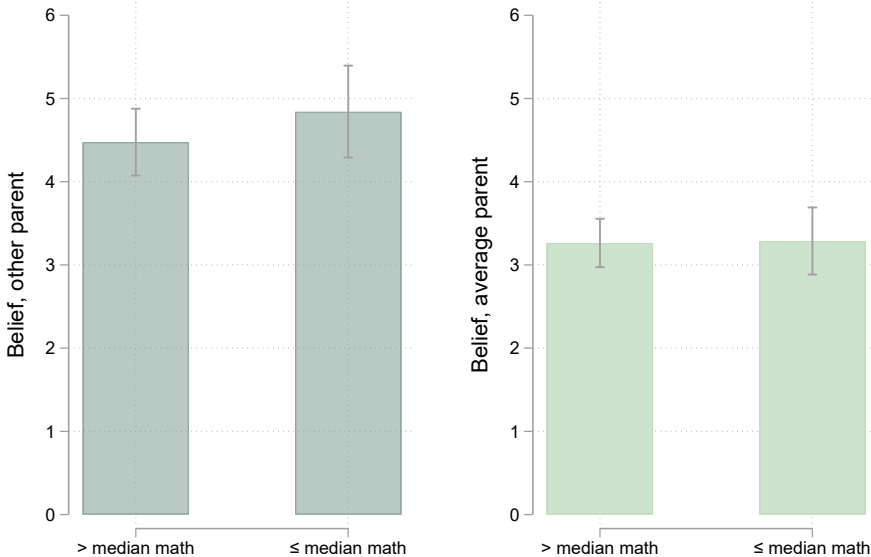
*Note:* The figure shows the average amount helped for different subgroups in the non-strategic treatment condition, estimated without any control variables.

Figure A.6: Heterogeneity analysis of the treatment effect by subgroups



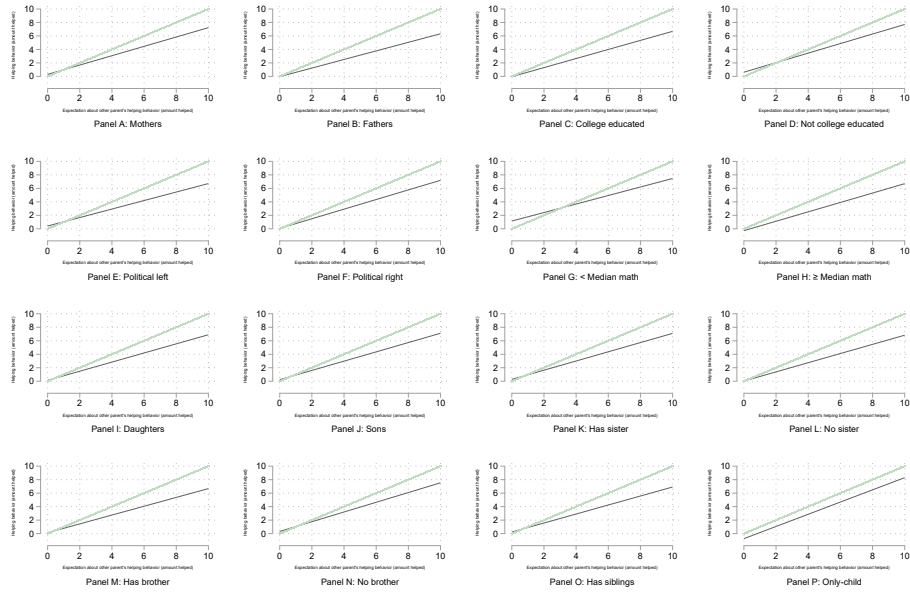
Notes: Panel A shows the treatment effect on the extensive margin across the relevant subgroups. Panel B shows the treatment effect on the amount of helped (including helping nothing), across the same sub-groups. The estimates results from OLS regressions without additional control variables. *Mother* (the parent being female), *High income* (the parent earning above the median income) *College*(the parent being highly educated), *Left* (the parent being defined being politically left wing oriented), *Daughter* (the child being female), *Siblings* (the child having siblings) *Brother* (the child having at least one brother), *Sister* (the child having at least one sister), and *< Median Math* (the child having a below median grade in mathematics).. Error bar marks 95% confidence intervals.

Figure A.7: Beliefs about the other parents' behavior for parents in the strategic treatment, conditioned on child's grade in mathematics



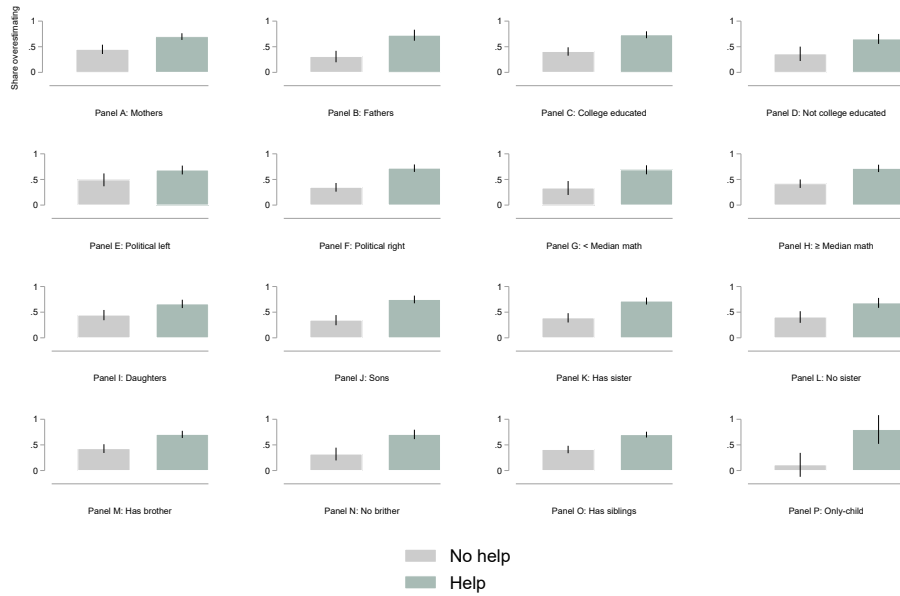
*Note:* The figure shows the average belief about the amount helped by the other parent (panel A), and the average belief about the amount helped by the average parent (panel B). The figure shows the average beliefs stratified by having a child who performed below median in maths or not. Error bars marks the 95% confidence intervals.

Figure A.8



*Note: The figure shows the estimated linear relationship between parents' helping behavior (measured as the amount helped) and their expectation about the other parent's helping behavior (amount helped) for different subgroups. The black line shows the estimated linear relationship for the given subgroup, and the green line denotes the 45° line.*

Figure A.9



*Note:* The figure shows the share of parents who believe that the other parent helps more than the average parent (overestimates) conditional on having helped their child or not having helped their child in the competition for different subgroups.

Table 5: Regression results of expecting the other parent to help more than the average parent

	Dependent Variable: Overestimate	
	(1)	(2)
Difficult	0.131*** (0.047)	0.143*** (0.048)
<b>Parent, characteristics</b>		
Mother		0.067 (0.053)
Left wing		0.066 (0.049)
Effective		-0.000 (0.001)
Belief like compete		-0.000 (0.057)
Belief like pressure		0.086* (0.050)
Belief dislike lose		-0.029 (0.058)
Handle defeat		0.062 (0.094)
<b>Child, characteristics</b>		
Daughter		0.005 (0.047)
Below median math grade		0.025 (0.051)
Constant	0.500*** (0.037)	0.349*** (0.116)
Observations	451	442
R-squared	0.017	0.040

*Note:* The table reports the regression estimates where the dependent variable is "overestimate", which takes the value one if the parent expect the other parent to help more than the average parent and zero otherwise. The control variable "Difficult" is a binary variable taking the value one if the parent finds it above median difficult to make the choice of how much to help her child in the competition. The other control variables are the same as reported in Table 2. Robust standard errors reported in parentheses.

\*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$

## A.1 Formal explanation of the alignment of beliefs

Given the assumption that the expected beliefs about other parents' behavior are independent of their own child's math ability, it follows that parents on average should have the same expected beliefs about the other parent's and the average parent's helping behavior.

Let parents be characterized by the math ability of their child,  $p \in \mathbb{R}$ . As parents helping behavior is studied in an environment where their child is competing against another child with an equal math ability, the other parent is characterized by the same math ability. A parent's belief about the behavior of the other parent, given math ability  $p = x$ :

$$E^{p=x}(h_j|p = x). \quad (8)$$

Given the stated assumptions, the average belief about the helping behavior of the other parent is:

$$\int E^p(h_j|p)f(p)dp. \quad (9)$$

A parent's belief about the average helping behavior of the other parent given math ability  $p = x$ :

$$\int E^{p=x}(h_j|p)f(p)dp. \quad (10)$$

It follows that the average belief about the other parent's behavior is:

$$\int [\int E^{p=x}(h_j|p)f(p)dp]f(x)dx. \quad (11)$$

Given 10 being independent of  $x$ , it follows that (11)=(9).

## B Instructions

### B.1 Invitation letter to parents and students

#### Invitation to participate in "L ring for Livet prosjektet" arranged by the Norwegian School of Economics to students in grade 10 and their parents

The aim of the project is to better understand what affects students' learning at home, in kindergarden, and at school. Participants in the project are children and their parents. Your school wants to participate and all students in grade 10 and



their parents are invited to participate.

### **What does participating entail?**

The study will take place at school DATE and will take one school hour (45 minutes). The students will be asked to do some tasks and answer some short questions on their computers. Participation requires no prior knowledge and all participants will receive help if needed. The students will earn smaller monetary amounts that will be paid in the aftermath of the study.

A couple of weeks after the study, a subset of the students will receive a short questionnaire via SMS which will take about three minutes to complete.

Associated with the study, one parent will receive an internet link for a short questionnaire via SMS.

The results of the study will be connected to information from Statistics Norway with regards to the student's school achievements (national tests from 9<sup>th</sup> grade, final grades from the 10<sup>th</sup> grade and upper secondary school), choice of educational program at upper secondary school and parents' income, occupation and education.

### **Participation is voluntary**

Participation in the study is voluntary and not a part of the students' school work. There will be alternative arrangements for students who will not participate. If you want to participate the student and a parent have to use the link below to confirm the participation in the study as soon as possible (and at the latest: DATE)

[Internet link to participation form and a QR-code containing the same link.]

### **Privacy concerns**

The project has been evaluated by the Norwegian Centre for Research Data AS (NSD) that has found the treatment of personal information complies to all privacy regulations. The participants' name, date of birth and contact information will be stored in encrypted form on a research server and only be available to one person in the administration. By the project's end date (the latest December of 2030), this personal information will be deleted.

### **Your rights**

You have the right to gain insight into the personal information gathered about you, get a copy of them, the right to get the information deleted, and send a complaint to the personal information ombudsman or the Data Protection Inspectorate

regarding how your personal information is handled.

*Where can I get more information?*

If you want more information about the research project, or wish to withdraw your consent, you may contact the project coordinator [Name and email address].

If you have questions regarding privacy concerns, you may contact:

- The person in charge of personal information at Norges Handelshøyskole (NHH), email [personvernombud@nhh.no](mailto:personvernombud@nhh.no)
- NSD- Norwegian Centre for Research Data As, at email [personverntjenester@nsd.no](mailto:personverntjenester@nsd.no) or by phone: 55 58 21 17.

Throughout the duration of the project you may follow the project on our website

<https://www.nhh.no/en/research-centres/fair/research/laering-for-livet/> where we update you with information about the project.

With kind regards

Oda Sund

Project manager

[My contact information]

## **B.2 Participation Form, Parents and students**

### **Welcome to the participation scheme!**

This is the declaration of consent form for participation in the 'Learning for life' study (Læring for livet), for students and parents.

---

- We have received and understood information about the project Learning for Life, and received information on where to go if we have any questions.  
We agree that the student will participate in the study, which will take a school hour in March / April, and that the project may send a short survey on SMS to the student in April / May

– Yes/ No

- We agree that the project links the results of the study to information about the student and the parents from Statistics Norway.

– Yes/ No

- We agree that the project will send a short survey on SMS to one of the parents in connection with the completion of the study.

– Yes/No

- **We take your privacy seriously:**

All information you provide in this form will be treated with strict confidence and in accordance with the privacy policy. Data is collected via Qualtrics - a secure solution for data collection. All personal data we collect is stored in encrypted form, separate from other research data. Once the data collection has been completed, data will be transmitted in encrypted form to a secure server at NHH.

– Next button/ exit survey

- 
- We agree that information about us will be processed until the project is completed in December 2030.

The full name of the student

– Text box

- The student's phone number

– Text box

- The students date of birth

– Date, month, year

- The name of the school
    - Text box
  - School class (If the 10<sup>th</sup> grade is not organized into classes, please state the name of the student's group, base, etc.)
    - Text box
- 

To the parent completing this form:

- Your role related to the student
  - mother/ father/ other (text box)
- Your full name
  - Text box
- Your date of birth
  - Date, month, year

Items only displayed if the parent answered yes to participating in the study

- Your phone number
    - Text box
  - The phone number of the other parent
    - Text box
- 

Thank you so much for responding to the questionnaire!

You can follow 'Learning for Life' on the project website: <https://www.nhh.no/en/research-centres/fair/research/laering-for-livet/>

### **B.3 Instructions, adult sample**

#### **Welcome!**

Thank you for participating! This survey will take approximately five minutes, and is related to the survey your child will participate in at school later today.

We ask you to answer this survey alone, and that you do not talk to your child about this survey (before he/she has finished his/ hers part of the study). This is important for our research.

If you need help with the survey or have any other questions, you may contact the phone number listed on the bottom of every page.

Below is a declaration of consent regarding your participation in the study. Please press the arrow to accept the declaration and start the survey.

#### **Declaration of consent**

The participation in this study is voluntary and you can at every moment terminate your participation. If you accept to participate, we ask you to please finish the survey. The survey will be linked to de-identified data from the income- and education register of Statistics Norway. That the data is de-identified means that any personally identifying information has been replaced with a key code that points to a list of personally-identifying information. As with all research, there is a possibility of a breach of your confidentiality, but we take precautions to minimize this risk. The list of personally-identifying information will be stored on a server with two-factor identification in an encrypted file. No researchers will have access to personally-identifying information, and if the results of the study are published or presented, no personally-identifying information will be provided.

If you have any questions regarding the research project, you can contact us on telephone xxxxxx or email xxxxxx.

---

As a part of the "Læring for livet"-study the students participate in a competition. The competition involves solving as many calculations as possible within two minutes.

For example:  $5 + 6 + 1 + 9 + 7 = ?$

Your child will compete against a student who did equally well in a test round. The children compete for a prize of 50 NOK. The student that loses gets no prize. If

both get the same result, a winner will be randomly drawn.

You have the possibility of helping your child.

The help entails that we simplify some of the calculations your child gets in the competition. As an example we could reduce the previous calculation to  $1 + 9 = ?$ . You can choose how many calculations you want us to simplify for your child (0–10).

**Strategic:** The parent of the opponent of your child, will also be given the opportunity to help their child in the competition.

**Non-strategic:** The parent of the opponent of your child, will not be given the opportunity to help their child in the competition.

It will not be possible for your child, other students, teachers or other parents to know which decision you make.

How many math questions do you want to help your child with (0-10)?

---

We now want to ask you some questions about the decision you just made.

How difficult did you find making the choice of whether or not to help your child to be?

10: very difficult, I might as well have done something different.

1: very easy, I would never have done anything different.

---

We now want to ask you some questions about what you believe about the choices made by the other parents who are participating in the survey.

**You can win a travel gift card if you answer correctly.** As a thank you for your participation in the research project, you will receive a lottery ticket. In the lottery, two parents will win a travel gift card to the value of 5000 NOK In addition you will receive two additional lottery tickets for each of the upcoming questions you get right.<sup>18</sup>

---

<sup>18</sup>The order of the beliefs questions are different between the strategic and non-strategic. The strategic is first asked to provide beliefs about the strategic condition, and thereafter for the non-strategic. For the non-strategic, it is the other way around. Also, in between these belief questions, there is a page break.

- How many math questions do you believe the parent of the other child helped their child with?
  - Parents with children in the 10th grade are participating in this study. Out of a 100 parents, how many do you think helped their child in the competition given that they, as you, were the only parent allowed to help their child?
  - Out of the parents who helped, how many math problems do you think they helped their child with on average?
- 

Also these questions concern which choices you think the other parents who participate in the study have made. **By answering correctly, you can earn additional lottery tickets.**

**The parents we now ask you about, have made choices in a different situation than the one you made your choice in.**<sup>19</sup>

- Some of the parents participating in this study were asked if they would like to help their child in a situation where the parents of the other child competing against their child were also given the choice of whether or not to help their child.  
Out of a hundred of parents in in this situation, how many do you think have chosen to give their child an advantage?
- Out of the parents who helped, how many math problems do you think they helped their child with on average?
- Of students who received help with **one math question more** compared to the student they competed against, how large a percentage do you think won the competition?

---

<sup>19</sup>This shows instructions for parents in the non-strategic treatment condition. Parents in the strategic treatment condition are given a description of the non-strategic treatment condition.

---

We now want to ask you some questions about your child. You can earn additional lottery tickets by answering correctly.

- To what degree do you think your child would agree to the following statements as a description of him/herself?
  - Likes to compete
  - Dislikes losing
  - Likes to work under pressure
- Totally disagrees/ Partially disagrees/ Neither agrees nor disagrees/ Partially agrees/ Totally agrees.

---

We now wish to ask you some more general questions.

- We now want you to indicate to what degree you agree with the following two statements.  
0 means that you totally disagree with the statement.  
10 means that you totally agree with the statement.
  - The government should aim to reduce inequalities between rich and poor in society
  - It is important for children to learn to handle defeat.
    - \* Slider moving from 0 to 10.
- We now wish to ask you how you feel about two different concepts.  
0 means that you are totally against  
10 means that you are totally for
  - Privately run high schools
  - Inheritance taxation
    - \* slider moving from 0 to 10



---

Thank you for participating in our study!

---

## **B.4 Instructions, student sample**

*We here provide the full instructions (translated from Norwegian).*

---

### **Introduction**

Welcome and thank you for your participation! This is a research project organized by researchers from the Norwegian School of Economics. We are going to ask you some questions related to school and learning environment.

### **Privacy**

All your answers will be handled with strict confidentiality. It will not be possible for teachers, parents or other students to know which answers you provide.

### **Payment**

You earn 50 NOK for participating in this survey. In addition you will, as part of the study itself, get to participate in two different lotteries where it will be possible to earn a limited amount of money. The total payment will be paid in a sealed envelope within one day.

---

- What is your participation number? Write the participation number you just received. This is important to be able to give you the correct payment.
- 

To what degree do you agree or disagree with the following statement about yourself?

- I like to compete
- I dislike losing
- I like to work under pressure

Totally disagree/Somewhat disagree/Neither agree nor disagree/Somewhat agree/Totally agree

---

**How many calculations do you manage to solve in two minutes?**

We now ask you to try and solve as many calculations you can in two minutes. The calculations takes the form of:  $5 + 6 + 1 + 9 + 1 = ?$

You may not use a calculator, but you may use pen and paper if you prefer.

We do not expect you to solve all the math questions. It's all about solving as many as possible, so do the best you can!

When you are ready, please press the button.

---

How well do you think you performed relative to the other students who also attend 10<sup>th</sup> grade? <sup>20</sup>

0 = among the the 10% who performed the worst in the test round

50= average

10= among the 10% who performed the best in the test round.

- Slider moving from 0 to 10
- 

It is time for the real competition.

You will be competing solving the same type of math problems. You now have 2 minutes to solve as many math problems as possible.

---

<sup>20</sup>Only half the students are randomized to being asked this after the test round. All students are asked this question after the competition.

You will be competing against a student with the same score as you in the test round. The winner of the competition is the one who solves the most math problems correctly.

The winner will receive a prize of 50 NOK.

When you are ready to start the competition, please press the arrow button.

---

You have completed the survey. Thank you for participating! We greatly appreciate your participation!

### **B.5 Text read aloud by the teacher prior to the students' study**

**Note to teacher (not read aloud):** *We kindly ask you to read the following text aloud after the students have received their participation code, and you are ready to start.*

Now we will take part in a research project directed by the Norwegian School of Economics. I hope you will answer the study with tasks and questions related to your schooling, school environment and group of friends. In addition, the researchers wish to gather information about your performance at school, background information, and your choice of school.

All gathered information as well as all the answers you give will be treated strictly confidentially. It will not be possible for me, other teachers, your parents or students to know what you answer. This is a project to which one of your parents has given their consent for you to partake in.

It is possible to earn a limited amount of money by participating in the study. You will receive the total amount in the aftermath of study.

Your participation is voluntary, and not organized by the school. If you do not wish to partake –now or at a later stage– please let me know.

The results from this study will be used for research. Therefore it is important that you follow some rules. It is not allowed to speak to any of your classmates during the study. If you have any questions or need help, please raise your hand, and I will come to help you.

Are there any questions before we start?

**Note to teacher (not read aloud):** *When all questions are answered, you can copy the internet link to the study or write it on the blackboard. When all students are logged in, please send me an SMS (PHONE NUMBER) to let me know the total of students participating from your class, and we will start the study.*

## **B.6 Instructions follow up study, students**

*We here provide the full instructions to the follow-up survey (translated from Norwegian).*

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### **Introduction**

A couple of weeks ago, you participated in a research project organized by the Norwegian School of Economics. The project was carried out at your school and we are very grateful for your participation. We are contacting you now because we hope you can answer a short and simple follow-up survey. This follow-up survey is important for the success of the research project. We therefore hope you are able to take the time to answer it. It only takes a couple of minutes. The survey is voluntary, but the answers are important to the research project and we therefore highly appreciate your participation.

### **Privacy**

All your answers will be handled with strict confidentiality. It will not be possible for teachers, parents or other students to know which answers you provide.

### **Payment**

Everyone who participates in the survey from your class gets to participate in a lottery. Everyone gets one ticket for the lottery, and we will draw three prizes of NOK 2000 each when everyone has answered. The winners will receive a message by SMS some time after the survey is carried out such that they can receive their payments.

### **Contact**

If you have any questions to the survey, please contact daily responsible, Ranveig Falch: [e-mail address].

---

**Which school do you attend?**

**Which class are you in?**

Write e.g. 10A if you are in 10A.

**What is your participation number (see sms)?**

Please write the participation number you received from us by sms. Remember to write it correctly, such that you can receive your prize if you win the lottery.

---

In connection with the research project, you participated in a competition. Did you and your parents talk about it afterwards?

- Yes/ No/ I do not remember

If yes, what did you talk about?

- Text box

## **C Registry data**

Subsection C.1 and C.2 lists the data gathered from the registry data on the parents and students, respectively. The names of the variables

### **C.1 Registry data, parent sample**

- Pensionable earnings and agreed monthly salary. Annual information, from 2019.<sup>21</sup>

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<sup>21</sup>wxx\_xxxx\_lnr\_person, wlonn, pgivinnt

- Occupational and labor market status. Annual information, from 2019.<sup>22</sup>
- Highest completed education. Annual information, from 2019.<sup>23</sup>

## C.2 Registry data, student sample

- Gender<sup>24</sup>
- Immigration category<sup>25</sup>
- Results on the national tests from the 9<sup>th</sup> grade.<sup>26</sup>
- Final grades in secondary school.<sup>27</sup>
- Grades from upper secondary school, school municipality, organization number, form of ownership and course data on highest completed education.<sup>28 29</sup>

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<sup>22</sup>(wxx\_xxxx\_lnr\_person, EDAG\_PERIODE, ARB\_YRKE\_ISCO, ARB\_AVTALTARBEIDSTID\_PUB, ARB\_HELDELTID\_PUB, ARB\_STILLINGSPST\_PUB, LONN\_IALT, LONN\_FMLONN, LONN\_FAST\_TILLEGG, LONN\_UREGTIL, LONN\_BONUS, OVERTID\_PUB, LONN\_OVERTID\_TIMER, FRTK\_SEKTOR\_2014, VIRK\_NACE1\_SN07)

<sup>23</sup>bu\_åååå

<sup>24</sup>kjoenn

<sup>25</sup>Innvkat

<sup>26</sup>AARGANG, ORGNR, ORGNRBED, DELTATTSTATUS, PROVE, OPPGAVESETT, MESTRINGSNIVAA, POENG, SKALAPOENG

<sup>27</sup>ORGNR, SKOLEKOM, FAGKODE, TERMIN1, TERMIN2, STP, SKR, MUN, AVGDATO

<sup>28</sup>The student sample attend the 10<sup>th</sup> at the time of the study. We will thus only receive information regarding upper secondary school for the students who start in the fall of 2020 and 2021 (as we have committed to NSD (The Norwegian Centre for Research Data) to delete the key containing personal information enabling us to link our experimental data to the registry.

<sup>29</sup>bu\_åååå, bu\_åååå, kun første siffer nivå, bu\_åååå, nivå gruppert, igang\_åååå, REGDATO, KODE, TILGDATO, AVGDATO, TOMDATO, REGTOM, KOMMNR, KOMMNRDATO, BU, BUDATO, BU\_KLTRINN, BU\_KLTRINNDATO, BU\_REGDATO, BU\_LOEPENR\_KURS, REGDATO, KODE, TILGDATO, AVGDATO, TOMDATO, GYLDIG\_TV\_FOM, REGTOM, NUS2000, KLTRINN2000, KLTRINN2000DATO, UTFALL, GRUNNSKOLEPOENG, KOMP, KOMPDATO, SKOLEKOM, ORGN, EIERF, SKOLEAR, ORGNR, VIDEREGAENDEPOENG, FAGKODE, MUN, SKR, STP, TERMIN1, TERMIN2, KAR\_ANNEN, FAGSTATUS

## D Deviations from the preregistration

For transparency, this section outlines deviations from pre-registered analysis, registered at the AEA RCT-registry under 0006609 on the 21st of October 2021.

For the analysis reported in Section 4.3 I would (as stated in section 5.4.4 of the preregistered analysis plan) use the grade obtained at the final exam in mathematics. However, due to the Covid 19 pandemic, final exams were canceled. I therefore, as a second best, use an externally graded exam taken in grade nine, i.e., the year prior to the study.

For transparency, only column (2) of Panel B of Table 4, was preregistered as a test of external validity, and the above tests should therefore be considered exploratory. The analysis presented in Figure 4 and 3 are also exploratory as they were not preregistered.

One of the sub-analysis from the preregistered analysis is not reported in the empirical result section. The pre-registered hypothesis was the following:

**HYPOTHESIS II.II:** *Comparing beliefs about how much parents tend to help in the strategic treatment condition, parents in this treatment condition will bias their beliefs upwards compared to the beliefs of parents in the non-strategic treatment condition about how much others help in the strategic treatment condition.*

To test H.II.II, I run the following (pre-registered) regression specification:

$$b_i^s = \beta_0 + \beta_1 T_i + \beta_2 \mathbf{X}_i + \varepsilon_i \quad (12)$$

where  $b_i^s$  is parent  $i$ 's belief about the average parent's behavior in the strategic treatment condition,  $T_i$  is an indicator of the which treatment condition  $i$  was randomized to, taking the value one if the parent got placed in the strategic treatment, and  $\mathbf{X}_i$  is the set of individual control variables, and  $\varepsilon_i$  an error term.

The corresponding regression estimates from Equation (12) are presented in table 6.

Table 6: Regression results of differences in parents' expectations of the helping behavior in the strategic treatment condition between strategic and non-strategic treatment

	(1)	(2)
Strategic treatment condition	-1.018*** (0.187)	-0.937*** (0.178)
Controls		✓
<i>N</i>	838	838

*Note:* The table reports regression estimates for the treatment effect on parents' expectations about the helping behavior of the average parent in the strategic treatment condition. Strategic is a binary variable taking the value one if a parent is assigned to the strategic treatment condition, and zero if the parent is assigned to the non-strategic condition. A parent's expectation takes values from 0-10. The controls are the same and defined as in table 1. Standard errors in parentheses. \*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$



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