

PRE-ANALYSIS PLAN:
UNELEVELING THE PLAYING-FIELD? –PARENTS’
WILLINGNESS TO GIVE THEIR CHILD AN ADVANTAGE*

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1 Introduction

Parental involvement may hinder the meritocracy of otherwise merit based competitions among children. However, believing that other parents will help their children, interference may occur to ensure that one’s child is not left at a disadvantage. This study aims to investigate to what degree parents want to provide their child an advantage in an originally meritocratic competition, and how their choice of whether or not to interfere in the competition (i.e. provide help) is affected by the possibility that other parents may help their children. If you as a parent were given the possibility to give your child an advantage, would you do it? Would you compromise the meritocracy of a competition to benefit your child?

To study this potential mechanism for why parents interfere in their children’s educational attainment, I conduct a controlled lab-in-the-field experiment in Norwegian secondary schools. The subjects are 10th grade students and their parents.¹

I’ll start by laying out the basic theoretical model of the upcoming paper, before describing the plan for the analysis of the experimental and register data.

2 Theoretical framework

This section outlines the basic theoretical model of the paper. Extensions to the model may be added in the final paper.

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¹I have prior to this run a pilot study on a representative sample of the Norwegian parent population to test whether the design is sensitive to framing effects. The results can be found in Appendix .

The model tries to explain a parent’s choice of whether to help their child in competition, and if so, by how much. The context in which I am investigating the parents’ helping behavior is the following: two children of an equal performance level are competing against each other. Performance is measured in a pretest, consisting of similar math problems to those in the competition. Performance is measured by the number of correctly solved math problems. The child that has solved the most math problems correctly, is the winner. The winner receives a price of 50 NOK. The other child, receives no price. If both solve an equal number of math problems, a winner will be randomly drawn. The parent of each child is allowed to help their child in the competition. The help takes the form of deciding how many of the math problems will be simplified for their child in the competition. Thus the help entails no learning. The help only increases the likelihood of their child succeeding in the competition.² An important reason why we observe parents interfering in their children’s education is likely potential learning. However, in this setting, I abstract from this potential mechanism for parents helping their children.

2.1 General framework

I now present the theoretical model of the paper. The theoretical framework provides a potential model of the parents helping behavior.

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, i.e. $c(h) = 0$.³

The parents of both children are allowed to help. Therefore, parent i ’s belief concerning the amount of help provided by the other students’ parents, $E[\bar{h}]$, is likely to be crucial in the decision making process.⁴

The children competing against in the competition are assumed to have the same expected performance. I assume performance to be the result of a child’s ability and effort. As both students are as likely to win the competition, I define the initial situation as one where both students have equal opportunities. I assume students’ performance in the competition to be exposed to some noise, where the noise is normally distributed.

However, each students score in the competition is dependent on both their performance level and the help provided by the parent. As student’s are unaware of any potential help provided by the parent, I assume student’s effort and ability to be independent of the help provided.

Parents have a belief about the probability of their child winning the competition, which depend on

²However, one may argue that there is an other form of learning involved by the parent not helping, namely the child learning to handle defeat or succeed by her own means. However, in the general framework I abstract from this potential form of learning. I may however include it in an extension of the framework in the paper.

³This 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 time, money or effort. However, as the help in the experiment is free, the model assumes no such cost. The parent only needs to decide how many math problems should be simplified.

⁴The theoretical model is more general, in the sense that it also applies to situations where only one parent can help their child. In this situation you would know, with certainty, that the other parent will not provide any help.

the difference in the help provided. The probability of the child winning is determined by the help provided, $\frac{\partial v(h-\bar{h})}{\partial h} \geq 0$, and determined by the difference in h and \bar{h} . Assuming the probability distribution of performance (and thus probability of winning) to be normally distributed, $v(h-\bar{h})$ has the following properties:

$$\frac{\partial v(h-\bar{h})}{\partial h} \geq 0$$

and

$$v''(h-\bar{h}) = \begin{cases} v''(h-\bar{h}) \leq 0 & \text{if } h \geq \bar{h}; \\ v''(h-\bar{h}) > 0 & \text{if } h < \bar{h}. \end{cases}$$

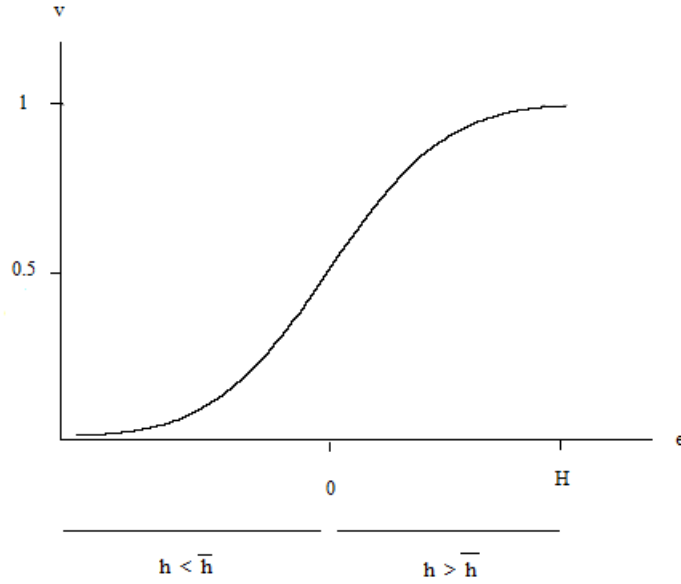


Figure 1: Likelihood function of winning the competition

Figure 1 illustrates that whenever $h = \bar{h}$, both students will have equal opportunities of winning the completion, i.e. $v(h-\bar{h})_i = v(h-\bar{h})_j = \frac{1}{2}$. The likelihood function is convex in the domain where the parent helps less than the parent of the competing child ($h < \bar{h}$), and concave in the domain where the parent help more ($h > \bar{h}$). This comes from the fact that the children competing have the same ability, and performance is normally distributed with some noise. Thus if you help your child slightly more (less) than the other parent, your child's chance of winning increases (decreases) a lot. However the effect is diminishing in the amount you help more (less) than the other parent. I will later show that this feature of the likelihood function ensures an internal solution, as long as the parent does not hold the belief that the other parent will help the maximum amount, H .

I assume the parent to be motivated by i) their child succeeding (winning the competition), and ii) a fairness consideration, which is captured by the following model:

$$u(h - E[\bar{h}], m)_i = \underbrace{E[v(h - \bar{h})] \times 1}_{\text{Own child preference}} - \underbrace{\beta_i(h - m)^2}_{\text{Fairness consideration}}, \quad (1)$$

where $E[v(\cdot)]$ is the expected probability of their child winning as a function of the difference in help provided, $\beta_i \geq 0$ is the weight individual i assigns to the fairness consideration, and m is what is considered the fair amount of help. The bonus of the child is normalized to 1.

Critical assumption: *I assume that 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. $m = \bar{h}$.*

It follows, from the critical assumption, that parents placing value on the fairness consideration, should aim to minimize the distance to $E[\bar{h}]$.

The critical assumption makes it beneficial to express the optimization problem through e , $e = h - m$, i.e. how much more the parents help relative to the fair amount. The optimization problem thus becomes:

$$\max_e u(e)_i = E[v(e)] - \beta_i e^2 \quad (2)$$

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

$$e_i^* = \frac{E[v'(e^*)]}{2\beta_i} \quad (3)$$

or equally,

$$h_i^* = \frac{E[v'(e^*)]}{2\beta_i} + E[\bar{h}] \quad (4)$$

i.e. the parent will never choose to help their child less than what they believe the other parent will help their child, $h^* \geq E[\bar{h}]$. Or put differently, a parent will never help less than they believe is needed to provide equal opportunities.

However, if placing a large enough value on acting in accordance with the fairness consideration, the parent will help the amount needed to provide equal opportunities, i.e. the amount matching their belief about the help provided by the other parent, $\beta_i \rightarrow \infty \} h \rightarrow E[\bar{h}]$.

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

$$\left. \begin{array}{l} \beta_i \rightarrow 0 \\ or \\ E[v'(e)] \rightarrow \infty \end{array} \right\} h \rightarrow \infty$$

They will also provide the maximum amount of help, if $E[\bar{h}] = H$.

In a situation where the parent with certainty knew that the other parent was not exerting any help, i.e. $E[\bar{h}] = \bar{h} = 0$, the fair amount of help, m , would equal zero.

Any difference in helping behavior, compared to the a case with certainty about the other parents behavior ($\bar{h} = 0$), is driven by parent i 's beliefs about the other parent's behavior. A parent that provides no help to one's child when knowing that the other parent will not exert any help, would provide $h = E[\bar{h}]$ in a situation where \bar{h} is unknown. More generally, the optimal choice of help provided will be equally far from the morally appropriate amount of help, m , in both treatments.

3 Experimental Design and Participants

I will recruit 10th graders throughout Norway, and their parents. My primary interest lies in the decisions made by the parents. However, the choices concern the children, and thus the children and the situation created by the lab-in-the-field experiment is crucial. The target sample size is 900 parents and their children participate in the study.

3.1 Recruitment of students and parents

The students and parents will be recruited through middle schools in Norway. Both parents will be informed about the study, and one of them will have to consent for their child to take part in the study. The 10th graders will partake in the study at their respective schools, while the parents will participate by answering a web-based survey via a link sent by SMS the morning of the experiment.

3.2 Students

The children participate in the experiment at their respective school during school hours. Due to infection control measures in relation to the COVID-19 pandemic, the students take the survey online, on their own computer in their respective class rooms. The survey was programmed using oTree (Chen et al., 2016).

3.2.1 Competition

The student will take part in a competition. The competition consists of solving the most additions within five minutes. The math problems take the form of the additions given in Niederle and Vesterlund (2007). Before the competition, there is a test round, lasting for one minute. When it is time

for the competition, the students will be paired to compete against another student of an equal performance in the pre-test. The students will be informed that they are competing against a child with an equal performance in the pretest. Students receive simplified math questions in accordance with their parent's decision. The students will not be made aware of who has received help or not.

3.2.2 Survey-questions⁵

In addition to participating in the competition, the students are asked to answer some survey questions. After the trial round, they are asked to assess how well they did relative to the other students participating in the study.

Before the test round, the children are asked to answer some survey questions about themselves. Using a five point Likert scale, they are asked to assess to what degree the following statements fit with their own assessment of themselves: i) like to compete, ii) dislike losing, and iii) enjoy working under pressure. The answers to these questions are used to elicit parents' belief about their child concerning i), ii), and iii).

3.2.3 Background characteristics

The children are also asked a standard set of background questions concerning gender, age, and which school they attend. In addition I obtain additional information about each child through registry data. From the registry data I have information concerning each child's gender, immigration status, results on national tests in the 9th grade, final grades from middle school (which include both the exam grades as well as the overall achievement grade in every subject). I will also have information concerning entering high school, and if so, ownership of the high school they attend (i.e. private or public). For a complete list of the registry data, see Appendix C.2.

3.3 Parents

The parents take part in the study by answering a online study. The parents are given access to the study after the children have left for school (08:00 am), and are asked to answer before the children start their study (12:30 am). This is crucial, as it hinders communication between parent and child. The survey is programmed using oTree (Chen et al., 2016).

Only parents who have given active consent are contacted. I randomize whether it is the mother or father which is contacted to answer the study. However, if one is unable to answer, we contact the other parent.⁶

⁵The exact instructions are provided in Appendix B

⁶For those where we only have contact information for one parent, we do not randomize, i.e. those parents are always contacted.

The parents will be randomly allocated into one of two treatments: i) **non-strategic**: being the only parent allowed to help their child, or ii) **strategic**: where both parents are allowed to help their child. Any treatment effect can therefore be attributed to the change in the strategic environment. Thus, the design allows me to i) *deceptively* study the parents' preference for giving their child an advantage (measured in the non-strategic condition), and ii) *causally* whether their behavior changes due to strategic considerations.

3.3.1 Helping choice

Parents are given the opportunity to help their child in the competition.⁷

Before making their 'helping decision', parents will be informed that we have constituted pairs of students with an equal performance, and thus that their child will compete against a student of the same performance level. They will also be informed that the pairs of students will take part in a competition later in the day, and what the competition entails. They are also informed that non of the students will be informed that they have made a choice. That is, the students participate in the competition without knowing how many of the questions their parent have decided to simplify, or even that some will have simplified questions.

After being presented with the situation, parents are to make a real choice, affecting their child, and, indirectly the other student's chances of winning the competition. They are asked whether or not they want to help their child in the competition. The help takes the form of simplifying the additions the child receives in the competition. The parents are free to choose how many, if any, of the math problems they want to simplify for their child. The parents only state how many of the questions are to be simplified, the simplifications are done automatically by the experimenter.

3.3.2 Survey questions⁸

After having made their decision concerning the advantage choice, the parents are asked to answer some survey questions. These include both incentivized and non-incentivized questions.

Questions related to the advantage choice: The first set of questions are related to the advantage choice. First, they are asked to evaluate how sure they are of their decision on a 11 point scale from very unsure, to totally sure. These questions are naturally not incentivized.

Beliefs: Thereafter, a set of belief questions are asked. To elicit beliefs, I introduce an incentive. For answering the survey, all participants get one lottery ticket. They are told that two lottery tickets will be randomly drawn, and that the owner of each ticket will receive a travel gift card worth 5000 NOK. To incentivize the belief questions, the participants are told that they can earn two additional lottery tickets per correct answer to the questions in this part of the survey.

⁷As the *non-strategic treatment* requires some students not to receive help, students who's parents have not answered the survey the day of the experiment, will not receive any help.

⁸The exact instructions are provided in Appendix A

Beliefs are elicited (with incentives) regarding: i) how effective the help is, ii) how large a percentage of the other parents helped their child in the competition, and iii) average amount of help provided by the other parents. For ii) and iii) the participants are asked to answer for both the strategic and non-strategic situation. Depending on which condition they are randomized into, they will receive a description of the other condition. I first elicit the beliefs regarding other parents behavior in the treatment condition the parent is randomized into. Thereafter, the parent is presented with the other 'treatment condition', and asked to state their beliefs regarding parents behavior in that treatment condition.

Parents randomized into the strategic condition will in addition be asked how much help they believe the parent of the opponent of their child provided. Also this belief is incentivized.⁹

In addition, I elicit the parents' beliefs about their child's enjoyment of i) competing, ii) working under pressure, and iii) losing.

Attitudes and preferences To obtain more information about the parents, I ask some survey questions to uncover their attitudes and preferences.

One set of questions are asked in order to proxy the individual's political orientation. As the individual data gathered through the experiment are connected to register data, I am unable to ask for the individual's political orientation directly. Thus, I proxy it by the respondents' answers to: i) to what degree they agree/ disagree to the statement that the government should aim to reduce inequalities among rich and poor in society, ii) and to what degree they support private high schools, and iii) their support of inheritance taxation. Lastly, I ask whether parents agree with the statement that it is important for children to learn to handle defeat.

3.3.3 Background characteristics

With the consent of the parent, I connect the individual data from the experiment to registry data. From the registry data I obtain information concerning the parents' income, connection to the labour market and highest obtained educational status. A detailed list of all obtained registry data is found in Appendix C1.

4 Research questions

I: What share of parents are willing to give their child an advantage?

II. Do parents help their children partly because they want to avoid that their own child is left at an disadvantage?

⁹Also parents in the non-strategic treatment are asked this question. This enables me to study whether they registered that the other parent was not allowed to help.

II.I Is parents' behavior related to their beliefs about other parents' behavior?

II.II Do parents distort their beliefs about other parents' behavior in order to legitimize helping their child?

5 Empirical strategy

5.1 Balance check

I randomly assign participants into one of the two treatment conditions. To test whether this process has generated two balanced samples with respect to background characteristics (gender, age, income, education, immigration status, and political orientation) I use a joint F-test.

5.2 Hypotheses

This subsection outlines the main hypotheses of the paper.

I find the share of parents who are willing to give their child an advantage interesting in and of itself. To answer the first research question, I study behavior of parents in the non-strategic treatment. In this treatment condition, parents know with certainty that the opponent of their child will not receive any help, and that she is of the same performance level as their child. Thus, any help provided by the parents in this treatment, will cause their child to get an advantage.

Based on the theoretical framework, parents will chose to help their child unless they place a infinitely larger weight on fairness. In the non-strategic treatment where $E[\bar{h}] = 0$ and it is reasonable to assume $m = E[\bar{h}] = 0$, one would have to assume everyone to place a infinitely large value on the fairness consideration in order to expect no-one to provide their child an advantage. This seems like an unreasonable assumption. The first hypothesis is descriptive, and therefore not based on statistical testing:

HYPOTHESIS I.: *A share of parents are willing to give their child an advantage in the non-strategic condition.*

As beliefs are fixed to $E[\bar{h}] = 0$ in the non strategic treatment, and I expect $\frac{\sum E[\bar{h}]}{N} > 0$ in the strategic treatment, I state:

HYPOTHESIS II.: *Parents will help more in the strategic treatment compared to in the non-strategic treatment, i.e. there will be a positive treatment effect on parents' helping behavior.*

I expect the treatment effect to be driven by the parents beliefs about other parents behavior in the strategic treatment condition. In the non-strategic treatment, parents know with certainty that $\bar{h} = 0$. In the strategic condition parents need to at least provide $h = \bar{h}$ in order to ensure that their child is not left at a disadvantage. The model predicts that no parent will help their child less than what is

acquired to provide equal opportunities, i.e. $h \geq E[\bar{h}]$. This follows from the interior solution in the strategic condition:

$$h_i^* = \frac{v'(e)}{2\beta} + E[\bar{h}]$$

Thus I state:

HYPOTHESIS II.I: *In the strategic treatment condition, parents will help weakly more than what they believe the other parent will help*

According to the theoretical framework, any treatment effect on parents' helping behavior goes through the belief channel, $E[\bar{h}]$. However, the expected relationship between parents' helping behavior (h_i) and beliefs about other parents' behavior ($E[\bar{h}]_i$), depend the relationship between the belief ($E[\bar{h}]_i$) and the weight placed on the fairness consideration (β). Drawing from the theoretical model, finding a positive correlation between helping behavior and their belief about other parents' helping behavior, would either imply: a) a negative correlation between β_i and h_i , or b) β_i and h_i being uncorrelated. On the other side, if the data show that h_i and $E[\bar{h}]_i$ are negatively correlated, the theoretical model would suggest β_i and $E[\bar{h}]_i$ to be uncorrelated. I do not state any hypothesis regarding the relationship between parents' helping behavior and beliefs about other's behavior. However, I will study the relationship between the two variables.

The second hypothesis takes as a starting point that parents may face cognitive dissonance (Brehm and Cohen, 1962; Festinger, 1957, 1962). In the theoretical model I assume parents to have several objectives. In the experiment, providing their child with an advantage will always be at the expense of the fairness ideal of equal opportunities. Placing value on both the fairness consideration and 'own child preference' thus creates a tradeoff. A parent may therefore distort her belief about others helping behavior in order to justify her own. Holding a belief that the other parents are likely to help, serve to legitimize helping their child in order to avoid leaving the child at a disadvantage. Biasing these beliefs upwards, and thus helping one's child to a larger extent, may result in the child actually being given an advantage. At the same time, the parent may feel like she has acted in accordance with the fairness ideal; the parent is able to convince herself that she helped in order to provide equal opportunities for their child.¹⁰

According to the theoretical model beliefs about the other parents behavior has instrumental value in the strategic treatment condition. In the non-strategic treatment condition, it does not; as parents know with certainty that the parents of the opponent is not allowed to help. However, I elicit both sets of parents' beliefs concerning behavior in the strategic treatment condition. However, I only expect parents in the strategic treatment condition to bias their beliefs upwards.

Taken together, I expect to find a positive treatment effect on beliefs:

¹⁰At it's essence motivated beliefs is the result of the process being subtly affected by people's motivations, leading to biased beliefs that feel objective (Epley and Gilovich, 2016). Thus, the theory of motivated beliefs (Bénabou and Tirole, 2016; Epley and Gilovich, 2016; Gino et al., 2016) may also be relevant for this study.

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.*

It should be noted that there are some other differences between the two treatments that also may affect behavior. Therefore the beliefs of those in the non-strategic treatment condition is not fully comparable to the beliefs of the parents in the strategic condition. Those in the strategic condition has the *experience* of making an advantage choice in the same environment in which I elicit these beliefs. However, I do not expect the difference in experience between the two treatment conditions to systematically affect beliefs in one particular direction.

5.3 Specifications and analysis

Here I provide the regressions used to test the main hypotheses listed in section 5.2. All regression results will be reported both with and without controls. The control variables are listed in section 6.5. As mentioned in section 6.5, there are two sets of control variables; one set with standard controls used for all regressions, and another set which will be used more exploratory. I report the results with and without controls. All regressions for the main analysis listed below are specified including controls. If the dependent variable is binary, I will run the regression using a Linear Probability Model (LMP). Whenever the dependent variable is continuous, I will use regular Ordinary Least Squares (OLS). All regressions will be run using robust standard errors.

5.3.1 Hypothesis II

To test for a positive treatment effect, I run the following regression specification:

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

where a_i is parent i 's advantage choice, 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 controls listed in 6.5, and ε_i an error term.

I will also use this model specification using e_i as the dependent variable, to test whether there is a treatment effect on the extensive margin. e_i is an indicator taking the value one if the parent have helped their child, and 0 otherwise. Testing for a treatment effect on the extensive margin will be exploratory, and I only commit to running the analysis on the intensive margin (a_i).

Both when using the extensive margin measure, e_i and when using the advantage choice a_i , I expect β_1 to be significantly larger than zero, i.e. I expect the causal effect on helping behavior of moving from a non-strategic to a strategic setting to be positive.

5.3.2 Hypothesis II.I

As hypothesis II.I states, I believe that parents, in the strategic environment, will help more than what they believe the other parent will help. To test whether there is a statistical significant difference in help provided and parent's beliefs about how much the other parent help their child I will run a Wilcoxon signed-rank test. To study magnitudes, I will run an OLS regression with the following specification:

$$h_i = \delta_o + \delta_1 b_i^s + \delta_2 \mathbf{X}_i + \varepsilon_i \quad (6)$$

where h_i is the amount helped by parent i , b_i^s is the belief about how much the other parent has helped, and \mathbf{X}_i is the set of individual controls listed in 6.4, and ε_i an error term. as the explanatory variable. To address issues of serial correlation, I cluster on the individual. I naturally restrict the sample to parents in the strategic sample.

Although I have no hypothesis stating any expected relationship between parents' beliefs and behavior, I will study it using a Pearson correlation. I naturally restrict the sample to those randomized into the strategic treatment condition

5.3.3 Hypothesis II.II

All parents, independent of treatment condition, are asked to state their beliefs concerning the parents behavior the strategic condition. The beliefs are incentivized. To test whether the treatment has an effect on beliefs on the helping behavior in the strategic treatment condition I use model specification (5), only using parent i 's belief about the parents in the strategic conditions behavior, s_i , as the dependent variable.

I expect β_1 to be significant and positive, i.e. I expect the beliefs of the parents in the strategic treatment condition to be higher.

5.4 Exploratory analysis

5.4.1 Heterogeneity analysis

I want to study whether parents behavior and beliefs are associated with their political views. I consider this part of the analysis exploratory since it does build on theoretical predictions, as well as the analysis relying on an indirect measure of political orientation.

The reason I want to focus on heterogeneity in behavior and beliefs between individuals based on their political orientation, is that the political left is often more in support of policies limiting parents' involvement in their children's' education. Their reasoning often being that the involvement may lead to unequal opportunities among children. This may be because of different fairness ideals, but another potential reason may be a difference in beliefs concerning other parents' willingness to give their child an advantage. I do not expect parents belonging to opposite sides of the political spectrum to differ

with regards to their fairness ideal, as I expect all parents to agree that $m = 0$ in the non-strategic sample¹¹ They may however differ in the weight placed on the fairness consideration β_i . Also, I do expect them to differ when it comes to belief about other parent's behavior.

I investigate whether there is heterogeneity with respect to: I) the parent's willingness to give their child an advantage in the non-strategic condition¹², II) the treatment effect on the parents' helping behavior, III) how much they believe the other parents are willing to help in the strategic condition, and IV) how much they distort their beliefs about the other parents' behavior in order to legitimize helping their child.

To test I and II, I run the following model specification:

$$a_i = \alpha_0 + \alpha_1 T_i + \alpha_2 P_i + \alpha_3 P_i \times T_i + \alpha_4 \mathbf{X}_i + \varepsilon_i \quad (7)$$

where a_i is the advantage choice by parent i , T_i is an indicator, taking the value one if the parent belong to the strategic treatment condition, P_i is another indicator, taking the value one if the parent belong to the political right, \mathbf{X}_i is a set of control variables listed in section 6.4, and ε an error term.

Whereas I) and II) focus on heterogeneity in parents' behavior, III) and IV) focus on differences in beliefs. I focus on beliefs as parents on both sides of the political spectrum may hold the same fairness ideal, but differ in their beliefs about other parents' behavior. That is, parents belonging to both sides of the political spectrum may find it unfair that children get unequal levels of help in the competition (i.e. $m = 0$ for both the political left and right), the only difference between the two sides being their belief in how prevalent it is for parents to give their child an advantage. I.e. if there is any heterogeneity in the helping behavior with respect to political orientation, I expect it to be driven by a difference in beliefs about the other parents' helping behavior. Thus I state: *Parents with a left wing political orientation are more likely to believe that parents give their child an advantage in the non-strategic treatment, compared to parents belonging to the political right.*

To investigate III and IV, I use model specification 7, only using the belief of parent i concerning parents' behavior in the strategic treatment condition, b_i^s , as the dependent variable.

Through the registry data, I obtain information on family background. Data on the parents ed-

¹¹This would be possible to study further in another study.

¹²Knowing with certainty that the other parent will not provide any help, parents who differ in their willingness to provide their children an advantage would, according to the theoretical framework, would have to either differ with respect to i) how effective they think the help is, $v'(e)$. (as I elicit their belief concerning how effective the help is, I can study whether this is the case. I expect it not to be.), and/or ii) the value they place on the fairness consideration, β_i . In the experiment, the help consists of simplifying the additions. As the help is effective, it is unlikely that parents with different political orientations will differ in their perceptions of $v'(e)$. Thus, any heterogeneity in behavior would have to stem from a systematic difference in β_i , the weight placed on the fairness consideration. This is of course given that the assumption $m = 0$ as in the non-strategic treatment condition. However, I have no hypothesis a priori of whether or not there will be any heterogeneity with respect to the political orientation of the parent when it comes to I) the parents willingness to provide their child an advantage, in the non-strategic condition.

education and income allows me to study heterogeneity in behavior and beliefs with regards to the socio-economic-status of the parent. The same goes for the gender of the parent.

5.4.2 Behaving according to the norm

In the non-strategic treatment condition, the belief of other parents' behavior carries no instrumental value to the parent when making their decision of providing their child with an advantage, or not. The parent knows with certainty that the parent of the other child cannot help their child. Nonetheless, it may be that the parent want to behave in accordance with what they think most other parents do. You may think of this as behaving in accordance with the social norm. If this would be the case, I should expect to find parents' advantage decision to positively correlate with their beliefs concerning other parents behavior in the strategic condition.

5.4.3 Cognitive dissonance

As stated by hypothesis II.II, I expect parents in the strategic treatment condition to bias their beliefs of other parents' behavior in this treatment upwards (compared to beliefs of parents in the non-strategic treatment condition regarding behavior of parents in the strategic condition), in order to legitimize them providing their child an advantage. As stated, I expect cognitive dissonance to be relevant in this situation. Experiencing cognitive dissonance is found to cause physical discomfort, and even actual physical discomfort (Elliot and Devine, 1994).

Parents in both treatment conditions are asked to make an evaluation of how hard a time they had making their helping choice. If the manipulation of beliefs is caused by resolving the cognitive dissonance, one should expect parents in the strategic treatment condition to have had a harder time making their choice. I simply test this by running the following regression:

$$z_i = \delta_0 + \delta_1 T_i + \delta_3 \mathbf{X}_i + \varepsilon_i \quad (8)$$

where z_i is parent i 's evaluation of how difficult it was making their helping decision, T_i is an indicator, taking the value one if the parent belong to the strategic treatment condition, \mathbf{X}_i is a set of control variables listed in section 6.4, and ε an error term.

However, as the advantage of the child is dependent on both parents' helping decision in the strategic treatment condition, this alone may lead to the parents in this condition having a more difficult time making their helping choice. Thus, finding that the parents in the strategic treatment condition had a harder time making their decision, is only makes for suggestive evidence of cognitive dissonance.

5.4.4 External validity

Deciding to give one's child an advantage in the experiment is unlikely to entail any learning effects. That is, in the non-strategic treatment condition, helping only gives the child an advantage in the competition. One might think of this as similar to parents helping their children with school related work, possibly affecting their final grade, but not learning. E.g. correcting spelling mistakes when reading through an essay, without the child being made aware of her mistakes. Such helping behavior would make a difference in terms of the final grade set by the teacher. However, as it would not increase learning, it would not help the student's performance on an exam.

I expect students whose parents gave them an advantage to have higher final grades (compared to an externally graded exam) compared to students who received no help from their parents. I only compare students whose parents were randomized into the non-strategic treatment. I consider this an external validity test of the strength of the advantage choice measurement.

5.5 Robustness

I run all regressions using robust standard errors. All regressions are run with and without controls. In addition, extra hypothesis testing will be done in order to confirm the robustness of the results, adjusting for multiple hypothesis.

6 Definition of variables

6.1 Helping choice

From the parents' choice of providing an advantage I have two measurements:

- I **Extensive margin:** binary variable, taking the value one if the parent chooses to interfere in the competition, i.e. if they want to help their child.
- II **Intensive margin:** variable taking values from zero to 10, indicating how many of the problems they want to simplify.

6.2 Survey questions directly related to the experiment

Parents' evaluation of how difficult they found making the advantage decision on a scale from 0-10. First, I consider it as continuous, coding the self-reported answers 0-10, as 0-10. These measures will be used exploratory.

6.3 Beliefs

The measure of how effective the advantage was, i.e. how large a share of those who received help with at least one math problem won, is measured on a scale from 0-100. I will use this as a continuous

measure.

Regarding the other parents' behavior, I have two measures for each situation¹³. One measure concerns how many percent they believe helped their child in the competition (i.e. a measure of the extensive margin). This question is asked on a scale from 0-100, but used on a scale from 0-1. The other measure concerns how many simplifications the parents who helped provided on average (i.e. a measure of the average of the intensive margin). To get one measure of the respondents' belief (b) about the other participants' behavior in each situation, I combine the two measures in the following way: $b_i = intensive_i \times extensive_i$. I construct a measure for the belief regarding the strategic and non-strategic condition separately, but using the same procedure.

Parents will in addition be asked about how much they believed the parent of the opponent of their child helped. This measure takes variables between 0-10. For those in the strategic treatment I will use this measure in the analysis. However, for the parents in the non-strategic treatment, the variable is used to study whether they registered that the other parent was unable to help.¹⁴

6.4 Political orientation

The data gathered through the experiment will be connected to registry data. Therefore, I was not allowed to ask parents directly about their political orientation.

To obtain a measure of political orientation, I operationalize it using a index of survey questions on their attitudes towards:

1. Inheritance: Favor/ disfavor of inheritance taxation
2. Private: Favor/ disfavor of private schools
3. Redistribution: To what degree they agree with the statement: the government should aim to reduce inequalities among the rich and the poor in society.

All three attitude questions can be answered on a ten point scale.

The survey items are designed to capture a quite general measure of political orientation. Whereas question i) and ii) are more specific, question iii) is more general. As the political left tend to be more in favor of state regulations, individuals belonging to this end of the political spectrum are expected to be more in favor of inheritance taxation and governmental redistribution, and more sceptical towards private high schools, than those belonging to right of the spectrum.

I combine the measures by constructing an index. I do this by arranging each variable according to the answer's accordance to either the political left or right, before adding each person's scores together, creating one index variable.

¹³Every participant is asked to state their beliefs for both situations created by the two different treatment conditions

¹⁴For exploratory purposes I may consider doing some analysis only with parents who got this question right in the non-strategic treatment condition, i.e. meaning that they answer that the other parent helped 0.

To test the validity of the index, I ran a study through NORSTAT on a representative sample of the adult Norwegian population.¹⁵ The sample consisted of 500 individuals.

In addition to asking them the three attitude questions, they were asked to rank themselves on a political axis where 1 represented the political left, and 10 the political right. This allows me to study how well the three attitude questions predict their political orientation.

Running a linear Lasso regression, all three attitude questions pass the selection (shrinkage) criteria; keeping all three predictors minimize the prediction error.¹⁶

Combining the three attitudes questions linearly, where the responses to all three questions are given an equal weight i obtain my index measure of political orientation. More precisely the index is constructed as follows:

$$p_i = \frac{(Inheritance_i + Private_i + Redistribution_i)}{3} \quad (9)$$

Figure 2 show the relationship and the linear regression line of the self-reported political orientation (P) and the constructed index (p_i). Regressing the index (p_i) on their self-reported political orientation leads to an R^2 of 0.41, and a coefficient of 0.736 ($p = 0.000$). The Pearson correlation coefficient amounts to 0.649.



Figure 2: Linear regression line of estimated (p) and self-reported (P) political orientation

To obtain a measure of the parents' political orientation, I will use the index p_i , as defined by

¹⁵The study was ethically approved the 30th of June 2020, IRB number: NHH-IRB 13/20.

¹⁶Selected lambda: 0.0079, out of sample $R^2 = 0.4577$, CV mean prediction error: 2.938

equation 9, as seem to capture the underlying political preference fairly well.

6.5 Control variables

My set of control variables consists both of registry data, and information gathered through a consent form and the survey. All regressions in the main, preregistered analysis will be run both without and with controls. In addition I have two sets of control variables. Set I consists of the main control variables. Set II contains some additional controls which will be used more exploratory. I will run all the main regressions with and without set I of control variables.

In the appendix of the paper, I will also test how robust the results are to alternative specifications of the control variables. However, the alternative specifications are not preregistered.

The control variables will be coded as follows:

Set I:

- Age: Coded as a dummy for being above the median age of the parent sample (using the midpoints of the specified interval).
- Gender: Coded as a dummy for being female.
- Income: Coded as a dummy for having above the median income (using the midpoint of the interval in the sample)
- Education: Coded as a dummy for having above the median education in the sample.
- Immigration status: Coded as a dummy for having at least one parent born in a different country.

Set II:

- Effectiveness of help: Used as a continuous measure between 0 to 100.
- Communication: Coded as a dummy taking the value one if the student report having talked to their respective parents about the competition in the follow up study.
- Handle defeat: Coded as a dummy taking the value one if the parent finds it important for the child to handle defeat (if the variable takes the values 5-10).
- Belief_compete: coded as a dummy taking the value one if the parent thinks the child likes to compete (i.e. if they answer "well" or "very well" to the question of whether they believe the description "enjoys competing" fits for their child.).
- Belief_loose: coded as a dummy taking the value one if the parent believes the child dislikes loosing (i.e. if they answer "well" or "very well" to the question of whether they believe the description "dislikes loosing" fits for their child.)

- Belief_pressure: coded as a dummy taking the value one if the parent believes the child likes working under pressure (i.e. if they answer "well" or "very well" to the question of whether they believe the description "enjoys working under pressure" fits for their child.)

The first (communication) as well as the last three control variables in this second sub-set of control variables (Belief_compete, Belief_loose, Belief_pressure) will only be included as control variables if they are not affected by the treatment condition. I will test whether the variables are affected by running the following regression model for each belief as the dependent variable:

$$belief_i = \alpha_0 + \beta_1 T_i + \varepsilon_i$$

, where $belief_i$ is one of the three belief questions, T_i is an indicator taking the value 1 if the individual is assigned to the strategic treatment condition, and ε is an error term. A belief question will only be included as a control as long as there is no treatment effect, i.e. β_1 has to be insignificant.

6.6 Variables with limited variation

I will drop independent variables with very limited variation from the analysis, as they are non-informative. The threshold is set at 95 percent, i.e. independent variables for which more than 95 percent of observations have the same value, will be dropped from the analysis.

7 Ethical approvals

The project was approved by NSD, The Norwegian Center of Research Data, on January 7th, 2020. The project is registered under the registration number 328704. The project also has an approval from the Norwegian School of Economics' Institutional Review Board (NHH IRB). The project is registered under NHH-IRB 01/20. The approval was granted on the 21st of February 2020.

8 Budget

The cost of the study is estimated to be approximately NOK 260 000. The study is financed through the research project "Fair Inequality and Personal Responsibility" at the Norwegian School of Economics, which is funded by the Norwegian Research Council (FRIPRO — TOPPFORSK), as well as through the Childhood Gap project.

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A 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 trial 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 maths 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 think 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 to complete the survey. 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.¹⁷

- 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.¹⁸

¹⁷The 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

¹⁸This 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.

- 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 also were 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?

We now want to ask you some questions about your child. You can still 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 loosing
 - Likes to work under pressure
- Totally disagree/ Partially disagree/ Neither agree nor disagree/ 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 four 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 among rich and poor in out 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 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 confidence. 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 10th grade? ¹⁹

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

50= average

10= among the 10% who performed the best in the trail 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.

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

The winner will receive a price 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!

¹⁹Only half the students are randomized to being asked this after the trail round. All students are asked this question after the competition

C Registry data

Though registry data from Statistics Norway (SSB), we gain access to additional information about the participants. The participants have allowed us access to this data through a participation form (Appendix D). Subsection C1 and C2 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 income and agreed monthly salary. Annual information, from 2019.²⁰
- Occupational and labor market status. Annual information, from 2019.²¹
- Highest completed education. Annual information, from 2019.²²

C.2 Registry data, student sample

- Gender²³
- Immigration category²⁴
- Results on the national tests from the 9th grade.²⁵
- Final grades in secondary school.²⁶
- Grades from upper secondary school, school municipality, organization number, form of ownership and course data on highest completed education.^{27,28}

²⁰wxx_xxxx_lnr_person, wlonn, pgivinnt

²¹(wxx_xxxx_lnr_person, EDAG.PERIODE, ARB_YRKE.ISCO, ARB_AVTALTARBEIDSTID.PUB, ARB_HELDELITID.PUB, ARB_STILLINGSPOST.PUB, LONN_IALT, LONN_FMLONN, LONN_FAST_TILLEGG, LONN_UREGTIL, LONN_BONUS, OVERTID.PUB, LONN_OVERTID_TIMER, FRTK_SEKTOR_2014, VIRK_NACE1_SN07)

²²bu_åååå

²³kjoenn

²⁴Innvkat

²⁵AARGANG, ORGNR, ORGNRBED, DELTATTSTATUS, PROVE, OPPGAVESETT, MESTRINGSNIVAA, POENG, SKALAPOENG

²⁶ORGNR, SKOLEKOM, FAGKODE, TERMIN1, TERMIN2, STP, SKR, MUN, AVGDATO

²⁷The student sample attend the 10th 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 Center for Research Data) to delete the key containing personal information enabling us to link our experimental data to the registry.

²⁸bu_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, VIDERE-GAENDEPOENG, FAGKODE, MUN, SKR, STP, TERMIN1, TERMIN2, KAR_ANNEN, FAGSTATUS

D 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 student's date of birth
 - Date, month, year
 - The name of the school
 - Text box
 - School class (If the 10th 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/>

E Follow up study, students

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

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 confidence. 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 200 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

F Pilot

In November of 2019, I conducted a pilot of some parts of the study. The pilot was conducted by NORSTAT on an online sample of consisting of a thousand Norwegian parents. The main objective of the pilot was to see whether behavior in the two treatments were sensitive to the framing of the advantage choice, and whether their (hypothetical) behavior varied with respect to being placed in a strategic relative to a non-strategic environment. The design was a 2 where I varied the framing between "helping your child" and "providing your child with an advantage", and whether they were in the strategic or non-strategic treatment. The parents were thus randomized into one of four possible treatments: i) non-strategic with help framing, ii) non-strategic with advantage framing, iii) strategic with help framing, and iv) strategic with advantage framing.

The participants were presented with the situation, and made a hypothetical advantage choice. They could, as the participants in the experiment will be able to, choose freely between simplifying 0 to 10 of the math problems of the child.²⁹

The results from the pilot suggests no treatment effect of the framing on the participants' belief concerning the percentage of parents helping their child. Displaying the Kernel density functions of the beliefs in the given treatments, Figure 3 indicate no framing effect. Running a regression of the effect of the framing on the participants beliefs, using robust standard errors, yield an insignificant ($p = 0.199$) coefficient of 2.017. Nor running the regression in the strategic and non-strategic treatments separately suggests any framing effect. The coefficients (and significance levels) being 3.59 ($p = 0.104$) and 0.41 ($p = 0.847$), respectively.

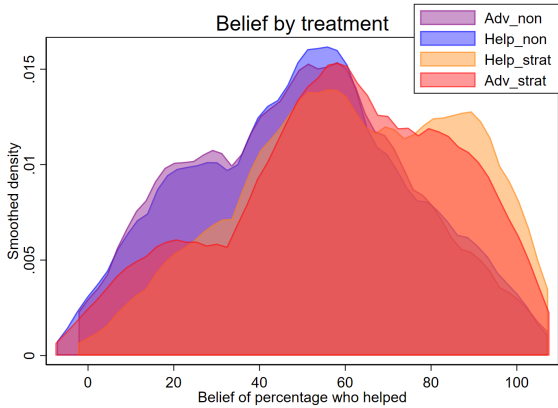


Figure 3: Kernel density functions of parents' beliefs

²⁹In addition they were asked to answer how sure they were about the advantage choice they had made, how many many out of a hundred parents would help/give their child an advantage in such a situation (i.e. the extensive margin, belief question), and whether they preferred an arrangement with homework or one without where all school work was done at school.

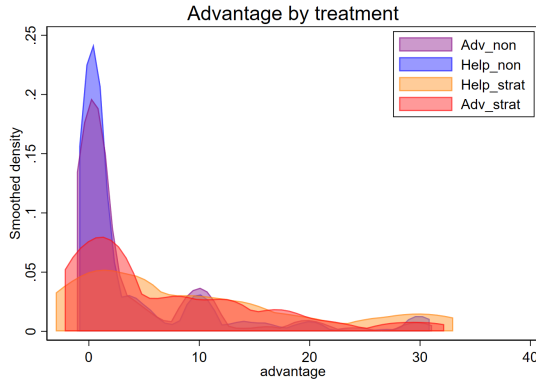
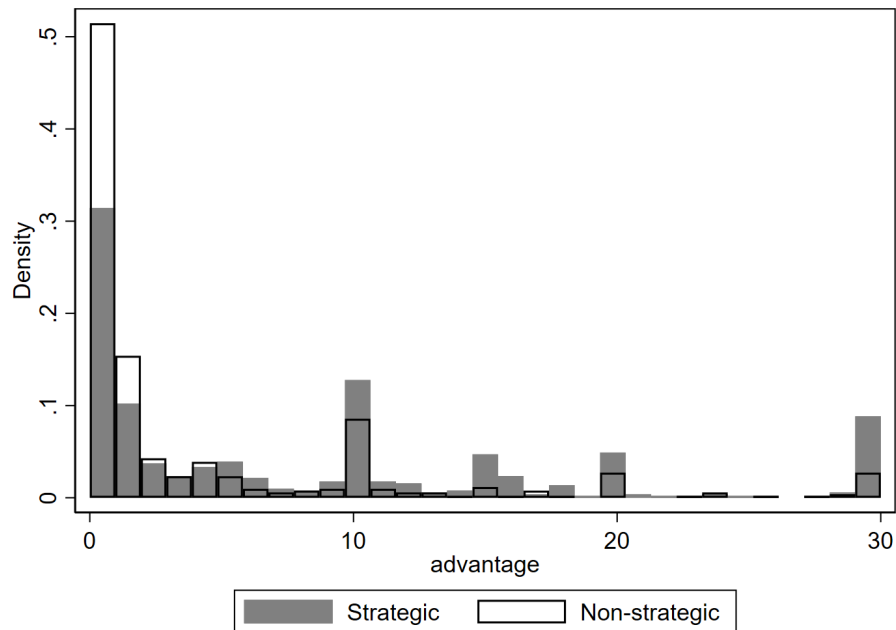


Figure 4: Kernel density functions of parents' advantage choice

average amount of questions simplified by 1.21 questions. As the average amount of questions simplified in the treatments framed as an advantage is 5.48 questions, the framing effect amounts an 22.2 percent increase in the amount of questions simplified when framing the action as helping. However, looking at the strategic and non-strategic treatments separately, the framing effect is only present in the strategic treatments. In the non-strategic treatments, the framing of the action has no impact on reported behavior ($p = 0.932$). In the strategic treatments however, framing the action as helping increases the average amount of simplifications by 2.433 ($p = 0.003$). This amounts to a percentage change of 34.7, as the average amount of questions simplified in the strategic advantage framed treatment is 7.015 questions. However, in the strategic treatments, simplifying the questions only constitutes an advantage if the parent simplifies more questions than the other parent. Using the framing for an advantage can thus be misleading to the parents. This, together with there being no framing effect in the non-strategic treatment, lead me to choose the help-framing in the final study.

Although there is no evidence of a framing effect on the respondents' beliefs, the framing do seem to affect their (hypothetical) behavior. Figure 4 give an indication of this. Framing the action as an advantage seem to shift the distribution to the left in the strategic treatment. However, the figure also shows a small shift in opposite direction in the non-strategic treatment. Running regressions of the framing on the respondents' advantage choices, using robust standard errors, give a significant result of the framing effect on the overall sample. Going from framing the action as an advantage to framing it as helping, increases the av-



The results from the pilot suggests that placing parents in a strategic versus non-strategic environment, has a large impact on behavior. Figure F shows the distributions of (hypothetical) advantage choice for the strategic and non-strategic treatment. The distribution of the advantage choices in the non-strategic treatment is heavily skewed to the left, with approximately half of the participants choosing not to give an advantage. Running a regression of treatment (strategic versus non-strategic), with robust standard errors, gives a highly significant ($p = 0.000$) estimator of 4.251 simplifications. As the average amount of simplifications in the non-strategic treatment is 3.981 simplifications, this amount to an increase of 106.78 percent.