Preferences for Competition: Children Versus Parents

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Abstract

Parents make choices that shape children's preferences and long-term outcomes. This paper presents the first experimental study of how parents make choices for their children in the domain of competition. A representative sample of more than 1600 Norwegian parents and adolescent children took part in an experiment where parents could choose if their child is to perform a task for a competitive or a noncompetitive pay scheme. The paper establishes a number of novel facts on parents' choices for children. First, parents choose more competition for boys than for girls. However, the gender gap in parents' choices is smaller than the gender gap in children's own choices. Second, two main mechanisms explain the gender gap in parents' choices: their beliefs about children's preferences and paternalistic behavior. Third, parents are more responsive to the ability for boys than girls, which implies that many high-ability girls do not enter into competition. Fourth, parent gender matters: fathers are more likely to enter their child into competition than mothers. Finally, children are unaware of the gender bias in parents' choices and believe that parents will make the same choices for boys and girls. The set of findings shed new light on the role of parents in determining children's long-term outcomes and on the intergenerational transmission of preferences.

1   Introduction

Parents are fundamental in shaping children's outcomes. One key mechanism through which parents exert influence is by making choices for their children during childhood and adolescence. Study physics or sociology? Attend academic or vocational training? Spend evenings studying or relaxing? How parents make such choices likely affects both children's preferences and their long-term outcomes.

This paper studies how parents make choices for their children and how the choices relate to children's own choices. I focus on choices in the domain of competition, and the role of child gender in parents' choices for their children. The research is motivated by the growing literature on gender differences in competitiveness. The literature has documented a large and robust gender difference in the willingness to compete: women are less willing to enter competitive environments than men (see Niederle (2014) for a review). The gender gap has been documented across the globe (Zhang (2013), Gneezy et al. (2009), Flory et al. (2017)), and has been shown to exist from an early age (Sutter and Glätzle-Rützler (2014). Furthermore, recent research finds that the willingness to compete correlates with important education choices and that controlling for the willingness to compete mitigates the gender differences in education outcomes between men and women (Buser et al. (2014), Almås et al. (2015), Flory et al. (2015)).

Given the robust finding that boys are more willing to compete than girls, it is of great interest to understand how parents make choices for their children in the domain of competition. Do parents choose competition more often for boys than for girls? Or do parents try to counteract children's choices, and select competition more often for girls than boys? Do parents have correct beliefs about the competitiveness preferences of their children? And to what extent do parents make choices that are in line with children's preferences?

To study parents' choices for their children, I cooperated with 15 high schools in Norway to recruit a largely representative sample of 910 Norwegian adolescent children (10th grade) to take part in an experiment at their school. I then randomly selected either the mother or the father to be invited to an online experiment which took place on the same day as the experiment for their child. In all, 770 parents participated. To the best of my knowledge, the paper presents the first experiment where parents are asked to make choices with real consequences for their children.

In the parent experiment, parents make a choice for their child which is then implemented in the child experiment. The choice is whether the child will do a real effort math task for piece-rate pay or tournament pay. Piece-rate pay is a noncompetitive pay scheme and

gives a fixed rate for each correct answer on the task. Tournament pay is a competitive pay scheme and offers a higher pay if the child can outperform a randomly selected opponent. The experimental design builds on the design in Niederle and Vesterlund (2007), which has been used in numerous papers to study gender differences in competitiveness.[1]

In the child experiment, children also make competitiveness choices for themselves. That is, children choose if they want to do the task for piece-rate pay or tournament pay. When parents and children make the competitiveness choice they are not aware that the other party will make a similar choice. Children do the task twice, in round one for their parent's choice of payment scheme and in round two for their own choice of payment scheme. One of two rounds is randomly selected to count for children's payment. I also elicit parents' beliefs about children's choices and children's beliefs about parents' choices for their children.

I replicate the finding in the literature that boys are more likely than girls to enter the competition; 34 percent of boys and 19 percent of girls choose to compete. The gender difference is substantial and significant also when controlling for children's performance on the task, belief about the probability of winning the competition, and risk preferences. To provide a better understanding of the strength of the competitiveness preference, I complement the regression analysis with the estimation of a structural model. I find that both girls and boys have a dislike for competition, equivalent to a loss in income of $5.90 for girls and $4.18 for boys.

Turning to parents' choices for their children, the paper establishes a number of novel facts. First, parents, as children, choose more competition for boys than for girls. However, the gender gap in parents' choices is smaller than the gender gap in children's choices; 8 percentage points versus 15 percentage points. To study explanations for the gender gap, I examine mechanisms studied in previous research; ability, beliefs about winning the tournament, and risk preferences. I find, consistent with the literature, that these mechanisms explain about 40 percent of the gender gap for children. Interestingly, parallel controls do *not* explain any of the gender gap in parents' choices.

Second, I show that there are two main mechanisms for why parents choose differently for boys and girls. Parents believe that boys are more willing to compete than girls, and their beliefs about their children's preferences is an important determinant of their choices. Consequently, parents are more likely to choose competition for boys than for girls. In fact, since parents overestimate the willingness of boys to enter into competition, this mechanism pulls in the direction of an even large gender gap among parents than among children.

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[1]A pre-analysis plan for the paper is available on https://www.socialscienceregistry.org/trials/2344, under the title "How Do Parents Make Choices? Competitiveness and Gender".

A counteracting force, however, is that a significant share of parents act paternalistically and make a different choice than what they believe their child would do. Parents who act paternalistically are 30 percent more likely to choose competition for girls than for boys, which contributes to reducing the gender gap in parents' choices.

Third, I shed light on the extent to which the difference in preferences for competition corresponds to differences in ability. For children, I find that boys' and girls' competitiveness is equally responsive to ability. On the other hand, parents are much more responsive to ability for boys than girls in the competition choice. As a consequence, many high-ability girls do not enter into competition, which potentially has important welfare consequences.

Fourth, I also provide evidence on the role of parent gender. Both fathers and mothers are more likely to choose competition for boys than for girls (even though the gender gap is only significant for mothers). Fathers are more likely to enter their child into competition than mothers, and this difference is sizeable enough to make fathers choose more competition for girls than mothers do for boys. The difference in mothers' and fathers' choices is not explained by a difference in their beliefs about children's preferences. Rather, it appears that parents' choices are partly determined by the competitiveness preferences of parents themselves, with fathers being more willing to compete than mothers (51 percent versus 32 percent).

Finally, the gender gap in parents' choices is not internalized by children. Both girls and boys incorrectly believe that parents are gender-neutral in their competition choices for their children. This suggests that children's beliefs about parents' preferences cannot explain the difference in competitiveness choices among children.

The paper contributes to a number of literatures. A growing literature has documented that there is a gender difference in adolescents competitiveness choices and that the gender difference in preferences may be important for explaining the observed gender differences in education and labor market outcomes (Almås et al. (2015), Niederle and Vesterlund (2007), Buser et al. (2014, 2017), Sutter and Glätzle-Rützler (2014)). This paper is the first to document a gender difference in parents' competitiveness choices for their children. This finding highlights the crucial role which parents may have in creating differential life outcomes for their sons and daughters.

The paper also adds to the literature aiming to understand the determinants of gender-specific competitiveness preferences. Pervious studies have attributed the gender gap in competitive to societal influences Gneezy et al. (2009), Booth and Nolen (2012), Andersen et al. (2013), as well as biological differences Hoffman and Gneezy (2010), Buser (2012), Wozniak et al. (2014), Sutter and Glätzle-Rützler (2014). This paper explores the role of parents

in shaping gender-specific competitiveness preferences, by studying how parents' competitiveness choices relate to their beliefs about children's preferences and the competitiveness choices of children.

More broadly, the paper relates to the literature on intergenerational transmission of preferences. Previous studies find a correlation between the preferences of children and the preferences in the domain of risk and trust (Dohmen et al. (2011a), Zumbuehl et al. (2013)). This paper shows a correlation in competitiveness preferences of parents and the competitiveness preferences of children. Furthermore, I show that controlling for parents' preferences does not reduce the gender difference in children's own tournament choices.

Finally, the paper relates to the theoretical literature on parenting (Becker and Tomes (1979), Doepke and Zilibotti (2015)). I present data on parents' and children's preferences and beliefs about preferences, which allows me to estimate the prevalence of paternalistic behavior among parents. I find that a large share of parents (26 percent) choose differently from what they believe their children prefer, which suggests that paternalistic motivations are important in parental decision-making. Fathers are 5 percent more likely to be paternalistic than mothers ($p < 0.132$).

Taken together the study provides novles insights on how parents' make choices for their children and the intergenerational transmission of outcomes and preferences from parents' to children. The rest of the paper is organized as follows. In section 2 I present the study design. Section 3 presents data on children. Section 4 presents data on parents. Section 5 studies the interaction of children's and parents' choices and beliefs. Section 6 concludes.

2 Study design

2.1 Recruitment of study participants

The study was conducted in Hordaland, Norway, during Spring 2017. Norway is among the most gender-equal countries in the world. Despite this, Norway is also similar to less gender equal societies in that there are large gender differences in competitiveness, education outcomes and labor market outcomes (Almås et al. (2015), Birkelund and Sandnes (2003)). Hordaland is the third largest county in the country. It is close to the national average in terms of distribution of income, education, and occupations; it includes both the second largest city in Norway, as well as less populated rural areas.

To recruit subjects, I contacted all junior schools within 2 hours driving distance from Bergen

for permission to run an one hour in-class experiment with 10th grade students.[2] I informed schools that students would be paid depending on their choices in the experiment and that students' parents would be invited to take part in a related study. Understanding the determinants of adolescents' educational choices was cited as the motivation for the study.

Altogether, 17 of 38 schools gave permission to run the experiment, of which two participated in a pilot study. Figure 1 shows the location of participating schools and non-participating schools. The sample of participating schools include both schools in urban and rural areas. There are no significant differences in the locations of participating and non-participating schools.

Table 1a compares average grades between participating schools, non-participating school, and the national average. The three groups appear strikingly similar, suggesting that the schools in my sample are largely representative for the country.

For each school, up to three 10th grade classes were invited to take part in the experiment.[3] The participation rate for children was 81 percent, with 910 students taking part in the experiment.

For each participating student, I randomly invited either the mother or the father to an online experiment.[4] I informed parents that their choice to participate would not influence whether their child could participate or not. The participation rate for parents was 82 percent, with 746 parents participating. Figure 2a illustrates the recruitment process.

2.2 Sample description

Table 1b provides descriptive statistics for study participants. I here focus on participants for which both the parent and the child completed the entire experiment (740 parents and 740 children).[5] The results are robust to running the analysis on the entire sample.

Parents are on average 46 years old. 63 percent of parents are married, 71 percent of parents live together with the child, 95 percent of the parents are biologically related to the child, and 15 percent of parents belong to a family where a foreign language is spoken at home. Parents of boys and girls do not differ significantly along any of these dimensions.

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[2]Schools with fewer than 25 students in the 10th grade were not invited to participate.

[3]I chose to limit the number of participating classes per school to avoid having to run experiments on different days at the same school.

[4]If the selected parent could not participate, I invited the other parent.

[5]This excludes 163 child observations where the parent did not participate in the experiment, 28 parent observations where the child was registered to participate, but did not due to unforseen circumstances (e.g. sickness), and 12 parent and child observations where both participate, but either the parent or child did not complete the entire experiment.

More mothers than fathers participated in the study; 57 percent of parents in the main sample are mothers. The reason for more mothers participating is that children were more likely to provide contact information for mothers than for fathers (children were asked to provide contact information for both). Upon receiving the contact information I randomized which of the parents (with contact information) would be invited to the study. At this stage, fathers were no less likely than mothers to accept the invitation to participate. Mothers were marginally more likely to participate for girls than boys, with 54 percent of parents for boys are mothers, and 60 percent of parents for girls are mothers ($p = 0.08$).

Children are in 10th grade, and are all between 15 and 16 years old. Among children, 393 of 740 in main sample (54 percent) are female. Boys and girls are equally likely to have a brother, but boys are more likely to have a sister ($p = 0.06$)

2.3 Experimental design

Implementation. I ran the experiments in March and April of 2017. Since parents would be making a real choice for their child, the parent experiment had to finish before the start of the child experiment. Furthermore, to avoid parents and children influencing each other's decisions in the experiments, I designed the experiments with the aim to minimize the possibilities of communication between parents and children.

For each school, parents and children completed their experiment on the same day. At 8:00 am — after children had left for school — parents received an SMS with a link to the experiment. To reduce participation costs, the parent experiment was designed to be taken from a smartphone. Furthermore, the experiment only took 5 minutes to complete and could be accessed at any time between 8:00 am and 11:30 am. Figure 2b the timeline of the experiment.[6]

Children participated in the experiment at their school. Experiments started after the midday lunch break and lasted between 30 and 45 minutes. The experiment was computer based and was programmed in Ztree (Fischbacher (2007)). The classes participated in the experiment sequentially, and I cooperated with teachers to avoid communication between students who had participated in the experiment, and students waiting to participate in the experiment. Since the experiment was run during school hours, it would be difficult for parents and children to share information about the experiment. Furthermore, parents were

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[6]Some parents informed us that they would not be able to complete the experiment during the day of the experiment. These parents received the SMS at 8:00 pm the night before. Parents could also request to have the link sent by email rather than SMS.

also instructed not to tell their child about their involvement in the experiment (until after the child had completed the experiment).

Children. The child received a show-up fee of 100 NOK ($12) and were told that they would do two tasks in the experiment where they could earn additional money. The child was then given a description of the task — to add up sets of four two-digit numbers for three minutes — and was asked if they wanted to do the task for piece-rate pay or tournament pay. In piece-rate pay, the child earned a fixed rate of 5 NOK per correct answer. In tournament pay, the child earned 15 NOK per correct answer, but only if the child outperformed a randomly selected opponent from another school (who did the task for piece-rate pay). The child did the task three times. In round one the child did the task for their own choice of pay scheme. In round two the child did the task for their parent's choice of pay scheme.[7] In round three all children did the task for a common incentive scheme. This provided a measure of performance when children did the task for the same pay scheme. The pay scheme was that children earned one lottery ticket for each correct answer, where they could win an Iphone 7s.[8]

After completing the three rounds I elicited beliefs about probability of winning the tournament, attitudes towards risk taking, and beliefs about how their mother and father would choose for them between piece-rate pay and tournament pay.

Parents. The parent first received a description of the child experiment, the task the child would do, and how the child could earn money in the experiment. The description given to the parent was identical to the description given to the child. The parent was then asked to choose between piece-rate pay and tournament pay for their child. The parent was informed that their child would only be told the chosen pay scheme, and not that the pay scheme was chosen by the parent.

After making the choice for the child, the parent was told that the child would also be making the same choice for themselves under similar circumstances which the parent made the choice. I then elicited the parent's belief about their child's choice. The belief elicitation was incentivized with tickets to a lottery where the parent could win an Ipad. As with the child, I also elicited the parent's preference for tournament pay or piece-rate pay for

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[7]Children were *not* told that their parent had decided the pay scheme for round 2).

[8]I choose to do the third round for lottery tickets for two reasons. First, I did not want to do it for a monetary reward. Because if the third round was for a monetary reward, I would have explain this information to parents and children when they were making their tournament choices which would complicate the instructions. Second, including the possibility of winning an Iphones, was valuable when recruiting children to participate in the experiment.

themselves (if they were in the experiment), the parent's belief about their child's relative performance and the parent's attitudes towards taking risk for the child.

Figure 3 shows screenshots from the experiment. Complete instructions for the parent and child are found in Online Appendix A: Instructions.

3 Children

This section studies gender differences in children's competitiveness choices and mechanisms explaining children's choices.

Children's competitiveness choices. I find a significant gender difference in competitiveness; 34 percent of boys choose to compete, compared to 19 percent of girls ($p = 0.01$). In Figure 4, I compare the finding to previous results from the literature. The figure includes the competitiveness choices from the first study on gender differences in competitiveness choices and results from all studies on gender differences in competitiveness choices with secondary school or high schools students. This partial meta-analysis highlights the robustness of the gender difference in competitiveness; in all the studies boys choose to compete more often than girls. Given the motivation of this study — to understand how parents make competitiveness choices for their children — the similarity with other studies is reassuring, and validates the sample and competitiveness measure.

Mechanisms. Why do boys compete more than girls? The literature has focused on gender differences in i) ability, ii) beliefs about probability of winning the tournament, iii) risk preferences, and iv) taste for competing, as the key explanations for gender differences in tournament choices (Niederle and Vesterlund (2007), Gillen et al. (2016), van Veldhuizen (2017)). In Table 2A I study the role of these mechanisms in regression framework.

Column 1, shows — for comparison — the ordinary least squares regression of a dummy for tournament entry on a dummy for whether the child is a girl. In column 2, I control for the number of correct answers. Girls significantly outperform boys in all three rounds in the experiment. I focus on performance in round three, because in this round the pay scheme was the same for all children. The mean number of correct answers is 5.14 for girls and 4.50 for boys ($p < 0.01$). Figure 7a shows the distribution of performance by child gender. The number of correct answers correlates positively with tournament entry. Controlling for this variable increases the gender differences in tournament entry to 17.3 percent.

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In column 3 I add a control for the child's belief about their probability of winning the tournament. Despite having a lower performance, boys are significantly more confident than girls. The mean belief for boys is 0.6 compared to 0.53 for girls. Figure 7c shows the beliefs of children. The beliefs are positively correlated with children's choices, and consistent with the fact that boys are more confident in their performance, including this control reduces the coefficient on the child girl dummy from to -0.11. I can compare the beliefs of children to the simulated probability of winning. [9] Figure 7b) shows the distribution of the winning probabilities, with mean probability of winning being 0.48 for girls, and 0.38 for a boys.[10] Relative to this measure, girls are overconfident by 5 percent, and boys are overconfident by 22 percent.[11]

In column 3, I add two measures for children's willingness to take risk. The first measure is a hypothetical choice between five lotteries with different levels of risk and expected payoff. Children are asked to choose one lottery. The measure is an adaption of Eckel and Grossman (2002). The second measure is a self-assessment of the willingness to take risk on a 10 point scale. The measure is an adaption of Dohmen et al. (2011b). Figure 8 shows the distribution of answer by child gender. Boys choose riskier lotteries and have a higher self-assessment of their willingness to take risk, than girls ($p < 0.00$). The two measures of risk aversion are positively correlated (0.32). Both measures of risk taking are positively correlated with tournament entry. Since boys are more willing to take risk than girls on both the two measures, and risk-taking is associated with tournament entry, adding the controls causes the girl dummy coefficient to drop to -0.08 ($p < 0.01$).

In the last two columns I run the regressions separate for boys and girls. I find no evidence for any interaction between the mechanisms and child gender, with the exception that the risk taking lottery measure is more predictive for boys' choices, while the srisk taking self-assessment measure is more predictive for girls' choices.

In the reduced-form analysis, gender differences in ability, beliefs about probability of winning and risk preferences explain 42 percent of gender differences in children's tournament choices. The remaining 58 percent of variation could potentially be attributed to gender

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[9] To obtain a measure of the probability of winning, I draw 1000 randomly selected opponents for each child with replacement and calculate the mean winning probability. As expected, this measure is almost perfectly correlated with performance (0.98).

[10] The probability of winning is less than 0.5 on average, because a child only wins if they have more correct answers than their opponent. Conversely, with equally many or fewer correct answers the child loses.

[11] The large gender difference in mean accuracy may suggest that girls' beliefs are better calibrated than boys' beliefs. However, ont the other hand, boys' beliefs have a higher correlation with their with the simulated probability of winning, 0.49 compared to 0.33 for girls ($p < 0.01$, using Fisher r-to-z transformation). The difference in correlations also exist for number of correct answers, and when I remove the large share of children with beliefs equal to 50 percent.

differences in taste for competition. Similarly, Niederle and Vesterlund (2007) find that 57 percent of the variation can be explained by comparable control variables.

Structural estimation. Given the observed choices, how much do boys and girls like, or dislike, competing? I now present a simple model for children's choices and structurally estimate a gender-specific taste for competition, which allows us to get a monetary value of the like or dislike for competition for boys and girls.

I let children have reference-dependent preferences risk preference over earnings, and let the reference point be expected earnings. For simplicity, I assume linear utility over money. For example, a person with expected earnings r and coefficient of loss aversion λ, will have utility over money x:[12]

$$U(x) = \begin{cases} x + (x - r), & \text{if } x \geq r \\ x + \lambda(x - r), & \text{if } x < r \end{cases}$$

The motivation for this modelling choice is to allow for small-scale risk aversion, without having to assume unrealistic amounts curvature in utility over money (Rabin (2013)).In the following I refer to this model as the loss aversion model. As an added robustness, I will also show results with risk neutral subjects and a model with constant relative risk aversion (CRRA), where the curvature in utility over money generates risk aversion.

In piece-rate pay the child gets paid 5 NOK for each correct answer. For simplicity I assume that children know how many questions they will be able to solve (denoted by a_i) and that there is no cost of effort.[13] As such, the child's belief about their expected utility in piece-rate pay is:

$$E\hat{U}_{i_{pr}}(a_i) = 5a_i \tag{1}$$

In tournament pay the child earns 15 NOK for each correct answer if the child outperforms their opponent, and 0 NOK if the child gets the same or fewer correct answers. I again

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[12]Note, this formulation of reference-dependent preferences, will when assuming linearity in both components of utility function, be closely related to a model with stochastic reference points Kőszegi and Rabin (2006). And for the utility functions in this set-up, they will be equivalent.

[13]A motivation for not modelling cost of effort, is that children will perform the task both in piece-rate pay and tournament pay, and thus this cost will be present in either pay scheme. Furthermore, empirically I cannot reject that effort is the same in both pay schemes, and hence that cost of effort should be the same. I empirically test if children's performance differ by considering 169 children who were randomized into either piece-rate pay or tournament pay. I am not able to reject that the performance is the same. More generally, several previous studies have documented that elasticity of performance to pay is typically low in experiments (Ifcher and Zarghamee (2016), DellaVigna et al. (2016), Araujo et al. (2016).)

assume that children know how many correct answer they will have, and that the number of correct answers is the same in tournament pay as in piece-rate pay. Let $\hat{p}$ be the child's belief about their probability of winning the tournament. The child's reference point (the expected earnings) in tournament pay is then $\hat{p}15a_i$. If the child wins the tournament, the child's earnings will exceed the reference point, and vice versa if the child loses the tournament. I follow convention and let λ_i denote the degree of loss aversion. I model taste for competition as an additive gender specific constant t_g. I allow for t_g to be both positive and negative, to capture the possibility that children like or dislike competing. Children's belief about their expected utility in tournament pay is then:

$$E\hat{U}_{g_t,i_t} = \hat{p}15a_i + \hat{p}(15a - \hat{p}15a) - \lambda_i(1 - \hat{p})(\hat{p}15a) + t_g \tag{2}$$

I assume that children choose tournament pay when their belief about expected utility in tournament pay is higher than their belief about expected utility in piece-rate pay:

$$V^{*i} = E\hat{U}_{i_t} - E\hat{U}_{i_{pr}} + \epsilon_i \text{ with } \epsilon_i \sim \mathcal{N}(0, \sigma^2) \tag{3}$$

Where ϵ_i is an individual error term. In the experiment, I observe the choice variable C_i, for whether the child enters the tournament or not.

$$C_i = \begin{cases} 1, & \text{if } V^* \geq 0 \\ 0, & \text{otherwise} \end{cases} \tag{4}$$

I calibrate the parameters of the model as follows: I let a_i equal the number of correct answers that the child had in round 3 (where the pay scheme was the same for all children). I let $\hat{p}$ equal the stated belief of children about their probability of winning, and I calibrate λ_i for each child based on which λ_i would rationalizes the lottery choices made by the child. [14]

I estimate the gender specific taste for competition t_g with a probit model. Table 5 shows the estimates of the model. In column 1, I show the estimates for the loss aversion model. The estimates suggest a strong dislike for competition for both girls ($5.90) and boys ($4.18). In comparison, total earnings from the experiment are on average $15.

In column 2, I estimate the model imposing $\lambda_i = 1$ such that children have no loss aversion

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[14]To calibrate λ_i, I choose the midpoint of the interval between the different λ_is which would rationalize a given lottery choice. And for the endpoints, I choose the λ_i which makes the child indifferent about that choice, and the next possible lottery.

(and are risk neutral). The estimates of distastes for competition are similar to the observed estimates in the loss aversion model. In column 3 I estimate the model with CRRA utility, where risk aversion is coming from the curvature of the utility function. That is, I assume children have utility over money x by $\frac{x}{1-r_i}^{1-r_i}$. As with the loss aversion model, I calibrate the risk preferences parameter r_i using the lottery choices. In the CRRA model, the calibration of the taste for competition is sensitive to the wealth level at which it is compared to, and the level of risk aversion, as both these factors influence the curvature of the utility function. As such, the estimates are not as readily comparable to the results from the loss aversion model. In the table, I show estimates for zero wealth at the median level of risk aversion in the sample. Standard errors are constructed using the delta method. Also in the CRRA model, girls also have a higher distaste for competition than boys. Taken together the structural estimates show that on average there is significant dislike for competition in the sample, particularly for girls (\$$-5.90$) versus \$$-4.18$).

4   Parents

In this section I study parents' choices for their children, and compare parents' choices to children's choices. The study of parents' choices for their children is the key contribution of this paper.

Choices for children.   Figure 5 shows parents' choices for their children. Parents' choose eight percentage points more competition for boys than girls ($p < 0.03$). The difference in parents' choice is not due to different types of parents' choosing for boys and girls. The result is robust to controlling for parent age, parent gender, whether the parent and child are biologically related, if the family speaks a foreign language at home and if the child has brothers or sisters.

How do parents' choices compare to children's own choices? The difference in parents' choices for girls and boys is eight percentage points smaller than the gender differences in children's own choices, ($p < 0.07$).[15] For boys, parents on average choose the same amount of competition as boys choose for themselves. For girls, parents increase the share of girls who compete from 19 percent to 27 percent, compared to choices of girls themselves.

How do mothers and fathers choices differ? The gender difference in mothers choices is qualitatively larger than in fathers choices, but the difference is not statistically different

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[15]This p-value is constructed from standard errors clustered at the child-parent pair. When using robust standard errors the p-value is 0.10.

($p = 0.57$). For both girls and boys, fathers are more are more likely to enter children into the competition than mothers ($p < 0.01$). The difference is 10 percentage points for girls, and 6 percentage points for boys.

Mechanisms for choices. I Table 2B I study the underlying mechanisms for parents' choices for their children. I conduct an analogous exercise to what I did when studying mechanisms for children's choices. That is, I study the extent to which the difference in parents' choices for boys and girls can be explained by i) ability of the child, ii) parents' belief about the child's probability of winning, iii) parents' risk preferences over child outcomes, and iv) parents' taste for the child competing.

Column 1 shows the regression of parents' choice of piece-rate pay and tournament pay on a dummy for whether the child is a girl and a constant. In column 2, I add a control for the number of correct answers of the child. Children's performance positively correlate with parents entering the child into tournament, and consistent with girls outperforming boys, controlling for performance changes the coefficient on the girl dummy from -0.076 to -0.089.

I next turn to parents' beliefs about their child's probability of winning. I elicit parents' belief about their child's probability of winning in the same way as I elicited children's belief about their own probability of winning. Figure 7d shows the beliefs of parents for their children. While boys are significantly more confident than girls, parents believe girls will perform slightly better, but the difference is not significant ($p = 0.235$).[16] In column 3, I control for parents' beliefs about their child's probability of winning. Parents' beliefs positively correlates with entering the child into tournament pay, and the coefficient on the gender of child dummy increases from -0.089 to -0.101.

In column 4, I add two controls for parents' risk preferences over child outcomes. These measures closely mirror the two risk preferences' measures that was elicited for children. In the first measure, parents select one of five lotteries with different levels of risk and expected payoff for their child. In the second measure, parents provide a self-assessment of their

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[16]Relative to children, parents are slightly more confident. Also notably, less than 2.5 percent of parents believe that their child has less than 50 percent chance of winning. However, parents' beliefs are predictive of their children's chance of winning: for boys the correlation is 0.35, and for girls it is 0.27 (the difference between boys and girls is not significant). Parents' beliefs also correlate with the beliefs of their children; the correlation is 0.29 with girls' beliefs and 0.47 with boys' beliefs ($p < 0.01$). The low share of parents reporting that their child has less than 50 percent chance of winning may suggest that parents of low performing children are particularly misinformed about their child's ability. For the bottom 25 percentile of children in terms of performance on the task, the correlation between parents' beliefs and the simulated probability of winning is 0.07. For the bottom 50 percentile the correlation is 0.22. And for the top 50 percent of children it is also 0.22. An alternative explanation to that parents are misinformed, is that parents, even in an anonymous survey, do not like to say that their child is low performing.

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willingness to take risk on a 10 point scale for their child. Figure 8 shows risk taking of children, and parents for children. Among children, boys are more willing to take risk than girls. In contrast, the mean difference in parents' choices for boys and girls is estimated as a precise zero on both measures. Parents' risk taking is in between that of boys and girls, with parents being more willing to take risk than girls, but less willing to take risk than boys. There is no significant correlation in the willingness to take risk of children and parents. Both measures of risk taking for parents' positively correlates with entering the child into tournament pay. However, controlling for these variables does not change the coefficient on the girl dummy.

In children's choices, controlling for ability, child's belief about the probability of winning the tournament, and the child's risk taking explained 42 percent of the gender difference in choices. For parents' choices for their children instead, controlling for ability, parents' beliefs about the probability of their child winning the tournament, and parents' risk taking for their child, does not explain any of the gender difference in parents' choices. Without controls, the gender difference in children's choices is almost twice the gender difference in parents' choices. But controlling for these variables, the gender difference is larger in parents' choices. This finding suggests that the observed difference in parents' choices is specifically related to the domain of competition.

In columns 5 and 6, I run the regression separately for boys and girls. The child's performance, and parents' beliefs about their child's probability of winning are more positively correlated with entering boys into the tournament than entering girls into the tournament. This finding is potentially important. A particular concern in the literature on gender differences in competitiveness is the shortage of high ability women entering into competition Buser et al. (2017). In Figure 6, I show the choices of children and parents conditional on how many correct answers the child got in round three (were the pay scheme was the same for all children). In children's choices, there is a positive relationship between performance and competing for both boys and girls, and I can not reject that the relationship is the same. For parents, the relationship is significantly stronger for boys ($p = 0.045$)[17].

One implication of the shortage of high ability girls in tournament pay, is on expected earnings from the experiment. To estimate expected earnings in piece-rate pay and tournament pay I use performance in round 3 (when children do the task for a fixed pay scheme) and randomly draw 1,000 competitions with replacement. Too few children choose to compete relative to what would maximize their expected earnings: 49 percent of boys and 62 percent

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[17]This p-value is from a regression where I regress parents' choice of pay scheme on child gender, performance on the task, and performance on the task interacted with child gender. Robust standard errors were used.

of girls have higher expected payoffs in tournament pay than in piece-rate pay, while only 34 percent of boys and 19 percent of girls enter tournament pay. If children choose optimally (in terms of expected earnings), boys could increase their earnings with 33 percent, while girls could increase their earnings with 52 percent.

I next consider the earnings from parents' competitiveness choices for their children. For boys, there is no difference in average earnings when parents make choices. How about for girls? Given that too few enter the tournament, and parents enter about 50 percent more girls into tournament pay, we might expect parents to increase earnings for girls. However, parents' choices do not have higher expected payoffs for girls. The explanation is that while parents increase the number of girls competing, they do not increase the share of girls who would benefit the most from competing - the high performing girls.

5   Children vs Parents

In this section, I present data on i) parents' own preferences for competing, ii) parents' beliefs about children's preferences for competing, and iii) children's beliefs about parents' choice for children. I then study how beliefs and preferences influence choices of children and parents for children.

Parents' own preferences for competing   I ask parents what they would choose for themselves between piece-rate pay and tournament pay if they were in the experiment. 40 percent of parents choose tournament pay, which is significantly larger than the share of parents choosing tournament pay for their child (30 percent) and the share of children choosing tournament pay for self (25 percent). Parents of girls are seven percentage points less likely to choose tournament than parents of boys ($p < 0.07$).[18]   There is also a large difference in choices of mothers and fathers; 51 percent of fathers and 32 percent mothers choose tournament pay, which equals a gender difference of 18 percentage points.

Parents' beliefs about children's preferences.   I elicit parents' binary beliefs about their children's choices between piece-rate pay and tournament pay (incentivized), and then ask parents how certainty they are in their belief on a 11 points scale (not incentivized). Figure 9b shows parents' binary beliefs about children's tournament choices. 51 percent of

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[18]One interpretation of this finding is that raising a daughter causes parents to become less competitive than raising a son. It can also be because parents' have preferences for consistency in their choices, and therefore prefer to choose the same for themselves as they chose for their child.

parents of boys believe their child will choose tournament pay, and 25 percent of parents of girls believe their child will choose tournament pay ($p < 0.01$). Comparing parents' beliefs to children's choices, parents overestimate both the number of girls and boys that will choose tournament pay. The difference between beliefs and choices is 8 percentage points for girls, and 19 percentage points for boys. As such, parents overestimate the gender difference in tournament entry choices by about 10 percentage points ($p < 0.02$). Interestingly, mothers and fathers have in aggregate the same beliefs about their children's choices. Parents' beliefs correlate positively with children's choices (0.15), and there is no difference in the correlations for boys, girls, mothers or fathers.

Children's beliefs about parents' choices. I ask children to guess what their parents, both mothers and fathers, would choose for them between piece-rate pay and tournament pay. The belief elicitation was not incentivized. Figure 9a shows children's beliefs by child gender. For the parents who participated in the experiment, both girls and boys believe that 29 percent of parents will enter them into the tournament pay. In contrast, parents enter 27 percent of girls and 35 percent of boys. As such, children underestimate the difference in parents' choices for girls and parents' choices for boys ($p < 0.07$)[19]. Both boys and girls believe fathers are more likely than mothers to choose tournament pay for the child. The direction of this belief is correct, however, they overstate the magnitude. Girls believe fathers are 30 percentage points more likely to enter them into tournament pay than mothers, while boys think the difference is 18 percentage points. In the experiment, fathers are 11 percentage points more likely to enter girls into tournament pay than mothers, and for boys the difference is 6 percentage points. Children's beliefs correlate positively with choices of both for mothers (0.12) and fathers (0.12). Girls' beliefs have a higher correlation (0.24), than boys' beliefs (0.12) (p-value on difference: $p < 0.09$).

Children's choices and parents' preferences. Having collected data on both children and parents, both preferences and beliefs, I can step back and ask: how much do children's beliefs about their parents' preferences explain the observed difference in competitiveness among children? After all, it is possible that girls enter the competition less than boys because they internalize the preference of their parents. In Table 3 I study the relationship between children's choices and parents' preferences. Column 1 shows for reference the regression of child tournament entry on a girl dummy with controls for child ability, child belief about their probability of winning the tournament, and child risk preferences (which corresponds to column 4 in Table 2A). In column 2, I add a control for parents' own preference

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[19]The p-value on the t-test of the difference using robust standard errors clustered at the parent-child level

for tournament entry. Qualitatively, parents' own preferences are positively correlated with children's choices, but the relationship is not significant. [20] Furthermore, the coefficient on the gender dummy is unchanged when adding the control for parents' preferences for self.

In column 3, I control for parents' choice for their child. Parents' choice for their child strongly predicts children's choice for self. In column 4, I control for children's beliefs about their parents' choices. Both children's beliefs about their mothers and their fathers preferences is significantly correlated with children's choices.

However, even after controlling for these variables the coefficient on the gender dummy is unchanged. The analysis shows that parents' preferences and children's beliefs about parents' preferences correlate with children's choices, yet they do not explain the gender difference in children's choices.

Parents' choices and children's preferences   In Table 4 I study the role of parents' own preferences for competing, and parents' beliefs about their children's preferences for competing in explaining parents' choices. In column 1, I show parents' choice of pay scheme on a girl dummy and controls for child ability, parent belief about their child's probability of winning the tournament, and parents' risk preferences over child outcomes (which is the same as column 4 in Table 2B).

In column 2, I add a control for parents' own preference for tournament entry. Parents' preferences for self are very predictive for their choice for their child. The inclusion of this variable lowers the coefficient on the gender dummy from -0.105 to -0.078.

In column 3 I add children's own tournament choices as a control variable. Children's preferences do predict parents' choices, and controlling for this variable further lowers the coefficient on the gender dummy to -0.060. In column 4, I add controls for parents' binary belief about their child's choice. Parents' belief about their children's preferences strongly predict parents' choices and adding this control variable, there is no gender differences in parents' choices for girls and boys.

The analysis suggests that an important reason for why parents' make different choices for boys and girls is that they believe that boys and girls have very different preferences for competing. Overall, 74 percent of parents follow their belief about what they think their child would prefer, while 26 percent of parents of parents' choose opposite from what they believe their child prefers. The relative large share of parents willing to go against their belief about what they think their child wants, shows that paternalistic motivation is prevalent

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[20]I note that the raw correlation between children's and parents' preferences is equal to 0.1 correlation (significantly different from 0). The correlation is not statistically different for girls, boys, mothers or fathers.

among parents. Parents who choose differently than they believe their children prefer are 30 percent more likely to enter a daughter into tournament pay than a son ($p < 0.00$). Conversely, parents' who follow their children's belief are 20 percent more likely to enter boys into the tournament. What motivates parents' to choose differently than what they believe their child wants? Parents are about three times as likely to take a child out of the tournament, as they are to take a child into the tournament. Because parents' believe boys are more likely to choose the tournament than girls, parents more choose different than what they believe their boys prefer, than what they believe their daughters prefer.

6 Conclusion

The literature consistently finds that boys are more competitive than girls and that the differences in competitiveness may be a driver for gender differences in education and labor market outcomes (Niederle (2014)). However, parents are also likely to play a role in education and career choices, which suggests that it is important to understand how parents make competitiveness choices for their children.

I present the results from an experiment on more than 1600 parents and adolescent children where i) children make their own competitiveness choices, and ii) parents make competitiveness choices for their children. I find that parents choose 27 percent more competition for boys than girls, and the difference is larger for the highest performing children. Compared to children's own choices, the gender difference in parents' choices is 50 percent smaller.

Why do parents choose differently for boys and girls? I document that parents' risk attitudes and parents' beliefs about their child's probability of winning the tournament are not important in explaining the difference in choices for boys and girls. Instead, the gender difference in parents' choices is primarily explained by parents' beliefs about their children's preferences. Parents overestimate the gender gap in children's choices, and conditional on parents' beliefs there is no difference in how parents choose for boys and girls.

When parents choose differently from what they believe their children prefer, parents tend to enter girls into the tournament and take boys out of the tournament. 26 percent of parents choose differently which suggests that a large share of parents are willing to act paternalistically when making choices for their children.

I also compare the choices of mothers and fathers. The gender gap in mothers' choices is qualitatively larger than in fathers' choices, but the difference is not significant. Mothers are also less likely to enter their children into competition regardless of gender.

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The findings suggest that when parents make choices for their children, we should expect different outcomes for boys and girls. Furthermore, the fact that the difference in parents' choices is increasing in child ability may be particularly troubling, as it is precisely the high performing girls who would benefit the most from pursuing competitive education and career paths. When extrapolating the results from this study, it is important to consider the extent to which the results are context dependent. This study was conducted in Norway, one of the most gender-equal countries in the world. How would parents from less gender-equal societies act differently?

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Figures

Figure 1: Map of participating and non-participating schools
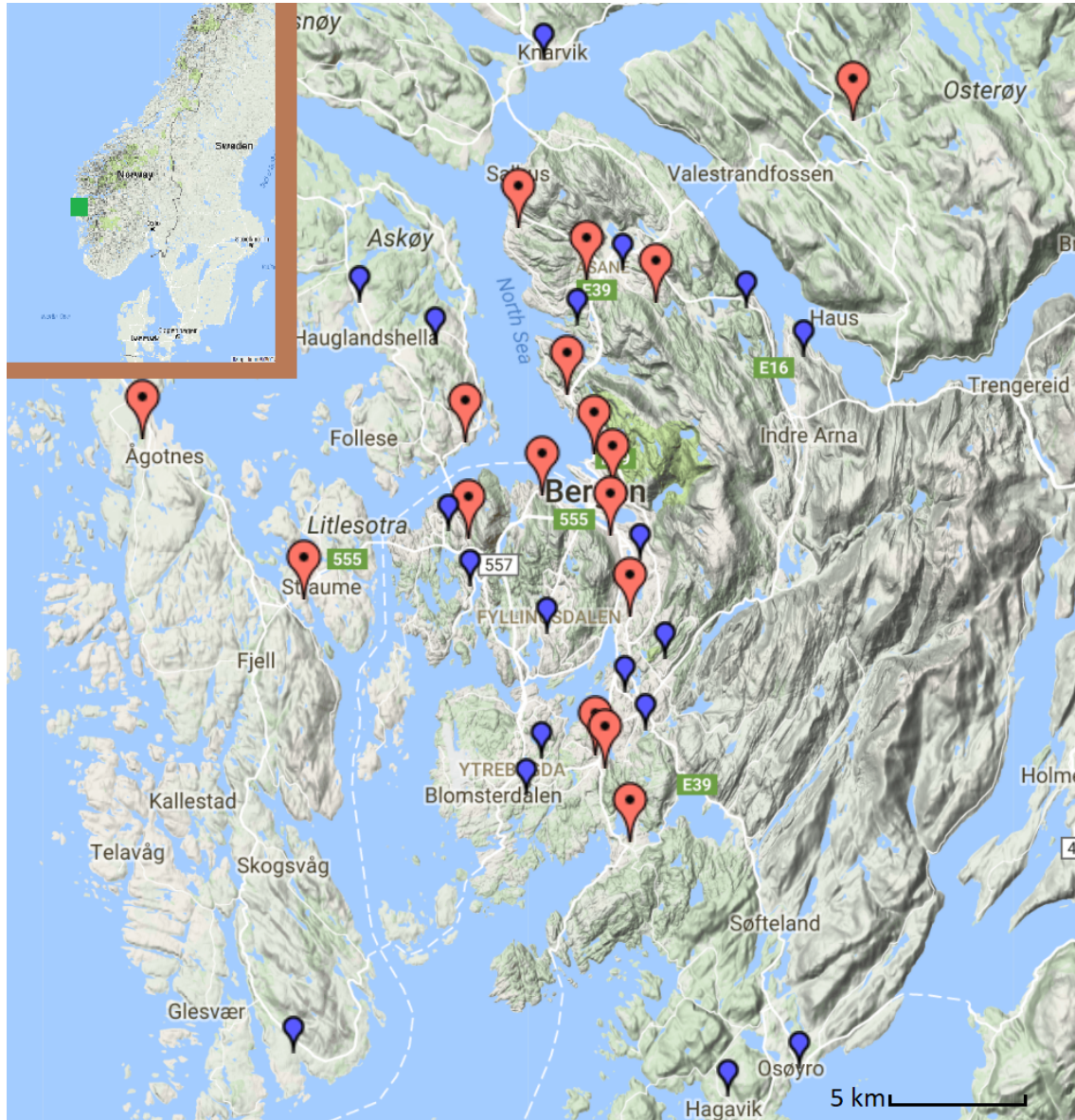
Note: All schools with at least 25 eligible students and within two hours driving distance from Bergen, Norway were invited to participate in the study. Red large markers indicate the 17 participating schools (including two pilot schools). Blue small markers indicate the 19 non-participating schools. Green rectangle in the picture in the right upper corner indicates location of Bergen, Norway.

Figure 2: Study design

(a) Recruitment of subjects

Junior high schools contacted.
↓
Students register for the study.

Mother or father invited to
mobile phone experiment.
↓
Parents complete
mobile phone experiment.

Students complete
in-class experiment.
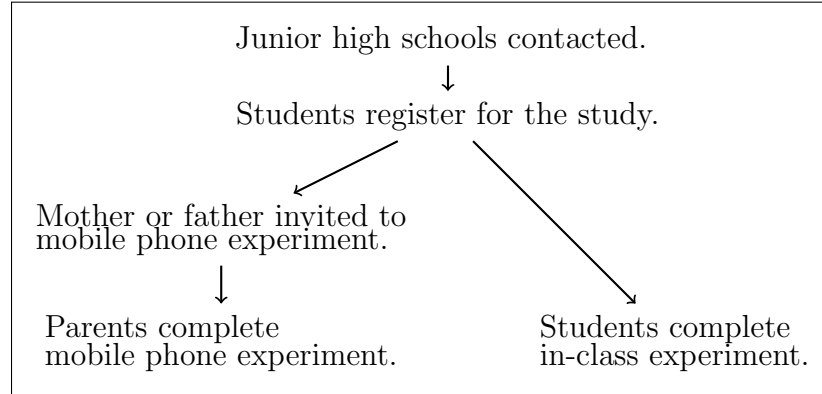
(b) Timeline of experiment

One experiment per day

8am   12pm   2pm

Students go
to school.

Student experiment starts.
Parent choice is implemented.

Student experiment
finished.

Parents get SMS
with link to experiment
with choice for child.

Deadline parent
completion.
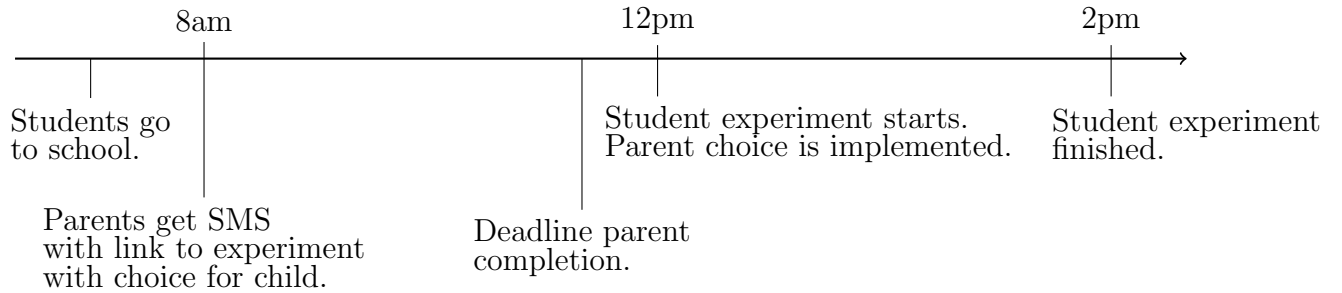
Note: Panel a) shows the recruitment process. 910 children took the student experiment (81% participation rate) and 770 parents took the parent experiment (82% participation rate). For 740 observations, both parent and child complete their experiment. Panel b) shows the implementation of the experiment, which occurred on different days for each participating school. The parent experiment started after children had left for school in order to mitigate opportunities for communication between parents and children. The child experiment started after the midday lunch break, typically at noon.

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Figure 3: Screenshots from experiments (English translations)

(a) Child experiment

Task A

In Task A you will be asked to sum four two-digit numbers. For example: 21+25+77+64=? You have three minutes to solve as many questions as possible.

You will do the task alone and without a calculator. Teachers and others students will not learn how well you performed on the task.

You can be paid in two ways for Task A:

1. Piece-rate pay: 5 NOK for each correct answer.

2. Tournament pay: you will be compared with another student.
   i. 15 NOK for each correct answer, if you have more correct answers than the other student.
   ii. 0 NOK for each correct answer, if you have fewer or equally many correct answers as the other student.
   iii. The other student is a randomly selected tenth grade student at another school in Hordaland, where the task was done for piece-rate pay.
   iv. What you choose will not influence the payment to the other student.

What do you choose? ○ Piece-rate pay ○ Tournament pay

[NextNext]

(b) Parent experiment

NHH

Task A

In Task A your child will add rows of four two-digit numbers. For example: 21+25+77+64= He/she will have three minutes to solve as many of these as possible.

He/she will do the task alone and without a calculator. Teachers and other students will **not** learn how he/she performs on the task.

Your child can be paid in two ways for Task A.

1. Piece-rate pay: 5 NOK for each correct answer.
2. Tournament pay: your child will be compared with another student.
   ○ 15 NOK for each correct answer, if your child has more correct answers than the other student.
   ○ 0 NOK for each correct answer, if your child has equally many or fewer correct answers than the other student.
   ○ The other student is randomly drawn from students in a 10th grade class, at another school in Hordaland. The student completed the task for piece-rate pay, and what you choose will not influence the earnings of the other student.

You can now choose if your child will do Task A for piece-rate pay or tournament pay.

Your choice will not influence how other students are paid.

Before your child does the task he/she will be told if he/she does the task for piece-rate pay or tournament pay.

Your child will not be told that the choice was made by you.

What do you choose for your child?

| Piece-rate pay |
| Tournament pay |

For questions about the survey:
47 95 85 27

*Note:* The screenshots show the child's and parent's choice of piece-rate pay or tournament pay for the child. The child then does the task first of the choice of the child, and the for then for the choice of the parent. The child experiment was coded in z-Tree (Fischbacher (2007)) and the parent experiment was coded in Qualtrics (Qualtrics (2013)).
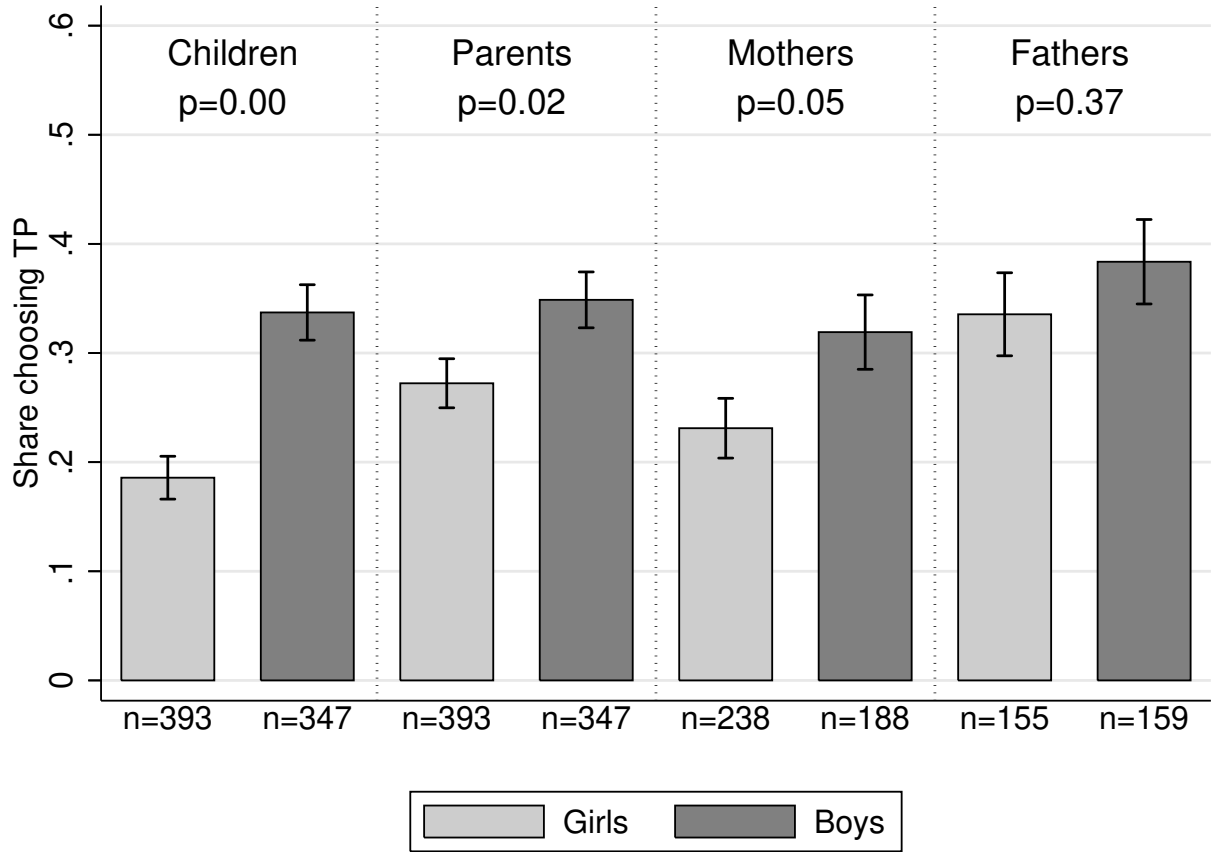
Figure 4: Gender differences in competitiveness on math task
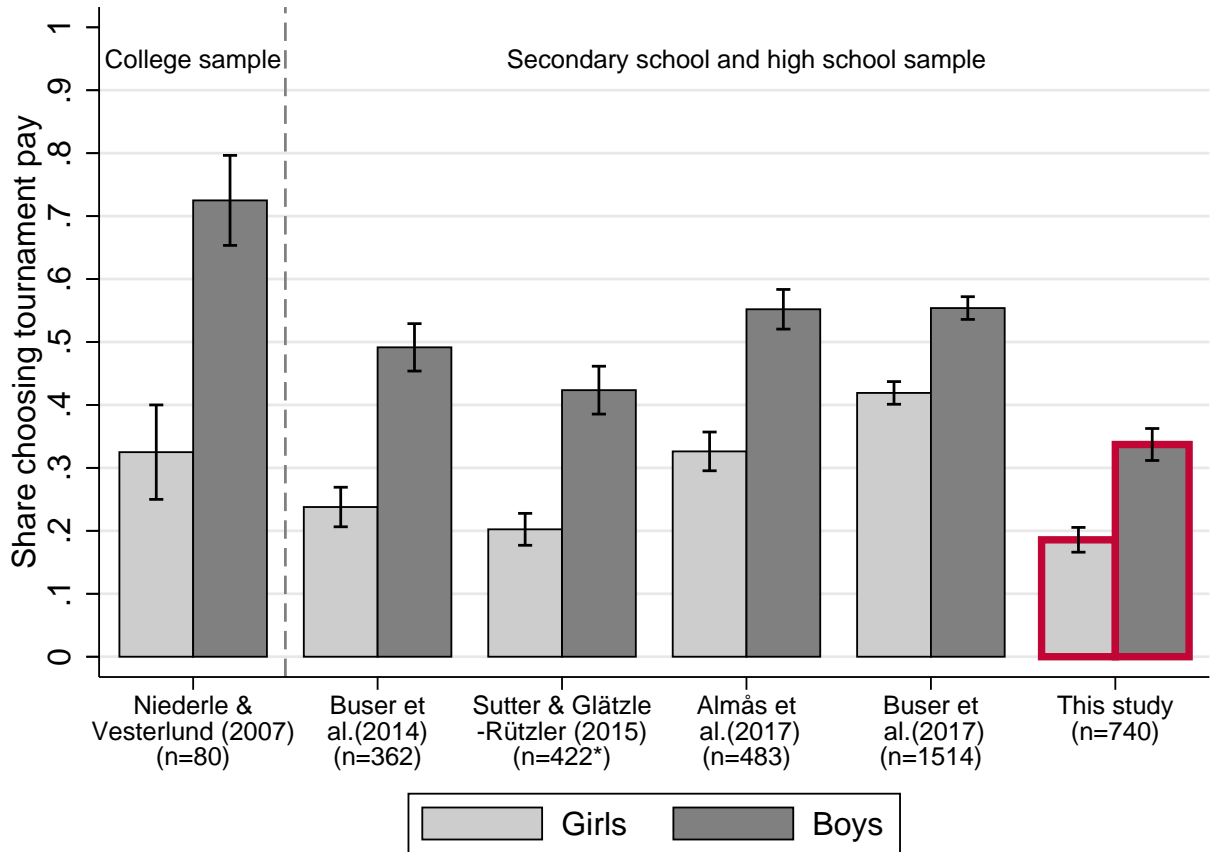
Note: The figure shows gender differences in competitiveness for studies which employ a comparable measure of competitiveness and have an adolescent sample. Bars indicate 95 percent confidence intervals. Niederle and Vesterlund (2007) was conducted at the University of Pittsburgh, using the subject pool at the Pittsburgh Experimental Economics Laboratory. Buser et al. (2014) is from experiments on 9th grade students in Amsterdam, Netherlands. Sutter and Glätzle-Rützler (2014) studies competitiveness among children ages 9-18 in Tyrol, Austria. The figure here shows competitiveness choices only for adolescent children (age 13-18). Almås et al. (2015) studies competitiveness among 9th grade students in Bergen, Norway. And Buser et al. (2017) studies competitiveness among 9th grade students in the canton of Bern, Switzerland. This study was conducted in Bergen, Norway on a sample of 10th grade students.

* The full sample in Sutter and Glätzle-Rützler (2014) includes 1,570. The figure here shows competitiveness choices only for the subset of the sample which are in secondary school and high school (age 13-18).

Figure 5: Tournament choices for children

Children p=0.00		Parents p=0.02		Mothers p=0.05		Fathers p=0.37	
n=393	n=347	n=393	n=347	n=238	n=188	n=155	n=159

Girls · Boys

Note: The error bars indicate robust standard errors. The gender difference in children's choices compared to the gender difference in parents' choices is significant with p-value of 0.07, using robust standard errors clustered at the parent-child level. The gender difference in mothers' choices compared to the gender difference in fathers' choices is not statistically significant (p=0.567).

Figure 6: Hetrogeneity: Tournament choices and performance

(a) Children's tournament choices for self
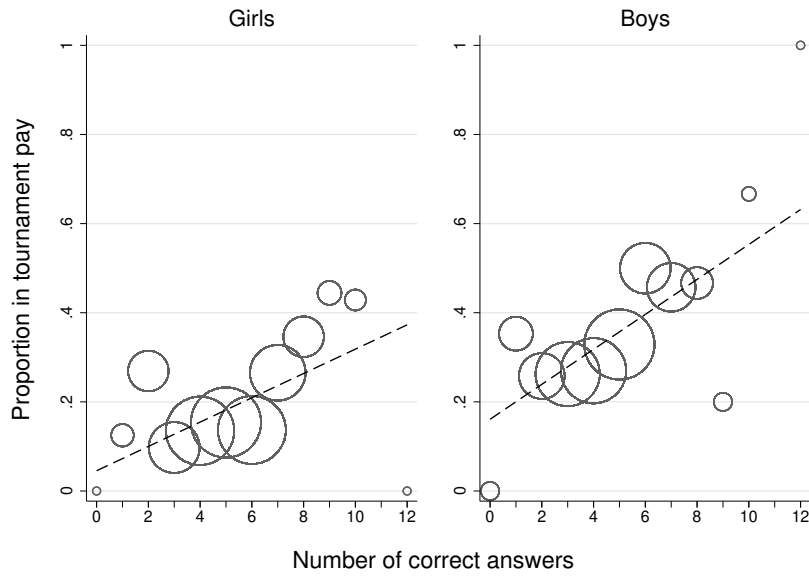
(b) Parents' tournament choices for their children
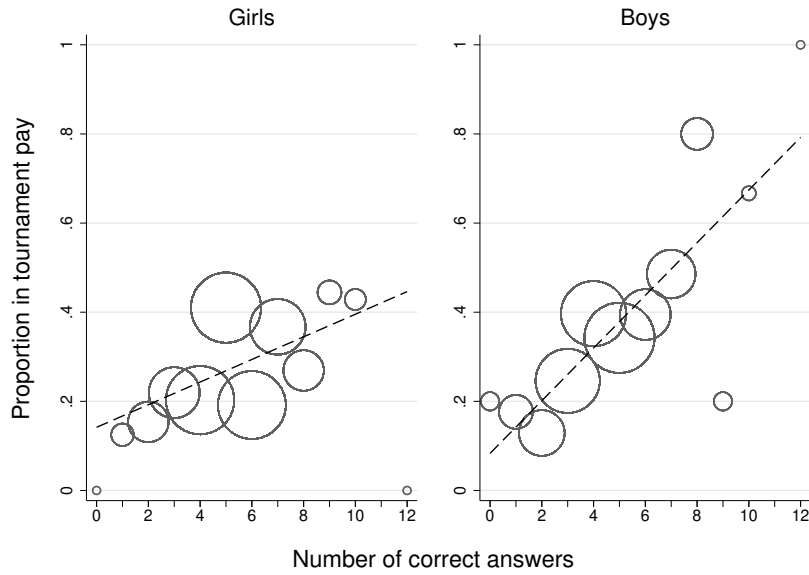
Note: Number of correct answers is from round 3, where all children did the task for the same pay scheme. For children, both girls' and boys' choices positively correlate tournament entry, and I can not reject that the correlations are the same. For parents, the correlation in boys' choices is significantly stronger than in girls' choices (p=0.45).

Figure 7: Mechanisms: Performance, probablity of winning and beliefs

a) Performance of child

b) Simulated probability of winning for child

c) Children's beliefs about their probability of winning

d) Parents' beliefs about their child's probability of winning

Girls   Boys
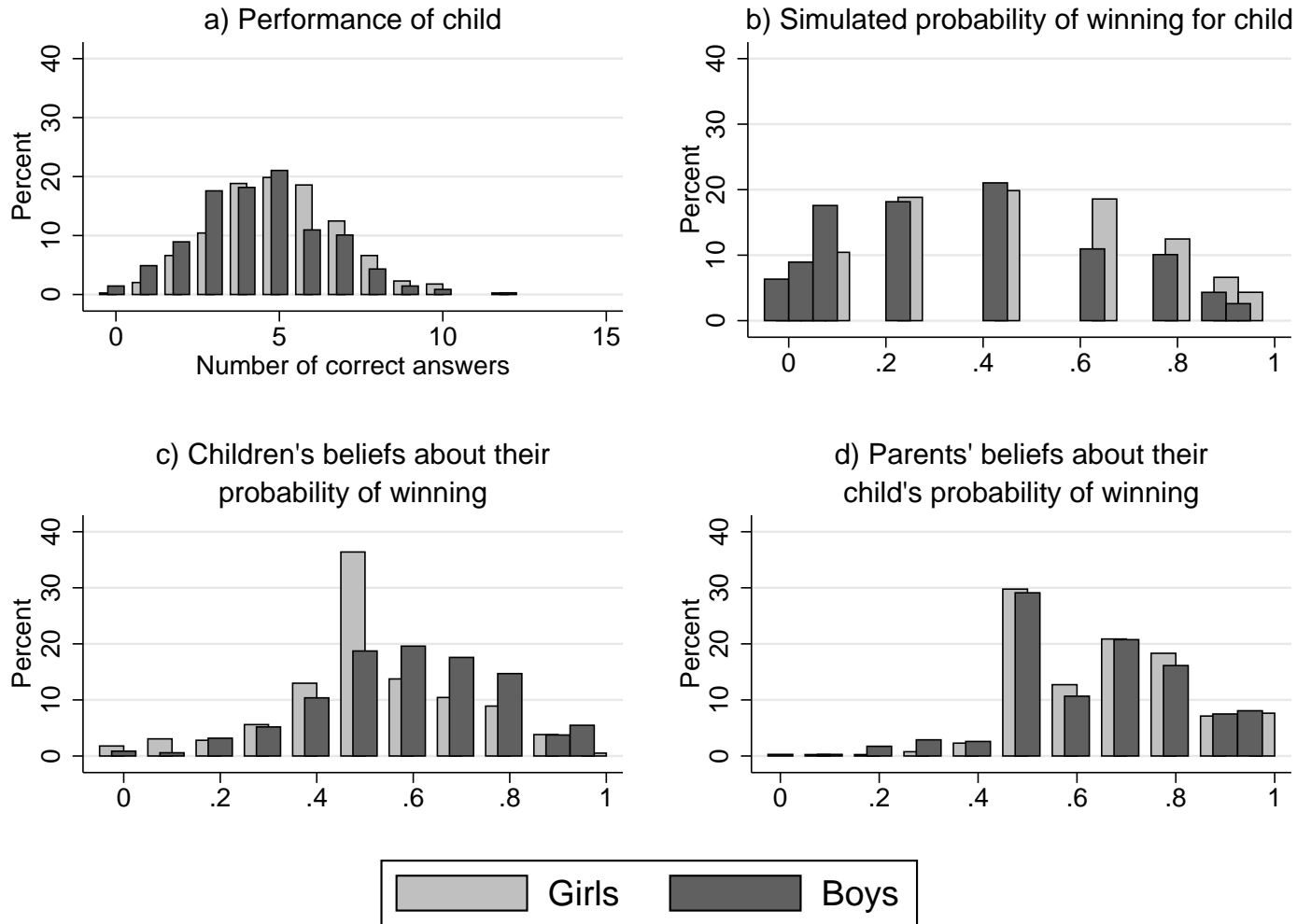
Note: Panel a) shows performance of children on the task. Girls outperform boys ($p < 0.00$). Panel b) shows simulated probability of winning, estimated by drawing a 1000 randomly selected opponents with replacement. Girls have a higher chance of winning ($p < 0.00$). Panel c) shows children's beliefs about their chance of winning. Boys have higher beliefs than girls ($p < 0.00$). Panel d) shows parents' beliefs about their child's chance of winning the tournament. Parents do have the same beliefs for boys and girls.

Figure 8: Mechanisms: Risk taking

a) Child lottery choice for self

b) Child self-assessment:
willingness to take risk

c) Parent lottery choice for child

d) Parent self-assessment:
willingness to take risk for child

Girls   Boys
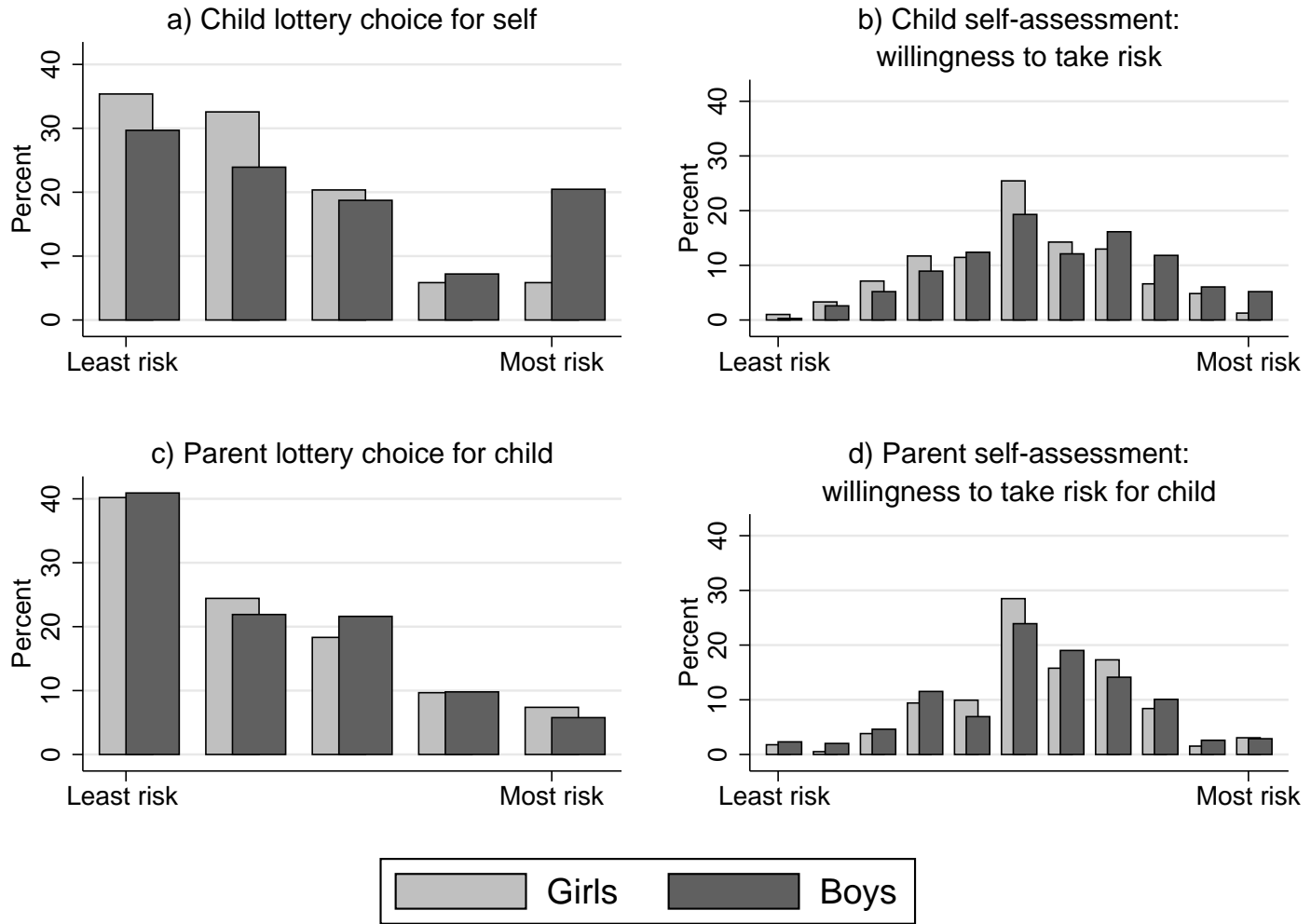
Note: Panel a) shows children's choice of a risky lottery, methodology adapted from (Eckel and Grossman (2002)). Boys take more risk ($p < 0.00$). Panel b) shows children's self assessment of their willingness to take risk, methodology adapted from (Dohmen et al. (2011b)) Boys take more risk ($p < 0.00$). Panel c) shows parents' choice of risky lottery for their children. Parents do not choose differently for boys and girls. Panel d) shows parents' self-assessment of their willingness to take risk for their child. There is no difference for boys and girls.

Figure 9: Mechanism: Beliefs about choices

(a) Children's beliefs about parents' tournament choices for children
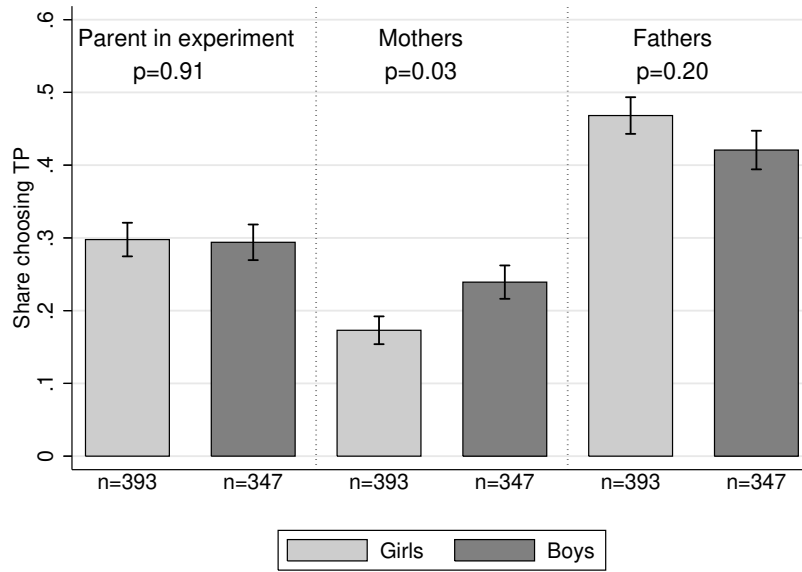
(b) Parents' beliefs about children's tournament choices
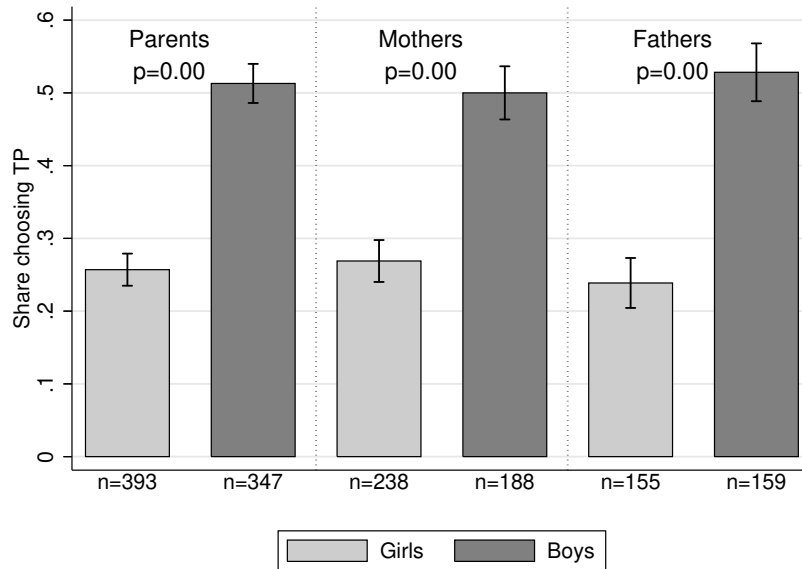
Note: The error bars indicate robust standard errors. Children's beliefs are not incentivized. For each child I elicited beliefs for both mothers and fathers. Parents' beliefs are incentivized.

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Tables

Table 1: Descriptive statistics

Panel A: Schools characteristics

	National average		Non-participating		Participating schools	
	Boys	Girls	Boys	Girls	Boys	Girls
Mathematics	3.5	3.7	3.5	3.8	3.6	3.7
Norwegian Bokmål	3.5	4.2	3.5	4.2	3.6	4.2
Norwegian Nynorsk	3.4	4.0	3.4	4.0	3.4	4.0
Norwegian oral	4.0	4.6	4.0	4.6	4.1	4.5
English written	3.7	4.2	4.0	3.8	3.9	4.2
English oral	4.1	4.4	4.1	4.5	4.2	4.5

Panel B: Participant characteristics

	Scale	Boys	Girls	p-value
Parent female	dummy	0.54	0.60	0.08
Parents live together	dummy	0.69	0.72	0.37
Parents are married	dummy	0.61	0.65	0.35
Parent age	years	46.36	46.95	0.14
Biological parent	dummy	0.95	0.95	0.91
Family speaks foreign language	dummy	0.15	0.14	0.65
Child has brothers	dummy	0.70	0.68	0.55
Child has sisters	dummy	0.74	0.67	0.06
Number of observations		347	393	

Note: Panel A shows average grades for 10th grade students for school year 2016/2017, split by child gender. Grades are given on a scale from 1 (lowest) to 6 (highest). Columns 1 and 2 shows schools which participated either in the pilot study or in the main sample. Columns 2 and 3, shows schools which were invited to participate, but did not participate. Column 5 and 6 shows the national average. Panel B: Column 1 shows characteristics of boys and parents of boys, column 2 shows characteristics of girls and parents of girls and column 3 shows the p-value on the difference between parents of boys and parents of girls using robust standard errors.

Table 2: Traditional mechanisms for tournament choices for children

Panel A: Children

Dependent variable:	Child chooses tournament pay					
	(1)	(2)	(3)	(4)	Boys	Girls
Female (child)	-0.151***	-0.173***	-0.123***	-0.088***		
	(0.032)	(0.032)	(0.033)	(0.032)		
Number of correct answers		0.033***	0.014	0.011	0.012	0.013
(child)		(0.008)	(0.009)	(0.009)	(0.013)	(0.011)
Belief probability of winning			0.047***	0.042***	0.042***	0.043***
(child)			(0.009)	(0.008)	(0.013)	(0.011)
Risk taking lottey choice				0.053***	0.091***	-0.005
(child)				(0.013)	(0.017)	(0.018)
Risk taking self-assessment				0.017**	0.011	0.024**
(child)				(0.007)	(0.011)	(0.010)
Observations	740	740	740	740	347	393
R-squared	0.030	0.052	0.089	0.128	0.153	0.077

Panel B: Parents

Dependent variable:	Parent chooses tournament pay for child					
	(1)	(2)	(3)	(4)	Boys	Girls
Female (child)	-0.076**	-0.089***	-0.101***	-0.105***		
	(0.034)	(0.032)	(0.033)	(0.032)		
Number of correct answers		0.079***	0.072***	0.058***	0.066***	0.048***
(child)		(0.009)	(0.009)	(0.009)	(0.013)	(0.014)
Belief probability of winning			0.021**	0.024***	0.035***	0.015
of child (parent)			(0.009)	(0.008)	(0.012)	(0.011)
Risk taking lottey choice for				0.038***	0.054**	0.030
child (parent)				(0.014)	(0.021)	(0.019)
Risk taking self-assessment				0.044***	0.022*	0.064***
for child (parent)				(0.008)	(0.011)	(0.010)
Observations	740	740	740	740	347	393
R-squared	0.007	0.102	0.109	0.167	0.180	0.165

Note: The regressions include a constant term which is not shown in tables. The p-values are constructed using robust standard errors.

Table 3: Children's choices and parents' preferences

Dependent variable:	Child chooses tournament pay					
	(1)	(2)	(3)	(4)	Boys	Girls
Female (child)	-0.088***	-0.086***	-0.081**	-0.082**		
	(0.032)	(0.033)	(0.032)	(0.032)		
Parent chooses tournament		0.051	0.002	-0.005	-0.002	0.005
for self		(0.032)	(0.035)	(0.035)	(0.051)	(0.047)
Parent chooses tournament			0.133***	0.118***	0.123**	0.100*
for child			(0.039)	(0.039)	(0.057)	(0.055)
Child believes mother will				0.115***	0.081	0.145**
choose tournament for child				(0.041)	(0.058)	(0.058)
Child believes father will				0.051*	0.060	0.042
choose tournament for child				(0.031)	(0.050)	(0.038)
Controls from Table 2A	Yes	Yes	Yes	Yes	Yes	Yes
Observations	740	740	740	740	347	393
R-squared	0.128	0.131	0.146	0.161	0.177	0.121

Note: All regression in the table includes controls from Table 2A column 4; child performance, child belief about probability of winning, child risk attitudes and a constant term. The p-values are constructed using robust standard errors.

Table 4: Parents' choices and children's preferences

Dependent variable:	Parent chooses tournament pay for child					
	(1)	(2)	(3)	(4)	Boys	Girls
Female (child)	-0.105**	-0.078**	-0.060*	0.011		
	(0.032)	(0.030)	(0.031)	(0.030)		
Parent chooses tournament for self		0.332***	0.327***	0.268***	0.183***	0.359***
		(0.034)	(0.034)	(0.034)	(0.048)	(0.047)
Child's tournament choice for self			0.109***	0.096***	0.095*	0.088*
			(0.038)	(0.036)	(0.050)	(0.050)
Parent belief about child's tournament choice				0.280***	0.282***	0.257***
				(0.036)	(0.048)	(0.052)
Controls from Table 2B	Yes	Yes	Yes	Yes	Yes	Yes
Observations	740	740	740	740	347	393
R-squared	0.167	0.278	0.288	0.359	0.320	0.425

Note: All regression in the table includes controls from Table 2B column 4; child performance, parent belief about probability of winning, parent risk attitudes and a constant term. The p-values are constructed using robust standard errors.

Table 5: Structural estimates of children's taste for competing

Model:	Loss aversion	Risk neutral	CRRA
	(1)	(2)	(3)
Girls' taste for competing in USD:	-5.94***	-7.23***	-9.98***
	(0.464)	(0.651)	(1.776)
Boys' taste for competing in USD:	-4.19***	-5.62***	-1.96***
	(0.518)	(0.753)	(0.527)
Observations	740	740	740
Log Likelihood	-378.868	-384.308	-377.825

Note: The table shows estimates of gender-specific taste for competition among children. The estimates comes from a probit model, where risk preferences, ability, and beliefs about probability of winning are calibrated based on experimental outcomes.