WHEN PARENTS DECIDE: GENDER DIFFERENCES IN COMPETITIVENESS

Jonas Tungodden*

August 16, 2019

Abstract

The gender difference in willingness to compete has been proposed as an explanation for the observed gender difference in education and labor market outcomes. This paper presents the first study of how parents make competitiveness choices for their children. In an experiment with 1480 parents and adolescent children, parents choose if their child will do a task for a competitive or non-competitive 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. The gender gap in parents' choices is smaller than that 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' choices are more responsive to the ability of boys than girls, which results in many high-ability girls not entering into competition. Fourth, parent gender matters: fathers are more likely than mothers to enter their child into competition. Finally, children are unaware of the gender difference in parents' choices and believe that parents will make the same choices for boys and girls. The set of findings sheds new light on the role of parents in determining children's long-term outcomes and on the intergenerational transmission of preferences.

*Department of Economics, UC Berkeley. Email: jonas.tungodden@gmail.com. A previous version of this paper circulated with the title "Preferences for Competition: Children Versus Parents". I thank my exceptional advisors Stefano DellaVigna, Ned Augenblick, Shachar Kariv, and Edward Miguel, for their advice and encouragement. I am also grateful for comments at various stages from Sule Alan, Ingvild Almås, Eric Avis, Björn Bartling, Tamas Batyi, Dan Benjamin, Kjetil Bjorvatn, Zarek Brot-Goldberg, Alexander W. Cappelen, Fred Finan, Judd Kessler, Nicholas Li, Ulrike Malmendier, Tom G. Meling, Don Moore, Muriel Niederle, Ingar Haaland, Johannes Hermle, Hans K. Hvide, Matthew Rabin, Gautam Rao, Henrik B. Reigstad, Al Roth, Chris Roth, Kjell G. Salvanes, Daniel Schunk, Øiving Schøyen, Avner Shlain, Erik Ø. Sørensen, Matthias Sutter, Dmitry Taubinsky, Bertil Tungodden, Lise Vesterlund, Chris Walters, and many others, including audiences at DIW Berlin, Humboldt University of Berlin, Ludwig Maximilian University of Munich, Max Planck Institute for Research on Collective Goods, Norwegian School of Economics (NHH), Pandora, Queens Mary University, SITE: Session in Experimental Economics, University of Bristol, University of California, Berkeley, and University of Melbourne. Benjamin Bjorvatn, Sigurd Berstad, Daniel Floknes, Oda Hemmer, Ada Hetland, Rune Ingebrethsen, Hanna I. Løyland, Fredrick T. Mortvedt, John Mukaya, Elin Nordheim, Nicholaas Ruan Jooste, Åsmund Røyset, Maria Seidel, Runa E. Solberg, Oda Tungodden, Thea Marie Øybø, and in particular, Julie Burn Bjørkheim, provided excellent research assistance. I am thankful for the financial support from Norges Bank, the Russell Sage Foundation, Xlab at UC Berkeley, and the Research Council of Norway through its Center of Excellence Scheme, FAIR project No. 262675 and grant 262636. The study was approved by UC Berkeley IRB and Norwegian Center for Research Data.

I INTRODUCTION

Women are significantly less willing than men to compete (see Kagel and Roth (2016) for a review). This robust finding has been proposed as an explanation for the observed gender difference in education and labor market outcomes (Buser et al. (2014), Almås et al. (2015), Flory et al. (2015)). However, when young adolescents make education and labor market choices, parents also play an important role. As such, it becomes important to understand parents' preferences for having their children compete; do parents also have a gender bias, and prefer boys to compete more than girls? Or do parents perhaps work as a counteracting force, and prefer girls to compete more than boys?

In this paper I aim to understand how parents make competitiveness choices for their children, parents' motivations for making such choices, and how parents' choices relate to children's own choices. To the best of my knowledge, this is the first paper studying how parents make competitiveness choices for their children. To provide evidence on these questions, I cooperated with 15 high schools in Norway to recruit a nationally representative sample of Norwegian adolescent children (10th grade). I then randomly selected either the mother or the father to be invited to participate in the study. In all, more than 80 percent of invited children and parents participated, and I collected data on more than 1600 parents and children.

Children participate in an experiment at their school (the child experiment), while parents take part in an online experiment (the parent experiment). Parents make a real choice for their child: whether they will do a task for a competitive or non-competitive pay scheme. I also observe the child's own choice between the two pay schemes. The experimental design builds on Niederle and Vesterlund (2007), which has been used in numerous papers to study gender differences in competitiveness. The main innovation of this paper is to have parents make a competitiveness choice for their child.

I replicate the finding in the literature that boys are more likely than girls to enter compe-

tition: 34 percent of boys and 19 percent of girls choose to compete. The gender difference is also substantial and significant when controlling for children's performance on the task, belief about the probability of winning the tournament, and risk preferences.[1]

Turning to parents' choices for their children, the paper establishes a number of novel facts. First, parents choose more competition for boys than for girls. The gender gap in parents' choices is smaller than that in children's choices: 8 versus 15 percentage points. The results are robust to controlling for school fixed effects, classroom fixed effects, and a number of demographic control. To investigate explanations for the gender gap, I examine mechanisms studied in previous research: ability, beliefs about winning the competition, 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 — performance of the child, parents' beliefs about the child's probability of winning the competition, and parents' willingness to take risk for the child — do *not* explain any of the gender gap in parents' choices.

Second, I show that there are two main mechanisms that explain why parents choose differently for boys and girls. Parents believe that boys are more willing to compete than girls, and these beliefs about their children's preferences are an important determinant of their choices. In fact, because parents overestimate the willingness of boys to enter into competition, this mechanism pulls in the direction of an even larger gender gap when parents make choices for children compared with when children make choices for themselves. A counteracting force, however, is that a significant proportion of parents act paternalistically and make a different choice than they believe their child would make. Parents who act paternalistically are 30 percent more likely to enter a daughter than a son into the tournament, 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

[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". In Appendix C, I present the prespecified analysis.

corresponds to differences in ability. For children, I cannot reject that boys' and girls' competitiveness is equally responsive to ability. On the other hand, parents are more responsive to ability for boys than for girls in the competition choice. As a consequence, many high-ability girls do not enter into competition. Given that high-ability children potentially have the highest return to competing, this finding may have important welfare consequences.

Fourth, I provide evidence on the role of parent gender. Fathers are more likely than mothers to enter their child into competition, 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 than mothers to compete (51 percent versus 32 percent).

Finally, the gender gap in parents' choices is not internalized by the children. Children incorrectly believe that their 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 several literatures. A large literature has documented a gender difference in the willingness to compete among adolescents that may be important for explaining the observed gender differences in education and labor market outcomes (Gneezy et al. (2003), Niederle and Vesterlund (2007), Buser et al. (2014), Sutter and Glätzle-Rützler (2015), Almås et al. (2015), Buser et al. (2017b)). This paper documents a gender difference in parents' competitiveness choices for their children. This finding highlights the crucial role that 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. Previous studies have explored the role of societal influences (Gneezy et al. (2009), Booth and Nolen (2012), Shurchkov (2012), Andersen et

al. (2013), Buser et al. (2017a)), as well as biological differences (Hoffman and Gneezy (2010), Apicella et al. (2011), Buser (2012), Wozniak et al. (2014), Sutter and Glätzle-Rützler (2015)). When it comes to the role of parents, Khadjavi and Nicklisch (2018) study the correlation between parents' ambitions and children's willingness to compete, and Cassar et al. (2016) studies willingness to compete when the payoff from competition is given to the child. This paper adds to this literature by studying how parents' competitiveness choices, and children's beliefs about parents' choices, predict gender differences in children's own choices. More broadly, the paper relates to the literature on intergenerational transmission of preferences. Previous studies have considered the transmission of preferences in the domains of dishonesty, time, social, risk, and trust (Dohmen et al. (2011a), Zumbuehl et al. (2013), Houser et al. (2016), Brenøe and Epper (2019), Chowdhury et al. (2019)). This paper studies the intergenerational transmission of competitiveness from parents to children.

Finally, the paper relates to the theoretical literature on parenting and parenting style (Becker and Tomes (1979), Bisin and Verdier (2001), Doepke and Zilibotti (2017). This study provides data on the relationship between parents' choices for their children and parents' beliefs about children's preferences. These data allow for an empirical analysis of motivations for parents' choices for their children. To the best of my knowledge, this is the first paper to document parents' willingness to act paternalistically for their children. This finding also relates to recent work studying paternalistic behavior in the lab (but not for parents and children) (Ambuehl et al. (2019)).

Taken together, this study provides novel insights into how parents make competitiveness choices for their children, which may shed light on both the role of parents in shaping long-term outcomes for children and the intergenerational transmission of preferences. The remainder of the paper is organized as follows. Section 2 describes the study design. Sections 3 and 4 present data on children's and parents' competitiveness choices, respectively. Section 5 discusses parents' beliefs about children and paternalistic behavior among parents. Section 6 presents data on children's beliefs about parents' choices for them. Section 7 concludes.

II STUDY DESIGN

II.I 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 (Birkelund and Sandnes (2003), Almås et al. (2015)). Hordaland is the third-largest county in the country, and includes the second-largest city and sparsely populated rural areas. Furthermore, it is close to the national average in terms of distribution of income, education, and occupation.

To recruit subjects, I contacted all junior high schools within 2 hours' driving distance from Bergen for permission to run a 1-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 decisions was cited as the motivation for the study.

Altogether, 17 of 38 schools granted permission to run the experiment, of which, two participated in the pilot study. Figure I shows the locations of the participating and non-participating schools. There appeared to be no systematic differences in the geographical distribution of participating and non-participating schools. Table Ia compares average grades between participating schools, non-participating schools, and the national average. The three groups are strikingly similar, suggesting that the participating schools are largely representative of the country.

For each school, three 10th-grade classes were invited to take part in the experiment.[3] The

[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. For schools with fewer than three 10th-grade classes, all classes participated.

participation rate for children was 81 percent, with 921 students taking part in the experiment. For each participating student, I randomly invited either the mother or the father to participate in an online experiment.[4] I informed parents that their choice to take part would not influence whether their child could attend. In total, 776 parents participated (82 percent of the invited parents). Figure IIa illustrates the recruitment process.

II.II Sample description

Table Ib provides descriptive statistics for the 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.

On average, the parents were 46 years old, 63 percent were married, 71 percent lived together with the child, 95 percent were biologically related to the child, and 15 percent spoke a foreign language at home. The parents of boys and girls did not differ significantly along any of these dimensions.

More mothers than fathers participated in the study; 57 percent of parents in the main sample were 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 participate in 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 for boys; 54 percent of parents for boys were mothers, and 60 percent of parents for girls were mothers ($p = 0.08$).

[4] If the selected parent could not participate, I invited the other parent. In total, 18 percent of parents who took the experiment were not originally selected to participate.

[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 because of unforeseen circumstances (e.g., sickness), and 12 parent and child observations where both participated, but either the parent or the child did not complete the entire experiment.

The children were in 10th grade, age 15 years, 54 percent were female, and boys and girls were equally likely to have a brother, but boys were more likely to have a sister ($p = 0.06$).

II.III Experimental design

Implementation. Experiments were run in March and April of 2017. Because the parent was to make a real choice for the child, the parent experiment had to finish before the start of the child experiment. Furthermore, to avoid the parent and the child influencing each other's choices, I designed the experiments intending to minimize the possibilities of communication.

For each school, the parent and the child completed their experiment on the same day. At 08:00 — after the child had left for school — the parent received a text message with a link to the experiment. To reduce participation costs, the parent experiment was designed to be taken from a smartphone (using the software Qualtrics (2013)). The experiment took 5 minutes to complete and could be accessed at any time between 08:00 and 11:30. Figure IIb provides the timeline of the experiment.[6]

The child participated in the experiment at his or her school. The child experiment started after the midday lunch break and lasted between 30 and 45 minutes. The child experiment was computer-based (programmed in z-Tree (Fischbacher (2007))). Classes participated in the experiment sequentially, and I cooperated with teachers to avoid communication between the children who had participated and the children who were waiting to participate in the experiment. Because the experiment was run during school hours, it would be difficult for the parent and the child to share information about the experiment. Furthermore, the parent was instructed not to tell the child about their involvement in the experiment (until after the child had completed the experiment).

[6]In total, 14 percent of parents were unavailable on the day of the experiment. These parents received the text message at 20:00 the night before. Parents could also request to have the link sent by e-mail rather than by text message.

Children. The child received a show-up fee of 100 NOK ($12) and was told that he or she would do tasks in the experiment where they could earn additional money. The task was then described to the child — to add up sets of four two-digit numbers for 3 minutes — and the child was asked if he or she wanted to do the task for piece-rate pay or tournament pay. Piece-rate pay earned the child a fixed rate of 5 NOK per correct answer. Tournament pay earned the child 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 his or her own choice of payment scheme. In round two, the child did the task for his or her parent's choice of payment scheme. The child was *not* told that their parent had decided the pay scheme for round two. In round three, all children did the task for the same pay scheme, which provided a common measure of performance. In the third round, the payment for each correct answer was a ticket in a lottery where he or she could win an iPhone 7s.[7]

After completing the three rounds, I elicited beliefs about the 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 description was identical to that provided to the child. The parent was then asked to choose between piece-rate pay and tournament pay for the child. The parent was informed that the 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 to those in which the parent made the choice. The parent was asked about their belief about the child's choice.

[7]There were two reasons for doing the third round for lottery tickets rather than a monetary reward: 1) based on pilot studies, it appeared to simplify instructions; and 2) the possibility of winning an iPhone (in addition to the monetary rewards) was helpful when recruiting children to participate in the experiment.

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 or piece-rate pay for themselves, the parent's belief about the child's relative performance, and the parent's attitudes towards risk-taking for the child.

Figure III shows screenshots from the experiment. Complete instructions for the parent and child are found in Appendix D. Table II provides a summary of the key experimental outcomes.

III CHILDREN'S CHOICES

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

Children's competitiveness choices. I find a significant gender difference in competitiveness: 34 percent of boys chose to compete, compared with 19 percent of girls ($p < 0.01$). In Figure IV, I compare the finding to previous results in 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 school students using the math task. This partial meta-analysis highlights the robustness of the gender difference in competitiveness; in all the studies, boys chose 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.

In Figure BIa, I show the gender difference in children's competitiveness choices across the 15 schools in the main sample. In 12 of the 15 schools, boys competed more than girls, and this difference is significant in six schools. In Table BI I show that the gender differences in children's choices is robust to including school fixed effects, and session (classroom) fixed

effects. I elicited two additional measures of children's willingness to compete. The first is about children's certainty in their competitiveness choice. After children make their choice between piece-rate and tournament pay, they are asked to indicate how certain they are that their choice was right for them. Figure BIIa shows the distribution of answers. On this measure, boys were significantly more competitive than girls ($p < 0.01$). Interestingly, boys were also more confident than girls that their choice was right for them ($p < 0.02$). The second measure is a qualitative measure of children's willingness to compete (taken from Buser (2016)): "How willing do you think you are to compete? Answer on a scale from 0 to 10, where 0 means not willing to compete, and 10 means very willing to compete". Boys were significantly more competitive than girls, with the mean answer being 5.82 for boys and 5.37 for girls ($p < 0.02$). The answer on this question was positively correlated with children's decision to enter the tournament (0.18, $p < 0.01$).

In Figure BIIIa and Figure BIVa in Appendix A, I show a heterogeneity analysis of children's choices by gender of children's siblings, whether a foreign language is spoken at home, and whether parents live together.

Mechanisms. Why do boys compete more than girls? The literature has focused on four main explanations: gender differences in i) ability, ii) beliefs about the probability of winning the tournament, iii) risk preferences, and iv) taste for competing (Niederle and Vesterlund (2007), Yariv et al. (2018), van Veldhuizen (2018)). In Table IIIA, I study the role of these mechanisms in a 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 outperformed 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 was 5.14 for girls and 4.50 for boys ($p < 0.01$). 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.

In column 3, I add a control for the child's belief about their probability of winning the tournament. Despite having lower performance, boys were significantly more confident than girls. The mean belief for boys was 0.6, compared with 0.53 for girls. These beliefs are positively correlated with children's choices, and including this control reduces the coefficient on the girl dummy to -0.123, and the coefficient for the number of correct answers is no longer significant. Compared with a simulated probability of winning the tournament, girls were overconfident by 5 percent, and boys by 22 percent.[8] Figure BV shows the distribution of performance, the simulated probability of winning the tournament, and beliefs about the probability of winning by child gender.

In column 4, I add two measures for children's willingness to take risk. The first is a hypothetical choice between five lotteries with different levels of risk and expected payoff (taken from Eckel and Grossman (2002)). The second is a self-assessment of the willingness to take risk (taken from Dohmen et al. (2011b)). Figure BVI shows the distribution of answers by gender. Boys chose riskier lotteries and had a higher self-assessment of their willingness to take risks ($p < 0.01$). The two measures of risk aversion were positively correlated (0.32, $p < 0.01$), and both measures of risk taking were positively correlated with tournament entry. Adding the controls for risk-taking changes the coefficient on the girl dummy from -0.123 to -0.088 (different from zero, $p < 0.04$).

Columns 5 and 6 show the regression from column 4 run separately for boys and girls. For both boys and girls, the number of correct answers is not significantly correlated with

[8]To obtain a measure of the probability of winning, I drew 1000 randomly selected opponents for each child with replacement and calculated the mean winning probability. As expected, this measure is almost perfectly correlated with performance (0.98). The mean probability of winning the tournament was 0.48 for girls and 0.38 for boys. (Note that the chance of winning was less than 0.5 on average because the child lost the tournament if he or she had the same number of correct answers as the opponent.) The fact that boys were more overconfident than girls seems to suggest that girls were better informed than boys. However, on the other hand, boys' beliefs about their chance of winning the tournament had a higher correlation with their simulated probability of winning (0.49 versus 0.33). This gender difference is robust to removing the large proportion of children who believed their chance of winning the tournament was 50 percent.

tournament entry, while the beliefs about the probability of winning are positively correlated with tournament entry. The risk-taking lottery measure is more predictive for boys' choices, while the risk-taking self-assessment measure is more predictive for girls' choices.

In sum, I find that gender differences in ability, beliefs about the probability of winning, and risk preferences account for 42 percent of gender differences in children's competitiveness choices. The remaining 58 percent of variation could potentially be attributed to gender differences in taste for competition. Similarly, Niederle and Vesterlund (2007) find that 57 percent of the variation can be explained by comparable control variables.

IV PARENTS' CHOICES

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

Parents' competitiveness choices for children. Figure V shows parents' choices for their children. On average, parents chose more competition for their children than children chose for themselves (31 percent versus 26 percent, $p < 0.03$). Parents were more likely to choose competition for boys than for girls (35 percent versus 27 percent, $p < 0.03$). The difference in parents' choices for girls and boys was 8 percentage points smaller than the gender differences in children's own choices ($p < 0.07$).[9] For boys, parents on average chose the same amount of competition as boys chose for themselves. For girls, parents increased the proportion of girls who competed by 9 percentage points compared with the choices of girls themselves. On an individual level, a positive correlation was observed for between parents' choice for their children's own choices (0.21, $p < 0.01$). This correlation was not significantly different for boys and girls (0.18 versus 0.22, $p < 0.55$). Table BIII provides an

[9]This p-value is constructed from standard errors clustered at the child-parent pair.

overview of the correlation between choices, beliefs, and attitudes of parents and children.

How do mothers' and fathers' choices differ? For both girls and boys, fathers were more likely than mothers to enter children into competition ($p < 0.01$). The difference was 10 percentage points for girls and 6 percentage points for boys. The gender difference in mothers' choices was qualitatively larger than that in fathers' choices, but the difference was not statistically different ($p = 0.57$). Both mothers' and fathers' choices correlated positively with their boys' and girls' own choices.

In FigureBIb, I show parents' choices by school. In 11 of 15 schools, parents chose more competition for boys than for girls, and this difference is significant in two schools. In Table BII I show that the difference in parents' choices for boys and girls is robust to including school fixed effects, session (classroom) fixed effects, and a number of demographic controls. I also elicit an additional measure of parents' willingness to let their children compete; after parents chose piece-rate or tournament pay for their child, I asked them to indicate how certain they were in their choice. Figure BIIb shows the distribution of parents' certainty in their choice. On this measure, parents appeared to be more competitive on behalf of boys ($p < 0.01$).

In Figure BIIIb and Figure BIVb, I show a heterogeneity analysis of parents' choices by gender of children's siblings, whether a foreign language is spoken at home, and whether parents live together. In Table BIV, I show correlations in behavior within classes for both parents and children.

Mechanisms for choices. In Table IIIb, I study the underlying mechanisms for parents' choices for their children. I conduct a similar exercise to that I did when studying mechanisms for children's choices in Table IIIa. That is, I study the extent to which the difference in parents' choices for boys and girls can be explained by i) performance of children, ii) parents' belief about their child's probability of winning, and iii) parents' risk preferences over their child's outcomes.

Column 1 shows the regression of parents' choosing to entering their child into competition on a dummy for whether the child is a girl. In column 2, I add a control for the number of correct answers of the child. Children's performance correlates positively with parents entering their child into the tournament, and adding this control changes the coefficient on the girl dummy from -0.076 to -0.089.

In column 3, I control for parents' beliefs about their child's probability of winning. I elicit parents' beliefs in the same way that I elicited children's beliefs about their own probability of winning. Figure BVd shows parents' beliefs about their children. Parents were more confident in their child's probability of winning than children themselves ($p < 0.01$). Notably, less than 2.5 percent of parents believed that their child had a less than a 50 percent chance of winning. Parents of girls were more optimistic than parents of boys, but this difference is not significant ($p < 0.24$).[10] Parents' beliefs positively correlates with entering the child into the tournament, and the coefficient on the gender of the child dummy increased from -0.089 to -0.101.

In column 4, I add two controls for parents' risk preferences over child outcomes. These measures closely mirrored the two risk preference measures that were elicited from children. In the first measure, the parent chooses a hypothetical lottery for the child. In the second measure, the parent gives a self-assessment of their willingness to choose risk for the child on a 10-point scale. Figure BVI shows parents' risk-taking for children next to children's risk-taking for self. Among children, boys were more willing than girls to take risks. By contrast, the mean difference in parents' risk choice for boys and girls was estimated as a precise zero on both measures. On average, parents' risk choice was between that of boys

[10]Parents' beliefs are predictive of their children's chance of winning: for boys, the correlation between parents' beliefs and the child's probability of winning is 0.35, and for girls, it is 0.27. Parents' beliefs also correlate with the beliefs of their children; the correlation is 0.29 for girls' beliefs and 0.47 for boys' beliefs ($p < 0.01$). The low share of parents who reported that their child had less than a 50 percent chance of winning may suggest that parents of low performing children are particularly misinformed about their child's ability. For the bottom 25th 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 remaining 75 percent, the correlation is 0.22. An alternative explanation to parents being misinformed is that parents, even in an anonymous survey, do not like to state that their child is low performing.

and girls, with parents being more willing to choose risk than girls, but less willing to choose risk than boys. Both measures of risk choice correlated positively with entering the child into the tournament. However, controlling for these variables did not change the estimated coefficient on the girl dummy.

In all, for parents' choices for their children, controlling for child's performance, parents' beliefs about the probability of their child winning the tournament, and parents' risk choice for their child, does not explain any of the gender difference in parents' choices. By contrast, controlling for parallel controls explains 42 percent of the gender difference in children's own choices. Without controls, the gender difference in children's choices is almost twice that in parents' choices. However, controlling for these variables, the gender difference is, if anything, larger in parents' choices (8.88 percent versus 10.5 percent).

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 were more positively correlated with entering boys into the tournament compared with girls. This finding is potentially important. A particular concern in the literature on gender differences in competitiveness is the shortage of high-ability females entering into competition (Buser et al. (2017c)). In Figure VI, I show the choices of children and parents conditional on how many correct answers the child achieved in round three. In children's choices, there is a positive relationship between performance and competing for both boys and girls, and I cannot reject that the relationship is the same. For parents, the relationship is significantly stronger for boys ($p < 0.05$).[11]

An implication of the shortage of high-ability girls competing is related to expected earnings from the experiment. To estimate expected earnings, I used performance in round three and drew 1,000 tournament competitors with replacements. On average, too few children chose to compete relative to what would maximize their expected earnings: 49 percent of boys and 62 percent of girls had higher expected payoffs under tournament than piece-rate pay, while

[11]This p-value is from a regression in which 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.

only 34 percent of boys and 19 percent of girls chose tournament pay. If children choose optimally (in terms of expected earnings), boys could increase their profits by 33 percent, and girls by 52 percent (significance on difference, $p < 0.01$).

I next consider the earnings from parents' competitiveness choices for their children. For boys, there is no difference in average earnings when parents made choices. But for girls? Given that too few entered the tournament, and parents entered about 50 percent more girls into the tournament, we might expect parents to increase profits for girls. However, parents' choices did not have higher expected payoffs for girls than girls' own choices. An explanation for this is that while parents increase the number of girls competing, they do not increase the proportion of girls who would benefit the most from competing — the high-ability girls.

V PATERNALISM

In this section, I present data on parents' beliefs about their children's choices and explore the extent to which these beliefs can explain the difference in parents' choices for boys and girls. This allows me to study whether parents are paternalistic in their competitiveness choices.

Parents' beliefs about children's choices. I asked parents to make a binary statement: do they believe their child will choose piece-rate or tournament pay. Figure VIIa shows the parents' beliefs. Parents' believed that boys will choose more competition than girls (51 percent versus 25 percent, $p < 0.01$). Comparing parents' beliefs to children's choices, parents overstated the willingness of children to compete ($p < 0.01$). The difference between beliefs and choices is 8 percentage points for girls and 19 percentage points for boys. Parents also overestimated the gender difference in tournament entry choices by about 10 percentage points ($p < 0.02$). As an additional measure, I asked parents to indicate the degree of certainty that their belief was correct. Figure BVIIa shows the distribution of certainty

in parents' beliefs. Also on this measure, parents overstated both the likelihood that their children would compete and the gender difference in choices.

Parents' beliefs and parents' choices. To what extent are parents' beliefs important for the choices they make for their children? Choosing what maximizes their children's utility may be an important motivation for parents when making choices for their children; hence, we may expect parents' choices to be strongly correlated with their beliefs. On the other hand, parents may also be motivated to act paternalistically and choose differently from what they believe their child prefers. Overall, 74 percent of parents followed their belief about what they think their child would prefer, while 26 percent chose the opposite to what they believe their child would prefer. The relatively large proportion of parents who were willing to go against their belief about what they think their child wants shows that paternalistic motivation is prevalent among parents.

Parents who chose differently than they believed their children would prefer were 30 percent more likely to enter a daughter into the tournament than a son ($p < 0.00$). Conversely, parents who chose in line with what they believed was their child's preference were 20 percent more likely to enter boys into the tournament. Figure VIIb shows parents' choices conditional on their beliefs about children's choices. There is no difference in parents' choices for boys and girls, conditional on parents' beliefs about what girls and boys would choose. Figure BVIIb shows parents' choices conditional on their *certainty* in their beliefs; using this measure, there is no difference in choices when conditioning on beliefs.

Can differences in beliefs about children's choices explain why mothers make less competitive choices than fathers? Figure BVIIIa shows parents' beliefs split by parent gender. No difference in the beliefs of mothers and fathers was observed. Figure BVIIIb shows choices conditional on beliefs; fathers made more competitive choices than mothers when conditioning on beliefs.

What motivates parents to choose differently to what they believe their child wants? One explanation for this may be that parents' themselves have different preferences for competing than what they believe their children have. To explore the role of parents' own preferences for competing, I asked parents what they would choose for themselves between piece-rate and tournament pay if they were in the experiment. Figure VIIIa shows parents' own competitiveness choices. Overall, 40 percent of parents chose the tournament, which is significantly larger than the share of parents choosing the tournament for their child (30 percent) and the share of children choosing the tournament for themselves (25 percent).[12] There was a large difference in the choices of mothers and fathers: 51 percent of fathers and 32 percent of mothers chose the tournament, which is a gender difference of 18 percentage points.

Figure VIIIb shows parents' choices for their children conditional on their own preferences. Parents' stated competitiveness choices for themselves correlates positively with the choice that they make for their child. The correlation is stronger for girls (0.53) than for boys (0.30). Furthermore, parents who believed their child would make different competitiveness choices than themselves were much more likely to act paternalistically. That is, either 1), the parent would choose to compete and believes the child would choose not to compete, or 2), the parent would choose not to compete and believes the child would choose to compete. These parents were 25 percentage points more likely than the parents who shared the competitiveness preferences of the child to act paternalistically for boys and 45 percentage points more likely to act paternalistically for girls.

In Table IV, 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 a regression framework. In column 1, I show — for comparison — parents' choice of pay scheme on a

[12]Parents of girls were 7 percentage points less likely than parents of boys to choose the tournament ($p < 0.07$). One interpretation of this finding is that raising a daughter causes parents to become less competitive compared with raising a son. This is consistent with recent research documenting an impact of child gender on parent behavior (Cronqvist and Yu (2017), Wang et al. (2019)).

girl dummy and controls for the child's ability, parents' beliefs 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 IIIB).

In column 2, I add a control for parents' own preferences for tournament entry. Parents' own preferences are highly predictive for their choice for their child. The inclusion of this variable reduces 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 predict parents' choices. Controlling for this variable further lowers the coefficient on the gender dummy to -0.060. In column 4, I add controls for parents' binary beliefs about their child's choice. Parents' beliefs about their child's preferences strongly predict parents' choices, and when adding this control variable, no gender differences in parents' choices for girls and boys is observed.

In sum, this analysis suggests that an important reason for parents to make different choices for boys and girls is that they believe that boys and girls have very different preferences for competing.

VI CHILDREN'S BELIEFS

Having collected data on both children and parents, I 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 competition less often than boys because they internalize the competitiveness preference of their parents.

I ask children to guess what their parents, both mothers and fathers, would choose for them between piece-rate and tournament pay. The belief elicitation was not incentivized. Figure IXa shows children's beliefs by child gender. For the parents who participated in the experiment, both girls and boys believed that 29 percent of the parents would enter them

into the tournament. By contrast, parents entered 27 percent of girls and 35 percent of boys. Children thus underestimated the difference in parents' choices for girls and parents' choices for boys ($p < 0.09$).[13]

Figure IXb shows children's beliefs separate for mothers and fathers. Both boys and girls believed that fathers were more likely than mothers to choose the tournament for them. The direction of this belief is correct, but they overstated the magnitude. Girls believed fathers were 30 percentage points more likely than mothers to enter them into the tournament, while boys believed the difference was 18 percentage points. Children vastly overstated the difference between the choices made by mothers and fathers. In the experiment, fathers were 11 percentage points more likely than mothers to enter girls into the tournament, and for boys, the difference was 6 percentage points. Children's beliefs correlate positively with choices of both mothers (0.12) and fathers (0.12), with girls' beliefs being more strongly correlated than boys' beliefs (0.24 versus 0.12, $p = 0.09$).

In Table V, 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 beliefs about his or her probability of winning the tournament, and child risk preferences (which is equivalent to column 4 in Table IIIA). In column 2, I add a control for parents' own preferences for tournament entry. Qualitatively, parents' own competitiveness preferences are positively correlated with children's choices, but this relationship is not significant.[14] Furthermore, the coefficient on the gender dummy is unchanged when adding the control for parents' own preferences.

In column 3, I control for parents' choice for their child. Parents' choice for their child strongly predict the child's own choice. In column 4, I control for children's beliefs about their parents' choices. Children's beliefs about their mothers' and their fathers' preferences are significantly correlated with children's choices.

[13]The p-value is from a test using standard errors clustered at the parent–child pair.

[14]I note that the raw correlation between children's and parents' preferences is positive (0.1, $p < 0.01$). The correlation is not statistically different for girls, boys, mothers, or fathers.

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

VII 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 (lit. review: Kagel and Roth (2016)). 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.

This paper provides answers to a number of important questions about how parents make choices for their children. Do parents make different choices for boys and girls in the domain of competition? I find that parents chose 27 percent more competition for boys than for girls, and this difference is larger for the highest performing children. Compared with children's own choices, the gender difference in parents' choices is 50 percent smaller. Why do parents choose differently for boys and girls in the domain of competition? 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. Are parents willing to act paternalistically? Yes, a large proportion of parents chose the opposite of what they believed their child preferred, suggesting that paternalistic motivation is important for parents.

The paper also provides some insight on the question of whether parents cause the gender difference in competitiveness among children. Two findings in the data indicate that parents may not be a primary force for generating the observed gender difference. First, when

parents act paternalistically, they are more likely to enter girls into and take boys out of the tournament. Thus, it appears that parents themselves do not have preferences for having boys compete and having girls not compete. Second, if parents were an important force for generating the observed gender difference, it seems reasonable that this would be known to children. In contrast, I find that children themselves do not believe that parents will make different choices for boys and girls. However, clearly more research is needed to further understand parents' role in influencing their children's preferences. For example, building on the experimental design in this paper, one may test how children's own choices would be influenced by observing parents' choices for children.

Moreover, the experimental paradigm introduced in this experiment may apply to the study of a wide range of questions in the domain of parent–child interaction, where experimental data are generally scarce. How would parents make choices in the domain of social preferences for their children? Would parents make time-inconsistent choices for their children? Are parents generally aware of the biases in their children, and if so, are parents willing to intervene when they believe they are making an error? Parents are influential for children's long-term outcomes, and thus, it is of great importance that we gain a better understanding of how parents make choices for their children.

References

Almås, Ingvild, Alexander W Cappelen, Kjell G Salvanes, Erik Ø Sørensen, and Bertil Tungodden, "Willingness to compete: Family matters," *Management Science*, 2015.

Ambuehl, Sandro, Douglas B. Bernheim, and Axel Ockenfels, "Projective Paternalism," 2019.

Andersen, Steffen, Seda Ertac, Uri Gneezy, John A List, and Sandra Maximiano, "Gender, competitiveness, and socialization at a young age: Evidence from a matrilineal and a patriarchal society," *Review of Economics and Statistics*, 2013, *95* (4), 1438–1443.

Apicella, Coren L, Anna Dreber, Peter B Gray, Moshe Hoffman, Anthony C Little, and Benjamin C Campbell, "Androgens and competitiveness in men.," *Journal of Neuroscience, Psychology, and Economics*, 2011, *4* (1), 54.

Araujo, Felipe A, Erin Carbone, Lynn Conell-Price, Marli W Dunietz, Ania Jaroszewicz, Rachel Landsman, Diego Lamé, Lise Vesterlund, Stephanie W Wang, and Alistair J Wilson, "The slider task: an example of restricted inference on incentive effects," *Journal of the Economic Science Association*, 2016, *2* (1), 1–12.

Becker, Gary S and Nigel Tomes, "An equilibrium theory of the distribution of income and intergenerational mobility," *Journal of Political Economy*, 1979, *87* (6), 1153–1189.

Birkelund, Gunn Elisabeth and Toril Sandnes, "Paradoxes of welfare states and equal opportunities: Gender and managerial power in Norway and the USA," *Comparative Social Research*, 2003, *21*, 203–242.

Bisin, Alberto and Thierry Verdier, "The economics of cultural transmission and the dynamics of preferences," *Journal of Economic theory*, 2001, *97* (2), 298–319.

Booth, Alison and Patrick Nolen, "Choosing to compete: How different are girls and boys?," *Journal of Economic Behavior & Organization*, 2012, *81* (2), 542–555.

Brenøe, Anne Ardila and Thomas Epper, "Parenting Values Moderate the Intergenerational Transmission of Time Preferences," 2019.

Buser, Thomas, "The impact of the menstrual cycle and hormonal contraceptives on competitiveness," *Journal of Economic Behavior & Organization*, 2012, *83* (1), 1–10.

_ , "The impact of losing in a competition on the willingness to seek further challenges," *Management Science*, 2016, *62* (12), 3439–3449.

_ **, Eva Ranehill, and Roel van Veldhuizen**, "Gender differences in willingness to compete: The role of public observability," 2017.

_ **, Muriel Niederle, and Hessel Oosterbeek**, "Gender, Competitiveness, and Career Choices," *Quarterly Journal of Economics*, 2014, *129* (3).

_ **, Noemi Peter, and Stefan C Wolter**, "Gender, competitiveness, and study choices in high school: Evidence from Switzerland," *American Economic Review*, 2017, *107* (5), 125–30.

_ **,** _ **, and** _ , "Gender, willingness to compete and career choices along the whole ability distribution," 2017.

Cassar, Alessandra, Feven Wordofa, and Y Jane Zhang, "Competing for the benefit of offspring eliminates the gender gap in competitiveness," *Proceedings of the National Academy of Sciences*, 2016, *113* (19), 5201–5205.

Chowdhury, Shyamal, Matthias Sutter, and Klaus Zimmermann, "Economic preferences across generations: Identifying family clusters from a large-scale experiment," 2019.

Cronqvist, Henrik and Frank Yu, "Shaped by their daughters: Executives, female socialization, and corporate social responsibility," *Journal of Financial Economics*, 2017, *126* (3), 543–562.

DellaVigna, Stefano, John A List, Ulrike Malmendier, and Gautam Rao, "Estimating social preferences and gift exchange at work," Technical Report, National Bureau of Economic Research 2016.

Doepke, Matthias and Fabrizio Zilibotti, "Parenting with style: Altruism and paternalism in intergenerational preference transmission," *Econometrica*, 2017, *85* (5), 1331–1371.

Dohmen, Thomas, Armin Falk, David Huffman, and Uwe Sunde, "The intergenerational transmission of risk and trust attitudes," *The Review of Economic Studies*, 2011, p. rdr027.

_ , _ , _ , _ , Jürgen Schupp, and Gert G Wagner, "Individual risk attitudes: Measurement, determinants, and behavioral consequences," *Journal of the European Economic Association*, 2011, *9* (3), 522–550.

Eckel, Catherine C and Philip J Grossman, "Sex differences and statistical stereotyping in attitudes toward financial risk," *Evolution and Human Behavior*, 2002, *23* (4), 281–295.

Fischbacher, Urs, "z-Tree: Zurich toolbox for ready-made economic experiments," *Experimental Economics*, 2007, *10* (2), 171–178.

Flory, Jeffrey A, Andreas Leibbrandt, and John A List, "Do competitive work places deter female workers? A large-scale natural field experiment on gender differences in job-entry decisions," *The Review of Economic Studies*, 2015, *82* (1), 122–155.

Gneezy, Uri, Kenneth L Leonard, and John A List, "Gender differences in competition: Evidence from a matrilineal and a patriarchal society," *Econometrica*, 2009, *77* (5), 1637–1664.

_ , **Muriel Niederle, and Aldo Rustichini**, "Performance in competitive environments: Gender differences," *The Quarterly Journal of Economics*, 2003, *118* (3), 1049–1074.

Hoffman, Moshe and Uri Gneezy, "Left Handed Women are More Competitive than Right Handed Men: On the Biological Basis of Gender Differences in Competitiveness," *Work. Pap., Univ. Calif., San Diego*, 2010.

Houser, Daniel, John A List, Marco Piovesan, Anya Samek, and Joachim Winter, "Dishonesty: From parents to children," *European Economic Review*, 2016, *82*, 242–254.

Ifcher, John and Homa Zarghamee, "Pricing competition: a new laboratory measure of gender differences in the willingness to compete," *Experimental Economics*, 2016, *19* (3), 642–662.

Kagel, John H and Alvin E Roth, *The Handbook of Experimental Economics*, Vol. 2, Princeton university press, 2016.

Khadjavi, Menusch and Andreas Nicklisch, "Parents ambitions and childrens competitiveness," *Journal of Economic Psychology*, 2018, *67*, 87–102.

Kőszegi, Botond and Matthew Rabin, "A model of reference-dependent preferences," *The Quarterly Journal of Economics*, 2006, *121* (4), 1133–1165.

Niederle, Muriel and Lise Vesterlund, "Do women shy away from competition? Do men compete too much?," *Quarterly Journal of Economics*, 2007, pp. 1067–1101.

Qualtrics, I, "Qualtrics. com," *Provo, UT, USA*, 2013.

Shurchkov, Olga, "Under pressure: gender differences in output quality and quantity under competition and time constraints," *Journal of the European Economic Association*, 2012, *10* (5), 1189–1213.

Sutter, Matthias and Daniela Glätzle-Rützler, "Gender differences in the willingness to compete emerge early in life and persist," *Management Science*, 2015, *61* (10), 2339–23354.

van Veldhuizen, Roel, "Gender differences in tournament choices: Risk preferences, overconfidence or competitiveness?," Technical Report, Discussion Paper 2018.

Wang, Xia, Cencen Gao, and Mingming Feng, "CEOs raising daughters and female executives," *Asia-Pacific Journal of Accounting & Economics*, 2019, pp. 1–19.

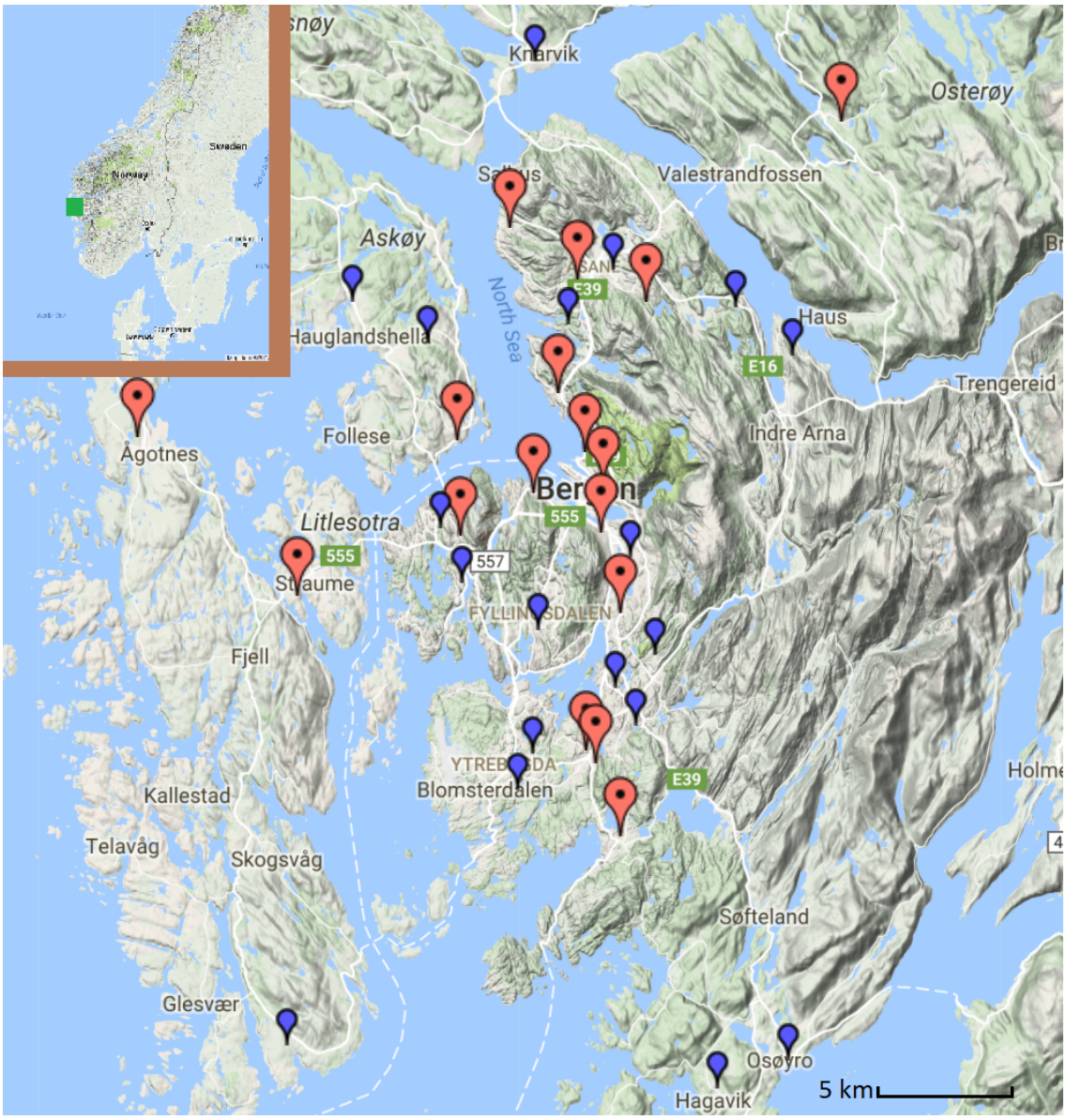
Wozniak, David, William T Harbaugh, and Ulrich Mayr, "The menstrual cycle and performance feedback alter gender differences in competitive choices," *Journal of Labor Economics*, 2014, *32* (1), 161–198.

Yariv, Leeat, Ben Gillen, and Erik Snowberg, "Experimenting with Measurement Error: Techniques with Applications to the Caltech Cohort Study," 2018.

Zumbuehl, Maria, Thomas J Dohmen, and Gerard A Pfann, "Parental investment and the intergenerational transmission of economic preferences and attitudes," 2013.

FIGURES

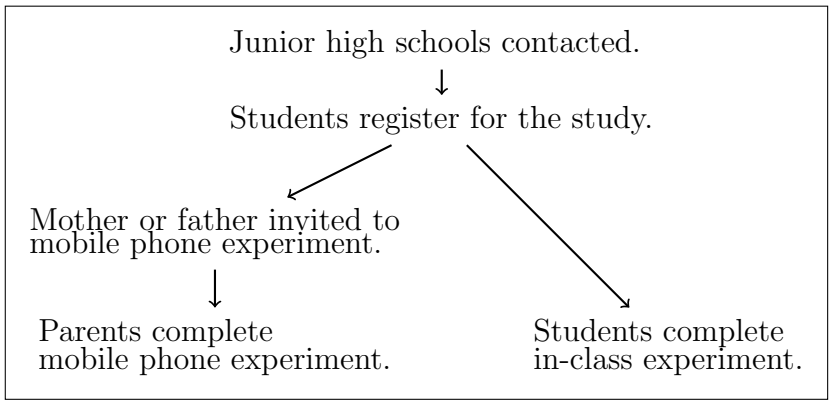
Figure I: Map of participating and non-participating schools



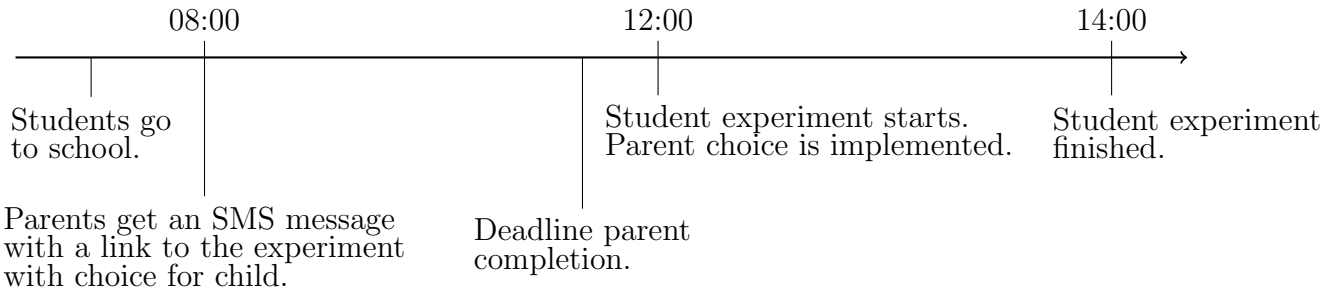
Note: All schools with at least 25 eligible students and within 2 hours' driving distance from Bergen, Norway were invited to participate in the study. Large red markers indicate the 17 participating schools (including two pilot schools). Small blue markers indicate the 19 non-participating schools. The green rectangle in the upper-right corner indicates the location of Bergen.

Figure II: Study design

(a) Recruitment of participants



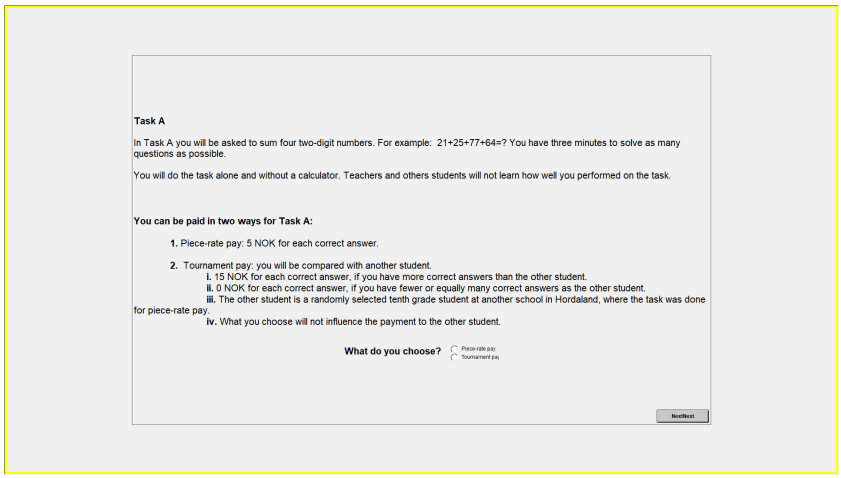
(b) Timeline of experiment



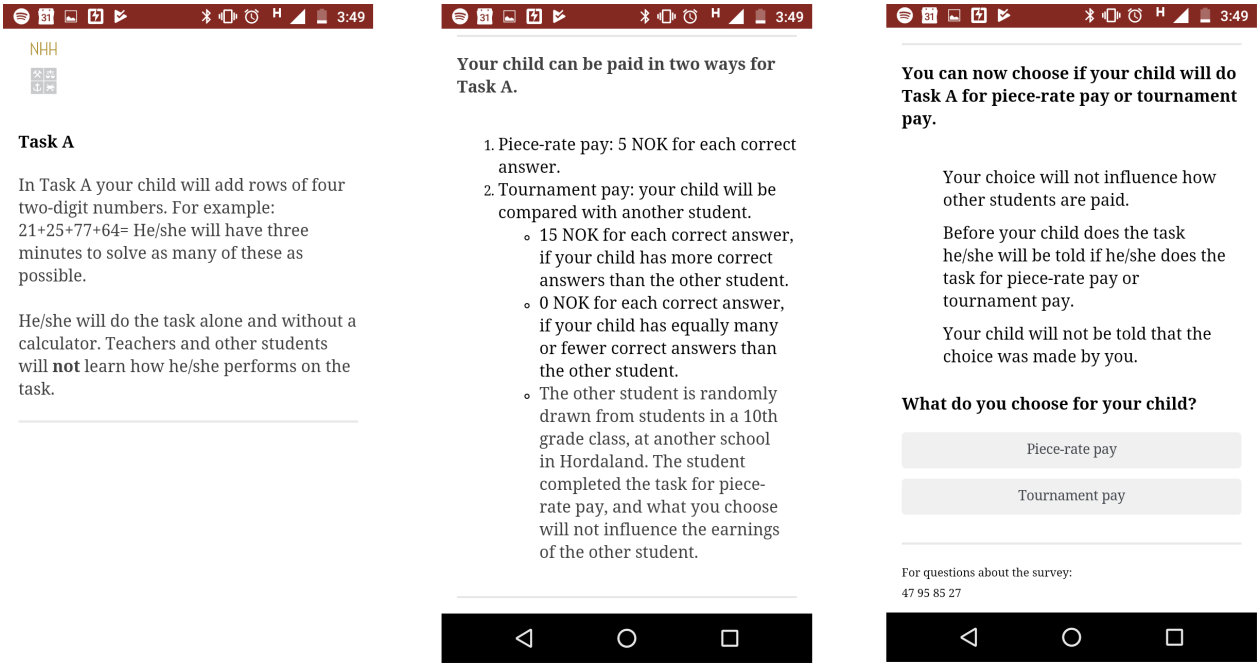
Note: Panel a) shows the recruitment process. In total, 910 children participated in the student experiment (81% participation rate), and 770 parents participated in the parent experiment (82% participation rate); thus, 740 parent–child pairs completed the experiment. Panel b) shows the implementation of the experiment, which occurred on different days for each participating school. The parent experiment started after children had left for school to mitigate opportunities for communication between parents and children. The child experiment started after the midday lunch break, typically at noon.

Figure III: Screenshots from experiments (English translations)

(a) Child experiment

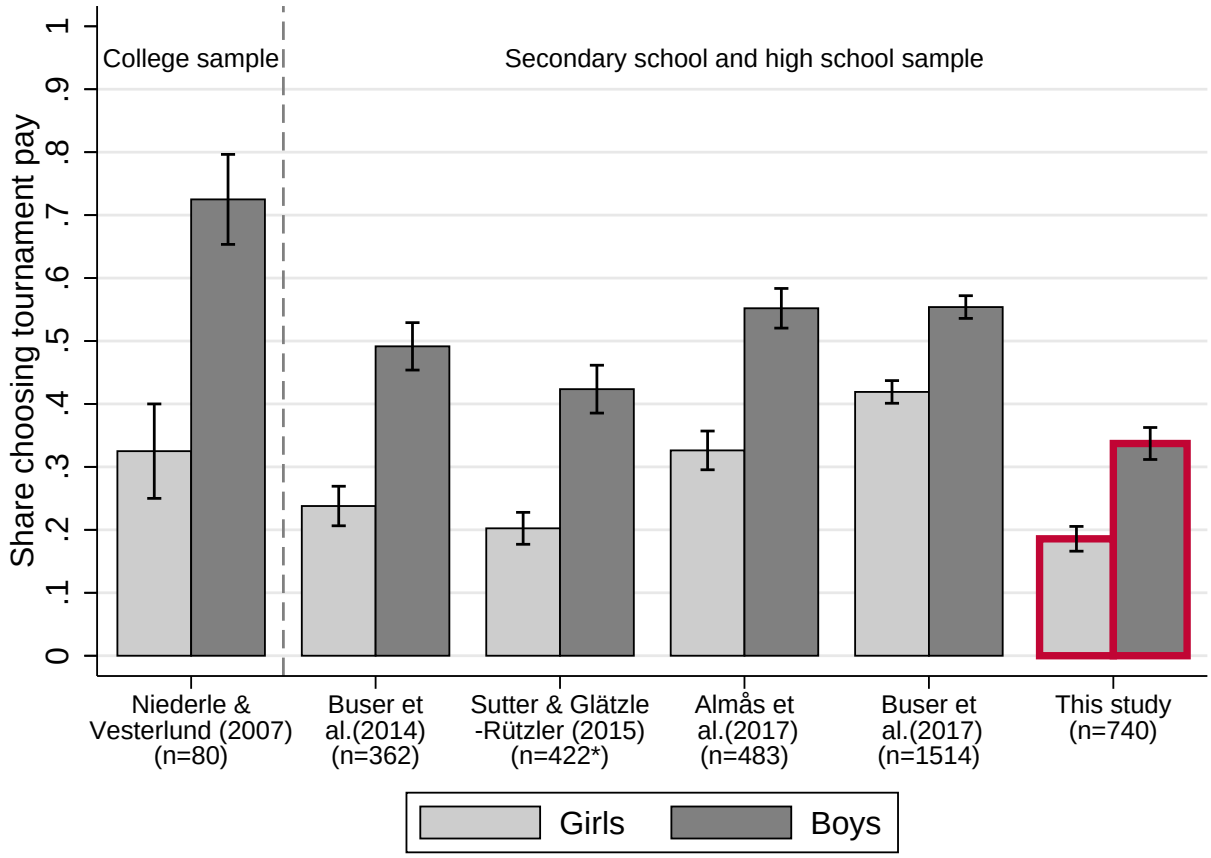


(b) Parent experiment



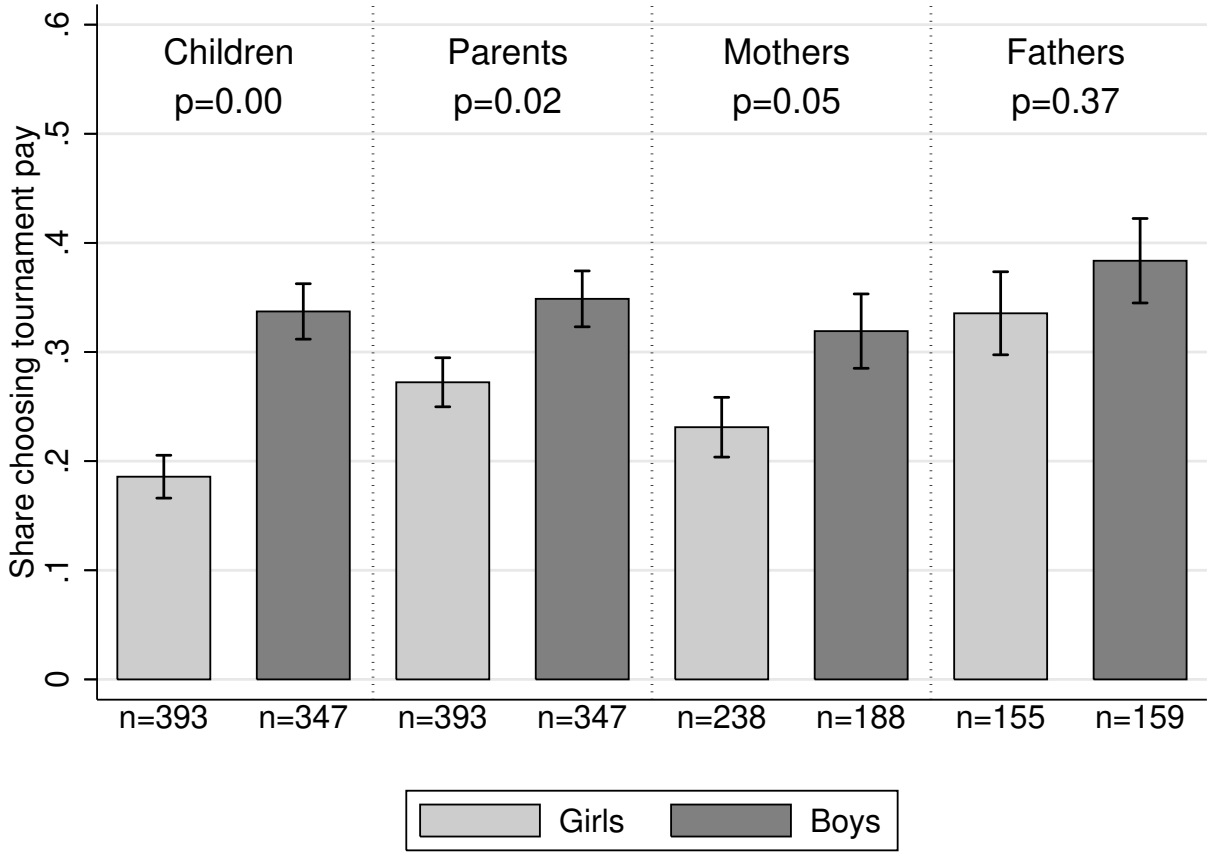
Note: The screenshots show the child's and parent's choice of piece-rate or tournament pay for the child. The child then does the task, first with their own pay choice, and second with their parent's choice. The child experiment was coded in z-Tree (Fischbacher (2007)), and the parent experiment was coded in Qualtrics (Qualtrics (2013)).

Figure IV: Gender differences in competitiveness on math task



Note: The figure shows gender differences in competitiveness for studies that employ a comparable measure of competitiveness and have an adolescent sample, with the exception of Niederle and Vesterlund (2007), who uses a sample of university students. Buser et al. (2014) is from experiments on ninth-grade students in Amsterdam, Netherlands. Sutter and Glätzle-Rützler (2015) studies competitiveness among children aged 9–18 years in Tyrol, Austria. The figure here shows competitiveness choices only for adolescent children (age 13–18 years). The full sample includes 1,570 respondents. Almås et al. (2015) studies competitiveness among ninth-grade students in Bergen, Norway. Buser et al. (2017b) studies competitiveness among ninth-grade students in the canton of Bern, Switzerland. This study was conducted in Bergen, Norway on a sample of 10th-grade students. Bars indicate 95 percent confidence intervals.

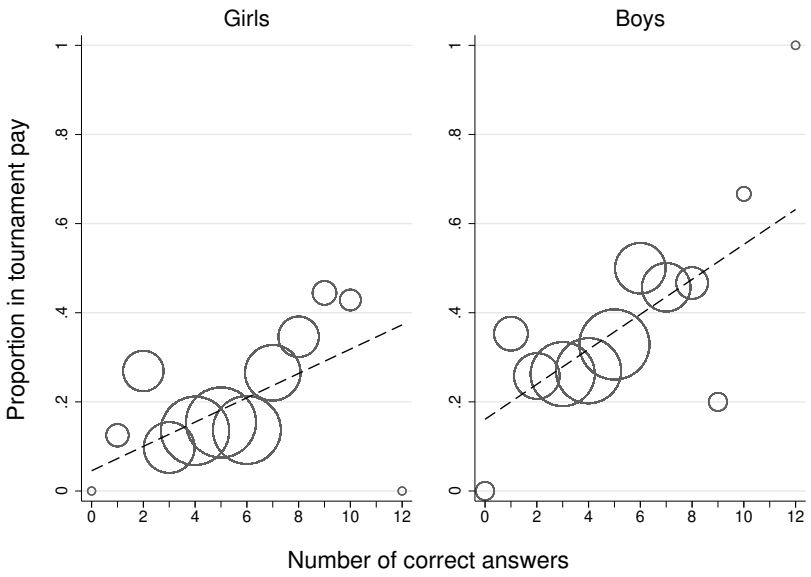
Figure V: Tournament choices for children



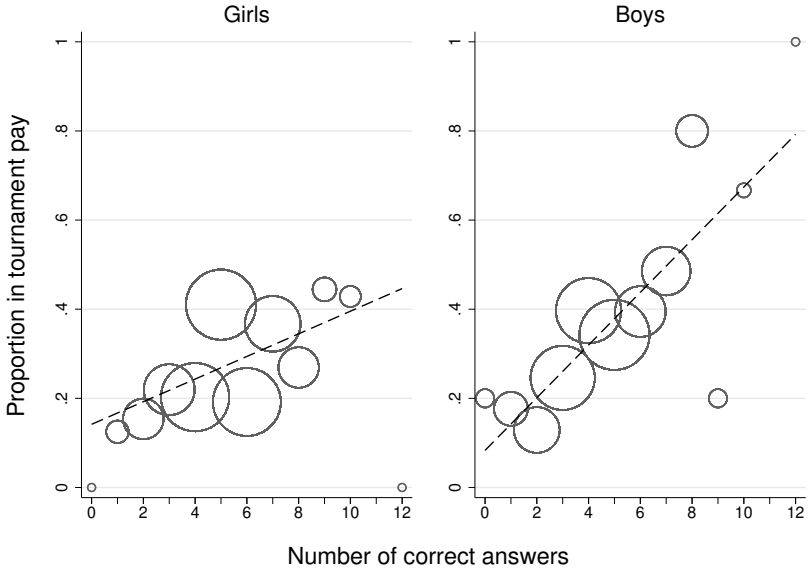
Note: The error bars indicate robust standard errors. The gender difference in children's choices compared with the gender difference in parents' choices is significant, with a p-value of 0.07, using robust standard errors clustered at the parent–child level. The gender difference in mothers' choices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

Figure VI: Heterogeneity: tournament choice and performance

(a) Children's tournament choice for self



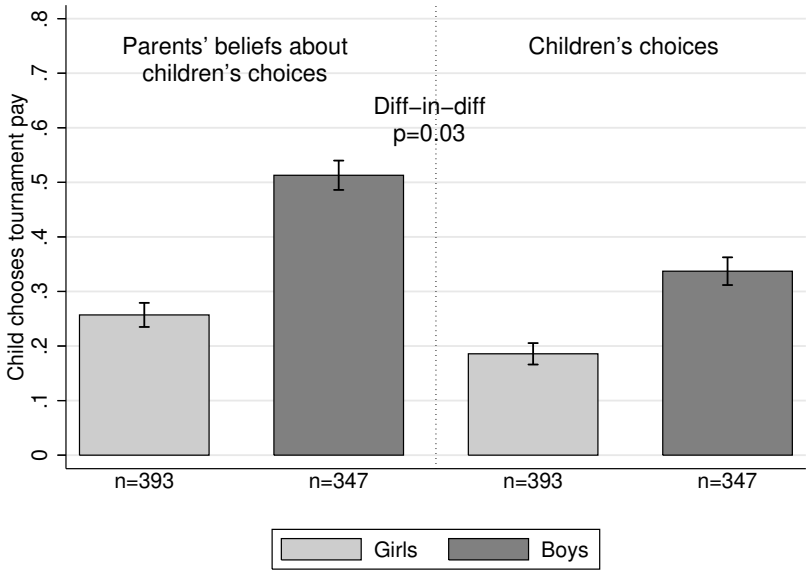
(b) Parents' tournament choice for their children



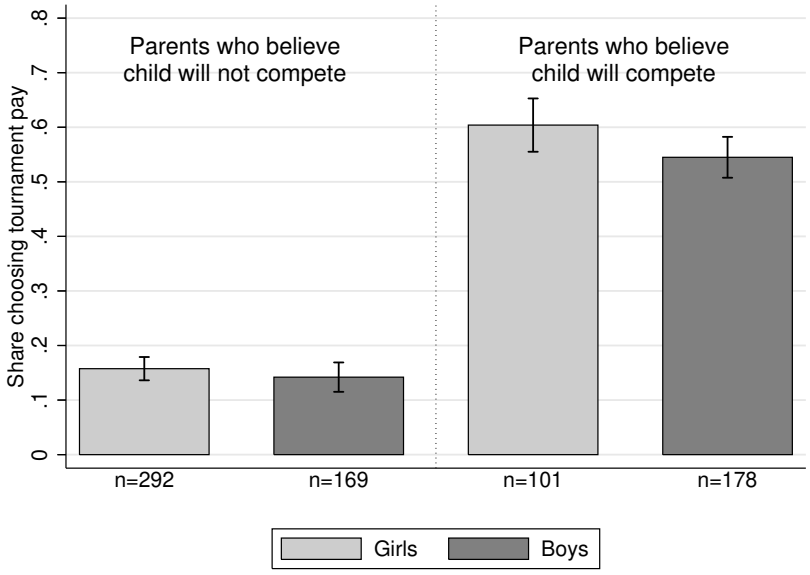
Note: Number of correct answers is from round three, where all children did the task for the same pay scheme. For children, both girls' and boys' choices correlate positively with tournament entry, and I cannot reject that the correlations are the same. For parents' choice, the correlation for boys is significantly stronger than that for girls ($p < 0.05$).

Figure VII: Mechanism: beliefs about choices

(a) Parents' beliefs versus children's choices



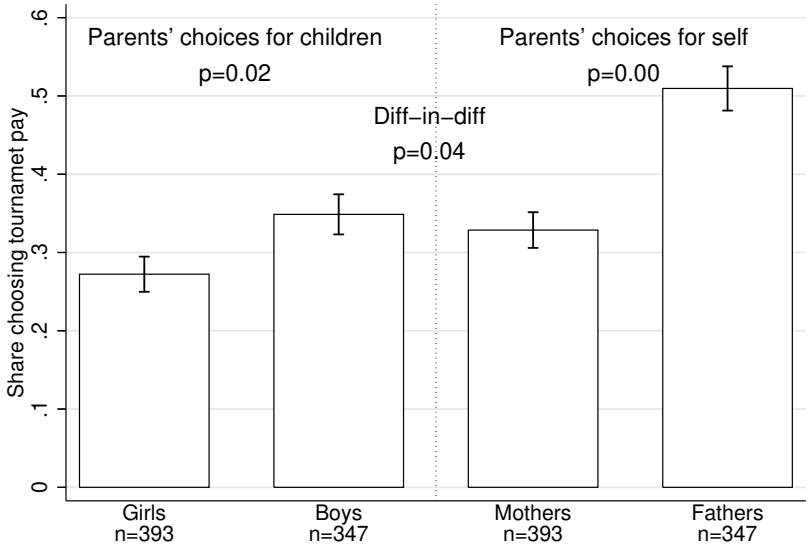
(b) Parents' choices conditional on beliefs



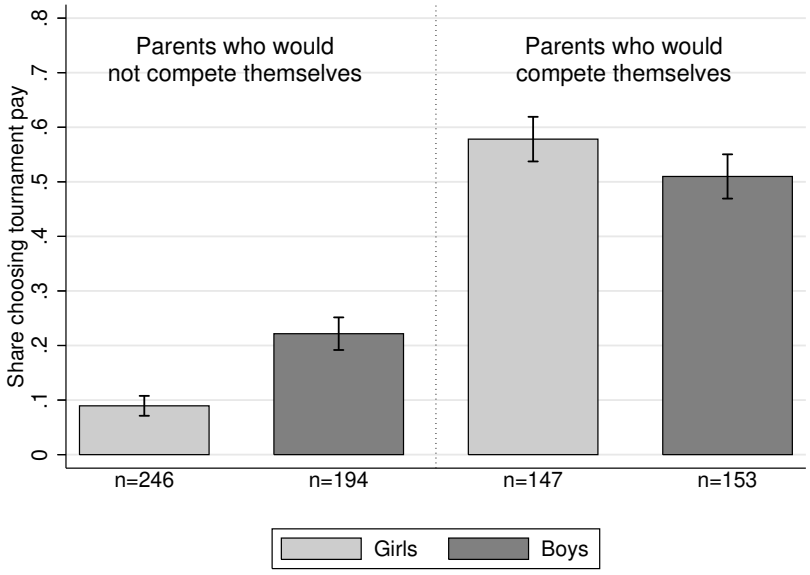
Note: The error bars indicate robust standard errors. Parents' beliefs are binary, and the elicitation was incentivized.

Figure VIII: Mechanism: parents' own preferences

(a) Parents' choices for self



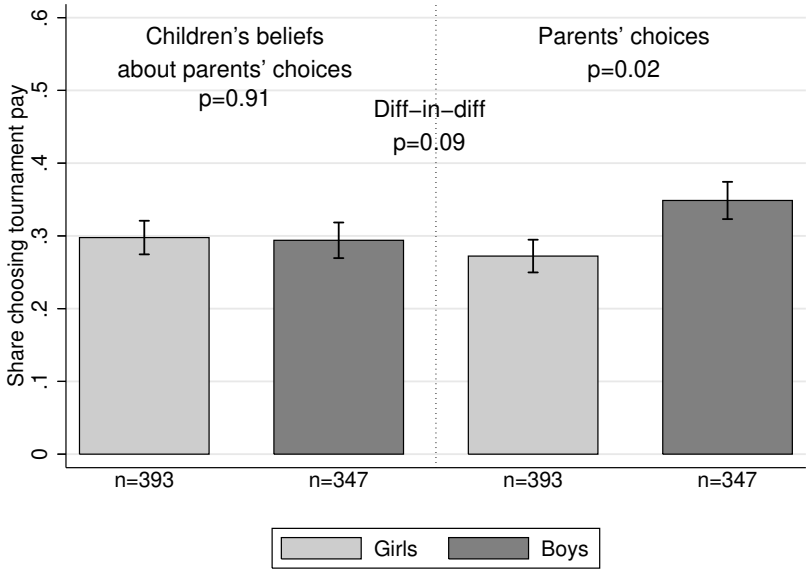
(b) Parents' choices conditional on preferences for self



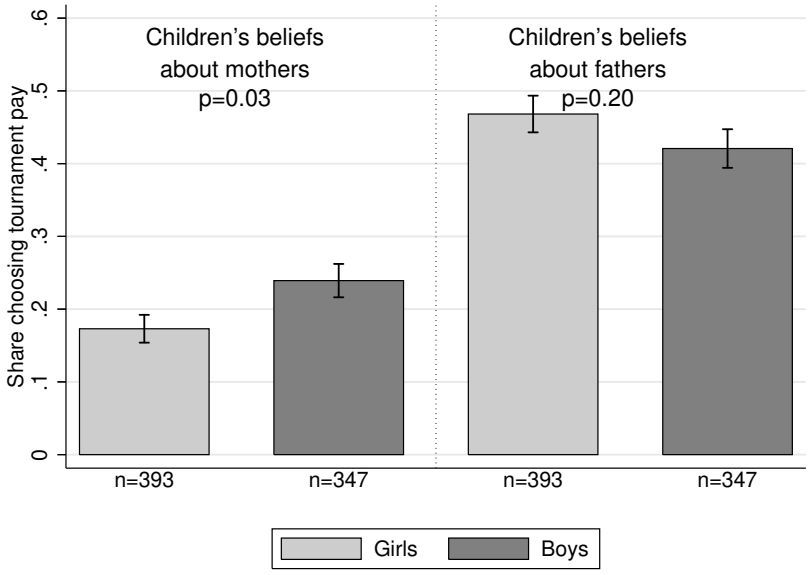
Note: Error bars indicate robust standard errors. Parents' own competitiveness choices are not incentivized.

Figure IX: Children's beliefs about parents' choices

(a) Beliefs versus actual choices



(b) Beliefs by parent gender



Note: Error bars indicate robust standard errors. Beliefs are binary, and the elicitation was not incentivized.

TABLES

Table I: Descriptive statistics

Panel A: School 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 the 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 show schools that participated in either the pilot study or the main sample. Columns 2 and 3 show schools that were invited to participate, but did not. Columns 5 and 6 show the national average. Panel B: Column 1 shows the characteristics of boys and parents of boys, column 2 shows the characteristics of girls and parents of girls, and column 3 shows the p-value of the difference using robust standard errors.

Table II: Overview of experimental outcomes

Children

	Scale	Boys	Girls	*p*
Competitiveness				
Tournament entry	dummy	0.34	0.19	0.00
Optimal tournament entry	dummy	0.49	0.61	0.00
Certainty about choice	0-10 (most certain)	5.82	5.37	0.02
Self-assessment: willing to compete	0-10 (most willing)	7.36	6.61	0.00
Performance				
Performance (common pay scheme)	# correct answers	4.50	5.14	0.00
Belief about relative performance	0 - 10 (best)	0.61	0.53	0.00
Risk preferences				
Risk taking lottery choice	1 - 5 (highest risk)	2.65	2.15	0.00
Risk taking self-assessment	0 - 10 (seek risk)	5.73	5.11	0.00
Beliefs about parents				
Mother will choose tournament for child	dummy	0.24	0.17	0.03
Father will choose tournament for child	dummy	0.42	0.46	0.20
General attitudes				
Important to be competitive for success	0 - 10 (important)	6.69	6.10	0.00
Important to be successful to be happy	0 - 10 (important)	6.24	5.73	0.00
Lack of female CEO's is problematic	0 - 10 (important)	4.07	6.36	0.00
Number of observations		347	393	

Parents

	Scale	Boys	Girls	*p*
Competitiveness for child				
Tournament entry (all parents)	dummy	0.35	0.27	0.02
Tournament entry (mothers, n=426)	dummy	0.32	0.23	0.05
Tournament entry (fathers, n=314)	dummy	0.38	0.34	0.38
Competitiveness for self				
Tournament entry (all parents)	dummy	0.44	0.37	0.07
Tournament entry (mothers, n=426)	dummy	0.35	0.31	0.38
Tournament entry (fathers, n=314)	dummy	0.55	0.47	0.18
Belief about child				
Child enters tournament	dummy	0.51	0.26	0.00
Child's relative performance	0 - 10 (best)	6.55	6.70	0.24
Risk preferences over child outcomes				
Risk taking lottery choice	1 - 5 (highest risk)	2.18	2.20	0.83
Risk taking self-assessment	0 - 10 (seek risk)	5.39	5.46	0.65
General attitudes				
Important to be competitive for success	0 - 10 (important)	6.39	6.51	0.34
Important to be successful to be happy	0 - 10 (important)	6.40	6.49	0.50
Lack of female CEO's is problematic	0 - 10 (important)	5.67	6.20	0.00
Number of observations		347	393	

Note: Column 3 indicates p-values of the differences between boys and girls using robust standard errors. Optimal tournament entry for children is defined as the pay scheme that has the highest expected earnings.

Table III: 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 (child)		0.033***	0.014	0.011	0.012	0.013
		(0.008)	(0.009)	(0.009)	(0.013)	(0.011)
Belief probability of winning (child)			0.047***	0.042***	0.042***	0.043***
			(0.009)	(0.008)	(0.013)	(0.011)
Risk taking lottery choice (child)				0.053***	0.091***	-0.005
				(0.013)	(0.017)	(0.018)
Risk taking self-assessment (child)				0.017**	0.011	0.024**
				(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 (child)		0.079***	0.072***	0.058***	0.066***	0.048***
		(0.009)	(0.009)	(0.009)	(0.013)	(0.014)
Belief probability of winning of child (parent)			0.021**	0.024***	0.035***	0.015
			(0.009)	(0.008)	(0.012)	(0.011)
Risk taking lottery choice for child (parent)				0.038***	0.054**	0.030
				(0.014)	(0.021)	(0.019)
Risk taking self-assessment for child (parent)				0.044***	0.022*	0.064***
				(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 that is not shown in the table. All regressions use robust standard errors.

Table IV: Parents' choices: new mechanisms

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 IIIB	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 regressions in the table include controls from Table IIIB, column 4; child performance, parent belief about the probability of winning, parent risk attitudes, and a constant term. All regression use robust standard errors.

Table V: 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 for self		0.051	0.002	-0.005	-0.002	0.005
		(0.032)	(0.035)	(0.035)	(0.051)	(0.047)
Parent chooses tournament for child			0.133***	0.118***	0.123**	0.100*
			(0.039)	(0.039)	(0.057)	(0.055)
Child believes mother will choose tournament for child				0.115***	0.081	0.145**
				(0.041)	(0.058)	(0.058)
Child believes father will choose tournament for child				0.051*	0.060	0.042
				(0.031)	(0.050)	(0.038)
Controls from Table IIIA	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 regressions in the table include controls from Table IIIA, column 4; child performance, child belief about the probability of winning, child risk attitudes, and a constant term. All regressions use robust standard errors.

A STRUCTURAL ANALYSIS

I here present and estimate a structural model of the competitiveness choice. I first consider how children choose between piece-rate and tournament pay for themselves. This exercise allows me to obtain a monetary value for the like (or dislike) of competition by child gender.

I then look at parents' choices for their children. The structural analysis of parents' choices provides two key insights: i) an estimate of the weight that parents place on altruistic motivation relative to paternalistic motivation, and ii) a monetary value of parents' taste (or distaste) for having their daughter and son compete.

Children's competitiveness choices. In my main specification, I let children have linear utility over money. To allow for distaste for risk, I incorporate reference-dependent preferences over earnings, where the reference point is expected earnings.[15]

In piece-rate pay, children receive is 5 NOK for each correct answer. I assume that children know with certainty how many questions they will be able to solve, and that there is no cost of effort.[16] I denote child i's belief about his or her performance by a_i^{PR}. Given that there is no uncertainty about children's earnings, there is no impact of the reference-dependent preference part of the utility function. Finally, I include a normally distributed error term ϵ_i^{PR}. Child i's belief about his or her expected utility in piece-rate pay is then:

[15]For example, a person with expected earnings r and coefficient of loss aversion λ will have utility over money x:

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

This use of reference-dependent preferences is closely related to a model with stochastic reference points Kőszegi and Rabin (2006) when assuming linearity in both components of the utility function. For the utility functions in this setup, they will be equivalent. The motivation for this modelling choice is to allow for small-scale risk aversion without having to assume unrealistic amounts of curvature in utility over money. I also show results for a model with constant relative risk aversion (CRRA) in Table AIa, where the curvature in utility over money generates a dislike for risk.

[16]A justification for not modeling cost of effort is that children will perform the task under both piece-rate and tournament pay, and hence, the cost will be present in either payment scheme. If performance is similar in the two payment schemes, then cost of effort will also be similar in the two payment schemes. I empirically test whether children's performances differ by considering 169 children who were randomized into either piece-rate or tournament pay, and find no difference in performance.

$$5a_i^{PR} + \epsilon_i^{PR} \tag{1}$$

In tournament pay, children receive is 15 NOK for each correct answer if they outperform their opponent, and 0 NOK if they get the same or fewer correct answers. As with piece-rate pay, I assume that children know their performance. I indicate child i's belief about their performance by a_i^T, and I denote child i's belief about their probability of winning the tournament by $\hat{p_i}$.[17]

The child's reference point (the expected earnings) under tournament pay is $\hat{p_i}15a_i^T$. 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, where $g \in \{m, f\}$. I also include a normally distributed error term ϵ_i^T. Children's belief about their expected utility in tournament pay is then:

$$\hat{p_i}15a_i^T + \hat{p_i}(15a_i^T - \hat{p_i}15a_i^T) - \lambda_i(1 - \hat{p_i})(\hat{p_i}15a_i^T) + t_g + \epsilon_i^T \tag{2}$$

I assume that children choose the pay scheme that maximizes their expected utility, as specified in equations 1 and 2. In the experiment, I observe the choice between piece-rate and tournament pay for each child. I use this choice to estimate the gender-specific taste for competition t_g with a probit model. I calibrate the parameters of the model as follows: I assume $a_i^{PR} = a_i^T$, and let both equal the child's performance.[18] I let $\hat{p_i}$ equal the stated belief of children about their probability of winning. I calibrate λ_i for each child based on

[17] Because I assume that children know their own performance, any uncertainty about the probability of winning must come from their beliefs about the distribution of performance by their opponents.

[18] Data support the assumption that performance is independent of payment scheme. In total, 169 children did not have a parent make a choice for them; instead, they were randomized into either piece-rate or tournament pay. For these children, I find no difference in performance in the two treatments. More generally, several previous studies using similar experiments have documented that elasticity of performance to pay is typically low (Ifcher and Zarghamee (2016), DellaVigna et al. (2016), Araujo et al. (2016).)

which λ_i would rationalize the lottery choices made by the child.[19]

In Table AI, column 1, I show the estimates of the model when assuming loss aversion. I find 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. The finding that both boys and girls dislike competition is robust to several adjustments to the model. In column 2, I estimate the model imposing $\lambda_i = 1$ such that children have no loss aversion (and are risk-neutral). The estimates of the distaste 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 comes from the curvature of the utility function. That is, I assume children have utility over money x by $\frac{x}{1-r_i}^{1-r_i}$. I then calibrate the risk preferences parameter r_i using the lottery choices. In the CRRA model, the calibration of taste for competition is sensitive to the wealth level at which it is compared to, and the level of risk aversion, as both of these factors influence the curvature of the utility function. 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. In the CRRA model, both girls and boys have a distaste for competition ($\$-9.98$ versus $\$-1.96$).

Parents' competitiveness choices for their children. I model the decision of parents as a trade-off between two motivations:

1. Maximize the expected utility of the child. I refer to this as the *altruistic* motivation.

2. Maximize the expected utility of the child from the parent perspective. I refer to this as the *paternalistic* motivation.

[19]To calibrate λ_i, I choose the midpoint of the interval between the different λ_is, which would rationalize a given lottery choice. For the end points, I choose the λ_i that makes the child indifferent about that choice, and the next possible lottery.

I let α denote the relative weight that parents' place on altruism. I allow for altruistic motivation and paternalistic motivation to differ in two ways. First, the parent's belief about the child's taste for competition may differ from their own taste for having their child compete ($\hat{t}_i \neq t_p$). Second, the parent's belief about the child's loss aversion may differ from their own loss aversion for their child ($\hat{\lambda}_i \neq \lambda_p$).

In my main specification, I use the same assumptions on the utility function as those in the loss aversion estimation for children's own choices; that is, linear utility over money with reference-dependent risk preferences. I assume that parents know their child's performance, and denote the parents' belief about their child's probability of winning the tournament as $\hat{p}_p$. If the child has chosen piece-rate pay, the utility of the parent is:

$$\alpha 5a_i^{PR} + (1-\alpha)5a_i^{PR} + \epsilon_p^{PR} = 5a_i^{PR} \tag{3}$$

In tournament pay, the utility of the parent is:

$$\begin{aligned} &\alpha\big((\hat{p}_p 15a_i^T + \hat{p}_p(15a_i - \hat{p}_p 15a_i) + (1-\hat{p}_p)\hat{\lambda}_i(-\hat{p}_p 15a_i) + \hat{t}_i)\big) \\ +(1-\alpha)&\big((\hat{p}_p 15a_i + \hat{p}_p(15a_i - \hat{p}_p 15a_i) + (1-\hat{p}_p)\lambda_p(-\hat{p}_p 15a_i) + t_p)\big) + \epsilon_p^T \end{aligned} \tag{4}$$

In the experiment, I observe parents' choices between piece-rate and tournament pay for their child. I assume that parents choose the pay scheme that maximizes their utility given equations 3 and 4. I then estimate a probit with the aim of estimating α and child-gender-specific t_g and t_b.

I calibrate the parameters of the model with a similar approach as that for the child estimation. I let $a^{PR} = a^T$, and set both equal to the child's performance. I let $\hat{p}$ equal the stated belief of the parent about their child's probability of winning the tournament, and I calibrate λ_p for each parent based on which λ_i would rationalize the lottery choices made by

the parent for the child.[20] I use parents' stated probabilistic beliefs about what their child would choose to identify $\hat{t}_i$ and $\hat{\lambda}_i$.

Table AIb shows the results of the estimation. I find that parents disliked competition for both boys and girls ($5.63 versus $4.78, respectively). I find that $\alpha = 0.59$, suggesting an important role for both altruistic and paternalistic motivation. In the raw data, I found that 26 percent of parents acted strictly paternalistically by choosing the opposite of that which they believed their child would prefer. However, in the raw data, it was not possible to identify whether parents who chose in line with the child's preferences did this for altruistic or paternalistic reasons.

In column 2, I estimate the model when $\lambda_p = 1$ for all parents. The results are similar to those for the loss aversion model: I estimate $\alpha = 0.59$, $t_b = \$ - 5.62$, and $t_g = \$ - 7.23$. In column 3, I estimate a version of the model with CRRA utility, similar to what I did earlier in the estimation for children's choices.[21] I find an α of 0.6, compared with 0.59 in columns 1 and 2. The results for taste for competing replicate s($−3.35 for girls and $−2.24 for boys).[22]

[20]To calibrate λ_i, I choose the midpoint of the interval between the different λ_is that would rationalize a given lottery choice. For the end points, I choose the λ_i that makes the child indifferent about that choice, and the next possible lottery.

[21]Here, parents have utility over money x by $\frac{x}{1-r_p}^{1-r_p}$. I calibrate the risk preferences parameter r_p using parents' lottery choices for children. The other parameters are calibrated in the same way as for the loss aversion model

[22]In the CRRA model, the calibration of the taste for competition is sensitive to the wealth level that it is compared to, as well as the level of risk aversion. The reported estimates are for zero wealth and the median level of risk aversion. Standard errors were constructed using the delta method.

Table AI: Mechanisms for tournament choices: structural analysis

Panel A: Children

Model:	**Loss aversion**	**Risk neutral**	**CRRA**
	(1)	(2)	(3)
Implied taste for competing in USD:			
For girls:	-5.94***	-7.23***	-9.98***
	(0.46)	(0.651)	(1.77)
For boys:	-4.19***	-5.62***	-1.96***
	(0.52)	(0.75)	(0.53)
Observations	740	740	740
Log Likelihood	-378.87	-384.31	-377.83

Panel B: Parents

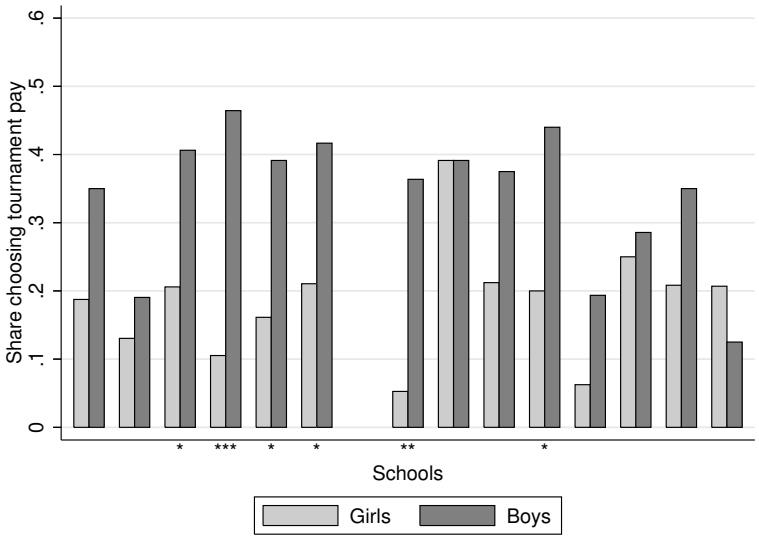
Model:	**Loss aversion**	**Risk neutral**	**CRRA**
	(1)	(2)	(3)
Weight on altruisms relative to paternalism	0.59***	0.59***	0.60***
	(0.03)	(0.03)	(1.776)
Implied taste for competing in USD:			
For girls:	-5.63***	-7.00***	-3.35***
	(0.86)	(1.19)	(1.05)
For boys:	-4.78***	-5.84***	-2.24***
	(0.58)	(0.74)	(0.61)
Observations	740	740	740
Log Likelihood	-358.07	-360.43	-352.00

Note: Panel A) shows estimates of gender-specific taste for competition among children. The estimates come from a probit model, where risk preferences, ability, and beliefs about the probability of winning are calibrated based on experimental outcomes. Panel B) shows estimates of mechanisms for parents' choices for their children. The estimates come from a probit model, where beliefs about children's preferences, risk preferences, ability, and beliefs about the probability of winning are calibrated based on experimental outcomes.

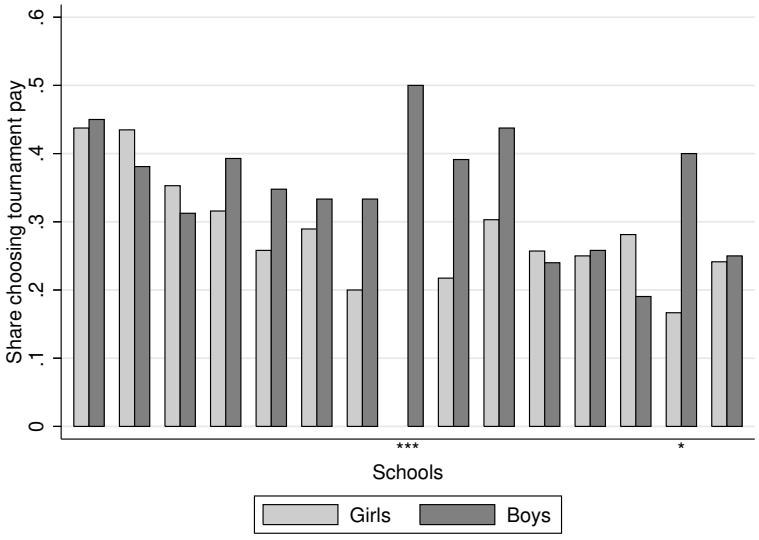
B SUPPLEMENTARY FIGURES AND TABLES

Figure BI: Proportion competing by school

(a) Children's choices



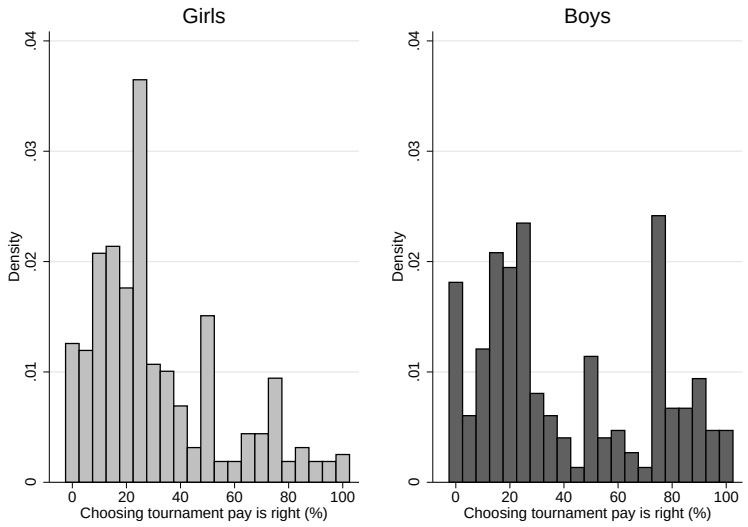
(b) Parents' choices



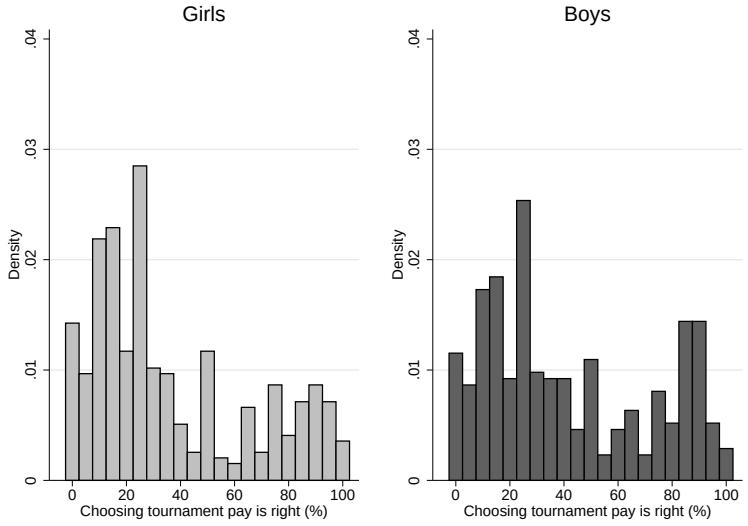
Note: Panel a) shows the proportion of boys choosing to compete at each school. Note, for one school, no children choose to compete ($N = 14$). Panel b) shows the proportion of parents who choose to let their boys and girls compete at each school. The schools in panels a) and b) are shown in the same order. The stars on the x-axis indicate whether the difference between boys and girls in a school is significant, with * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$. The average number of observations per school is 50.

Figure BII: Certainty about choices

(a) Children's degree of certainty about their own choices



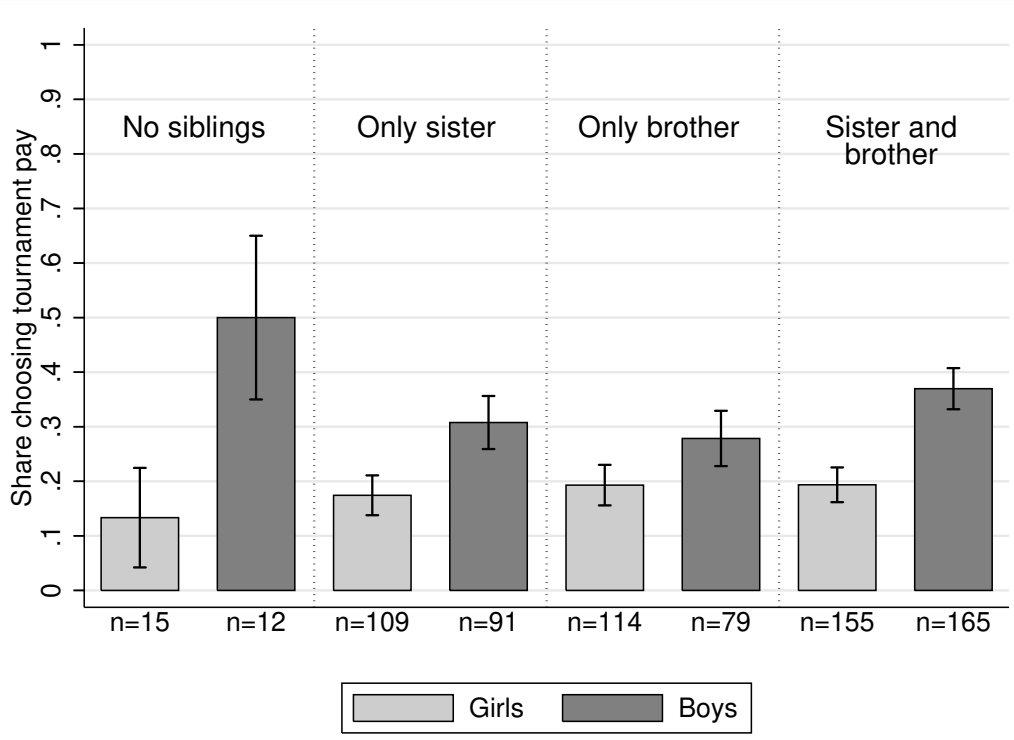
(b) Parents' degree of certainty about their choices for their children



Note: Panel a) After children chose piece-rate or tournament pay, they were asked how certain they were that the choice was "right" for them. Panel b) After parents chose piece-rate or tournament pay for their child, they were asked how certain they were that the choice was "right" for their child.

Figure BIII: Heterogeneity by gender of siblings

(a) Children's own choices



(b) Parents' choices for children

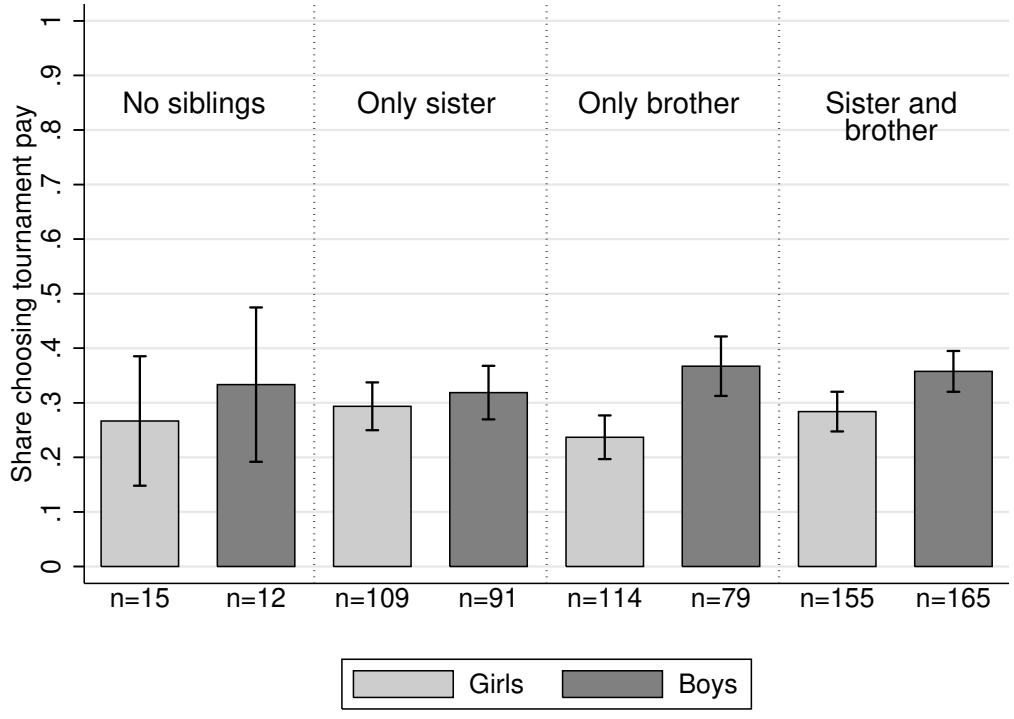
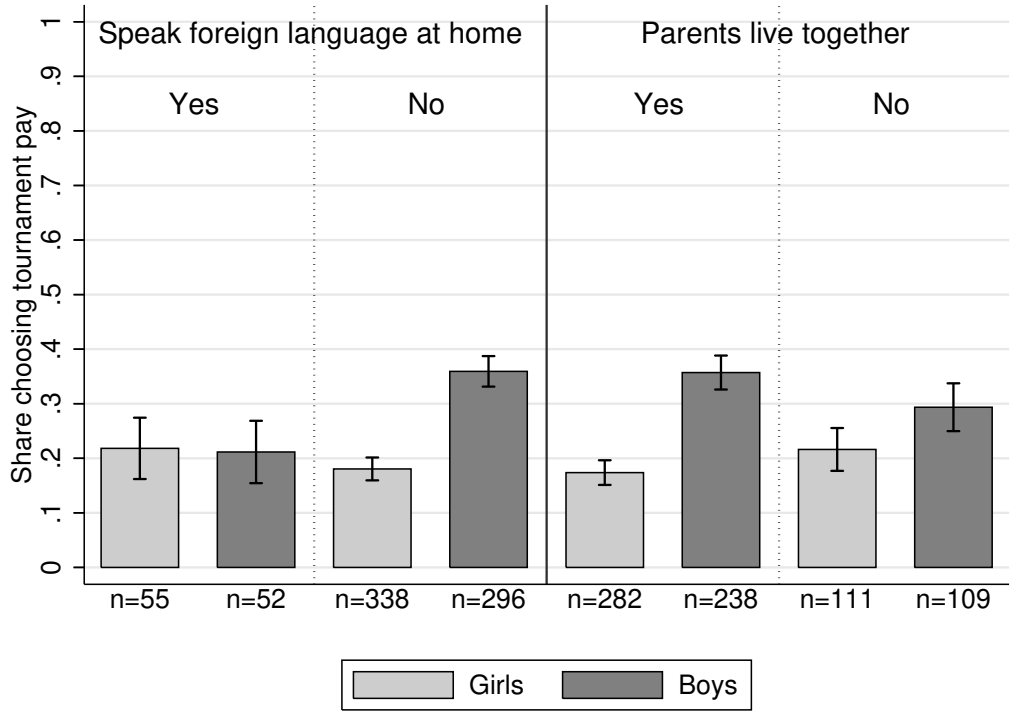


Figure BIV: Heterogeneity by family characteristics

(a) Children's own choices



(b) Parents' choices for children

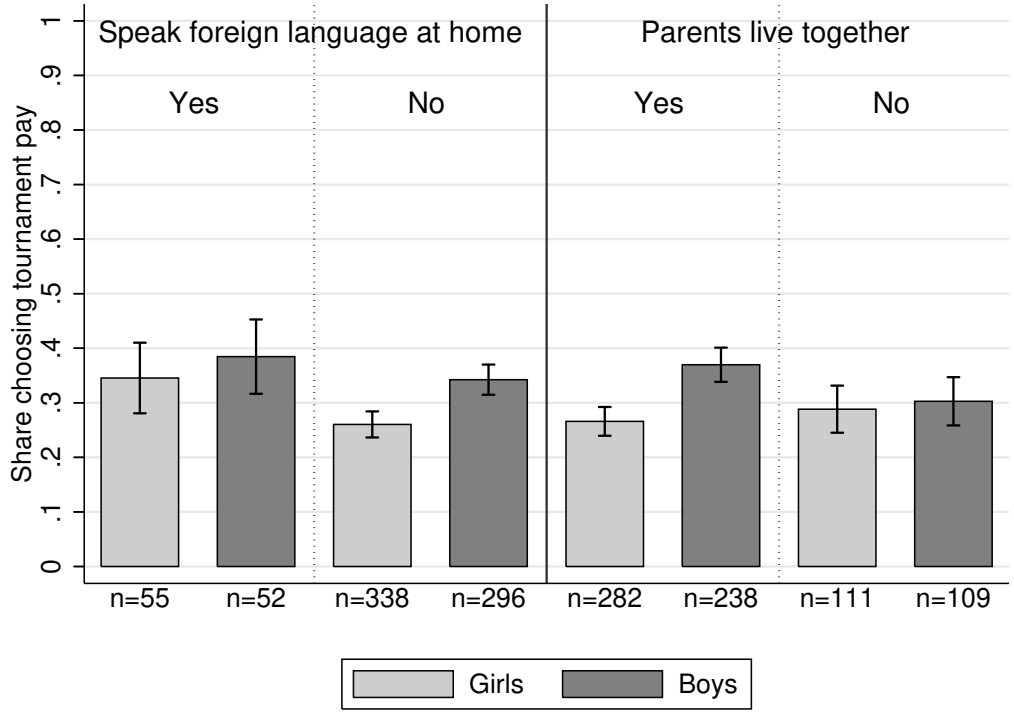
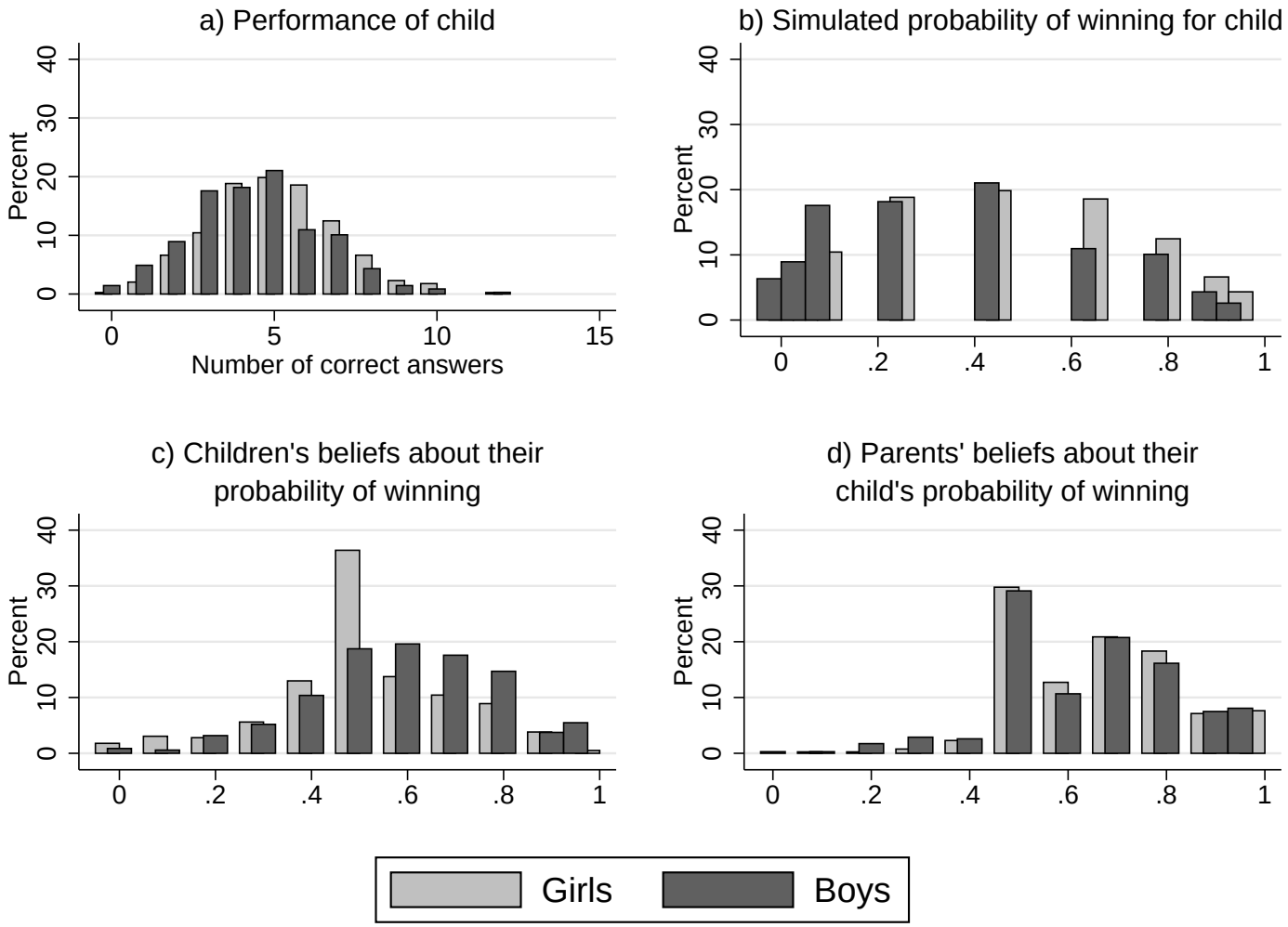
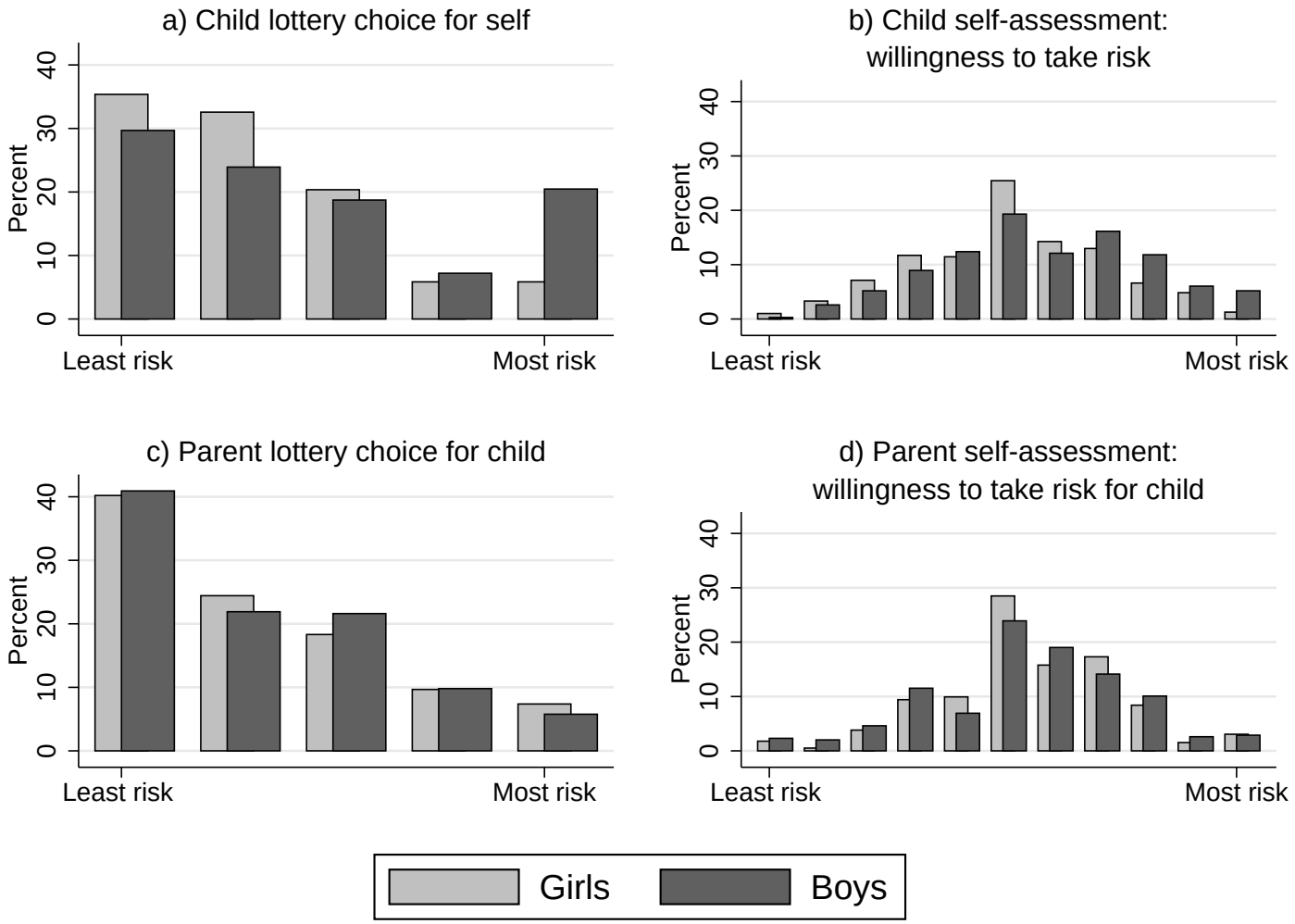


Figure BV: Mechanisms: performance, probability of winning, and beliefs



Note: Panel a) shows the performance of children on the task. Girls outperformed boys ($p < 0.00$). Panel b) shows the simulated probability of winning, estimated by drawing 1,000 randomly selected opponents with replacements. Girls had a higher chance of winning ($p < 0.00$). Panel c) shows children's beliefs about their chance of winning. Boys had higher beliefs than girls ($p < 0.00$). Panel d) shows parents' beliefs about their child's chance of winning the tournament. Parents had the same beliefs for boys and girls.

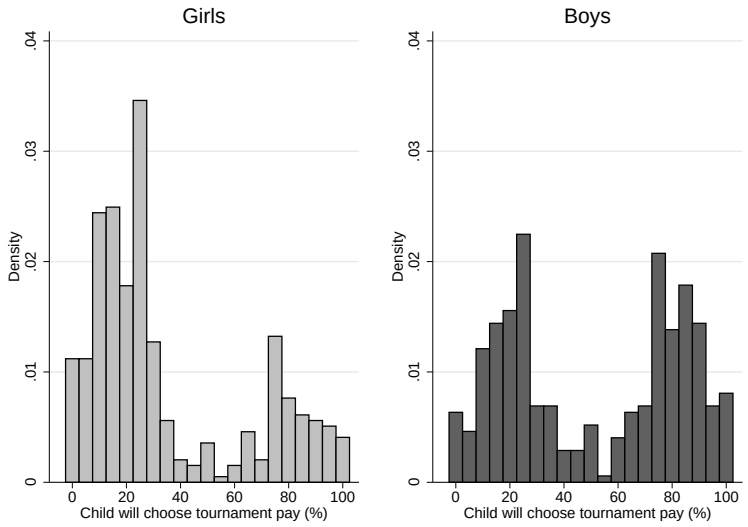
Figure BVI: Mechanisms: risk taking



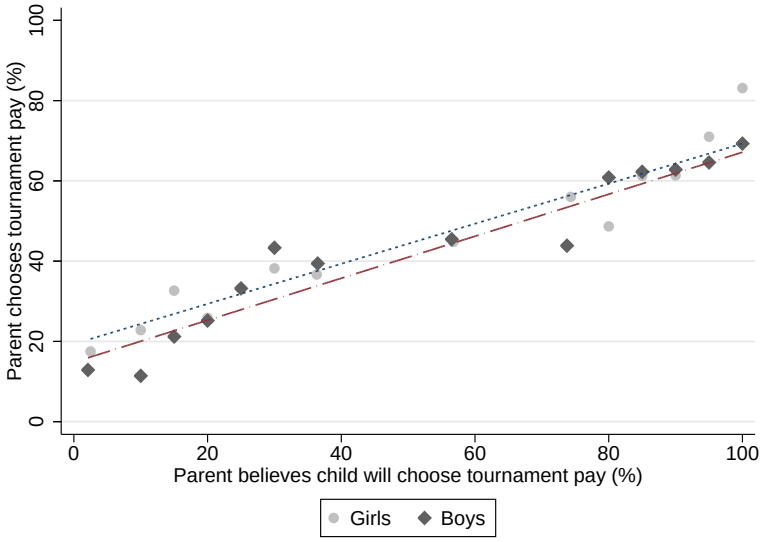
Note: Panel a) shows children's choice of a risky lottery, with the methodology adapted from (Eckel and Grossman (2002)). Boys take more risks ($p < 0.00$). Panel b) shows children's self-assessment of their willingness to take risks, with the methodology adapted from (Dohmen et al. (2011b)). Boys take more risks ($p < 0.00$). 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 risks for their child. There is no difference between boys and girls.

Figure BVII: Parents' probabilistic beliefs

(a) Parents' beliefs



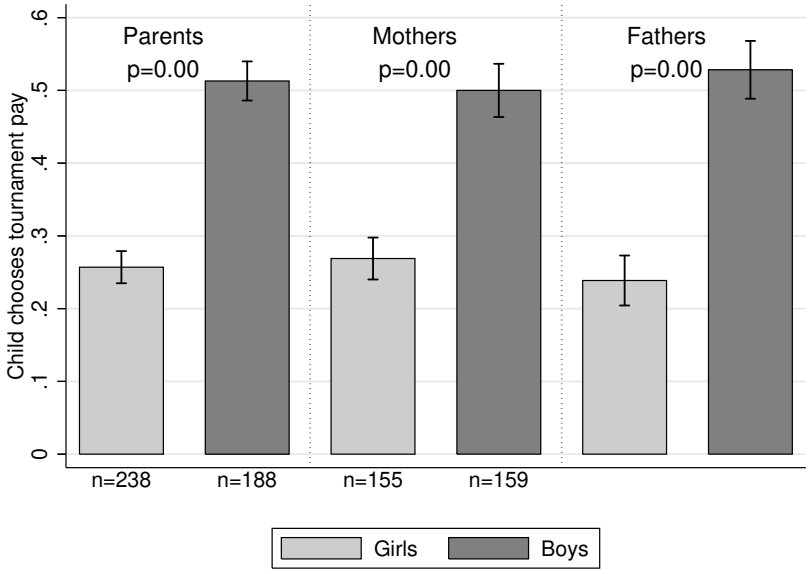
(b) Correlation between beliefs and certainty in parents' choices



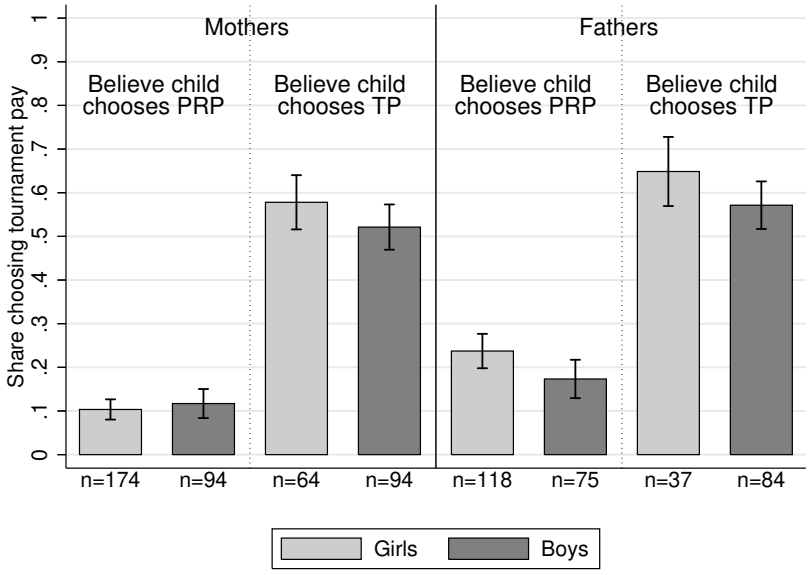
Note: Panel a) After parents are asked if they believe their child will choose piece-rate or tournament pay, they were asked how certain they were that their belief is correct. Panel a) shows the distribution of answers. Panel b) shows the relationship between parents' beliefs and their certainty in their choices for their children.

Figure BVIII: Beliefs and choices: mothers versus fathers

(a) Parents' beliefs versus children's choices



(b) Parents' choices conditional on beliefs



Note: The error bars indicate robust standard errors. Parents' beliefs are binary, and the elicitation was incentivized.

Table BI: Children's tournament choices: robustness

Dependent variable:	**Child chooses tournament pay**					
	(1)	(2)	(3)	(4)	(5)	(6)
Female (child)	-0.151***	-0.155***	-0.149***	-0.088***	-0.092***	-0.085***
	(0.032)	(0.032)	(0.032)	(0.032)	(0.033)	(0.033)
Number of correct answers (child)				0.011	0.011	0.014
				(0.009)	(0.009)	(0.009)
Belief probability of winning (child)				0.042***	0.044***	0.043***
				(0.008)	(0.008)	(0.009)
Risk taking lottery choice (child)				0.053***	0.051***	0.053***
				(0.013)	(0.013)	(0.013)
Risk taking self-assessment (child)				0.017**	0.016**	0.015**
				(0.007)	(0.007)	(0.007)
School fixed effect	No	Yes	No	No	Yes	No
Classroom fixed effect	No	No	Yes	No	No	Yes
Observations	740	740	740	740	740	740
R-squared	0.030	0.061	0.109	0.128	0.158	0.204

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

Table BII: Parents' tournament choices for children: robustness

Dependent variable:	**Parent chooses tournament pay for child**							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female (child)	-0.076**	-0.070**	-0.076**	-0.073**	-0.105***	-0.100***	-0.104***	-0.100***
	(0.034)	(0.034)	(0.035)	(0.035)	(0.032)	(0.032)	(0.032)	(0.032)
Number of correct answers (child)					0.024***	0.024***	0.023***	0.024***
					(0.008)	(0.008)	(0.009)	(0.009)
Belief probability of winning of child (parent)					0.058***	0.058***	0.055***	0.053***
					(0.009)	(0.009)	(0.010)	(0.010)
Risk taking lottery choice for child (parent)					0.038***	0.035**	0.038***	0.035**
					(0.014)	(0.014)	(0.014)	(0.015)
Risk taking self-assessment for child (parent)					0.044***	0.045***	0.046***	0.045***
					(0.008)	(0.008)	(0.008)	(0.008)
School fixed effect	No	Yes	No	No	No	Yes	No	No
Classroom fixed effect	No	No	Yes	Yes	No	No	Yes	Yes
Demographic controls	No	No	No	Yes	No	No	No	Yes
Observations	740	740	740	740	740	740	740	740
R-squared	0.007	0.021	0.061	0.088	0.167	0.177	0.209	0.223

Note: The regressions include a constant term that is not shown in the table. The p-values are constructed using robust standard errors. Demographic controls include controls for parent gender, if parents of child live together, if parents are married, parent age, if parent and child are biologically related, if parent and child speak foreign language at home, if child has brothers, and if child has sisters.

Table BIII: Correlations between choices, beliefs, and attitudes

	All	Boys & Fathers	Boys & Mothers	Girls & Fathers	Girls & Mothers
Competitiveness					
Child's choice self & parent's choices self	0.10***	0.09	0.07	0.21***	0.05
Child's choice self & parent's choices child	0.21***	0.20**	0.24***	0.22***	0.15**
Child's choice self & parent's belief about choice child &	0.15***	0.08	0.13*	0.12	0.10
Child's choice self & child's belief parent's choice child	0.19***	0.21***	0.21***	0.24***	0.17**
Parent's choice child & parent's belief choice child	0.43***	0.41***	0.43***	0.37***	0.49***
Parent's choice child & child's belief parent's choice	0.18***	0.11	0.10	0.22***	0.22***
Probability of winning the tournament					
Child's belief & child's probability of winning	0.36***	0.49***	0.50***	0.25***	0.38***
Parents' belief & child's probability of winning	0.32***	0.33***	0.37***	0.24***	0.30***
Overconfidence child & overconfidence parent	0.69***	0.70***	0.68***	0.70***	0.68***
Risk preferences					
Risk taking lottery choice for child (child & parent)	0.03	0.08	0.00	0.05	0.05
Risk taking self-assessment for child (child & parent)	-0.02	-0.19**	0.06	0.08	0.00
General attitudes					
Important to be competitive for success (child & parent)	0.05	0.13	0.05	0.12	-0.05
Important to be successful to be happy (child & parent)	0.09**	0.08	0.07	0.09	0.13**
Lack of female CEO's is problematic (child & parent)	0.15***	0.10	-0.05	0.16**	0.20***
Number of observations	740	159	188	155	238

Note: Overconfidence is defined as the difference between the belief about the child's probability of winning the tournament and the child's actual probability of winning the tournament (obtained from a simulation with 1,000 random draws of opponents).

Table BIV: Peer effects: correlations in competition choices within class

	All	Boys	Girls
Children			
Child's choice self & share of children competing	0.09**	0.09*	0.08*
Child's choice self & share of boys compting	0.05	0.03	0.06
Child's choice self & share of girls competing	0.08**	0.10*	0.06
Parents			
Parent's choice child & share of parents choosing competition for their child	-0.01	-0.02	-0.01
Parent's choice child & share of parents choosing competition for boys	-0.02	-0.07	0.04
Parent's choice child & share of parents choosing competition for girls	0.00	0.06	-0.05
Parents and children			
Child's choice child & share of parents choosing competition for their child	-0.07*	-0.04	-0.09*
Parent's choice child & share of children competing	-0.05	-0.01	-0.10**
Number of observations	740	347	393

Note: The table shows correlations between individual behavior and the leave-one-out mean in the class. There are 43 classes (across 15 schools) in the sample.

C RESULTS FROM PRE-ANALYSIS PLAN

I present here the pre-specified analysis. The pre-analysis plan for the paper is available at https://www.socialscienceregistry.org/trials/2344 under the title "How Do Parents Make Choices? Competitiveness and Gender".

Table CI: Balance table

	Scale	**Boys**	**Girls**	***p*-value**
Mother participated	dummy	0.54	0.60	0.08
Parent age	years	46.36	46.95	0.14
Parent participating is biological parent	dummy	0.95	0.95	0.91
Important to be competitive for success	0 - 10 (important)	6.39	6.51	0.34
Important to be successful to be happy	0 - 10 (important)	6.40	6.49	0.50
Lack of female CEOs is problematic	0 - 10 (important)	5.67	6.20	0.00
Number of observations		347	393	

Note: The table shows the pre-specified balance table in section 4.1. P-values are constructed using robust standard errors.

Table CII: Research question 1: Do boys choose tournament pay more often than girls?

Dependent variable:	**Child chooses tournament pay for self**		
	(1)	(2)	(3)
Female (child)	-0.151***	-0.088***	-0.092***
	(0.032)	(0.032)	(0.033)
Number of correct answers (child)		0.011	0.011
		(0.009)	(0.009)
Belief probability of winning (child)		0.042***	0.044***
		(0.008)	(0.008)
Risk taking lottery choice (child)		0.053***	0.051***
		(0.013)	(0.013)
Risk taking self-assessment (child)		0.017**	0.016**
		(0.007)	(0.007)
Constant	0.337***	-0.205***	-0.287***
	(0.025)	(0.067)	(0.090)
School fixed effects	No	No	Yes
Observations	740	740	740
R-squared	0.030	0.128	0.158

Note: The table shows the pre-specified analysis in section 4.2 of the pre-analysis plan. The dependent variable is a dummy taking the value of 1 if the child chooses tournament pay. All specifications use robust standard errors.

Table CIII: Research question 2: Do parents choose tournament pay more often for boys than for girls?

Dependent variable:	**Parent chooses tournament pay for child**			
	(1)	(2)	(3)	(4)
Female (child)	-0.076**	-0.071**	-0.063*	-0.040
	(0.034)	(0.034)	(0.034)	(0.054)
Female (parent)		-0.085**	-0.084**	-0.063
		(0.035)	(0.035)	(0.053)
Female (child) X Female				-0.040
				(0.070)
Constant	0.349***	0.175	0.183	0.174
	(0.026)	(0.160)	(0.176)	(0.177)
School fixed effects	No	No	Yes	Yes
Demographic controls	No	Yes	Yes	Yes
Observations	740	740	740	740
R-squared	0.007	0.021	0.035	0.036

Note: The table shows the pre-specified analysis in section 4.3 — for research question 2 — of the pre-analysis plan. The dependent variable is a dummy taking the value of 1 if the parent chooses tournament pay for their child. The demographic controls include variables for Age (parent), Biologically related to child (parent), and Foreign (parent). All specifications use robust standard errors.

Table CIV: Research question 3: What explains parents' choices?

Dependent variable:	**Parent chooses tournament pay for child**					
	(1)	(2)	Boys	Girls	Fathers	Mothers
Female (child)	0.006	0.017			0.024	0.020
	(0.029)	(0.029)			(0.046)	(0.038)
Belief probability of winning of child (parent)	0.052***	0.050***	0.062***	0.039***	0.061***	0.036***
	(0.008)	(0.008)	(0.011)	(0.011)	(0.013)	(0.010)
Risk taking self-assessment for child (parent)	0.014	0.012	0.033*	-0.005	-0.002	0.024
	(0.012)	(0.012)	(0.018)	(0.015)	(0.019)	(0.015)
Risk taking self-assessment for child (parent)	0.021***	0.022***	0.006	0.040***	0.040***	0.007
	(0.007)	(0.007)	(0.011)	(0.009)	(0.012)	(0.009)
Believes child would choose tournament for self (parent)	0.288***	0.295***	0.291***	0.271***	0.220***	0.363***
	(0.036)	(0.036)	(0.051)	(0.053)	(0.059)	(0.046)
Chooses tournament for self (parent)	0.275***	0.277***	0.213***	0.354***	0.301***	0.247***
	(0.034)	(0.034)	(0.050)	(0.048)	(0.054)	(0.045)
Constant	-0.408***	-0.463***	-0.571***	-0.406**	-0.603***	-0.332*
	(0.057)	(0.138)	(0.197)	(0.199)	(0.210)	(0.191)
School fixed effects	No	Yes	Yes	Yes	Yes	Yes
Demographic controls	No	Yes	Yes	Yes	Yes	Yes
Observations	740	740	347	393	314	426
R-squared	0.348	0.360	0.332	0.440	0.389	0.361

Note: The table shows the pre-specified analysis in section 4.3 — for research question 3 — of the pre-analysis plan. The dependent variable is a dummy taking the value of 1 if the parent chooses tournament pay for their child. The demographic controls include variables for Age (parent), Biologically related to child (parent), and Foreign (parent). All specifications use robust standard errors.

Table CV: Research question 4: Is the gender difference in selection into tournament pay larger when parents choose?

Dependent variable:	**Child works for tournament pay**			
	(1)	(2)	Father	Mother
Female (child)	-0.151***	-0.145***	-0.116**	-0.168***
	(0.032)	(0.032)	(0.049)	(0.043)
Parent decides	0.012	0.012	0.075	-0.043
	(0.036)	(0.036)	(0.053)	(0.049)
Parent decides for girl	0.075	0.075	0.073	0.089
	(0.047)	(0.047)	(0.073)	(0.062)
Parent is a mother		-0.038		
		(0.024)		
Constant	0.337***	0.345***	0.332*	0.314*
	(0.025)	(0.127)	(0.188)	(0.169)
School fixed effects	No	Yes	Yes	Yes
Demographic controls	No	Yes	Yes	Yes
Observations	1480	1480	628	852
R-squared	0.021	0.038	0.054	0.040

Note: The table shows the pre-specified analysis in section 4.4.1 of the pre-analysis plan. The dependent variable is a dummy taking the value of 1 if the child chooses tournament pay. The demographic controls include variables for Age (parent), Biologically related to child (parent), and Foreign (parent). All specifications use robust standard errors.

Table CVI: Research question 5: Do parents disagree more with boys or with girls?

Dependent variable:	**Parent and child choose differently for child**		
	(1)	(2)	(3)
Female (child)	-0.056	-0.016	0.003
	(0.034)	(0.034)	(0.045)
Child chooses to compete		0.279***	0.278***
		(0.042)	(0.042)
Female (child) X Female (parent)			-0.030
			(0.046)
Constant	0.352***	0.158	0.169
	(0.026)	(0.176)	(0.177)
School fixed effects	No	Yes	Yes
Demographic controls	No	Yes	Yes
Observations	740	740	740
R-squared	0.004	0.078	0.078

Note: The table shows the pre-specified analysis in section 4.4.2 of the pre-analysis plan. The dependent variable is a dummy taking the value of 1 if the child and parent choose differently. The demographic controls include variables for Age (parent), Biologically related to child (parent), and Foreign (parent). All specifications use robust standard errors.

Table CVII: Secondary research question: children's earnings in the experiment

Dependent variable:	**Realized in earnings**		**Lost earnings**	
	Child is decisionmaker	Parent is decisionmaker	Child is decisionmaker	Parent is decisionmaker
Girls	31.08	31.92	16.10	15.26
	(1.22)	(1.23)	(1.16)	(1.17)
Boys	28.37	29.27	9.21	8.30
	(1.38)	(1.46)	(0.97)	(0.89)
Observations	740	740	740	740
R-squared	0.591	0.587	0.291	0.274

Note: The table shows boys' and girls' realized earnings in the experiment, and children's lost earnings (the difference between the earnings of the choice that would maximize expected earnings and the realized earnings). This exploration of children's earnings in the experiment was specified in 4.2. and 4.4.1. Robust standard errors are reported in brackets.

Table CVIII: Exploratory research question: accuracy of parents' beliefs

Dependent variable:	**Parent has the correct belief about child's preferences**			
	(1)	(2)	(3)	(4)
Female (child)	0.142***	0.142***	0.140***	0.123***
	(0.036)	(0.036)	(0.036)	(0.035)
Female (parent)		0.005	0.006	-0.006
		(0.036)	(0.036)	(0.035)
Parent certainty in belief			0.005	0.002
			(0.008)	(0.008)
Parent and child have different preferences				-0.255***
				(0.036)
Constant	0.548***	0.545***	0.516***	0.653***
	(0.027)	(0.033)	(0.058)	(0.061)
Observations	740	740	740	740
R-squared	0.021	0.021	0.022	0.088

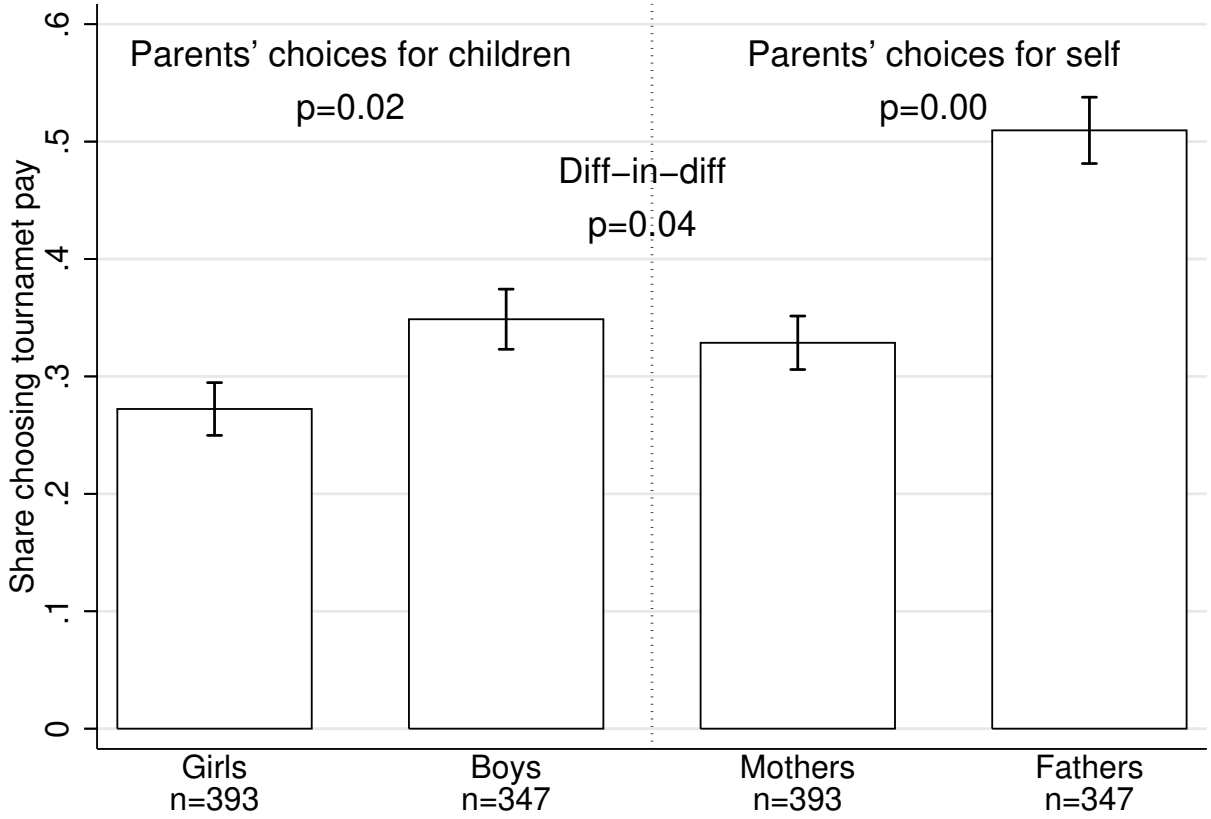
Note: The table shows the pre-specified analysis in section 4.5 of the pre-analysis plan where I pre-specify to explore the accuracy of parents' beliefs about their children. The dependent variable is a dummy taking the value of 1 if the parent answers correctly whether their child will choose piece-rate or tournament pay. Parental certainty is elicited on a scale from 0 to 10 for how certain the parent is that their guess is correct. The difference between parent and child preferences is a dummy variable taking the value of 1 if the parent's choice is different from their child's. All specifications use robust standard errors.

Table CIX: Exploratory research question: correlation in preferences

Dependent variable:	**Child chooses tournament pay for self**				
	All	Boys	Girls	Fathers	Mothers
Parent chooses	0.090***	0.063	0.094**	0.131***	0.066
tournamanet pay for self	(0.033)	(0.051)	(0.042)	(0.048)	(0.047)
Constant	0.220***	0.309***	0.150***	0.182***	0.241***
	(0.020)	(0.033)	(0.023)	(0.031)	(0.025)
Observations	740	347	393	314	426
R-squared	0.010	0.004	0.014	0.023	0.005

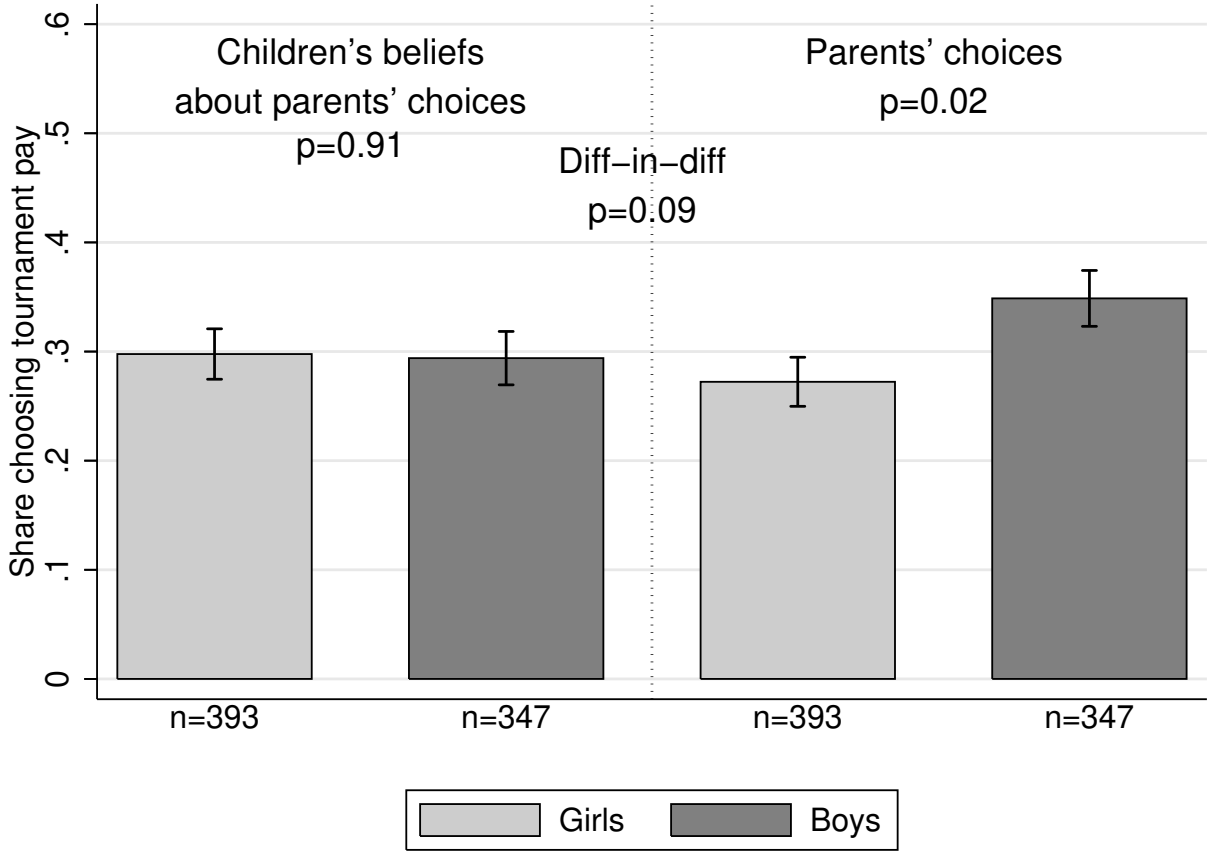
Note: The table shows the pre-specified analysis in section 4.5 of the pre-analysis plan where I pre-specify to explore the correlation in preferences between parents and children. The dependent variable is a dummy taking the value of 1 if the child chooses tournament pay. The explanatory variable is a dummy taking the value of 1 if the parent chooses tournament pay for self. All specifications use robust standard errors.

Figure CI: Exploratory research question: parents' choices for children versus parents' choices for self



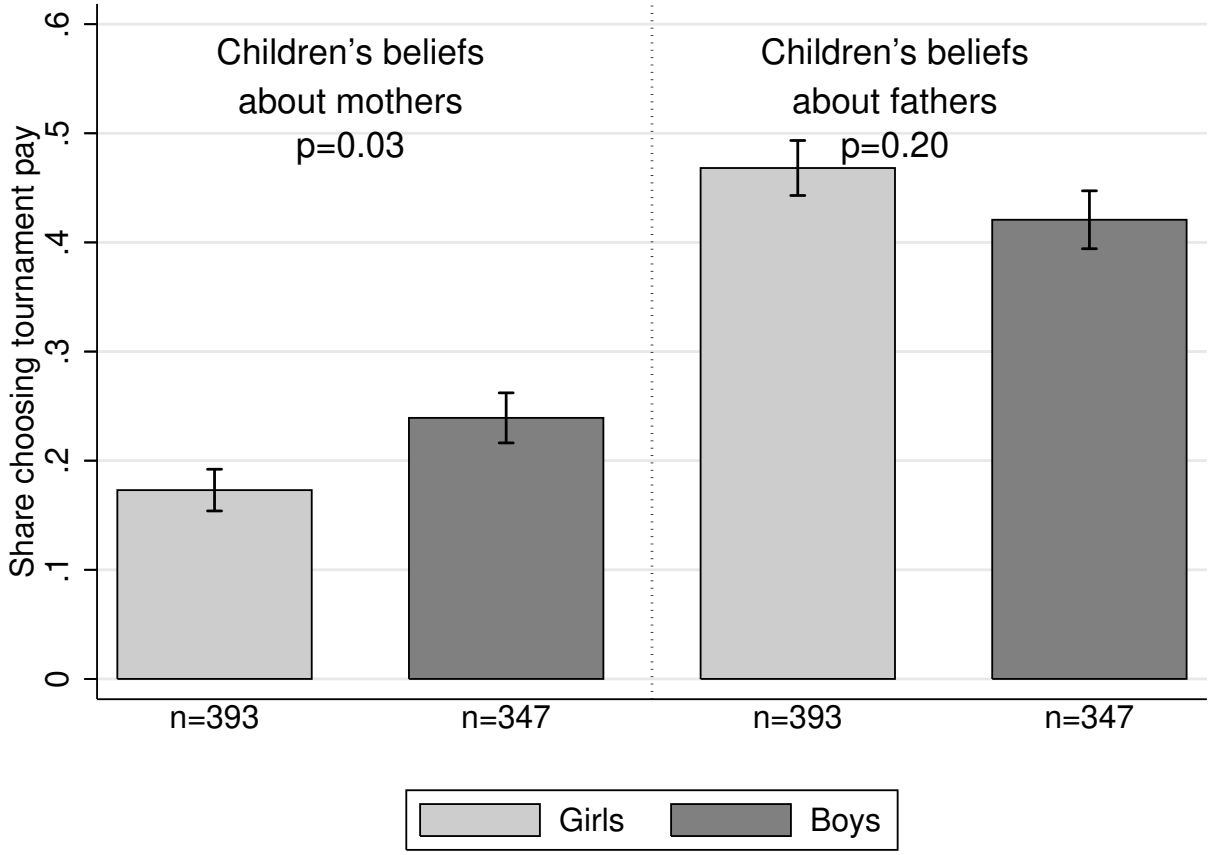
Note: The figure shows the pre-specified analysis in section 4.5 of the pre-analysis plan where I pre-specify to explore the gender difference in mothers' and fathers' choices for self, and the difference-in-difference with parents' choices for girls and boys. P-values are constructed using robust standard errors.

Figure CII: Exploratory research question: children's beliefs about parents' choices for them versus parents' choices for children



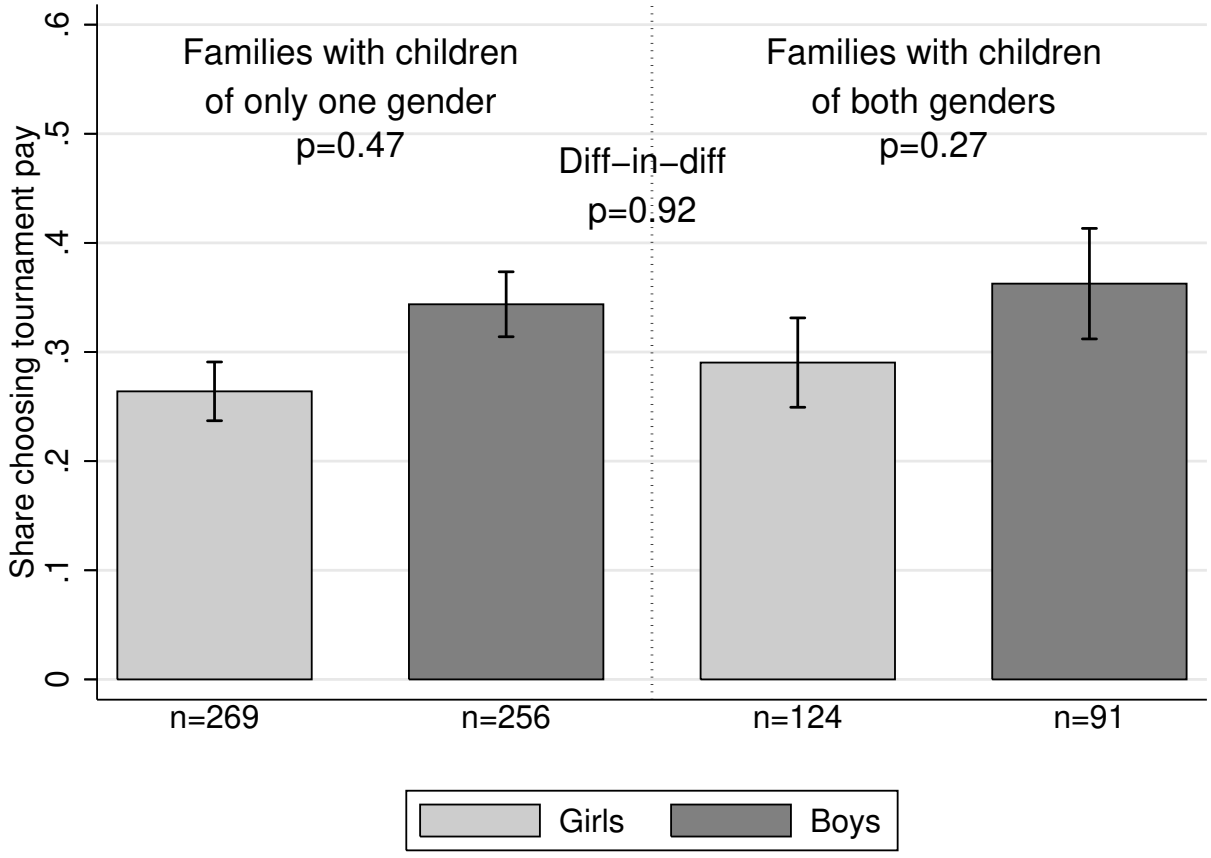
Note: The figure shows the pre-specified analysis in section 4.5 of the pre-analysis plan where I pre-specify to explore children's beliefs about parents' choices for them, and the difference-in-difference with parents' choices for children. I show only children's beliefs about the parent who made the choice for them in the experiment. P-values are constructed using robust standard errors.

Figure CIII: Exploratory research question: children's beliefs about their mothers' and fathers' choices for them



Note: The figure shows the pre-specified analysis in section 4.5 of the pre-analysis plan where I pre-specify to explore children's beliefs about their mothers' and fathers' choices for them. P-values are constructed using robust standard errors.

Figure CIV: Robustness check: families with both sons and daughters



Note: The figure shows the pre-specified analysis in section 4.1 of the pre-analysis plan where I pre-specify to test the effect on parents' choices of having children of both genders. P-values are constructed using robust standard errors.

D EXPERIMENTAL INSTRUCTIONS

D.I PARENT EXPERIMENT

The instructions have been translated from Norwegian. For original instructions in Norwegian, email jonas.tungodden@gmail.com. Notes are in italic.

Welcome!

Thank you for participating! This survey takes about 5 minutes and is related to the experiment your child and his/her classmates will take part in later today.

We ask that you complete the survey alone, and that you do not talk with your child about the survey (until after he/she has finished the experiment). This is very important for our research.

If you need help with the survey or have other questions, you can contact us on the telephone number listed at the bottom of every page.

Below follows a consent form for participating in this research project. Click on the arrow to accept it and start the survey.

Consent to participate in research

Participation in research is completely voluntary and you are free to stop taking part in the project at any time. If you agree to participate we ask you to complete the following survey.

Your answers will be linked with de-identified data on education and income from Statistics Norway. That data is de-identified means that all information which can identify you has been replaced with a key code which refers to a different file which contains personal information. As with all research, there is a chance that confidentiality could be compromised; however, we are taking precautions to minimize this risk. The file with personal information will be stored on a server with two factor identification in an encrypted file. No researchers will have access to this file, and if the results from the study is published or presented, no personal information will be used.

If you have any questions about this research, please feel free to contact us, either by phone 47 95 85 27 or jonast@berkeley.edu.

For questions about the survey:

47 95 85 27

Page break

The experiment

In the experiment your child will do two tasks: Task A and Task B. He/she will be paid for **one** of the tasks. When the experiment is finished, we will randomly select if he/she is paid for Task A or Task B.

The total payment your child will earn, includes what he/she earns on the task which is

selected for payment, in addition to 100 NOK as show-up compensation.

For questions about the survey:

47 95 85 27

Page break

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.
- He/she 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

Page break

How certain were you in your choice?

- 0 = very uncertain. I could just as well have chosen piece-rate pay *(tournament pay — if parent chose piece-rate pay).*

- 10 = completely certain. I could never have chosen piece-rate pay *(tournament pay — if parent chose piece-rate pay).*

0 1 2 3 4 5 6 7 8 9 10

Not uncertain Very certain

For questions about the survey:

47 95 85 27

Page break

Task B.

Task B is identical to Task A, but for Task B your child will choose if he/she works for piece-rate pay or tournament pay.

We will now ask you what you think your child will choose.

- Your child will make his/her choice before learning what he/she will do in Task A.
- Your child will not be told your answer.

Win an iPad Air 2 by guessing correctly.

As a thank you gift for participating in the survey, three parents will win an iPad. You get one ticket to the iPad lottery for completing the survey. You get three extra tickets to the lottery if you guess correctly what your child will choose.

Will your child choose piece-rate pay or tournament pay?

Piece-rate pay Tournament pay

For questions about the survey:

47 95 85 27

Page break

How certain were you in your answer?

- 0 = very uncertain. My child could just as well have chosen piece-rate pay *(tournament pay — if parent guessed piece-rate pay).*
- 10 = completely certain. My child could never have chosen piece-rate pay *(tournament pay — if parent guessed piece-rate pay).*

0 1 2 3 4 5 6 7 8 9 10

Not uncertain Very certain

For questions about the survey:

47 95 85 27

Page break

How well do you think your child will perform on the task relative to other students in Hordaland?

- 0 = among the 10% worst on the task.
- 50 = in the middle.
- 100 = among the 10% best on the task.

0 1 2 3 4 5 6 7 8 9 10

Poorly Very well

For questions about the survey:

47 95 85 27

Page break

Would you choose piece-rate pay or tournament pay for yourself?

(If you participated in the experiment together with other parents from the class.)

Piece-rate pay Tournament pay

If you could give your child one of the following bonuses as an extra payment in the experiment: which would you choose? (This is a hypothetical question, meaning, the bonus will not actually be paid to you child.)

- 200 NOK
- 350 NOK with 50% probability, 50 NOK with 50% probability
- 400 NOK with 50% probability, 100 NOK with 50% probability
- 500 NOK with 50% probability, 50 NOK with 50% probability
- 600 NOK with 50% probability, 0 NOK with 50 % probability

When you make a choice for your child (the one participating in the experiment), are you generally willing to take risk, if there also is a possibility for a gain?

0 1 2 3 4 5 6 7 8 9 10

Not willing Very willing

Do you think it is important to be competitive in order to be successful in today's society?

0 1 2 3 4 5 6 7 8 9 10

Not important Very important

How important do you think it is to be successful in order to be happy?

0 1 2 3 4 5 6 7 8 9 10

Not important Very important

84% of Norwegian stock based companies have male CEOs. To what degree do you think this is a problem for our society?

0 1 2 3 4 5 6 7 8 9 10

Not a problem Very big problem

Are you the biological father or mother of the child in the experiment?

Yes No

Do you live in the same house as the child in the experiment?

Yes No

What is your age?

_____

For questions about the survey:

47 95 85 27

Page break

Thank you for your participation!

Your participation is very important for our research project and we are very thankful for your time.

We hope that you can help us further by not talking to your child about the survey, until he/she has finished the experiment.

We will contact the winners of iPad Air 2 after we have completed the survey at all the schools participating in the research project.

Please contact us at 47 95 85 27 or jonast@berkeley.edu, if you have any questions related to the survey or the research project.

D.II CHILD EXPERIMENT

The instructions have been translated from Norwegian. For original instructions in Norwegian, email jonas.tungodden@gmail.com. Notes are in italic.

Welcome to the experiment!

Thank you for participating! The experiment takes about 30 minutes.

Enter you experiment code and press "next" to start the experiment.

Page break

The experiment

In the experiment you will do two tasks: Task A and Task B. You will be paid for **one** of the tasks. When the experiment is finished, we will randomly select if you are paid for Task A or Task B.

The total payment you will earn includes what you earn on the task which is selected for payment, in addition to 100 NOK as show-up compensation.

Page break

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

What do you choose?

Piece-rate pay Tournament pay

Page break

How certain were you in your choice?

- 0 = very uncertain. I could just as well have chosen piece-rate pay *(tournament pay — if the child chose piece-rate pay).*
- 10 = very certain. I could never have chosen piece-rate pay *(tournament pay — if the child chose piece-rate pay).*

0 1 2 3 4 5 6 7 8 9 10

Not uncertain Very certain

Page break

Task A will start when you press "Next". You will then have 3 minutes to solve the questions.

Page break

Time left: 180

$$73 + 58 + 90 + 23 = ?$$

Next question

Page break

You are now finished with Task A.

Press "Next" to go to Task B.

Page break

Task B is identical to Task A, but in Task B you will not get to decide for yourself if you will do the task for piece-rate pay or tournament pay. Instead, the choice will be made either by a random draw or by another participant in the research project.

Page break

The following text was shown if piece-rate pay was chosen by the parent (or by random draw, in the case were the parent failed to answer the parent experiment in time):

You will do Task B for piece-rate pay. That means you will get 5 NOK for each correct answer.

Press "Next" to start Task B. You will then have 3 minutes to solve the questions.

The following text was shown if tournament pay was chosen by the parent (or by random draw, in the case were the parent failed to answer the parent experiment in time):

You will do Task B for tournament pay. That means:

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

Press "Next" to start Task B. You will then have 3 minutes to solve the questions.

Page break

Time left: 180

$$43 + 68 + 86 + 15 = ?$$

Next question

Page break

You have now completed Task A and Task B.

You will now do a Bonus Task. The Bonus Task is the same as Task A and Task B, but you now have the opportunity to earn tickets to an iPhone lottery.

Three iPhone 7 Plus will be won by students who are participating at this experiment or the same experiment at other schools. All students participating in the experiment receives 1 ticket to the iPhone lottery. You will also receive one extra ticket for each correct answer in the Bonus Task.

Press "Next" to start the Bonus Task. You will then have 3 minutes to solve the questions.

Page break

Time left: 180

$$54 + 12 + 36 + 64 = ?$$

Next question

Page break

You are now finished with all the tasks.

Page break

How well do you think you performed on the task relative to other students in Hordaland?

- 0 = among the 10% worst on the task.
- 50 = in the middle.
- 100 = among the 10% best on the task.

0 1 2 3 4 5 6 7 8 9 10

Poorly Very well

Page break

If you could get one of the following bonuses as an extra payment in the experiment: which would you choose? (This is a hypothetical question, meaning, the bonus will not actually be paid to you).

- 200 NOK
- 350 NOK with 50% probability, 50 NOK with 50% probability
- 400 NOK with 50% probability, 100 NOK with 50% probability
- 500 NOK with 50% probability, 50 NOK with 50% probability
- 600 NOK with 50% probability, 0 NOK with 50 % probability

Page break

How do you think about yourself? Are you are person who is generally willing to take risk, or do you try to avoid risk. Answer on a scale from 0 to 10, where 0 means "not willing to take risk at all", and 10 means "very willing to take risk".

0 1 2 3 4 5 6 7 8 9 10

How willing do you think you are to compete? Answer on a scale from 0 to 10, where 0 means "not willing to compete", and 10 means "very willing to compete".

0 1 2 3 4 5 6 7 8 9 10

Page break

Do you think it is important to be competitive in order to be successful in today's society?

0 1 2 3 4 5 6 7 8 9 10

Not important Very important

How important do you think it is to be successful in order to be happy?

0 1 2 3 4 5 6 7 8 9 10

Not important Very important

84% of Norwegian stock based companies have male CEOs. To what degree do you think this is a problem for our society?

0 1 2 3 4 5 6 7 8 9 10

Not a problem Very big problem

Page break

What job do you want when you grow up?

_____

Page break

If your **mother** were to choose between piece-rate pay and tournament pay for you, what do you think she would choose?

Piece-rate pay Tournament pay

If your **father** were to choose between piece-rate pay and tournament pay for you, what do you think he would choose?

Piece-rate pay Tournament pay

Page break

Does your parents live together?

Yes No

Are your parents married to each other?

Yes No

Page break

How many older sisters do you have? _____

How many younger sisters do you have? _____

How many older brothers do you have?_____

How many younger brothers do you have? _____

Page break

On a scale from 1 to 6, indicate how accurately does the following statements describe your parents. Where 1 = "does not at all describe my parents" and 6 ="very well describes my parents".

- My parents take my wishes into consideration before they ask me to do something.

  1 2 3 4 5 6

- My parents encourage me to speak my mind even if they disagree.

  1 2 3 4 5 6

- My parents punish me by taking privileges away from me (e.g. TV, games, visiting friends).

  1 2 3 4 5 6

- My parents criticize me when my behavior does not meet their expectations.

  1 2 3 4 5 6

- My parents do not care about my behavior.

  1 2 3 4 5 6

Page break

Your gender:

- Male
- Female

Do you speak another language than Norwegian at home?

- Yes.
- No.

Page break

We now draw if you will be paid for Task A or Task B.

Please wait.

Page break

Payment.

On Task A you had ? correct answers.

On Task B you had ? correct answers.

On the bonus task you had ? correct answers.

The task which will determine your payment is ?.

On the task you earned ? NOK. In addition you get 100 NOK a show-up payment. In total you have earned ?.

We will contact the winners of the iPhone lottery in May, after we have completed the experiment at all the schools that participated in the research project.