Choosing To Compete: How Different Are Girls and Boys?*

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Using a controlled experiment, we examine the role of nurture in explaining the stylized fact that women shy away from competition. Our subjects (students just under 15 years of age) attend publicly-funded single-sex and coeducational schools. We find robust differences between the competitive choices of girls from single-sex and coed schools. Moreover, girls from single-sex schools behave more like boys even when randomly assigned to mixed-sex experimental groups. Thus it is untrue that the average female avoids competitive behaviour more than the average male. This suggests that observed gender differences might reflect social learning rather than inherent gender traits.

Keywords: tournament, piece-rate, gender, experiment, competitive behaviour

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I. Introduction

Women have been catching up to men in the workplace since the 1980s. The gender wage gap has not disappeared, though. Women still lag behind men in average pay and with regard to opportunities for advancement.[1] Commonly cited reasons for these differences are discrimination or claims that women, more than men, are sensitive to work-family conflicts and more inclined to make career sacrifices.[2] However, obtaining promotion and pay raises often involves competition, and it may be that women do not like to compete. If women dislike competition but men enjoy it, there will be two effects. First, fewer women will choose to enter a competitive environment, and second there will be fewer women succeeding in competitions. Recent experimental evidence has found that, when given the choice of whether or not to enter tournaments, women 'shy away from competition' while men may choose to compete too much (e.g. Datta Gupta, Poulsen, and Villeval (2005); Niederle and Vesterlund (2007)).[3] Understanding why women seem less inclined than men to compete can provide insight into why a gender gap still exists in the workplace and what type of policies might address this gap.

Innate differences are one obvious factor that might explain the gender competition-gap.[4] While nature might well be important in shaping competitive behaviour, the culture or environment in which an individual is raised might reduce or exacerbate gender disparities. For example, even if boys are more athletic than girls, hearing boys taunt one another with claims of 'throwing like a girl' may discourage athletically talented girls from participating in sports that involve throwing, increasing the performance gap that existed because of innate differences. Likewise, if girls are naturally more talented with the written word, requiring boys to read and prepare book reports may dampen any gap that existed. Psychologists have shown that framing of tasks and cultural stereotypes do affect the performance of individuals.[5] Therefore, even if innate differences do exist with regard to competition, the environment may still be a major factor contributing to observed differences. The role of nurture – environment, culture or upbringing – may therefore be central to explaining why

1. A study by Bertrand and Hallock (2001) found that women in top corporate jobs earn about 5% less than their male counterparts and only represented 2.5% of high-level executives of large US firms from 1992-1997.

2. See for example Albrecht, Bjorklund and Vroman (2003), Blau and Kahn (2004), and Arulampalam, Booth and Bryan (2007).

3. Croson and Gneezy (2008) summarize the experimental literature on gender differences in risk, competition and social preferences. Eckel and Grossman (2002) provide a summary of gender differences an even broader range of experimental literature and Eckel and Grossman (2008) focuses on the risk and gender.

4. Refer to Lawrence (2006) or Summers (2005) for discussions of the role innate differences may play. Barres (2006), on the other hand, aims to explain what is wrong with the nature hypothesis.

5. See Steele, Spencer, and Aronson (2002) for a summary of the stereotype threat literature and the role of stereotype threat in performance.

men and women differ in their choices of whether or not to enter tournaments.[6]

Establishing whether or not nurture plays a role in tournament entry is important in shaping the policy debate around gender differences in educational and labour market outcomes. First, it provides guidance as to whether or not gender differences in outcomes should be of concern. If nature is the primary reason for gender differences in tournament entry, then existing gender pay gaps may simply reflect economically important differences in preferences rather than underlying prejudice or discrimination in the workplace. However, if nurture is found to modify preferences for tournament entry, then we need to learn more about the various environmental factors shaping such preferences. Second, examining the role of nature provides insight into what policies might be implemented to address gender differences in outcomes. If nature is the primary reason for differences, a policy-maker aiming to decrease the gender gap may need to change the manner in which work is rewarded. However, if nurture is a primary reason, policies or curricula could be designed to address cultural or environmental factors affecting girls before they enter the workplace.

In this paper we examine the role that nurture might play in explaining the stylized fact that women shy away from competion. We do this by studying the choices made by girls from single-sex and coeducational schools when they are given the opportunity to enter a tournament in a controlled experiment. While we use a different subject pool to that utilised in the literature, we follow a similar methodology by observing subjects' behaviour in response to different compensation schemes. But we also augment that approach in several crucial respects, as will be described below.

Why might single-sex schooling favour competitiveness in general? It is often argued that girls benefit academically from single-sex education, in part by achieving higher scores on standardized exams.[7] Moreover, educational studies show that there may be more pressure for girls to maintain their gender identity in schools where boys are present than for boys when girls are present (Maccoby, 1990; Brutsaert, 1999). In a coeducational environment, adolescent girls are more explicitly confronted with adolescent subculture (such as personal attractiveness to members of the opposite sex) than they are in a single-sex environment (Coleman, 1961). This may lead them to conform to boys' expectations of how girls should

6. Gneezy, Niederle and Rustichini (2003), using a subject pool of coed engineering students, find a significant gender gap in performance when compensation is tournament-based but not when it is piece-rate. This difference across groups might be due to stereotype threats (Steele, 1997), since being in a mixed group heightens subjects' awareness of gender and prompts them to behave in accordance with their gender stereotype. That subjects' behaviour alters in response to such prompts also suggests that environment matters - even an environment in which the subjects have been placed for such a short time. One goal of the present paper is to see if environments in which individuals have been placed for far longer - typically 4-5 years - counteracts this.

7. See Campbell and Sanders (2002) for an overview of the empirical studies on single-sex education and its effect on girls.

behave to avoid social rejection (American Association of University Women, 1992). If behaving competitively is viewed as being a part of male gender identity but not of female, then being in a coeducational school environment might lead girls to make less competitive choices than boys.

How might this actually work? It is helpful to extend the identity approach of Akerlof and Kranton (2000) to this context. Adolescent girls in a coed environment could be subject to more conflict in their gender identity, since they have to compete with boys academically while at the same time they may feel pressured to develop their femininity in order to be attractive to boys at school. Moreover, there may be an externality at work, since girls are competing with other girls to be popular with boys. This externality may reinforce their need to adhere to their female gender identity. Why would boys not feel similarly pressured? First, academic success, assertive behaviour and being attractive to girls are not such contradictory goals, owing to the prevalence of the male bread-winner model in our society. While adolescent boys in a coed environment are also likely to be very aware of their gender identity, they may experience different conflicts to those of the girls. To the extent that the presence of girls pressures boys to develop their masculinity to increase their popularity – or to reduce any threat to their male identity - this might make them more assertive and competitive. The fact that they are also competing with other boys for popularity might reinforce this tendency.

If this is true, we would expect girls in coed schools to be less likely than girls in single-sex schools to enter tournaments. We might also expect coed schoolboys to be more competitive than single-sex schoolboys, although the education literature suggests that there is greater pressure for girls to maintain their gender identity in schools where boys are present than for boys when girls are present (Maccoby, 1990, 1998). Indeed the coed environment could socialize boys, since the presence of girls could make them more aware that macho activities do not necessarily improve their popularity with the opposite sex.

In a recent experimental contribution also addressing the role of nurture, Gneezy, Leonard and List (2008) compare subjects from a matrilineal and a patriarchal society. They find that women from the matrilineal society choose to compete as much as men from the patriarchal society.[8] We too use a controlled experiment to see if there are gender differences in the behaviour of subjects from two distinct environments or 'cultures'. But our environments - publicly-funded single-sex and coeducational schools - are closer to one an-

8. Gneezy et al. investigated two distinct societies - the Maasai tribe of Tanzania and the Khasi tribe in India. The former are patriarchal while the latter are matrilineal. In the patriarchal society, women are less competitive than men, a result that is consistent with the findings of studies using data from Western cultures. But in the matrilineal society, women are more competitive. Indeed, the Khasi women were as competitive as Maasai men.

other than those in Gneezy et al (2008) and it seems unlikely that there is much evolutionary distance between our subjects. Any observed gender differences in behaviour across these two distinct environments is more likely to be due to the nurturing received from parents, teachers or peers than to nature. Given this, we expect that girls from single-sex schools will chose to compete more than girls from coed schools.

The rest of this paper is in five parts. In Section II we discuss the four conjectures we will test and how they can shed light on the nature and nurture debate with regard to competition. In Section III we describe the pool from which our sample was drawn and the design of the experiment. The results are discussed in Sections IV and V, while Section VI concludes.

II. Conjectures

While the subject pool in our experiment differs in age and educational background from those used in previous studies, we nonetheless hypothesise that we too will find gender differences in tournament entry. This is summarised in the first conjecture.

Conjecture 1. Men choose to enter the tournament more than women.

If it is the case that men, on average, prefer to compete more than women, then our experimental data will support this conjecture. However, while any such evidence would show that the gender gap in tournament entry is robust to a change in subject pool, it would not identify if the gender gap is due to nature or nurture. Preference differences for competition could arise from innate differences between men and women or in how how they are raised. If evidence supporting Conjecture 1 is due primarily to nature, we would expect to find that gender differences in tournament entry are not sensitive to a subject's schooling or to the gender make-up of the experimental peer-group to which one was assigned. But if nurture plays a role, we would expect to find that tournament entry varies across our categories of interest. This leads us to our next three conjectures.

Conjecture 2. Girls from single-sex schools choose to enter the tournament more than girls from coed schools.

This conjecture suggests that same-sex schooling can modify, in an economically important way, female preferences for making competitive choices. If we find evidence that girls from single-sex schools choose to enter the tournament more than girls from coed schools, this could suggest that nurture can affect a girl's choice. Given that subjects are not randomly assigned to their school, we will also control for factors that could potentially be correlated with attendance, as will be explained later.

Suppose we find that, conditional on observable factors, girls from single-sex schools choose to enter the tournament more than girls from coed schools. This would provide more support for the case that nurture plays a role than if the controls explained all the difference in tournament entry decisions.

Conjecture 3. Girls in single-sex experimental peer-groups choose to enter the tournament more than girls in coed experimental peer-groups.

Psychologists have shown that cultural stereotypes and the framing of tasks affect the performance of individuals (see *inter alia* Steele, Spencer, and Aronson, 2002). Being in a single-sex group for the experiment might trigger subjects in particular ways that relate to their gender identity. For example, schoolgirls assigned to mixed-sex groups may feel their gender identity is threatened when they are confronted with boys. This might encourage them to affirm their femininity by conforming to perceived male expectations of girls' behaviour, leading them to be less competitive if they perceive this as being a feminine trait. Should the same girl be assigned instead to an all-girl group, such reactions would not be triggered.[9] In short, the cue of the gender composition of the experimental group is likely to affect female behaviour. This hypothesis is summarised in Conjecture 3, which suggests that *assignment to* a same-sex group can modify, in an economically important way, female preferences for making competitive choices.

To test this, we randomly assign students to single-sex or coed groups in the experiment. This allows us to examine how the gender composition of a group affects the choice of girls to enter a tournament. Since subjects are randomly assigned to groups, unobservables should not be driving the effects.

Two other studies have looked at competition and the effect of the gender make-up of the experimental peer-group. However they looked at the effect on tournament performance and not the choice to enter a tournament. Gneezy, Niederle, and Rustichini (2003) found that girls performed better in tournaments when boys were not present but Gneezy and Rustichini (2004) found no improvement when subjects were in single-sex groups. We expect that girls in an all-girls group will choose to enter the tournament more than girls in a mixed gender group.

Next we consider how girls will behave relative to boys.

9. If girls do feel more pressured to maintain their gender identity when boys are present than boys feel when girls are present, then we should expect to observe a gender gap in competitive behaviour for girls and boys attending single-sex schools who are assigned to mixed-sex groups. We discuss this in a later section.

Conjecture 4. Girls from single-sex schools choose to enter the tournament at the same rate as boys.

As noted in the Introduction, studies show that there may be more pressure for girls to maintain their gender identity in schools where boys are present than for boys when girls are present. If behaving competitively is viewed as a part of male gender identity but not of female, then being educated in a coeducational school environment might lead girls to make less competitive choices than boys.

In our analysis we will control for other variables proxying socialization and possible selection, namely parental education and family background including the number and gender of the subject's siblings. Since the type of school a student attends is not randomly assigned within our experiment, we will also compare single-sex students to different control groups and use two econometric techniques - an instrumental variable approach and propensity score matching - to check the robustness of our results. Furthermore, the fact that our experiment randomly assigns students to single-sex and coed groups will allow us to estimate an effect of single-sex peer groups on girls that is not affected by unobservables.

III. Experimental Design

Our experiment was designed to test the four conjectures listed above. To examine the role of nurturing, we recruited students from coeducational and single-sex schools to be subjects. We also designed an 'exit' survey to elicit information about family background characteristics. At no stage were the schools we selected, or the subjects who volunteered, told why they were chosen. Our subject pool is relatively large for a controlled, laboratory-type experiment. We wished to have a large number of subjects from a variety of educational backgrounds in order to be able to investigate the conjectures outlined above.

Below we first discuss the educational environment from which our subjects were drawn, and then the experiment itself.

III.A. Subjects and Educational Environment

In September 2007, students from eight publicly-funded schools in the counties of Essex and Suffolk in the UK were bused to the Colchester campus of the University of Essex to participate in the experiment. Four of the schools were single-sex.[10] The students were

10. A pilot was conducted several months earlier, in June at the end of the previous school year. The point of the pilot was to determine the appropriate level of difficulty and duration of the actual experiment.

from years 10 or 11, and their average age was just under 15 years. On arrival, students from each school were randomly assigned into 65 groups of four. Groups were of three types: all-girls; all-boys; or mixed. Mixed groups had at least one student of each gender and the modal group comprised two boys and two girls. The composition of each group - the appropriate mix of single-sex schools, coeducational schools and gender - was determined beforehand. Thus only the assignment of the 260 girls and boys from a particular school to a group was random. The school mix was two coeducational schools from Suffolk (103 students), two coeducational schools from Essex (45 students), two all-girl schools from Essex (66 students), and two all-boy schools from Essex (46 students).

In Suffolk county there are no single-sex publicly-funded schools. In Essex county the old "grammar" schools remain, owing to a quirk of political history.[11] These grammar schools are single-sex and, like the coeducational schools, are publicly funded. It is highly unlikely that students themselves actively choose to go to the single-sex schools. Instead Essex primary-school teachers, with parental consent, choose the more able children to sit for the Essex-wide exam for entry into grammar schools.[12] Parents must be resident in Essex for their children to be eligible to sit the entrance exam (the 11+ exam). It is possible that more informed or more competitive Essex parents may persuade their children to sit for the 11+ and indeed may coach their children for the 11+. Sitting for the 11+ is more likely to reflect the ambition or pushiness of the parents and teachers rather than that of the children. Therefore students at the single-sex schools are not a random subset of the students in Essex, since they are selected based on measurable ability at age 11 as well as "parental pushiness".[13] Our controls for parental education - obtained from the exit questionnaire - may pick up unobservable "parental pushiness", which is part of the nurturing environment.

The pilot used a different subject pool to that used in the real experiment. It comprised students from two schools (one single-sex in Essex and one coeducational in Suffolk) who had recently completed year 11. The actual experiment conducted some months later, at the start of the new school year, used, as subjects, students who had just started years 10 or 11.

11. In the UK, schools are controlled by local area authorities but frequently "directed" by central government. Following the 1944 Education Act, grammar schools became part of the central government's tripatrtite system of grammar, secondary modern and technical schools (the latter never got off the ground). By the mid-1960s, the central Labour government put pressure on local authorities to establish "comprehensive" schools in their place. Across England and Wales, grammar schools survived in some areas (typically those with long-standing Conservative boroughs) but were abolished in most others. In some counties the grammar schools left the state system altogether and became independent schools; these are not part of our study. However, in parts of Essex, single-sex grammar schools survive as publicly-funded entities, while in Suffolk they no longer exist.

12. If a student achieves a high enough score on the exam, s/he can attend one of the 12 schools in the Consortium of Selective Schools in Essex (CSSE). The vast majority of these are single-sex. The four single-sex schools in our experiment are part of the CSSE.

13. Examples of parental unobservables likely to determine whether or not children are encouraged to sit for the 11+ include parental ambition, parental heterogeneity in discount rates, social custom factors, or lack of information about potential benefits of education.

We also control for ability in our analysis, as will be described below. Moreover, we asked our participating coeducational schools from both Essex and Suffolk to provide students only from the higher-ability academic stream so that they would be more comparable to the grammar school students.[14] There are no grammar schools in Suffolk. We will perform a series of robustness checks to control for possible differences between students from co-ed and single-sex schools after we examine different choices made by students.[15]

The experiment took place in a very large auditorium with 1,000 seats arranged in tiers. Students in the same group were seated in the same row with an empty seat between each person. There was also an empty row in front of and behind each group. While subjects were told which other students were in the same group, they were sitting far enough apart for their work to be private information. If two students from the same school were assigned to a group, they were forced to sit as far apart as possible; for example, in a group of four, two other students would sit between the students from the same school. There was one supervisor, a graduate student, assigned to supervise every five groups. Once the experiment began, students were told not to talk. Each supervisor enforced this rule and also answered individual questions. Consequently, during the experiment there was very little talking within or between groups.

III.B. Experiment

At the start of the experiment, students were told that they would be performing a number of tasks, and that one of these would be randomly chosen for payment at the end of the experiment.[16] In each round students had 5 minutes to solve as many of 15 mazes as possible. The instructions are given in the Appendix.[17] Before the first task was explained,

14. To compare students of roughly the same ability we recruited students from the top part of the distribution in the two coeducational schools in Essex: only students in the academic streams were asked to participate. Students from Suffolk do not have the option to take the 11+ exam and therefore higher ability students are unlikely to be selected out of Suffolk schools in the same way as in Essex. Nonetheless we only recruited students from the academic streams in the Suffolk as well.

15. If the 11+ exam scores of students were available we would use a regression discontinuity analysis. However, given the size of our sample, and the data restrictions impossed by the CSSE, the body that administers the 11+ exam, this seems unfeasable.

16. Payment was randomized in the same manner as in Datta Gupta, Poulsen, and Villeval (2005) and Niederle and Vesterlund (2007). Since the round students are paid for is randomly selected at the end of the experiment, they should maximize their payoff in each round in order to maximize their payment overall. Moreover, as only one round was selected for payment, students did not have the opportunity to hedge across tasks.

17. Mazes were of the type that can be found at http://games.yahoo.com/games/maze.html. These mazes have been used in several economic experiments before: Gneezy, Niederle, and Rustichini (2003); Datta Gupta, Poulsen, and Villeval (2005); and Hoff and Pandey (2004). For this experiment the difficulty used was the easiest of the “Easy to Hard” scale found at the bottom right hand side on the webpage.

students were shown a practice maze, given instructions on how to solve it, and allowed to ask any questions. Immediately before each round, students were told the nature of the task to be carried out and the payment for that round. At this stage, students were permitted to ask questions of clarification about that round. At no stage were students told how they performed relative to others in their group. The specific payment mechanisms are explained below, in the order in which the rounds occurred. No student was able to solve all 15 mazes in the time allotted. All mazes were double-blind marked as is the standard in UK universities.

The three rounds of the experiment closely follow those of Niederle and Vesterland (2007). We wished to use a well-tested experimental strategy to investigate a new conjecture - that nurturing, in either single-sex or coeducational environments, may affect women's propensity to compete. In contrast, Niederle and Vesterland (2007) used the coeducational subject pool of the Pittsburgh Experimental Economics Laboratory at the University of Pittsburgh. Their tasks involved the addition of numbers whereas ours involve completing paper mazes.

The incentive structure of each round is laid out below. We also conducted an exit questionnaire at the end of the experiment.

Round 1: Piece Rate. Students were asked to solve as many mazes as possible in 5 minutes. They would receive £0.50 for each maze solved correctly if this round was randomly selected for payment.

Round 2: Tournament. Students were asked to solve as many mazes as possible in 5 minutes. If this round was randomly selected for payment, the group-winner would receive £2 for each maze solved correctly and the other members zero.

Round 3: Choice of Tournament or Piece Rate. Students were asked to choose either Option One or Option Two and then solve as many mazes as possible in 5 minutes. Payment would depend on which option they chose if this round was randomly selected for payment. If a student were to choose Option One, she would get £0.50 per maze solved correctly. If she chose Option Two, she would get £2 per maze solved correctly *IF* she solved more mazes correctly than anyone else in her group did the *previous* round and zero otherwise.

Exit Questionnaire. At the end, students were asked to complete an exit questionnaire. This questionnaire asked about family background, parents, any siblings, residential postcode and risk-attitudes.

The payments (both the show-up fee of £5 plus any payment from performance in the randomly selected round) were in cash and were hand-delivered in sealed envelopes (clearly labelled with each student's name) to the schools a few days after the experiment. The average payment was £7. In addition, immediately after completing the Exit Questionnaire, each student was given a bag containing a soft drink, packet of crisps and bar of chocolate.

IV. Piece-Rate and Mandatory Tournament

When examining the choice of whether to enter the tournament we want to be able to control for ability, learning and any family or background differences that could be driving the results. Therefore we examine the summary statistics by school-type and experimental peer-groups for both boys and girls and we check if, within school-type, girls and boys look the same. Table 1 shows school-type differences for boys and girls.

[Table 1 - Summary Statistics by school-type for boys and girls]

The parents of students at single-sex schools are more likely to have gone to university, suggesting "parental pushiness" may be at play, to the extent that educated parents may be more likely to push their children into grammar schools. (Alternatively, better educated parents might give their children a head-start in skills acquisition, facilitating better performance in the 11+.) Moveover, an educated parent could affect a daughter or son's propensity to compete. For example, educated parents might be more competitive, or enjoy competition more, and encourage their children to compete in more events or tasks than would parents without a university degree. The gender make-up of siblings may also affect an individual's competitiveness. If males are more competitive than females, having more brothers may cause a girl to feel more at home in a competitive environment. Girls at single-sex schools have fewer sisters than girls at coeducational schools but no fewer siblings in general. However boys at single-sex schools have slightly fewer siblings. When looking at boys and girls in the same type of school setting, as in Table 2, there are fewer differences: in single-sex schools girls are, on average, older than boys; in coed schools boys are more likely to have had their father attend university.

[Table 2 - Summary Statistics by gender for coed and single-sex schools]

Since we are aiming to compare girls from single-sex and coeducational schools who are roughly the same, and we are going to want to compare the gender gap within coed and single-sex schools we need to control for these observed differences. Therefore in all of our regressions we will control for age, parental education, the number of siblings, and the number of female siblings. Furthermore, we will allow these effects to vary by gender and school-type so we will interact the controls by gender and schooling in all regressions. With regards to experimental peer-group we provide a summary in Table 3 below.

[Table 3 - Summary Statistics by group type for boys and girls]

The first two rounds of our experiment are primarily going to be used to control for ability. Despite this it is interesting to estimate their determinants. The first three columns in Table 4 show the OLS regressions for the piece-rate round. On average, students solved 2.59 mazes correctly. Column [1] shows that a gender gap exists; women solve roughly two-thirds of a maze less than boys. The coefficient on female gets slightly larger when we add in controls for parental background, the age of the student and siblings, and allow those effects to vary by gender and school-type, as shown in column [2] – girls still solve fewer mazes than boys. Column [3] allows comparisons of students from single-sex and coed schools and students in all-girl, all-boy and mixed gender groups. Even when controlling for educational background and group composition the gender gap for performance in the piece-rate setting still exists; girls solve 0.91 mazes less than boys.

[Table 4 – Basic Regressions]

The next round of the experiment was the mandatory tournament. The information from this round will also be used in our subsequent analysis. The change in performance following a shift from piece-rate to tournament might be affected by a number of factors, including ability, learning, and competition. The larger payment given to the winner has two effects. First, it gives students an incentive to work harder because they get four times as much for each maze they solve correctly if they win. Second, students are also motivated to work harder because if they lose they get nothing. The last three columns of Table 2 show how a student changed behavior in the tournament compared with the piece-rate setting. Columns [4]-[6] present the regression results for a student's tournament score (the number of mazes solved in the second round) minus her/his piece-rate score (the number of mazes solved in the first round).

After controlling for background and performance in the piece-rate setting, girls increased their performance as much as boys in the tournament setting; the gender gap in columns [5] and [6] is not statistically significant. The sign on the female coefficient is consistent with Gneezy et. al. (2003), suggesting that the results from the first two rounds are comparable with what has been found in the previous experimental work on gender and competition. The significant coefficient that is robust to each setting is the score in the piece-rate setting. Subjects scoring high in the first round did not improve their score as much in the tournament. Since no student solved all mazes correctly, this suggests that some students are adequately motivated by the piece-rate setting.

The results of these first two rounds – the tournament score and the increase in performance from the piece-rate to tournament setting – will be used to control for ability and learning when examining a student's choice about whether or not to enter a tournament in Round 3. However Round 2 is important for another reason: it provides students with information about how they perform in a tournament setting. Therefore, when *choosing* to compete in Round 3, the student knows her ability, how she performs under pressure, and has had experience in the competitive environment. Hence she should be able to make an informed decision on whether or not to enter the tournament.

V. Choosing To Compete

In this section we will discuss the decision of whether or not to enter a tournament and the probability of winning, and will relate choices to the four conjectures set out in Section II. We will see if girls from coed and single-sex schools differ in their propensity to chose competition, and will then compare girls to boys from coed and single-sex schools (our goal here is to see if a single-sex girl makes different choices to those made by boys of the same ability).

V.A. The Probability of Winning Round 2

As shown in Table 1, the average number of mazes solved by single-sex schoolgirls in the piece-rate round was 2.62 while for coed schoolgirls it was 2.16 and this difference is statistically significant. The scores for the mandatory tournament (Round 2) were 4.14 and 3.78 for single-sex and coed schoolgirls respectively and the difference is not statistically significant. Furthermore, Table 2 shows that these scores are lower for girls than boys in both types of school settings. Because of these gender differences in the probability of winning, one might expect girls and boys to make different competitive choices. Moreover, the probability of winning will differ depending on the group to which the student was assigned. In this subsection we therefore consider what level of competition might be optimal for the individual. Of course subjects do not know how they compare with others in their group because they are never told this. But they will have beliefs about this, beliefs that are likely to be shaped by their performance in the piece-rate and mandatory tournament rounds as well as by their backgrounds. Hence it is important to control for background factors and for previous performance when estimating the tournament choice in Round 3 - which we do below.

To assess the probability of winning Round 2, we randomly created four-person groups from the observed performance distribution for Round 2. Conditioning on gender and group (same-gender or mixed), the win probability is 25% for girls and boys assigned to same-gender groups but in mixed groups it is 36% for boys and 14% for girls.[18] Therefore, if girls and boys know the performance distribution of the mandatory tournament (and they do not), they should choose to enter the tournament in Round 3 at the same rate if they are in same-gender groups. However in mixed groups boys should choose the tournament more than girls.

Now consider the win probability conditional on performance in the mandatory tournament. For boys solving 5 mazes in same-gender groups, the probability of winning is 12% while for girls it is 43%. For those who solved 6 mazes, it increases to 47% for boys and 79% for girls. Next we calculated the probability of winning conditional on performance for the mixed groups. For boys solving 5 mazes in Round 2 it is 28% while it is 20% for girls. But for people solving 6 mazes the probability of winning jumps to 65% for boys and 56% for girls. Therefore, if students have correct beliefs regarding the probability of winning, girls in single-sex groups should choose to enter the tournament more than girls in mixed gender groups, producing evidence in-line with the third conjecture above. But let us compare the actual choices made by the students to these predicted probabilities to examine the extent to which beliefs can explain the predicted choices.

When looking at the decision to enter the tournament or not in Round 3, a risk-neutral student should choose to enter the tournament if her probability of winning, $p(win)$, is greater than 25%. That is $0.5 * x < 2 * x * p(win) \implies 0.25 < p(win)$ where x is the number of mazes solved correctly. Given the probabilities of winning in a mixed gender group, both girls and boys who correctly solved 5 mazes or less should take the piece-rate option (assuming that there is some risk aversion for boys) and both boys and girls should chose to enter the tournament if they solved six or more mazes correctly. However 23% of girls and 51% of boys who solved 5 or less mazes correctly chose to enter the tournament. Therefore a large percent of students are either risk-loving, have incorrect beliefs, or other factors are affecting a student's choice to enter the tournament.

18. For each group type (all girls, all boys, or half each) we randomly drew 10,000 groups comprising that mix, where we sampled with replacement. The frequency of winning is computed from this. The whole procedure was repeated 100 times. The average of these win frequencies is reported for each group in the text. For the win probabilities conditional on number of mazes solved correctly, to be discussed below, the same procedure was followed.

V.B. *Differences Between Girls*

We will now focus on the decision a student makes before participating in Round 3 - the choice of whether or not to compete by entering the tournament. As noted above, having the subjects compete against predetermined scores, as in Niederle and Vesterlund (2007), helps to isolate their choice and minimize the chance that strategic games are being played. A student should choose option two, to enter the tournament, if she thinks she can do better than everyone else in her group did last time. Her choice should therefore be unaffected by concerns about other students' choices in the current round; for instance she should not worry about causing someone else to lose if she chooses the tournament.

We initially examine females alone, in order to focus more clearly on differences in behaviour across girls from different educational backgrounds. To address our second conjecture - that girls from single-sex schools choose to enter the tournament more than girls from coed schools - we estimated probit models for the subsample of females. The dependent variable takes the value one if the student chooses option two and zero otherwise. Columns [1] - [6] of Table 5 present the marginal effects calculated at the variable averages. Column [1] shows how much of the decision can be explained by a girl's performance in the Round 2 mandatory tournament and the increase in her performance from the piece-rate to the tournament setting. A girl who solved more mazes correctly in the Round 2 tournament is 6 percentage points more likely to enter the tournament in Round 3.[19] How one functioned in a tournament relative to a piece-rate setting, as represented by the tournament score minus the piece rate score, is insignificant. Column [2] adds controls for family background and age.

[Table 5 - Differences between girls]

Column [3] includes our main variables of interest: attendance at a single-sex school and whether or not the girl was randomly assigned to an all-girl group. *Ceteris paribus,* a girl who attends a single-sex school is 42 percentage points more likely to choose to enter the tournament than a girl from a coed school. This is after controlling for ability, learning, family-background, and age. Given that the gender gap in choosing whether or not to compete was roughly of that magintude in Niederle and Vesterlund (2007) and Gneezy, Leonard and List (2008), it would seem that a single-sex educational background has the potential to change the way women view tournaments.

To look further at the role of nurture, we now address our third conjecture: that girls in single-sex experimental peer-groups choose to enter the tournament more than girls in coed

19. The marginal effect was calculated for a girl who had solved 4 mazes correctly in round two – the average number of mazes solved correctly by girls in that round.

experimental peer-groups. Recall that at the start of the experiment girls were randomly assigned to single-sex or coed groups. Unlike the schooling type, this 'environment' variable was controlled by us and allows us to see if the environment a girl has been in for fewer than 20 minutes affects her decision. As the all-girls group coefficient shows, a girl assigned to an all-female group is 16 percentage points more likely to choose to enter the tournament, roughly fourty percent of the difference that exists between girls at single-sex and coed schools. This shows that an environmental factor that a subject is exposed to for only 20 minutes can already begin to shape a student's choices.

The significance of these coefficients to single-sex schooling and to all-girls group provides evidence strongly in support of the second and third conjectures, and suggests that the environment in which a girl is placed affects whether or not she chooses to compete. However, before pushing this interpretation further, we next examine the robustness of the results.

Sensitivity Analysis We begin by dividing the sample into different subgroups. The regression results in columns [4] and [5] compare single-sex girls to different control groups from our sample. In column [4], we report marginal effects from a specification estimated on a subsample comprising only female students from single-sex schools in Essex and from coed schools in Suffolk. Since Suffolk does not have selective grammar schools, students in that county attend the school in whose catchment area they live. In this regression, the all-girls coefficients and the single-sex coefficient are significant however their sizes differ somewhat to the estimates in column [3]. In column [4] we add the 17 female students from Essex who took the 11+ exam but did not attend a single-sex school. In 2008, of all the students offered admission to a CSSE school, less than 10% of parents declined admission on behalf of their children.[20] Therefore, conditional on having sat the exam, it is highly likely that the student will attend if she gains admission. The group of students taking the 11+ exam are a more homogenous subgroup of our sample and selection is less likely to be an issue conditional on having taken the exam. In column [5] the size and significance of the all-girls group coefficients are roughly the same as in column [4] and the size of the single-sex coefficient in column [5] is still lower than in column [3]. Since the single-sex coefficient and the all-girls coefficient stay large and significant the results in columns [4] and [5] suggest that selection may not be playing a big role. However, one may wonder if unobserved heterogeneity may be driving the results since the coefficient size on single-sex is different in regressions [3], [4], and [5]. To explore this issue we will examine boys in Table 6 below.

[Table 6 - Differences amoung boys]

20. These numbers were obtained from Shamsun Noor at the local authority council for Essex.

Column [3] of Table 5 shows that there is no effect of attending a single-sex school on the probability that a boy enters the tournament in round three. Likewise, in column [4] when we restrict the sample to only boys from Suffolk and boys who took the 11+ exam from Essex there is no significant effect. Therefore, if unobserved heterogeneity was driving the results, that heterogeneity would have to be present only for girls. If one assumes that the equally prestigues, state-funded, single-sex schools are as benefitial for boys and girls, then it would be unlikely for unobserved heterogeniety to explain the differences between boys and girls. In fact, the selection of girls into single-sex schools would have to be correlated with girls' preference for competition but not with boys' preference for competition. Given that boys and girls take the same exam for admission into the CSSE schools this seems unlikely. However, if parents of competitive girls found out that single-sex schooling could benefit their daughter and pushed their children to go to a single-sex school then this could be an explination for our results. In 2009, there were 536 places available for girls and 542 places available for boys in the six single-sex CSSE schools. On exam day [**XXXX**] girls and [**XXXX**] took the 11+ exam making the probability of admission for a girl [**YYY**] and [**YYY**] for a boy. Given the similarity in chances of being admitted and the number of boys and girls that took the exam it is unlikely that more competitive girls are being admitted to single-sex schools and not more competitive boys.

Next we check the robustness of the all-girls coefficient. When choosing whether or not to compete, a girl's decision could be influenced by the composition of her group, as found in Gneezy et al. (2003). For example, if a female chooses to compete more in an all-girls group, perhaps it is because she believes she has a better chance of beating a girl's score rather than a boy's score. If that is the case, the all-girls group dummy may be picking up this effect. To examine this, we add an extra control to the column [3] in Table 5 specification. This is a dummy variable that equals one if the experimental group has two boys in it. Thus groups with one boy in them are the base group for the regression. The results are reported in column [6].[21] If girls are choosing to compete more in the all-girls group because there are no boys present, we would expect the new coefficient on two boys to be negative and the significance of the coefficient on the all-girl dummy variable to decrease. Since neither of these effects is found there the evidence strongly suggests that the coefficient for the all-girls group is unlikely to be due simply to group composition.

We now consider an extension to Conjecture 3 that involves an interaction between single-sex schooling and experimental-group assignment. Since students from single-sex schools are

21. In column [6] we only used groups with no boys, one boy, or two boys because there were only six girls in groups with three boys. Those six girls all chose not to participate in the lottery and thus the coefficient cannot be estimated in the probit regression. If an OLS estimation is used then with the All-Girls, two boys, and three boys dummy variables included, again, only the All-Girls dummy is statistically significant.

not used to competing against the other sex, the gender composition of the group could affect girls from single-sex schools differently to girls from coed schools. To investigate this, we also tried including an interaction between single-sex schooling and experimental-group assignment. Since this interaction was always statistically insignificant, we have not reported that in the tables (the full set of estimates is available from the authors on request).

To examine the robustness of our single-sex schooling coefficient, we used two econometric techniques, instrumental variable estimation and propensity score matching. We report estimates of the linear probability model (LPM) in column [7] of Table 5. The LPM coefficients on single-sex education and being in an all-girls group are roughly the same as the marginal effects in the probit regressions.[22] Finally, column [8] in Table 5 reports the results from an additional test of the robustness of the single-sex finding: the use of an instrument for single-sex school attendance. Given potential endogeniety, we want an instrument that is correlated with single-sex schooling but uncorrelated with the probability that a student will choose to enter the tournament. We utilize instruments based on the student's residential postcode. Travel-to-school time is a good measure of the cost to a family of attending a particular school. The further away a student lives, the earlier she has to get up in the morning and the more parental traveling is involved in ferrying children to extra-curricular activities. There are far fewer single-sex schools in Essex than there are coed schools, and hence on average children attending Essex single-sex schools live further away. (Suffolk-based children cannot attend state-funded single-sex schools at all.) Living further away from a school is likely to be associated with a greater cost of attendance.

With this in mind, we used the six-digit residential postcode for each student to calculate the distances to the nearest single-sex school and to the nearest coed school. (Our sample size shrinks slightly, as some postcode responses were unreadable.) From this, we imputed the minimum traveling time to the closest coeducational school and to the closest single-sex school.[23] We next calculated a variable equal to the minimum time needed to travel to the closest single-sex school minus the minimum time to travel to the closest coeducational school. The means of these variables are reported in tables one and two for various groups.

22. To examine further the role of experimental group to which one was assigned and its composition, we estimated a LPM specification with a fixed-effect for each group. It is interesting that the single-sex coefficient stayed roughly the same, suggesting that group compositional effects are not affecting the single-sex coefficient much. Moreover the fixed-effects are not statistically significant, either individually or jointly, suggesting that the experiment was appropriately controlled.

23. To calculate this, we used the postcode of each school and the postcode in which a student resides. We then entered the student's postcode in the "start" category in MapQuest.co.uk (http://www.mapquest.co.uk/mq/directions/mapbydirection.do) and the school's postcode in the "ending address." Mapquest then gave us a "total estimated. time" for driving from one location to the other. It is this value that we used. Thus the "average time" is based on the speed limit of roads and the road's classification (i.e. as a motorway or route).

We then break this variable into deciles creating 10 dummy variables. For example, if the difference in travelling time for a student fell in the first decile, that student would be assigned a one for the first dummy variable and a zero for all others. Using these 10 variables, we instrumented for attendance at a single-sex school using a two-step process. First, we estimated the probability of a student attending a single-sex school, where the explanatory variables were an Essex dummy (taking the value one if the student resides in Essex and zero otherwise), an interaction of Essex-resident with the 10 travelling-time variables, and, because of the single-sex interactions used as controls, the interactions of Essex-resident, the 10 travelling-time variables with our controls. We then estimated the regression reported in column [8], where we use predicted single-sex school attendance in place of the original single-sex school dummy. Since the equation uses predicted values, we bootstrapped the standard errors for attending a single-sex school.[24] Again, the coefficient to single-sex schooling is statistically significant although now slightly smaller in magnitude.[25] In Table 6 we show the LPM and IV estimates for boys. Again the results only hold for the girls. The first-stage regression estimation can be found in Table A1 in the Appendix.

Propensity score matching can also be used to address the fact that single-sex education is a non-random treatment. To implement the propensity score we use all pre-treatment information collected on the exit survey: number of siblings; number of female siblings; birth order; parental education levels; parental employment status; and parental employment industry (if employed). We then estimate the probability that a student will be treated (educated at a single-sex school) and then compare treated individuals to their closest neighbor in term of the propensity score. When doing this we find that that, on average, a girl attending a single-sex school will enter the tournament 38 percentage points more than her coed counterparts. To get a standard error for the estimated 0.28, we bootstrapped the sample 1000 times and found that the point estimate of 0.28 has a standard error of 0.10 making the t-statistic for the estimate 2.8. The propensity score results based on different neighborhood sizes are listed in Table 7.

[Table 7 - Propensity Scores]

Given that the significance of the single-sex coefficient and the all-girls coefficient remains when comparing students to different control groups and when using different econometric techniques designed to deal with the potential endogeneity, we conclude that there exists

24. We randomly drew 1,000 different samples from our experimental data to calculate the bootstrap results.

25. We also experimented with using a different instrument - a set of dummy variables for students' residential postcode. The results were no different to those reported above, so in the interests of brevity we do not report this in the table. The estimates are available from the authors on request.

strong evidence in support of the second and third conjectures. We will now compare girls and boys in order to examine our first and fourth conjectures.

V.C. Differences between Girls and Boys

The regression results reported in Table 7 are obtained from the sample of boys and girls, and from different subsets of the full sample, as described in the note under the table. Table 5 above provided evidence in support of the second and third conjectures. Table 7 below will allow us to examine the first and fourth conjectures.

[Table 7 - Whole Sample]

Our first conjecture was that males choose to enter the tournament more than females. Column [1] of Table 7 reports a specification including only the gender dummy. It shows that girls choose to enter the tournament less than boys. This result is similar in size and significance to the results obtained by Niederle and Vesterlund (2007) and Gneezy, Leonard and List (2008), and supports the first conjecture. Column [2] reports estimates from a specification in which we also control for tournament performance, the change from piece-rate to tournament setting, and the standard controls and their interactions. The inclusion of these variables does not diminish the size or significance of the marginal gender effect. In column [3] the school and group controls are added to the regression. The absolute value of the marginal gender effect again increases. Thus in our preferred specification - after controlling for ability, observables, learning, and environment - we find that girls from coed schools are 71 percentage points less likely to enter the tournament than boys from coed schools. This effect is larger in absolute terms than that found in other work but we are using school students and not the college-aged students who are the usual subjects. The results from columns [1]-[3] provide strong support for conjecture one, that men chose to enter the tournament more than women.

The significant gender gap only exists for students in coed schools. In column [3] the coefficient on the interaction of female and single-sex is significant, whereas the coefficient on single-sex is not. Thus boys from single-sex and coed schools are statistically just as likely to enter the tournament. How do single-sex girls compare to boys? To answer this we report the marginal effect for a single-sex female at the bottom of column [3]. The estimated difference between a single-sex female and a coed male is negative but it is insignificant. Therefore, according the results in column [3], single-sex girls are choosing to enter the tournament just as much as boys from coed and single-sex schools. However, the robustness of that result needs to be examined.

The lack of significance on the marginal effect for girls at a single-sex school shows that single-sex girls act just like coed boys. The significance on the interaction of female and single-sex shows that the benefit from single-sex education is going primarily to girls, as suggested by much of the education literature. These two results provide evidence in favour of the fourth conjecture.

Sensitivity Analysis As before, we begin by comparing single-sex students to a more homogeneous subgroup: students from Essex who took the 11+ and students from Suffolk.[26] The results for this comparison are shown in column [4] of Table 7. The size of the female and female, single-sex interaction stay roughly the same. However, the significance of the interaction between female and single-sex increases. At the bottom of column [4], the marginal effect of being a single-sex female is shown. Here the estimate is significant. What this shows is that single-sex girls are slightly worse than coed boys but, given the significance of the female, single-sex interaction, the gap between boys and girls in coed schools is larger than the gap between coed boys and single-sex girls. In this situation then we find that single-sex girls are still entering the tournament with a higher probability but that they are not behaving exactly like coed boys. This evidence does not support hypothesis four.

Experimental evidence has shown that women tend to be less risk averse than boys. Entering the tournament introduces more uncertainty into the payoff that the subject will receive. Thus, gender differences in risk aversion may be driving the gender differences in tournament entry. To get at this we asked students a series of questions regarding risk in the exit questionaire. The main question was "On a scale from 1-10 how prepared are you to take risks" where 1 was labeled 'not at all prepared to take risks' and 10 was labeled 'fully prepared to take risks'.[27] As shown in Tables 1 and 2, on average there were no gender differences in response to the question in either the coed or single-sex cohorts. However, girls from single-sex schools were more likely to take risks than their coed counterparts. In columns [5] and [6] of Table 7, each subject's answer to this question was included in the estimation of the model. In column [6] we allowed the effect of the student's risk aversion to vary by gender. In both cases the gender gap, as represented by the female coefficient, decreased, suggesting that risk aversion can explain part of the gender difference

26. Our sample has fewer boys than girls. When we consider the subsample comprising only single-sex students and students from Essex who took the 11+, we only have 12 boys from a coed school and therefore cannot estimate the model. For the subsample comprising only students from Suffolk and single-sex students, we only have 20 coed boys and again cannot estimate the model. Therefore, unlike in the girls section, the smallest sub-group for whom we can estimate the model is single-sex and Suffolk students and students who took the 11+. In this subgroup we have 32 coed boys as our base sample.

27. This general risk question is exactly the same as that asked in the 2004 wave of the German Socioeconomic Panel (GSOEP).

in tournament entry, but it was still negative and significant. The size and significance of the interaction between female and single-sex stayed almost exactly the same. Furthermore, as in column [3], there is no significant difference in the probabilty of a single-sex girl and a coed boy chosing to enter the tournament.

The results in Table 7 present mixed evidence for our fourth conjecture. What can be taken away from the table, however, is that the benefit of single-sex education - in terms of increasing competitive behaviour - is being realized primarily by females, and that the gap in tournament entry between single-sex girls and coed boys is smaller than the gap between boys and girls from coed schools. Therefore, while we cannot conclude that single-sex girls are behaving like coed boys, there is evidence that the single-sex environment is making girls more competitive than girls at coed schools.

VI. Conclusions

Our experimental evidence suggests that women seem to be shying away from competition, as also shown by other studies. However the bulk of our evidence suggests that a girl's environment plays an important role in explaining why she chooses not to compete. We have looked at the choices made by girls from single-sex and co-ed schools and found that there are robust differences in their behaviour: girls from single-sex schools behave more competitively than do coeducational girls. We have also examined the effect of a randomly assigned environment – being assigned to an all-girls group. Being in an all-girls group for only 20 minutes affects the decision a girl makes, even when controlling for composition of the group to which she is randomly assigned for the experiment. We also compared girls' behaviour with that of boys from single-sex and coeducational schools, and found that girls from single-sex schools behaved more like boys. Our findings are consistent with the gender identity theory outlined at the start of the paper and with the education literature that suggest that there is greater pressure for girls to maintain their gender identity in schools where boys are present than for boys when girls are present (Maccoby, 1990, 1998).

The experimental evidence supports the first three conjectures: that boys choose to enter the tournament more than girls; that girls from single-sex schools choose to enter the tournament more than girls from coed schools; and that girls in single-sex experimental peer-groups choose to enter the tournament more than girls in coed experimental peer-groups. The evidence for the fourth conjecture - that girls from single-sex schools choose to enter the tournament at the same rate as boys - was rather more mixed. However, our evidence did suggest that the tournament-entry gap between single-sex girls and coed boys is at least smaller than the gap between boys and girls from coed schools, if not non-existent.

Are there any other 'nature' arguments that might explain our results rather than the 'nurture' argument we have put forward? The only other hypothesis we can think of that is consistent with our findings is that girls who happen to be genetically more competitive gain admission to single-sex schools, whereas boys who are genetically more competitive do not. This seems deeply implausible.

In summary, we have discovered at least one setting - in addition to the Kasai tribe of India studied by Gneezy, Leonard and List (2008) - in which it is untrue that the average female avoids competitive behaviour more than the average male. On average girls from single-sex schools are found in our experiment to be as likely as coed boys to choose competitive behaviour. This suggests that the observed gender differences in competitive choices found in previous studies might reflect social learning rather than inherent gender traits.

What are the other implications of our study? Our major finding is that an environment such as single-sex schooling can affect economically important preferences. However we would not wish to suggest that concerned parents should at once enrol their daughters in single-sex schools during those sensitive adolescent years. This is because there might be other advantages to coeducational secondary education, not least in terms of socializing boys and girls and preparing them for mixed-gender tertiary colleges and workplaces, that might outweigh the effects isolated in our experiment. But our analysis does serve to illustrate the importance of the school environment in affecting real economic outcomes through behavioural responses.[28] For example, the differences in competitive behaviour that we have observed across school type could well have effects on future pay-negotiation and remuneration. Indeed, a testable hypothesis for future survey-based studies is that there are wage gaps between women of the same ability educated at single-sex and coeducational schools. Finally our research, and that of related studies before us, point to an important topic - whether or not for a society there is an optimal level of competitive behaviour. While this is beyond the reach of experiments like ours, further investigation of this difficult question could well prove fruitful in the future.

28. If nurture matters, as we have shown, educational curricula could address environmental issues that would allow students to develop to their full potential without being cued or pressured to follow gender identity.

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VII. Appendix A: The Experiment

In the experiment, students were escorted into a large auditorium. One individual read off the instructions at the same time to everyone who was participating. All the graduate supervisors hired to supervise groups were given a copy of the instructions, were involved in the pilot that had taken place, and had gone through comprehensive training. These supervisors answered questions if they were raised.

Below are the text of the slides that were shown to the students when they arrived at the auditorium:

Slide 1:

Welcome to the University of Essex!

Today you are going to be taking part in an economics experiment.

Treat this as if it were an exam situation:

No talking to your neighbours.

Raise your hand if you have any questions.

There will be no deception in this experiment.

Slide 2:

The experiment today will involve completing 3 rounds of mazes.

Rules for completing a maze:

Get from the flag on the left hand side to the flag on the right hand side.

Do not cross any lines!

Do not go outside of the box.

We will now go through an example!!

Comment:

At this point students were shown one practice maze and were walked through how to solve it, illustrating the three points raised above.

Slide 3:

The supervisors in your row will be handing you maze packets throughout the session. At all times you need to put your seat letter and number on the packet and your name.

Please make sure you know your row letter and seat number.

Your seat is also on your badge. It is the middle grouping. For example, if you badge was 1-A3-F your seat number should be A3. Make sure this is correct now.

Mazes: You should do the mazes in order.

If you cannot solve a maze put an X through it and go onto the next maze.

If you do not put an X through it none of the following mazes will be marked.

Note: If you do not have the correct seat number on your maze packets you may be paid incorrectly.

Slide 4:

We are going to be doing six rounds of mazes.

Before each round of mazes we will explain how you will be paid for that round.

After all six rounds of mazes are finished we will choose one round to "implement".

That means you will get paid for your performance in that round.

The round for which you will be paid will be chosen randomly from this cup.

You will also receive GBP 5 for showing up today.

Since you do not know for which round you will be getting paid, you should do your best in each round and treat each round separately.

Slide 5:

You will get 5 minutes to solve up to 15 mazes.

Please solve as many mazes as you can.

Do not begin until I say go!

For this round you will get \pounds 0.50 for each maze you solve correctly:

Example: If you solve 8 mazes correctly you will earn GBP 4.

Please make sure you have put your name and seat on the maze packet now.

Are there any questions?

OK –> GO!

OK –> STOP

No Talking!

Slide 6:

Now you will get \pounds 2 for each maze you solve correctly IF you solve the most mazes correctly in your group.

Your group consists of you and the 3 other people sitting in your \textquotedblleft row\textquotedblright who have the same first number on their badge.

Example: If your badge number is 1-B2-M then your group consists of you and the three other students with the badges 1-**-* in your row.

If you are in group 1 and you solve 8 mazes correctly then:

IF everyone else in your group solved fewer than 8 mazes correctly you will get GBP 16.

IF someone in your group solved 9 mazes correctly, you would get GBP 0.

Note: Ties will be broken randomly. Thus IF two people in your group solve 8 mazes correctly we flip a coin to see who gets the GBP 16.

Are there any questions?

Slide 7:

You will get 5 minutes to solve up to 15 mazes.

Please solve as many mazes as you can

Please make sure you have put your name and seat on the maze packet now.

Do not begin until I say go!

OK –> GO!

OK –> STOP

No Talking!

Slide 8:

In this round you choose between two options.

Option 1: Get GBP 0.50 per maze you solve correctly.

Option 2: Get GBP 2 per maze you solve correctly IF you solve more mazes correctly than the other three people in your group did LAST round.

Example: Say you solve 8 mazes correctly this round.

If you chose option 1 you get GBP 4.

If you chose option 2:

You get GBP 16 IF the other three people in your group solved fewer than 8 mazes correctly in Round 2.

You get GBP 0 IF one other person solved 9 mazes correctly in Round 2.

Note: Ties will be broken randomly. Thus IF one person in your group solved 8 mazes correctly in round 2 we flip

a coin to see if you get the GBP 16.

Are there any questions?

Slide 9:

A supervisor will now come by and give you a card for you to circle option 1 or option 2.

Option 1: Get GBP 0.50 per maze you solve correctly.

Option 2: Get GBP 2 per maze you solve correctly IF you solve more mazes correctly than the other three people in your group did LAST round.

Circle your choice, fold the paper and give it back to the supervisor.

You need to write your seat number on the piece of paper

Do not tell anyone your choice!

You will get 5 minutes to solve up to 15 mazes.

Please solve as many mazes as you can

Do not begin until I say go!

Please make sure you have put your name and seat on the maze packet now.

Do not begin until I say go!

OK –> GO!

OK –> STOP

No Talking!

Slide 10:

Thank you for completing the mazes!

Your last set of mazes will now be collected – please stay seated.

I will now pull the number from the hat..... AND!?

You will be handed a survey – Read the questions very carefully and make sure you respond to ALL the questions including the ones at the very end.

After everyone is done completing the survey a supervisor will hand you some refreshments.

Make sure you put your seat on the survey!

Then after 10-15 minutes, your supervisor will give you an envelope with your money and ask you to sign a piece of paper. Then you will go to your bus.

Please keep your winnings confidential.

THANKS!

Comment:

Due to the time it took to fill all the envelopes with money, subjects ended up recieving the money two days later as the students needed to get back to their schools to be picked up by their parents.

Table 1: Sample proportions and averages by gender and school-background

	GIRLS			BOYS		
VARIABLES	Coed	SS	Dif	Coed	SS	Dif
Piece-Rate Score (R1)	2.16	2.62	0.46***	2.88	3.13	0.25
	[0.11]	[0.17]		[0.17]	[0.24]	
Tournament Score (R2)	3.78	4.14	0.36	4.71	5.17	0.46
	[0.15]	[0.24]		[0.20]	[0.29]	
Mean Difference (R2-R1)	1.63	1.52	-0.11	1.83	2.05	0.22
	[0.15]	[0.24]		[0.18]	[0.26]	
Number of Siblings	1.67	1.59	-0.08	1.69	1.28	-0.41*
	[0.11]	[0.17]		[0.15]	[0.22]	
Number of Female Siblings	0.80	0.57	-0.23*	0.87	0.68	-0.19
	[0.08]	[0.12]		[0.13]	[0.19]	
Birth Order	1.73	1.78	0.05	1.86	1.46	-0.40**
	[0.09]	[0.15]		[0.12]	[0.17]	
Age	14.80	14.95	0.15	14.81	14.48	-0.33**
	[0.06]	[0.10]		[0.09]	[0.13]	
Transferred to	0.24	0.17	-0.07	0.21	0.22	0.01
	[0.04]	[0.07]		[0.06]	[0.08]	
Mother went to University	0.12	0.48	0.36***	0.15	0.43	0.28***
	[0.04]	[0.07]		[0.06]	[0.09]	
Father went to University	0.16	0.52	0.36***	0.27	0.54	0.27***
	[0.04]	[0.07]		[0.07]	[0.10]	
Min travel nearest coed school	13.45	24.23	10.78***	14.59	27.63	13.04***
	[1.04]	[1.64]		[1.48]	[2.21]	
Min travel nearest single-sex school	24.18	15.32	-8.86***	24.53	12.95	-11.58***
	[0.80]	[1.24]		[1.29]	[1.91]	
Average risk score (Scale = 1-10)	6.40	6.95	0.55*	6.90	6.69	-0.21
	[0.18]	[0.29]		[0.93]	[1.38]	
OBSERVATIONS	96	66		52	46	

Table 2: Sample proportions and averages by gender within school-setting

	SINGLE-SEX			COED		
VARIABLES	Girls	Boys	Dif	Girls	Boys	Dif
Piece-Rate Score (R1)	2.62	3.13	-0.51**	2.15	2.88	-0.73***
	[0.22]	[0.17]		[0.19]	[0.15]	
Tournament Score (R2)	4.13	5.17	-1.04***	3.78	4.71	-0.93***
	[0.28]	[0.21]		[0.26]	[0.21]	
Mean Difference (R2-R1)	1.51	2.04	-0.53*	1.63	1.83	-0.20
	[0.27]	[0.21]		[0.24]	[0.19]	
Number of Siblings	1.59	1.28	0.31	1.66	1.69	-0.03
	[0.19]	[0.15]		[0.19]	[0.16]	
Number of Female Siblings	0.57	0.67	-0.10	0.81	0.87	-0.06
	[0.15]	[0.11]		[0.15]	[0.12]	
Birth Order	1.78	1.47	0.31*	1.72	1.86	-0.14
	[0.16]	[0.12]		[0.17]	[0.13]	
Age	14.95	14.48	0.47***	14.8	14.81	-0.01
	[0.12]	[0.09]		[0.11]	[0.09]	
Transferred to	0.17	0.22	-0.05	0.24	0.21	0.03
	[0.08]	[0.06]		[0.07]	[0.06]	
Mother went to University	0.48	0.43	0.05	0.12	0.15	-0.03
	[0.10]	[0.07]		[0.06]	[0.05]	
Father went to University	0.51	0.54	-0.03	0.16	0.27	-0.11*
	[0.10]	[0.07]		[0.07]	[0.05]	
Min travel nearest coed school	24.23	27.63	-3.40*	13.45	14.59	-1.14
	[2.02]	[1.55]		[1.64]	[1.32]	
Min travel nearest single-sex school	15.32	12.95	2.37	24.18	24.53	-0.35
	[1.69]	[1.30]		[1.06]	[0.85]	
Average risk score (Scale = 1-10)	6.95	6.69	0.26	6.4	6.90	-0.50
	[0.38]	[0.29]		[0.30]	[0.24]	
OBSERVATIONS	66	46		96	52	

Table 3: Sample proportions and averages by group-type

VARIABLES	All-Girls	Girls Coed	Dif	All-Boys	Boys Coed	Dif
Piece-Rate Score (R1)	2.32	2.38	-0.06	3.16	2.90	0.26
	[0.17]	[0.12]		[0.25]	[0.15]	
Tournament Score (R2)	3.93	3.92	0.01	4.97	4.90	0.07
	[0.24]	[0.18]		[0.31]	[0.19]	
Mean Difference (R2-R1)	1.61	1.54	0.07	1.81	2.00	-0.19
	[0.23]	[0.17]		[0.27]	[0.16]	
Number of Siblings	1.73	1.53	0.20	1.75	1.35	0.40*
	[0.16]	[0.12]		[0.23]	[0.14]	
Number of Female Siblings	0.71	0.70	0.01	0.77	0.77	0.00
	[0.12]	[0.09]		[0.19]	[0.12]	
Birth Order	1.83	1.64	0.19	1.66	1.68	-0.02
	[0.15]	[0.11]		[0.18]	[0.11]	
Age	14.98	14.73	0.25***	14.56	14.71	-0.15
	[0.09]	[0.07]		[0.13]	[0.08]	
Transferred to	0.21	0.20	0.01	0.28	0.18	0.10
	[0.06]	[0.05]		[0.09]	[0.05]	
Percent from Single-Sex School	0.4	0.42	-0.02	0.53	0.44	0.09
	[0.08]	[0.06]		[0.11]	[0.06]	
Mother went to University	0.26	0.28	-0.02	0.2	0.34	-0.14
	[0.07]	[0.05]		[0.09]	[0.06]	
Father went to University	0.31	0.28	0.03	0.34	0.44	-0.10
	[0.07]	[0.05]		[0.10]	[0.06]	
Min travel nearest coed school	17.12	18.49	-1.37	18.91	21.44	-2.53
	[1.83]	[1.36]		[2.43]	[1.44]	
Min travel nearest single-sex school	19.87	21.35	-1.48	20.68	18.57	2.11
	[1.42]	[1.06]		[1.91]	[1.12]	
Average risk score (Scale = 1-10)	6.54	6.73	-0.19	6.71	6.85	-0.14
	[0.29]	[0.21]		[0.41]	[0.25]	
OBSERVATIONS	88	74		36	62	

Table 4: Regression Results for Piece-Rate and Tournament minus Piece-Rate

	DEPENDENT VARIABLE					
	Piece-Rate			Tournament minus Piece-Rate		
VARIABLE	[1]	[2]	[3]	[4]	[5]	[6]
Female (=1)	-0.65***	-0.89***	-0.91**	-0.60***	-0.50	-0.42
	[0.14]	[0.31]	[0.39]	[0.18]	[0.36]	[0.47]
Piece-Rate Score				-0.39***	-0.40***	-0.43***
				[0.07]	[0.09]	[0.09]
Single-Sex (=1)			0.65			0.95*
			[0.51]			[0.50]
Female * Single-Sex			0.54			-0.33
			[0.62]			[0.67]
All-Girls (=1)			-0.14			0.03
			[0.17]			[0.22]
All-Boys (=1)			0.21			-0.16
			[0.25]			[0.25]
Controls	No	Yes	Yes	No	Yes	Yes
Controls * Female	No	Yes	Yes	No	Yes	Yes
Controls * Single-Sex	No	Yes	Yes	No	Yes	Yes
Controls * Female *Single-Sex	No	Yes	Yes	No	Yes	Yes
Constant	3.00***	3.27***	2.94***	3.10***	2.92***	2.66***
	[0.11]	[0.25]	[0.32]	[0.26]	[0.41]	[0.45]
Observations	260	259	259	260	259	259
R-squared	0.075	0.162	0.207	0.110	0.149	0.165

Controls used are: Mother went to University (=1); Father went to University (=1); Number of Brothers; Number of Sisters; Student is 14 years old (=1).

Robust standard errors in brackets

**** p<0.01, ** p<0.05, * p<0.1*

Table 5: Dependent Variable (=1) if a girl chooses to enter the tournament in round three.

VARIABLES	COLUMNS							
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Tournament Score in Round 2	0.06*	0.09**	0.06	0.09*	0.08*	0.06	0.05*	0.07**
	[0.03]	[0.04]	[0.03]	[0.05]	[0.04]	[0.04]	[0.03]	[0.03]
Tournament - Piece Rate Score	0.01	0.00	0.02	0.03	0.03	0.02	0.02	0.01
	[0.03]	[0.04]	[0.04]	[0.05]	[0.04]	[0.04]	[0.03]	[0.03]
Single-Sex (=1)			0.42***	0.28**	0.34**	0.46***	0.40***	*0.38***
			[0.14]	[0.14]	[0.14]	[0.14]	[0.14]	*[0.17]*
All-Girls Group (=1)			0.16**	0.28***	0.24***	0.18**	0.17**	0.16**
			[0.07]	[0.09]	[0.08]	[0.09]	[0.07]	[0.07]
Two Boys in Experimental Group (=1)						0.05		
						[0.13]		
Model Type	Probit	Probit	Probit	Probit	Probit	Probit	LPM	IV
Controls	NO	YES	YES	YES	YES	YES	YES	YES
Controls * Single-Sex	NO	YES	YES	YES	YES	YES	YES	YES
Constant							-0.22**	-0.27**
							[0.11]	[0.11]
Observations	162	161	161	105	122	155	161	149
R-squared							0.268	0.288
F-Stat for IV Variables								6.095

Columns [1], [2], [3], [7], and [8] use all observations in the sample. Column [6] uses all girls who had no boys, one boy, or two boys in their experimental peer group. Column [4] only uses students from Suffolk and single-sex students. Column [5] only uses students from Suffolk, those who took the 11+ exam and single-sex students. Controls used are: Mother went to University (=1); Father went to University (=1); Number of Brothers; Number of Sisters; Student is 14 years old (=1).

Robust standard errors in brackets

**** p<0.01, ** p<0.05, * p<0.1*

Table 6: Dependent Variable (=1) if a boy chooses to enter the tournament in round three.

VARIABLES	COLUMNS					
	[1]	[2]	[3]	[4]	[5]	[6]
Tournament Score in Round 2	0.07	0.07	0.07	0.10	0.06	0.06
	[0.04]	[0.05]	[0.05]	[0.06]	[0.04]	[0.04]
Tournament - Piece Rate Score	-0.04	-0.03	-0.04	-0.11	-0.03	-0.02
	[0.05]	[0.06]	[0.06]	[0.07]	[0.06]	[0.06]
Single-Sex (=1)			0.09	-0.03	0.10	*0.09*
			[0.24]	[0.27]	[0.20]	*[0.25]*
All-Boys Group (=1)			-0.13	-0.09	-0.10	-0.08
			[0.12]	[0.14]	[0.11]	[0.13]
Model Type	Probit	Probit	Probit	Probit	LPM	IV
Controls	NO	YES	YES	YES	YES	YES
Controls * Single-Sex	NO	YES	YES	YES	YES	YES
Constant					0.39*	0.36
					[0.20]	[0.22]
Observations	98	98	98	78	98	93
R-squared					0.214	0.175
F-Stat for IV Variables						10.15

Columns [1], [2], [3], [5], and [6] use all boys from the sample. Column [4] uses students who took the 11+ exam, are from Suffolk, and single-sex students. Controls used in the regression are: Mother went to university (=1); Father went to university (=1); Number of siblings; Number of female siblings; Student age 14 (=1).

Robust standard errors in brackets

**** p<0.01, ** p<0.05, * p<0.1*

Table 7: Propensity Score Estimate for the effect of single-sex education on females

Single-Sex	0.28***	0.33***	0.33***	0.28**	0.28***	0.25***	0.27***	0.26***	0.26***	0.27***
	[0.10]	[0.10]	[0.12]	[0.11]	[0.10]	[0.09]	[0.10]	[0.09]	[0.09]	[0.10]
Observations	149	149	149	149	149	149	149	149	149	149
Using nearest (#) of neighbors	1	2	3	4	5	6	7	8	9	10

Standard errors are calculated by bootstrapping 1000 times.

**** p<0.01, ** p<0.05, * p<0.1*

Table 8: Dependent Variable (=1) if student chooses to enter the tournament in round three.

VARIABLES	COLUMNS					
	[1]	[2]	[3]	[4]	[5]	[6]
Female (=1)	-0.27***	-0.39***	-0.71***	-0.78***	-0.67***	-0.60**
	[0.06]	[0.13]	[0.12]	[0.13]	[0.13]	[0.28]
Tournament Score		0.09***	0.07**	0.11***	0.06**	0.06**
		[0.03]	[0.03]	[0.04]	[0.03]	[0.03]
Tournament - Piece Rate Score		-0.01	0.00	-0.02	0.02	0.02
		[0.03]	[0.03]	[0.04]	[0.03]	[0.03]
Single-Sex (=1)			0.04	-0.07	0.05	0.05
			[0.21]	[0.25]	[0.21]	[0.21]
Female * Single-Sex			0.49*	0.56**	0.50*	0.50*
			[0.26]	[0.27]	[0.26]	[0.26]
All-Girls Group (=1)			0.22**	0.33***	0.25***	0.25**
			[0.09]	[0.11]	[0.10]	[0.10]
All-Boys Group (=1)			-0.10	-0.06	-0.07	-0.07
			[0.10]	[0.12]	[0.10]	[0.10]
Readiness to Take Risk (1-10)					0.05**	0.05*
					[0.02]	[0.03]
Female * Readiness to Take Risk						-0.01
						[0.04]
Marginal Effect when Female = Single-Sex =			-0.284	-0.419	-0.216	-0.107
Female*Single-Sex=1			[0.179]	[0.234]	[0.156]	[0.078]
Model Type	Probit	Probit	Probit	Probit	Probit	Probit
Controls	NO	YES	YES	YES	YES	YES
Controls * Female	NO	YES	YES	YES	YES	YES
Controls * Single-Sex	NO	YES	YES	YES	YES	YES
Controls * Female * Single-Sex	NO	YES	YES	YES	YES	YES
Constant						
Observations	260	259	259	200	254	254

Columns [1], [2], [3], [5], and [6] use all observations in the sample. Column [4] only uses students from Suffolk, those who took the 11+ exam and single-sex students. Controls used are: Mother went to University (=1); Father went to University (=1); Number of Brothers; Number of Sisters; Student is 14 years old (=1).

Robust standard errors in brackets

**** p<0.01, ** p<0.05, * p<0.1*

Table A1: First stage regressions for IV estimates in Tables 5 and 5A. Dependent variable (=1) if student went to a single-sex school.

VARIABLES	COLUMNS [1]	[2]
Essex (=1)	0.88***	0.92***
	[0.10]	[0.09]
Essex * Travel time in second decile (=1)	-0.03	0.07
	[0.22]	[0.16]
Essex * Travel time in third decile (=1)	-0.05	-0.11
	[0.17]	[0.18]
Essex * Travel time in fourth decile (=1)	-0.87***	0.00
	[0.20]	[0.00]
Essex * Travel time in fifth decile (=1)	-0.92***	-0.87***
	[0.21]	[0.18]
Essex * Travel time in sixth decile (=1)	-0.81***	-0.94**
	[0.18]	[0.45]
Essex * Travel time in seventh decile (=1)	2.44	-0.79*
	[1.65]	[0.41]
Essex * Travel time in eighth decile (=1)	0.00	-1.19***
	[0.00]	[0.24]
Essex * Travel time in nineth decile (=1)	-1.48***	-0.88***
	[0.29]	[0.25]
Essex * Travel time in tenth decile (=1)	-1.03***	0.00
	[0.38]	[0.00]
Essex * Travel time in second decile * Mother went to University (=1)	-0.06	-0.26
	[0.22]	[0.30]
Essex * Travel time in third decile * Mother went to University (=1)	0.10	-0.08
	[0.19]	[0.21]
Essex * Travel time in fourth decile * Mother went to University (=1)	0.87***	-0.29
	[0.23]	[0.23]
Essex * Travel time in fifth decile * Mother went to University (=1)	0.24	-0.06
	[0.25]	[0.18]
Essex * Travel time in sixth decile * Mother went to University (=1)	0.90***	-0.14
	[0.31]	[0.49]
Essex * Travel time in seventh decile * Mother went to University (=1)	-2.61**	0.00
	[1.11]	[0.00]
Essex * Travel time in eighth decile * Mother went to University (=1)	-0.04	0.00
	[0.39]	[0.00]
Essex * Travel time in nineth decile * Mother went to University (=1)	-0.41	0.04
	[0.29]	[0.34]
Essex * Travel time in tenth decile * Mother went to University (=1)	0.01	0.00
	[0.36]	[0.00]
Essex * Travel time in second decile * Father went to University (=1)	-0.05	-0.02
	[0.21]	[0.22]
Essex * Travel time in third decile * Father went to University (=1)	-0.04	0.06
	[0.17]	[0.17]
Essex * Travel time in fourth decile * Father went to University (=1)	-0.12	0.00
	[0.23]	[0.00]
Essex * Travel time in fifth decile * Father went to University (=1)	-0.07	0.20
	[0.23]	[0.19]
Essex * Travel time in sixth decile * Father went to University (=1)	-0.16	0.00
	[0.34]	[0.00]

Essex * Travel time in seventh decile * Father went to University (=1)	1.00**	-0.91
	[0.38]	[0.61]
Essex * Travel time in eighth decile * Father went to University (=1)	0.96	0.00
	[0.59]	[0.00]
Essex * Travel time in nineth decile * Father went to University (=1)	-0.15	0.00
	[0.28]	[0.00]
Essex * Travel time in tenth decile * Father went to University (=1)	0.00	0.00
	[0.00]	[0.00]
Essex * Travel time in second decile * Number of Brothers	0.02	0.08
	[0.10]	[0.12]
Essex * Travel time in third decile * Number of Brothers	0.01	0.06
	[0.11]	[0.09]
Essex * Travel time in fourth decile * Number of Brothers	0.04	0.00
	[0.12]	[0.00]
Essex * Travel time in fifth decile * Number of Brothers	0.38***	-0.10
	[0.14]	[0.13]
Essex * Travel time in sixth decile * Number of Brothers	-0.01	0.11
	[0.14]	[0.29]
Essex * Travel time in seventh decile * Number of Brothers	-1.68*	0.01
	[0.89]	[0.26]
Essex * Travel time in eighth decile * Number of Brothers	-0.97***	0.00
	[0.27]	[0.00]
Essex * Travel time in nineth decile * Number of Brothers	0.59***	0.00
	[0.16]	[0.11]
Essex * Travel time in tenth decile * Number of Brothers	-0.01	0.16
	[0.17]	[0.31]
Essex * Travel time in second decile * Number of Sisters	0.03	-0.01
	[0.11]	[0.10]
Essex * Travel time in third decile * Number of Sisters	-0.15	-0.03
	[0.10]	[0.09]
Essex * Travel time in fourth decile * Number of Sisters	-0.05	-0.03
	[0.09]	[0.09]
Essex * Travel time in fifth decile * Number of Sisters	-0.08	-0.02
	[0.15]	[0.10]
Essex * Travel time in sixth decile * Number of Sisters	-0.12	0.08
	[0.13]	[0.29]
Essex * Travel time in seventh decile * Number of Sisters	-1.78***	-0.01
	[0.63]	[0.11]
Essex * Travel time in eighth decile * Number of Sisters	2.00***	0.00
	[0.58]	[0.00]
Essex * Travel time in nineth decile * Number of Sisters	1.15***	0.02
	[0.30]	[0.14]
Essex * Travel time in tenth decile * Number of Sisters	0.06	-1.17
	[0.22]	[0.78]
Essex * Travel time in second decile * Student Aged 14 (=1)	0.00	-0.16
	[0.00]	[0.19]
Essex * Travel time in third decile * Student Aged 14 (=1)	0.16	-0.08
	[0.19]	[0.19]
Essex * Travel time in fourth decile * Student Aged 14 (=1)	0.23	0.00
	[0.16]	[0.00]
Essex * Travel time in fifth decile * Student Aged 14 (=1)	-0.27	0.01
	[0.20]	[0.17]

Essex * Travel time in sixth decile * Student Aged 14 (=1)	0.00	-0.21
	[0.22]	[0.56]
Essex * Travel time in seventh decile * Student Aged 14 (=1)	1.95***	0.76*
	[0.52]	[0.42]
Essex * Travel time in eighth decile * Student Aged 14 (=1)	0.01	0.00
	[0.46]	[0.00]
Essex * Travel time in nineth decile * Student Aged 14 (=1)	-1.37***	0.00
	[0.38]	[0.00]
Essex * Travel time in tenth decile * Student Aged 14 (=1)	0.14	0.00
	[0.27]	[0.00]
Tournament Score	0.04*	0.05*
	[0.03]	[0.03]
Tournament Score - Piece Rate Score	-0.04	-0.04
	[0.03]	[0.03]
Mother went to University (=1)	0.04	0.09
	[0.13]	[0.09]
Father went to University (=1)	0.06	0.10
	[0.12]	[0.08]
Number of Brothers	0.00	-0.05
	[0.04]	[0.05]
Number of Sisters	-0.00	-0.01
	[0.05]	[0.05]
Student aged 14 (=1)	-0.08	0.17*
	[0.08]	[0.09]
All-Girls Group (=1)	-0.06	
	[0.05]	
All-Boys Group (=1)		0.06
		[0.07]
Constant	-0.00	-0.22
	[0.10]	[0.16]
Observations	149	93
R-squared	0.845	0.923

*Column [1] uses just girls; Column [2] uses just boys. Standard Errors are in brackets. ***p<0.01; ** p<0.05, * p<0.1*