The international platform of Ludwig-Maximilians University's Center for Economic Studies and the Ifo Institute

CESifo Working Papers

www.cesifo.org/wp

Children Do Not Behave Like Adults: Gender Gaps in Performance and Risk Taking within a Random Social Context in the High-Stakes Game Shows *Jeopardy* and *Junior Jeopardy*

Jenny Säve-Söderbergh
Gabriella Sjögren Lindquist

CESIFO WORKING PAPER NO. 4595
CATEGORY 13: BEHAVIOURAL ECONOMICS
JANUARY 2014

CESifo
Center for Economic Studies & Ifo Institute

CESifo *Working Paper No. 4595*

Children Do Not Behave Like Adults: Gender Gaps in Performance and Risk Taking within a Random Social Context in the High-Stakes Game Shows *Jeopardy* and *Junior Jeopardy*

Abstract

Using unique panel data, we compare cognitive performance and wagering behavior of children (10-11 years) with adults playing in the Swedish version of the TV-shows *Jeopardy* and *Junior Jeopardy*. Although facing the same well-known high-stakes game, and controlling for performance differences, there is no gender gap in risk-taking among girls and boys in contrast with adults, and, while girls take more risk than women, boys take less risk than men. We also find that female behavior is differently sensitive to social context. While women wager more, girls perform worse and employ inferior wagering strategies when randomly assigned male opponents.

JEL-Code: J160, D810, C930, D030.

Keywords: risk attitudes, children, gender differences, gender of the opponent, child-adult differences, natural experiment, gender identity.

*Jenny Säve-Söderbergh**
The Swedish Institute for Social Research
Stockholm University
Sweden – 10691 Stockholm
jenny.save-soderbergh@sofi.su.se

Gabriella Sjögren Lindquist
The Swedish Institute for Social Research
Stockholm University
Sweden – 10691 Stockholm
gabriella.lindquist@sofi.su.se

*corresponding author

We are grateful for comments from Åsa Rosén and participants at the European Society for Population Economics conference in Aarhus 2013 and the European Association of Labor Economics conference in Turin 2013. J. S-S. acknowledges financial support from Jan Wallander and Tom Hedelius' Foundation and Riksbankens Jubileumsfond.

1. Introduction

Risk preferences are bound to play an important role in behavioral differences among individuals because many important decisions, such as educational choices and labor market outcomes, are affected by willingness to take risks. Previous research has shown that adult women are more risk averse than men (see, e.g., Bertrand 2010; Croson and Gneezy 2009; Eckel and Grossman 2008); moreover, the propensity of adult women for risk taking is affected by contextual factors that are related to gender, and this propensity tends to increase in female-dominated environments (Booth & Nolen 2012b, Sjögren Lindquist and Säve-Söderbergh 2011). Thus, if females take fewer risks in contexts that are more male-dominated, socially driven gender differences in risk taking might be an explanation for why there are fewer women at the top end of the wage distribution (see, e.g., Blau 2012; Albrecht et al. 2003 (for Sweden)).

It is less well established whether there is a gender gap in risk-taking early in life, whether it develops during childhood and whether it is influenced by environmental factors, such as the gender context. Consistent with findings for adults, experimental evidence suggests that boys are willing to take more risks than girls (Sutter et al. 2013; Booth and Nolen 2012b; Dreber et al. 2012, Cárdenas et al. 2012), but the gender gap in risk-taking depends on the age that is under study (Khachatryan 2012, Levin et al. 2007) and the task involved (Harbaugh et al. 2002). Comparing previous results with respect to the gender gap in risk-taking between adults and children is difficult, however, because of the wide variety of experimental designs, tasks and contexts that previous studies have used. Moreover, to the best of our knowledge, only one previous study has tested whether children's risk taking is affected by the gender context, but this study focused on adolescents (Booth and Nolen, 2012b). For policy interventions, however, it is crucial to know if—or when—children's behavior is susceptible to the social context.

In this paper, we explore if we would, for a given decision, find the same behavioral difference by gender in children as in adults, using performance and wagering in a non-experimental high-stakes setting with 10- to 11-year-old girls and boys and adult women and men in the game shows *Junior-Jeopardy* and *Jeopardy*. These game shows provide a unique opportunity to explore gender gaps in performance

and risk taking because both children and adults face the same decisions in an identical and well-known[1] game show framework. Performance and risk taking may also be evaluated in different social contexts - gender contexts - by exploiting the fact that contestants are exogenously assigned to their opponents, which offers a natural experiment of decision-making in different gender contexts.

Junior Jeopardy, like *Jeopardy*, is an advanced quiz game (more details are provided below) played by three contestants who score points by answering questions; after a final wager, the contestant with the highest score wins the equivalent point total in Swedish Kronor (SEK). The game framework is identical in both shows, but adults and children play the games separately (although the same host is used on most shows). During the game, on three random occasions, one contestant can wager any amount of his or her score on the ability to answer an ensuing question, which is called a "*Daily Double"*. The wager is then either added to the score when a correct answer is given to a subsequent question or deducted from the score if an incorrect answer is given. Importantly, only the contestant who is playing the *Daily Double* can wager and answer the question, and, at the time of wagering, the contestant is not informed about the other contestants' scores.

Based on these games, we first evaluate gender gaps in performance in terms of score accumulation, correct answers to a *Daily Double* question and the probability of winning. Second, we analyze contestants' wagering behavior in the *Daily Double*, and we control for individual- and game-specific variables that might affect contestants' wagering. Both outcomes are evaluated by random assignment of the gender composition of the opponents.

[1] *Jeopardy* and *Junior Jeopardy* were considered successful in terms of audience viewership and were viewed by approximately 8-10 percent and 6 percent, respectively, of the Swedish population (approximately 8 million inhabitants) between 1994 and 2001 (see *Appendix Figure 1* for the number of viewers for the years for which Media Statistics Sweden have data). For *Jeopardy*, this corresponds to approximately a third of all television viewers who watched television at that hour (see http://www.mms.se/hottop). More specifically, for 2000 and 2001, approximately 34 % and 35 % of television viewers watched *Jeopardy*, and the corresponding shares of viewers are 24 % in 1994 and 32 % in 1997 for *Junior Jeopardy*. Note that before 1995, a substantial majority of the Swedish population had access to only three TV channels and the two shows were broadcast during early primetime, at 7 pm.

Our analysis of *Junior Jeopardy* and *Jeopardy* yields a number of interesting findings. Our first finding is that even when facing the same game framework and incentives there is no gender gap in wagering among children, in contrast with adults. This result is robust to controls for absolute performance, difficulty level, experience, relative performance and performance feedback, in addition to whether children shared the game earnings with their class. Our second finding is that male and female risk taking differ with age in different ways: whereas girls wager more than women, boys wager less than men.

Our third finding is that female behavior is sensitive to the social context. In particular, despite the high-stakes setting and the lack of strategic advantage from answering questions incorrectly, girls perform worse (answering the *Daily Double* incorrectly more often and winning less often) and employ less gainful wagering strategies when they are randomly assigned a group of boy opponents compared with when they are randomly assigned a same-gender group of opponents or a mixed-gender group of opponents.[2] Women, on the other hand, wager less if they are randomly assigned a group of male opponents (these results for adults are previously reported in Sjögren Lindquist & Säve-Söderbergh 2011). The performances of boys and men do not change with the social context and although there are some differences in wagering that depend on the social context for boys, the differences are not robust to different measures of the gender composition of opponents.[3]

This paper provides new insights into the field while complementing previous experimental literature on sensitivity of the gender gap to the social context with respect to risk-taking behavior and performance. Moreover, to our knowledge, no previous paper has evaluated performance and risk-taking behavior between adults and children

[2] The underlying assumption, which is consistent with information from the production company for the two shows, is that the producers did not systematically select particularly poor-performing girls to compete against boys or select questions that were more advanced when contestants were competing in mixed-gender groups.

[3] One could argue that wagering behavior in a televised game reflects instinctive reactions, not rational decision making. However, participation is voluntary and preceded by tests; in addition, the structure of the game and wagering involved should be well known, particularly considering the weekly number of viewers.

using the same economic decision-making framework for both groups outside a laboratory experiment.[4] Whereas the previous literature is based on evidence from experiments or field experiments, we also contribute to the literature by analyzing child and adult behavior in a high-stakes setting. It is notable that a winner in *Junior Jeopardy* earns, on average, approximately 14 500 SEK or $US 2 070, and a *Jeopardy* winner earns approximately 13 000 SEK or $ 1 850 (between 1992 and 2003, 1 $US was approximately 7 SEK). Because the average monthly salary for a male employed in the private sector was approximately 15 800 SEK in 1992 and 24 200 SEK in 2002 (Statistics Sweden, 1992 and 2002), the earnings are generous, particularly for children. Nonetheless, the external validity of the study is naturally limited to a certain extent because the results are based on game-show behavior.

The remainder of the paper is organized as follows. In Section 2, the relationship of this study to the previous literature is discussed. In Section 3, we describe the game show and the wagering situations in greater detail. Section 4 discusses the data and summary statistics. Section 5 analyzes performance and wagering behavior in different gender contexts and provides the results. Section 6 provides a robustness analysis of our findings. Section 7 discusses our results. Section 8 offers concluding remarks.

2. Related Literature

Consistent with the commonly found gender gap in risk taking among adults (see, e.g., Croson and Gneezy 2009), experiments on children document that boys take more risks than girls in incentivized lottery choices (Sutter et al. 2013; Booth and Nolen 2012b; Cárdenas et al. 2012; Khachatryan 2012; Zhang 2011, Borghans et al. 2009). Nonetheless, the gender gap appears to depend on the age under study because no gap has been found for children below the age of 8 (Levin et al. 2007; Harbaugh et al. 2002), and a gender gap has been found only above the age of 12 among 8- to 16-year-

[4] We know of three laboratory experiments with children and adults (mainly parents) facing the same economic decision that show that children are relatively more risk seeking than adults (Harbaugh et al. 2002; Levin and Hart 2003; Levin et al. 2007).

olds (Khachatryan 2012). Other experiments find a gender gap, but all these studies focus on children above the age of 9 years (Cárdenas et al. 2012 (children aged 9-12 years); Sutter et al. 2013 (children aged 10-18 years); Booth and Nolen, 2012b (adolescents aged 15-16 years); Dreber et al. 2012 (adolescents aged 14-19 years); Borghans et al. 2009 (adolescents aged 15-16 years)). To our knowledge, the effect of social context on risk taking has not previously been studied, except for Booth and Nolen (2012b), who studied adolescent girls and report that adolescent girls take more risks in lottery tasks when they are randomly assigned a group of girls or when they are from all-girl schools.[5]

Consistent with experimental findings for adults (e.g., Datta Gupta et al. 2013; Niederle and Vesterlund 2007; Dohmen et al. 2012), the evidence suggests that girls are less inclined to compete (Sutter and Rützler, 2010).[6] However, unlike findings for adults, the gender gap is not robust to gender-neutral (Samak 2013) or "girly" tasks (Dreber et al. 2011; Cárdenas et al. 2012; Khachatryan, 2011) or to cultural contexts (Booth and Nolen 2012b*;* Andersen et al. 2013).[7]

Of particular interest for our study is the literature that suggests that the performance of boys and girls changes when they compete against the opposite gender. Nonetheless, like studies on adults, the results for studies on children are mixed and depend on the task under study.[8] Although no effect on boy's behavior is found, Gneezy

[5] Studies examining risk taking and social context among adults find that women take more risks if they are in a room of men, although there may be no strategic benefit in doing so (Castillo et al. 2013). Gong and Yang (2012) further show that women are more risk averse than men both in matrilineal Mosuo and patriarchal Yi societies but with smaller differences in the matrilineal society. However, merely making gender salient had no effect on men's or women's risk taking in a laboratory experiment (Benjamin et al. 2010).

[6] For example, gender differences among adults are also not stable across contexts but are influenced by, e.g., culture (Gneezy et al. 2009), and diminish with word-related tasks (see, e.g., Schurchkov 2012), controls for relative performance beliefs (Dreber et al. 2012), and, in the laboratory, preferential treatment of women through affirmative action (Niederle et al. 2013).

[7] Andersen et al. (2013) also show that the gender gap in competitiveness depends on the age under study, where the gender gap in competitiveness is first observed at the age of puberty in patriarchal societies, whereas no gender gap is observed in matrilineal societies at any age.

[8] Among adults, Gneezy et al. (2003) finds that females perform worse in competitions against males than in competitions against females and that male performance, by contrast, heightens in competitions against the opposite gender (Gneezy et al. 2003; Antonovics et al. 2005).

et al. (2004) finds that girls run slower when they compete against another girl compared with competing against a boy. Conversely, Dreber et al. (2011), Khachatryan (2012) and Samak (2013) find no performance change based on opponent gender in boys and girls using gender-neutral tasks.

3. The Game and *Daily Double* Wagering

3.1 *Junior Jeopardy* and *Jeopardy*

In both *Jeopardy* and *Junior Jeopardy*, three contestants face a game board of eight subject areas with hidden questions. Each subject area has five ascending difficulty levels. The contestants increase their score by answering the hidden questions on the game board[9]. If the contestant is correct, the points are added to his or her score, and if the contestant is incorrect, the points are deducted from his or her score. The first contestant to signal his or her wish to answer (by pushing a button) is allowed to answer. If the answer is correct, the contestant can choose the subject area and the difficulty level for the next question. If the answer is incorrect, the other two contestants are free to signal that they want to answer the question for approximately another 10 seconds, and the last contestant to answer chooses the subject area and the difficulty level for the next question.

In the game, there are two sequential game boards. A contestant can choose from five score levels for each category: 100, 200, 300, 400 and 500 for the first game board and 200, 400, 600, 800 and 1000 for the second game board. The different score levels represent the point total that the contestant earns if he or she answers the question correctly—or loses if he or she answers the question incorrectly. Different score levels also indicate the difficulty of the question. After two game boards, the game ends with a final wager. In *Jeopardy*, the contestant with the highest score keeps the equivalent

---

However, Datta Gupta et al. (2013) and Antonovics et al. (2009) find that male performance decreases with a female opponent but for the latter only in a low-stakes laboratory experiment.

[9] A special feature of *Jeopardy* is that the contestants are given the answer to a question, and they must give the correct question to the answer. To avoid confusion, we will use the term correct "answer" to refer to the correct question that they give.

score in SEK, becomes a *Jeopardy Champion* and is invited back to play in the next round (the maximum number of games that a winner can play is five successive rounds).[10] In *Junior Jeopardy*, the contestant with the highest score also keeps the equivalent score in SEK, but only the three most successful contestants (in terms of SEK earned) in each season are invited back to play in a season finale. The first and second runners-up in both the adults' and the children's games receive non-monetary prizes of similar value.

Although *Jeopardy* and *Junior Jeopardy* are identical in framework, there are some differences surrounding the games. First, the difficulty level of the questions is adjusted in *Junior Jeopardy* to a child's knowledge level. Second, adults are invited back to participate in up to five shows if they win, while only the three children with the highest earnings during the season are invited back to play in a season finale. Third, *Junior Jeopardy* winners share the sum of their earnings with their classmates in some seasons (either half or all the earnings in SEK) and receive a personal gift of substantial monetary value (larger than that of the runner-up). We control for these differences in the analysis.

A final difference concerns the selection process for participating in the game. Whereas adult contestants self-select after successfully having completed entry tests, children are invited by the production company, *Meter Television*, through invitations sent to schools across the country. If the school is interested in participating, the production company provides it with a questionnaire to be distributed to classes by teachers. After the pupils complete the questionnaire, the teachers select the pupils with the highest test results.[11] After receiving a list of children, the production company generally aims to select an equal number of boys and girls for the show. Consequently, participating children have both a higher cognitive ability relative to their classmates and a willingness to perform on television.

[10] The maximum number can, in fact, exceed five, if the winner is selected for the *Jeopardy Champion* contest, which is a season finale with the three contestants who had the highest winning scores attained that season.

[11] The production company reports that some teachers indicate which children would be willing to perform on television on some occasions.

3.2 Wagering in the *Daily Double*

During the game, three *Daily Doubles* occur randomly. Importantly, *Daily Doubles* are hidden and appear after having chosen the subject area and difficulty level. Wagering in "*Daily Doubles*" is, in essence, a random chance for the contestant to increase his or her score substantially—and thus his or her chances of and gains from winning—by wagering any amount of his or her total score on the ability to answer the ensuing question within the chosen area and difficulty level. With a correct answer, the wager is added to the contestant's total score. With an incorrect answer, the wager is deducted from the score. One restriction is that the contestant cannot wager more than his accumulated score. There is an exception; if the contestant's score level is less than the highest score level on the game board, the contestant can wager an amount equal to the highest level on the game board.[12]

A vital fact concerning the *Daily Double* is that only the contestant who obtains the *Daily Double* can wager and answer the *Daily Double* question. Moreover, at the time of wagering, contestants are likely to be unaware of the other contestants' scores because the scores are neither publicly nor privately indicated[13], and although a player technically can compute opponents' scores by keeping track of opponents' correct and incorrect answers, doing so would require a contestant to devote considerable attention to opponents' performance while simultaneously actively participating in the game.[14]

4. Data and Summary Statistics

For *Jeopardy*, the data were collected from transmissions during 2000 and 2001. Because there were fewer *Junior Jeopardy* shows per year, we collected data for all

[12] In the analysis of wagering, we exclude those who borrow because their wagering situation differs from non-borrowers since they can wager more than their total score. Thus, we exclude 42 observations for men, 18 observations for women, 10 observations for boys, and 6 observations for girls. All borrowers except one girl borrowed the maximum score possible.

[13] The Swedish game design differs in only one aspect from that of the US design. In the Swedish design players are not informed of the opponents' scores before entering the final. Yet, this design difference does not affect the play of the *Daily Doubles*.

[14] Analyzing final wagers in *Jeopardy*, we also show that contestants had not kept track of their co-players' scores all the way to the final (Sjögren Lindquist and Säve-Söderbergh 2012).

transmissions of *Junior Jeopardy* in Sweden. The years are 1993, 1994, 1996, 1997, 1999, 2000, 2001, 2002 and 2003 (when the show ended). Table 1 reports the descriptive statistics of 85 *Junior Jeopardy* shows and 206 *Jeopardy* shows. In *Junior Jeopardy*, there is a nearly equal division of 54 % boys (119 contestants) and 46 % girls (103 contestants), whereas in *Jeopardy*, there is a majority of 75 % males (339 contestants) with 25 % females (110 contestants).

Exploiting the fact that a winner is exogenously assigned a new gender composition of opponents for each game that he or she wins in *Jeopardy*, we show in a previous study that women wager less in *Daily Doubles* when playing against only male opponents than when they are playing against at least one female player, even if there is no strategic advantage in so doing (Sjögren Lindquist & Säve-Söderbergh 2011).[15] For *Junior Jeopardy*, the panel is too short to use the change in gender composition but we can exploit that contestants are randomly assigned to their opponents. Note that the assignment into either gender context is thus exogenous to the contestants' performance or wagering.

4.1 Descriptive Statistics of Performance

Before analyzing contestants' wagering behavior, we examine whether there is a gender gap in mean performance among the children or adults; the results are reported in Table 2a for all players by gender. Table 2b and Table 2c report the same statistics by the gender of the player and the gender of the opponents.

Score accumulation and winning the game

The mean values in Table 2a indicate that boys and girls have similar scores after the first round of the game but that after the second game board, boys have higher scores compared with girls (p=0.078). Boys also have larger mean post-final scores than girls (p= 0.088) and are more likely to win *Junior Jeopardy*, with 41 percent of the boys and 24 percent of the girls winning (p=0.002). Nonetheless, conditional on having won, girls win with larger mean final earnings (p=0.088). A similar gender gap in score

[15] These results were robust to a fixed-effects and a random-effects model.

accumulation is found among the *Jeopardy* contestants. Although women have lower mean scores after the first and second game boards (p=0.054 and p=0.010, respectively), women are equally successful in winning *Jeopardy*. However, conditional on having won, women win with lower final earnings (p=0.085) than men. Comparing children with adults, children have higher scores, and in particular, children have higher post-final scores and final earnings than adults (see Appendix Table 1 for more detailed information on final earnings for winners). Consequently, *Junior Jeopardy* is likely to be somewhat easier for children than *Jeopardy* is for adults.

As shown in Table 2b, girls' mean game performance varies with the gender composition of the opponents. Girls assigned a group of opponents that consist of boys only do not have lower scores after the first game board but have lower pre-final scores than girls assigned a mixed-gender group of opponents or a same-gender group of opponents (p=0.035 and p=0.111). In addition, 7 % of the girls who play against boys only win the game, whereas 26 % of the girls win when playing against a mixed-gender group of opponents (p=0.019). The performance of boys, women and men in terms of score accumulation and final earnings does not vary based on the gender composition of the opponents.

The probability of answering correctly

A gender difference in score accumulation might have arisen if males and females differed in the speed at which they pushed the button to signal that they want to answer, however. A better measure of a gender gap in performance is instead the probability of answering *Daily Double* and *Final* questions correctly, as there can be no competition between contestants in terms of reaction speed because only one contestant can answer the *Daily Double* and all three contestants answer the *Final* questions separately. Moreover, there is no strategic advantage from answering the questions correctly or incorrectly that depend on the gender context.

The descriptive statistics for all four groups are reported in Table 3a and are presented based on the gender context in Table 3b and Table 3c. Table 3a shows that girls perform somewhat better than boys, with 79 % of the girls and 73 % of the boys

answering the *Daily Double* correctly (although the difference is not significantly different, p=0.131).[16] However, Table 3b shows that girls are less likely to answer the *Daily Double* correctly if they are assigned contestants of the opposite gender compared with being assigned a mixed-gender group of contestants (p=0.041) or a same-gender group of contestants (p=0.005). Similarly, girls competing against boys only are also less likely than boys competing in the same games to answer the final question correctly (p=0.089). Among boys there is no mean difference in the probability of answering the *Daily Double* or the *Final* questions correctly that depends on the gender composition of the opponents. [17]

Table 3a reports no statistically significant gender differences in the probability of answering the questions correctly among adults in general. On average, women answer 62 % of *Daily Double* questions correctly, and men answer 68 % of *Daily Double* questions correctly. Men and women are also equally likely to answer the final question correctly, with 57 % of each group answering the final question correctly. Examining the descriptive statistics separately based on the gender composition of the opponents (see Table 3c), we find that men are more likely to answer *Daily Double* questions correctly if they are assigned a mixed-gender group of opponents (p=0.046), but no difference is observed for the final question.

4.2 Descriptive statistics for wagering in *Daily Doubles*

Table 4a presents summary statistics for contestants' wagering in *Daily Doubles* for boys, girls, women and men separately. Regarding absolute wagers, girls wager less than boys do, on average (p=0.074), whereas men and women have similar absolute wagers. However, absolute wagers directly depend on scores obtained prior to the *Daily*

[16] If we examine the probability of answering correctly separately depending on whether the *Daily Double* was during the first or the second game board, we find that girls are more likely than boys to be correct during the first game board, (88 percent of the girls and 69 percent of the boys responded correctly during the first game board (p-value is 0.028), but there is no gender difference for *Daily Doubles* during the second game board.

[17] We also test whether performance differences arise because girls and boys are differently active at different stages of the game. To test this, we compare the probability of obtaining a *Daily Double* and find no difference by gender.

Double, and the mean statistics show that girls have lower scores than boys at the time of wagering ($p=0.027$), while women have higher scores than men at the time of wagering ($p=0.055$). To account for differences in the pre-*Daily Double* scores, we calculate the relative wagers as the percentage of the absolute wager in the pre-*Daily Double* score, which is illustrated in *Figure 1*.

Figure 1 shows that there is heterogeneity in wagering between the groups: whereas boys and girls wager a similar mean percentage of approximately 47 % of their score, men wager a mean of 66 % of their score, and women wager a mean of 58 % of their score. The difference in means between men and women is highly statistically significant ($p<0.001$). Furthermore, children wager a lower percentage of their score than adults do, and the largest difference is found among males (17 % ($p<0.001$) versus 12 % ($p<0.001$) among females).

Comparing girls' and boys' relative wager distributions, illustrated in *Figure 2*, boys' wager distribution is more skewed to the right (a Kolmogorov-Smirnov test for the equality of the distribution is rejected at $p=0.090$). Similarly, the men's distribution is more skewed to the right compared with the women's distribution (a Kolmogorov-Smirnov test for the equality of the distribution is rejected at $p<0.001$). However, if we exclude the most risky strategy of wagering the entire score, which is used by 9 % of the boys and 7 % of the girls (see Table 4a), the boys' distribution of relative wagers is no longer significantly different from the girls' distribution. Among the adults, however, the fraction of men who wager the entire score (17 %) is more than double that of women (7 %) ($p=0.005$).

The differences in relative wagers by gender and gender composition of opponents are illustrated in *Figures 3a* and *3b*, respectively, and reported in Tables 4b and 4c, respectively. Whereas girls assigned same-gender opponents only wager 35 % of their score, girls assigned a group of opponents with 1 or 2 boys wager more with 52 % or 50 % of their score ($p=0.001$, $p=0.004$). Boys also wager less when they are assigned same-gender opponents but only compared with boys who are assigned a mixed-gender group of opponents ($p=0.040$). According to *Figure 3b*, men and women's mean wagering also differs depending on the gender composition of

opponents. Both men and women wager more if they are assigned opponents of the same gender compared with being assigned opponents of the opposite gender (p=0.016 and p=0.046, respectively).

5. Results

In this section, we investigate whether some of the heterogeneity in mean performance or mean wagering is systematic after controlling for performance differences, game-related characteristics, and the gender context.

5.1 Performance differences by gender and gender context

The mean statistics suggest that girls' worse performance could be related to the gender context. To explore the effect of gender and gender context on performance, we estimated random effects models of the probability of answering *Daily Double* questions correctly to account for individual heterogeneity and to exploit the panel structure of the data. In these models, we control for systematic differences in absolute performance by adding the pre-*Daily Double* score at the time of wagering. To account for contestants' anticipation of the expected difficulty level of the ensuing question, we create a count variable, which takes a value from 1 to 8, to represent the five different levels on the game boards.[18] Finally, we control for possible experience or learning effects with a count variable of the number of shows in which a player has participated because some players have participated in up to 2 shows on *Junior Jeopardy* or up to 5 shows on *Jeopardy*.

Table 5 shows that girls and boys are equally likely to answer *Daily Double* questions correctly when we control for score differences, expected difficulty and

[18] Note that the five ascending levels of complexity of the *Daily Double* for the first round are 100, 200, 300, 400 and 500, whereas for the second and third *Daily Doubles*, the levels are 200, 400, 600, 800 and 1000. We assume that 200 level and 400 level are of equal difficulty, regardless of whether they occur in the first, second, or third *Daily Double*. This assumption is justifiable since there are equal percentages of contestants who answered the question correctly in the first, second, and third *Daily Double*.

experience. However, if we add four interaction terms for being female or male and either being assigned a mixed-gender group of opponents or being assigned opposite-gender opponents (i.e., the reference category is being assigned opponents of the same gender), column 2 shows that girls are, on average, more likely than boys to answer *Daily Double* questions correctly but that girls playing against boys only are less likely to answer *Daily Double* questions correctly (p=0.05). In the third column, we elaborate on the analysis by adding a dummy for having played in a strictly male- or female-dominated environment, and again, we find that girls competing in a male-dominated environment are less likely to answer *Daily Double* questions correctly compared with girls competing in a female-dominated environment. This result is also robust to the use of an interaction term between gender and the number of females among the opponents to measure the effect of the gender of the opponent (column 4). For boys, men and women, this performance outcome does not depend on the gender context.

5.2 Wagering behavior by gender and gender context

To explore the effect of gender and gender context on wagering behavior, we ran random effects regressions on absolute wagers to exploit the panel structure of the data and to account for individual heterogeneity.[19] In these regressions, we control for the pre-*Daily Double* score to account for not only absolute performance but also for the upper bound of the wager due to the contestant's score (since the wager cannot exceed the score). Although the wagering decision is made before the question is revealed and can thus only be based on the category and difficulty level, we control for the anticipated difficulty level of the *Daily Double*. Moreover, even if previous success from participating in other shows should have no direct impact on wagering in *Daily Doubles* we include an experience variable to account for any indirect influence that the contestant may feel through higher self-confidence from previous successful wagering situations.

[19] The use of random effects regressions is justified because the questions resemble random shocks to the individual and we have a short panel. Hausman tests further reject the presence of individual fixed effects.

Table 6 presents the determinants of wagering for boys, girls, women and men in separate random effects regression models. First, controlling for absolute performance, anticipated question difficulty and experience, we find no difference in wagering levels between boys and girls (column 1). Nonetheless, although they face the same wagering situation as the children, the estimates reveal a gender difference in wagering behavior among the adults (column 5), with women wagering more cautiously than men (p=0.07). Note that for both samples, the control variables have the anticipated signs. Contestants wager relatively less when the subsequent question is expected to be more difficult and experience has no effect on wagering.

In Table 6, we consider wagering differences arising from contestants being randomly assigned to compete against groups of opponents with different gender compositions. Adding the four interaction terms between gender and opponent gender, we find that boys wager more in a mixed-gender group of opponents than in an all-boys group. For girls, there is no statistically significant effect on wagering from being assigned to different groups with different gender compositions (column 2). Regarding the gender context effect from playing in male- or female-dominated contexts, there is no effect on either boys or girls (column 3). However, estimating the effect as a linear trend of being assigned more female opponents, we find that there is a systematic and statistically significant effect on wagering behavior among girls, which suggests that girls wager less when they are assigned to groups with more female opponents (column 4). Moreover, with this model specification, girls wager more than boys (the effect is not statistically significant at conventional levels, however, with p=0.122) and, in particular, girls wager more when assigned male opponents.[20] Among women, however, being assigned female opponents has the opposite (and significant) effect from that observed with girls (column 6-8). In no model do men change their wagering based on the gender context (column 6-8).

[20] We also conduct the analysis on first-time players only to address a possible learning effect and obtain similar results, although the p-value for the number of females in the show is merely close to being statistically significant (p=0.133) in *Junior Jeopardy*.

To compare within-gender differences, that is, boys to men and girls to women, Table 7 shows estimates from random effects regressions with the full sample. *Figure 4* also presents a scatterplot of the relative wagers and the predicted wagering for each group. Comparing all four groups, men have the highest wagers, and boys have the lowest wagers, particularly among contestants with the highest scores. The difference between women and girls is less pronounced. Controlling for the gender composition of the opponents, the within-gender difference for females becomes more pronounced, with girls wagering more than women, whereas boys wager less than men. The effects on wagering of being assigned more female opponents for girls (negative) and women (positive) are also robust to estimating the wagering models with the full sample (column 2).

6. Robustness Analysis

In this section, we test whether the differences in contestants' wagering behavior are robust to accounting for a game's degree of competition, a contestant's relative position, a contestant's sensitivity to performance feedback, and contestants sharing their earnings with their class.

Competing in tight games, relative positions, and performance feedback

One explanation for girls wagering more when competing against only boys could be that they had relatively low scores and made high wagers to close the distance in scores. Moreover, wagering behavior might have resulted from same-gender groups having closer games, indicating contestants' scores are more similar in games with same-gender groups compared with games with mixed- or opposite-gender groups, which may result in relatively lower wagering. Contestants are, however, only informed about their own score at the time of wagering, not opponents' scores. Consequently, actual differences between scores are vague measures of relative positions, yet contestants may have a sense of the differences between scores.

In Table 8, we regress the same model as above (column 1), adding a control for the tightness of the game, as measured by the difference in score between the leader and

the second runner-up, and, with a control for the contestant's relative position at the time of wagering, called the subjective relative position(column 2). We consider this variable to be a subjective measure because contestants do not know the actual relative position. This latter variable is defined as the ratio of the contestant's pre-*Daily Double* score to the score leader's pre-*Daily Double* score and, if the contestant is the leader, as the ratio of the contestant's pre-*Daily Double* score to the runner-ups' pre-*Daily Double* scores. According to Table 8, columns 1 and 5 and columns 2 and 6, accounting for neither the tightness of the game nor the relative position changes our findings above.

We have also elaborated on the model by accounting for contestants being differently sensitive to performance feedback. To account for sensitivity to performance feedback, we exploit the fact that contestants' scores are publicly stated after the first round of the game, which implies that contestants receive feedback on their relative performance. Column 3 and 6 in Table 8 report the estimates in which we have added a control for performance feedback given at the start of the second round (derived in a manner similar to that for subjective relative position). Note that as the performance feedback can only be derived for the second round of the game, the number of observations is reduced to 165 for children and 394 for adults. Receiving performance feedback of a better relative position increases subsequent wagers for boys and girls but not for adults. Yet, although performance feedback influences wagering, our results above remain unchanged.

Sharing the earnings with the class

In the first two seasons of *Junior Jeopardy*, the winner was able to keep the full monetary equivalent of the score. In later seasons (partly because of public opinion about children winning too much money), the winner either kept half of the monetary equivalent of the score in SEK and shared the rest with his or her classmates or, in the two final seasons, shared the full amount of the monetary equivalent of the score in SEK with his or her classmates and received personal gifts of considerable value. Table 8, column 4 reports the estimates in which we have added a dummy variable for the last situation in which the full amount of the earnings is shared with the class. Both boys

and girls wager less in this situation—compared with when they keep all or half the earnings—but the effects of gender and the gender context remain.[21]

7. Discussion

Our first finding suggests that although they faced the same types of decisions in an identical and well-known game setup, children did not show the same gender gap in wagering that was observed among adults, even when we controlled for game performance. The gender gap in risk taking, in our framework, is thus not shown to be constant across age, which suggests that either gender differences appear later than 10 or 11 years of age or we have captured a cohort effect. Our analysis also shows that the risk taking differs not only between girls and women but also between boys and men: whereas, for a given score or performance, girls take higher risk than women, boys take less risk than men (and women). Interestingly, previous experimental studies on risk taking find that a gender gap first emerges at approximately the age of 12 in children between 8 and 16 years of age (Khachatryan 2012) or at approximately the age of 9-11 in children between 6 and 16 years of age (Slovic 1966). In both these studies the boys became more risk-taking and not the girls.

Our results are also noteworthy against the background of contestants' selection into the game. Because adults self-select into the game, it might be expected that participating women would be more willing to take risks than the average woman; thus, we would expect to find less of a gender gap among adult contestants. Children's selection is based on them having the highest cognitive performance but not on their willingness to take risks. Thus, if the gender gap in risk taking were constant across age, we would expect a larger difference in risk taking among children relative to adults. However, this is not what we find.

Despite no strategic advantage, girls' performance was sensitive to the gender composition of the opponents. Girls performed better, as measured by score

[21] We have also tested whether the gain-sharing conditions have different effects on girls and boys and found no different effect by gender.

accumulation; were more likely to answer questions correctly; and won more frequently when randomly assigned opponents consisting of girls compared with when being assigned boys only. This performance effect differs from previous experimental findings on children, yet these performance effects found in previous studies relate to physical activities (Gneezy et al. 2004; Dreber et al. 2011), whereas our results are based on a cognitive performance outcome. The performance of boys, women and men did not change based on the gender context. Thus, for girls, our results are consistent with research on peer effects in schooling that find that the presence of a larger proportion of girls improves not only girls' but also boys' cognitive outcomes in mixed-gender classes (Lavy & Schlosser 2011). By contrast, our study shows no positive performance outcome for boys from competing against girls.

Female wagering also varied with the social context. In particular, girls wagered more when they were competing against opponents of the opposite gender. Taken together, the two findings on girls' behavior suggest that girls perform worse yet wager more in male-dominated environments despite not having any strategic advantage in so doing. In fact, Table 4b shows that girls gain significantly less from wagering when we consider the expected gain of wagering (calculated as the wager times the probability of having answered the *Daily Double* question correctly) when they are assigned a male-dominated group compared with when they are assigned a same-gender ($p=0.092$) or mixed-gender group (the p-value is not statistically significant, however, at $p=0.124$) because they are more likely to answer questions incorrectly and have lower pre-*Daily Double* scores if they compete against boys only. By contrast, when boys wager more, they are also more likely to answer questions correctly ($p=0.113$) and thus obtain higher gains from wagering in these games when they compete in mixed-gender groups compared with when they compete in groups with different gender compositions ($p=0.063$ and $p=0.044$, respectively).

Because no one element of game-strategy explains our findings, we discuss two relevant psychological explanations from the literature that may explain them. The first explanation is that the gender context may affect individuals' economic preferences through a conflict in perceived gender identities. This explanation is suggested in Booth

& Nolen (2012b) (following the approach of social identity by Akerlof & Kranton 2000). In a male-dominated environment, females would then feel a conflict between behaving attractively and behaving competitively if behaving competitively was associated with a male—as opposed to a female—gender identity. Nonetheless, in our context, this explanation seems less plausible because children on *Junior Jeopardy* are only 10 to 11 years of age; thus, aspects of attractiveness are likely of less importance. Moreover, if attractiveness is the most important factor for girls, we would expect to find no change in wagering behavior depending on whether the earnings are shared with the class. Yet, girls also took less risk when they shared all the earnings with their classes. In addition, because it is a quiz show, winners are applauded for their competence and not for other personal characteristics.

A second psychological explanation is that the gender composition of a group increases the salience of an individual's gender and thus influences decision making. Behavior could thus be influenced through a "stereotype threat", which is a situational phenomenon that occurs when individuals who are the target of a stereotype claiming them to be of inferior intellectual capacity are reminded of the possibility of confirming these stereotypes (see, e.g., Steele 1997). Consistent with this explanation, girls might perform worse in a male-dominated context if there were a belief that girls, on average, perform worse on *Junior Jeopardy* compared with boys. As we find a gender gap in which more boys enter and win *Junior Jeopardy*—and if we assume that this was a common stereotype among the contestants—a poor cognitive performance for girls when they compete among boys only would be consistent with such a stereotype threat. In addition, as making higher wagers was not strategically advantageous for girls when they were competing among boys only, this finding might be considered to reflect feelings of intimidation in the presence of boys and therefore being prone to mistakes.

This paper suggests that the link between behavior and social context is complex for females. Although the social context affected the behavior of both girls and women, the social context more negatively affected girls' behavior in comparison to that of women. In particular, the social context seems to negatively affect performance of girls already at the age of 10. However, we do not find any gender effect on average risk

taking at that young of an age. One possible explanation for this result might be that girls and boys are exposed to risk-taking decisions less frequently at the age of 10 and thus have no prior beliefs regarding gendered behavior to which their risk-taking behavior should be adjusted. By contrast, with respect to cognitive performance under competitive pressure, children under 10 years of age may already have prior beliefs that girls perform worse than boys or are less inclined to compete than boys are, as previous research has shown.

8. Conclusions

In this study, we document that female behavior changes in both risk taking and cognitive performance with gender context as early as 10 years of age. Importantly, girls behave unfavorably in a male-dominated environment. This finding is notable considering the high-stakes setting (earnings are approximately the equivalent of half a month's salary) and possible social pressure from classmates. However, more research on this gender gap is required because the external validity of this study is limited by the televised game show setting. Future experimental work could, for example, assess the stability of our findings in other settings, particularly because there is an absence of studies in the literature on the effects of contextual factors on the gender gap in risk taking among children.

References

Akerlof, George, A., and Kranton, Rachel, E., "Economics and Identity", *The Quarterly Journal of Economics*, 115 (2000), 715-753.

Albrecht, James, Björklund, Anders and Susan Vroman, "Is there a glass ceiling in Sweden?", *Journal of Labor Economics*, 21 (2003), 145-177.

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*, 95 (2013), 1438–1443.

Antonovics, Kate, Arcidiacono, Peter and Randall Walsh, "Games and Discrimination: Lessons from The Weakest Link", *Journal of Human Resources*, 40 (2005), 918-47.

Antonovics, Kate, Arcidiacono, Peter and Randall Walsh, "The Effects of Gender Interactions in the Lab and in the Field", *The Review of Economics and Statistics*, 91 (2009), 152-162.

Benjamin, Daniel, James Choi and A. Joshua Strickland, "Social Identity and Preferences", *The American Economic Review*, 100 (2010), 1913-1928.

Bertrand, Marianne, "New Perspectives on Gender," in *Handbook of Labour Economics*, Amsterdam: Elsevier Science B.V. North-Holland, vol. 4b (2010), chap. 17, 1545–1592.

Blau, Francine, "Gender Inequality and Wages", Anne C. Gielen and Klaus F. Zimmerman, eds. Oxford: Oxford University Press (2012).

Booth, Alison L., and Patrick J. Nolen, "Choosing to Compete: How Different Are Girls and Boys?", *Journal of Economic Behavior & Organization*, 81 (2012a), 542-555.

Booth, Alison L. and Patrick J. Nolen, "Gender Differences in Risk Behaviour: Does Nurture Matter?", *The Economic Journal*, 122 (2012b), 56-78.

Borghans, Lex, Bart Goldsteyn, James J. Heckman and Huub Meijers, "Gender Differences in Risk Aversion and Ambiguity Aversion", *Journal of the European Economic Association*, 7(2009), 649–658.

Cárdenas, Juan-Camilo, Anna Dreber, von Essen, Emma and Eva Ranehill, "Gender differences in competitiveness and risk taking: Comparing children in Columbia and Sweden", *Journal of Economic Behavior and Organization*, 83 (2012), 11-23.

Castillo, Marco, Gregory, Leo and Ragan Petrie, "Room Effects", GMU Interdisciplinary Center for Economic Science Department of Economics Paper No. 13-17 (2013).

Croson, Rachel and Uri Gneezy, "Gender Differences in Preferences", *Journal of Economic Literature*, 47 (2009), 1-27.

Datta Gupta, Nabanita, Poulsen, Anders, and Villeval, Marie-Claire, "Gender Matching and Competitiveness: Experimental Evidence", *Economic Inquiry*, 51 (2013), 816-835.

Dohmen, Thomas, Falk, Armin, Huffman, David, Sunde, Uwe, Schupp, Jürgen and Gert G. Wagner, "Individual Risk Attitudes: Measurement, Determinants and Behavioral Consequences", *Journal of the European Economic Association*, 9 (2012), 520-550.

Dreber, Anna, von Essen, Emma and Eva Ranehill, "Outrunning the Gender Gap: Boys and Girls Compete Equally." *Experimental Economics*, 14 (2011), 567-582.

Dreber, Anna, von Essen, Emma and Eva Ranehill, "In Bloom: Gender Differences in Preferences among Adolescents", Stockholm School of Economics, SE/EFI Working Paper Series in Economics and Finance No 734 (2012).

Eckel, Catherine and Grossman, Philip, "Men, Women and Risk Aversion: Experimental Evidence," in *Handbook of Experimental Economics Results*, ed. by C. R. Plott and V. L. Smith, Amsterdam: Elsevier Science B.V. North-Holland, vol. 1 (2008), chap. 113, 1061–1073.

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

Gneezy, Uri and Aldo Rustichini, "Gender and Competition at a Young Age", *American Economic Review*, 94 (2004), 377-381.

Gneezy, Uri, Kenneth Leonard and John List, "Gender Differences in Competition: Evidence from a Matrilineal and a Patriarchal Society", *Econometrica*, 77 (2009), 1637-1664.

Gong, Binglin, and Yang, Chun-Lei, "Gender differences in risk attitudes: field experiments on the matrilineal Mosuo and the patriarchal Yi", *Journal of Economic Behavior and Organization*, 83 (2012), 59-65.

Harbaugh, William T., Kate Krause and Lise Vesterlund, "Risk Attitudes of Children and Adults: Choices over Small and Large Probability Gains and Losses", *Experimental Economics*, 5 (2002), 53–84.

Khachatryan, Karen, "Gender Differences in Preferences at a Young Age? Experimental Evidence from Armenia", Stockholm School of Economics, (2012), manuscript.

Lavy, Victor, and Analia Schlosser, "Mechanisms and Impacts of Gender Peer Effects at School", *American Economic Journal: Applied Economics*, 3 (2011), 1-33.

Levin, Irwin P. and Stephanie S. Hart, "Risk Preferences in Young Children: Early Evidence of Individual Differences in Reaction to Potential Gains and Losses", *Journal of Behavioral Decision-Making*, 16 (2003), 397–413.

Levin, Irwin P, Weller, Joshua A., Pederson, Ashley A. and Lyndsay A. Harshman, "Age-related differences in adaptive decision making: Sensitivity to expected value in risky choice", *Judgment and Decision Making*, 2 (2007), 225-233.

Niederle, Muriel and Lise Vesterlund, "Do Women Shy away from Competition? Do Men Compete too Much?", *Quarterly Journal of Economics*, 122 (2007), 1067-1101.

Niederle, Muriel, Segal, Carmit and Lise Vesterlund, "How Costly Is Diversity? Affirmative Action in Light of Gender Differences in Competitiveness", *Management Science*, 59 (2013), 1–16.

Samak, Anya C., "Is there a gender gap in Preschoolers' Competitiveness? An Experiment in the U.S.", *Journal of Economic Behavior and Organization*, 92 (2013), 22-31.

Shurchkov, Olga, "Under Pressure: Gender Differences in Output Quality and Quantity under Competition and Time Constraints", *Journal of the European Economic Association*, 10 (2012), 1189–1213.

Sjögren Lindquist, Gabriella and Säve-Söderbergh, Jenny, "Girls will be Girls - Especially among Boys: Risk-taking in the *'Daily Double'* on *Jeopardy*", *Economics Letters*, 112 (2011), 158-160.

Sjögren Lindquist, Gabriella and Säve-Söderbergh, Jenny, "Securing Victory or Not? Surrendering Optimal Play when Facing Simple Calculations –A Natural Experiment from the Swedish and US Jeopardy", *Applied Economics*, 44 (2012), 777-783.

Slovic Paul, "Risk-taking in Children: Age and Sex Differences", *Child Development*, 37 (1966), 169-176.

Steele, Claude M., "A threat in the air: How stereotypes shape intellectual identity and performance", *American Psychologist*, 52 (1997), 613-629.

Sutter, Matthias and Daniela Rützler, "Gender Differences in Competition Emerge Early in Life" (2010), IZA Discussion Paper 5015.

Sutter, Matthias, Kocher, Martin G., Rützler, Daniela, and Stefan T. Traumann, "Impatience and Uncertainty: Experimental Decisions Predict Adolescents' Field Behaviour", *The American Economic Review*, 103 (2013), 510-31.

Weichselbaumer, Doris and Rudolf Winter-Ebmer, "A Meta-Analysis of the International Gender Wage Gap", *Journal of Economic Surveys*, Wiley Blackwell, 19 (2005), 479-511.

Zhang, Jane, "Do girls in China Compete as Much as Boys? Evidence from an Experiment that Predicts Educational Choice", manuscript, University of California at Berkeley (2011).

Figures

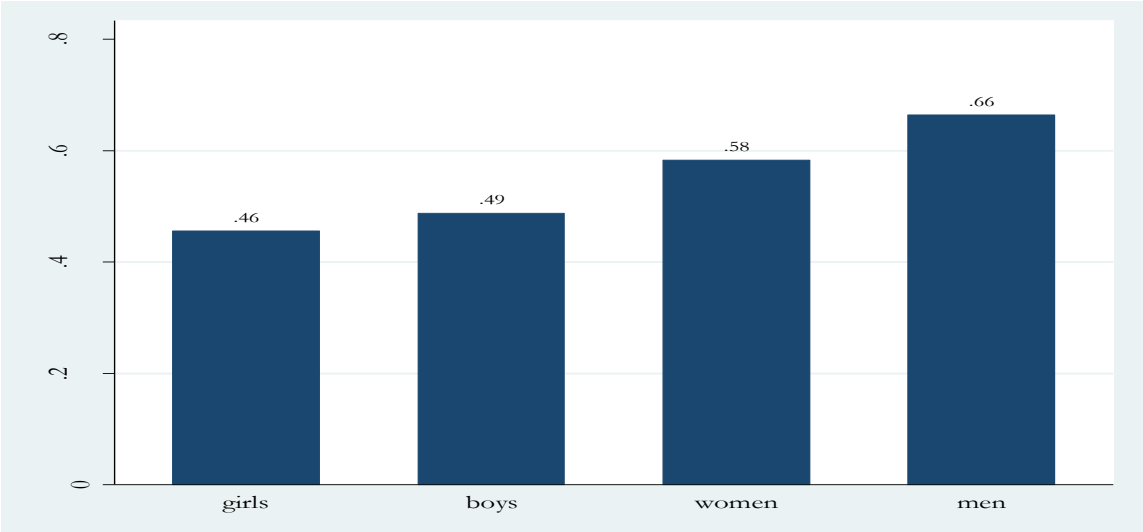


Figure 1: Mean *Daily Double* wagers in percentage of the *Daily Double* score

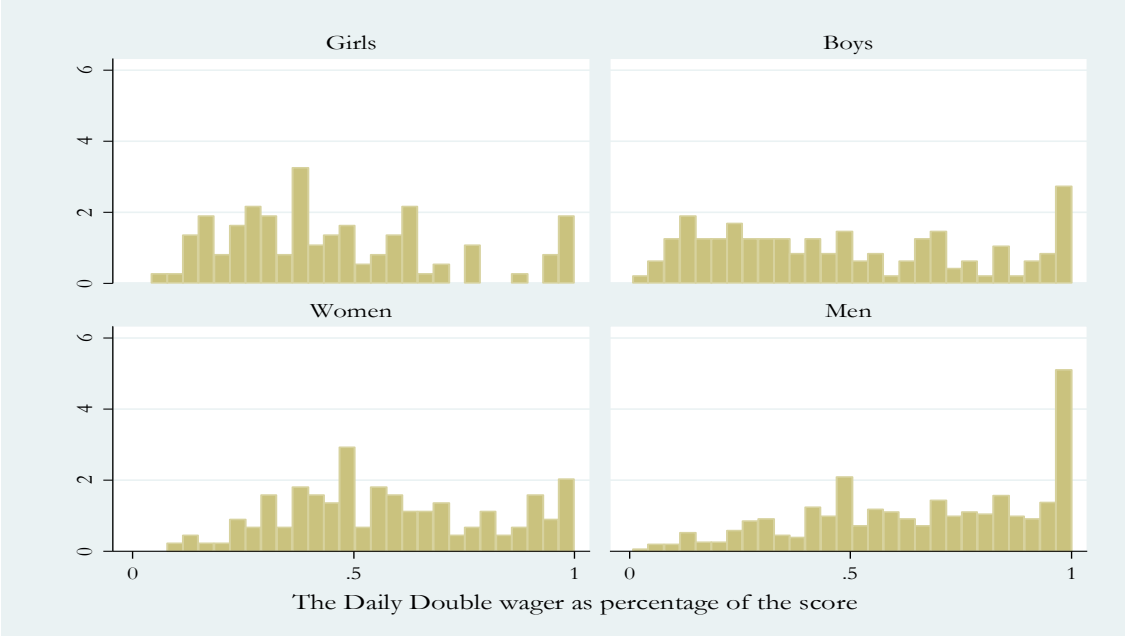


Figure 2: The distributions of the *Daily Double* wagers in percentage of the *Daily Double* score for girls, boys, women and men separately

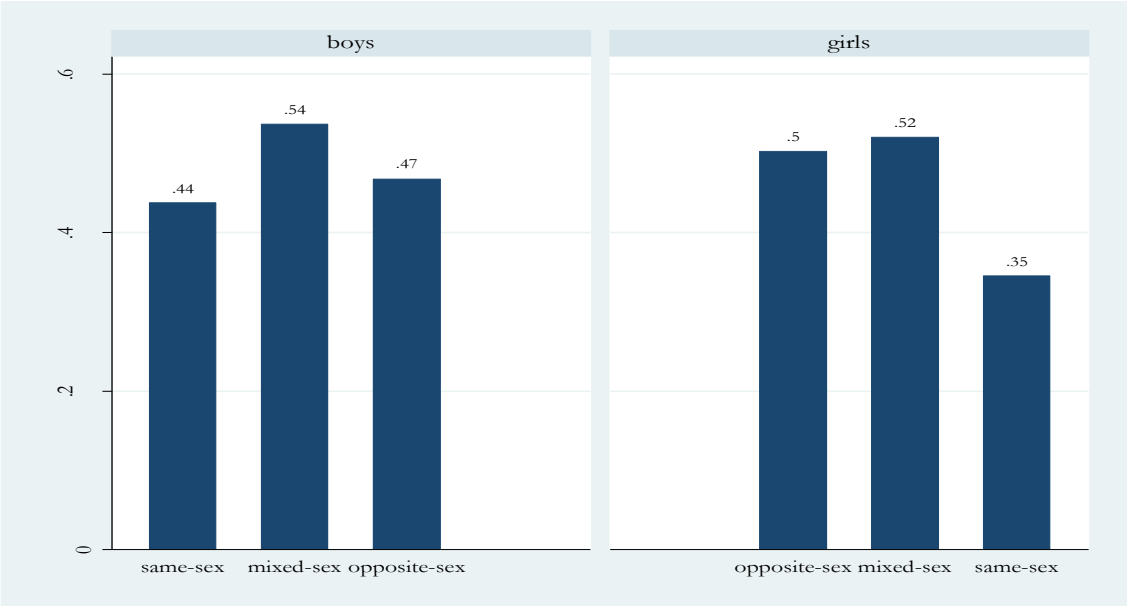


Figure 3a: Mean *Daily Double* wagers in percentage of the *Daily Double* score, for girls and boys separately, divided by gender composition of opponents

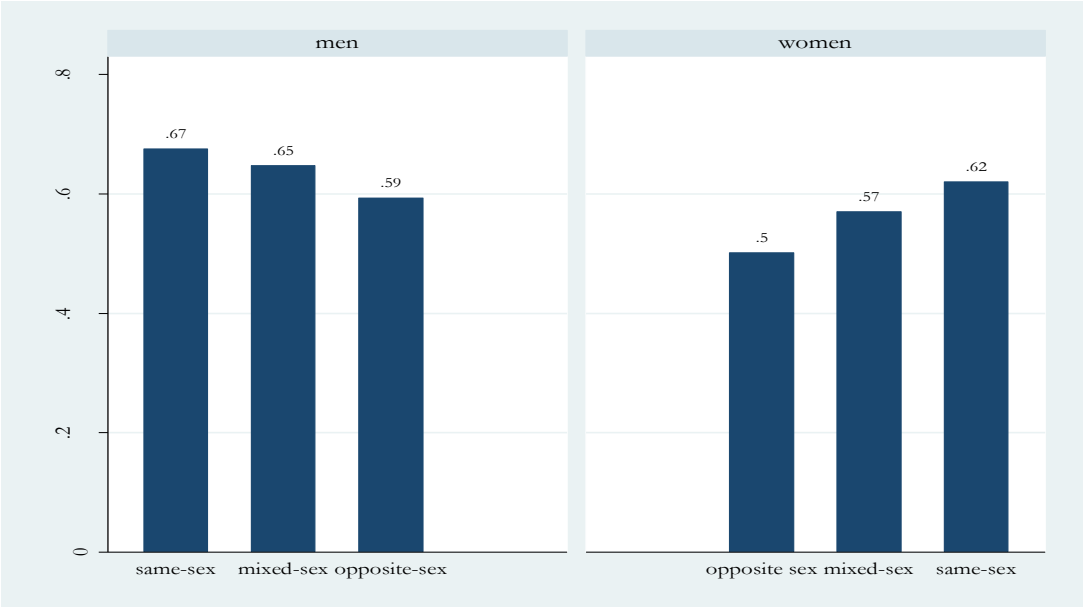


Figure 3a: Mean *Daily Double* wagers in percentage of the *Daily Double* score, for girls and boys separately, divided by gender composition of opponents

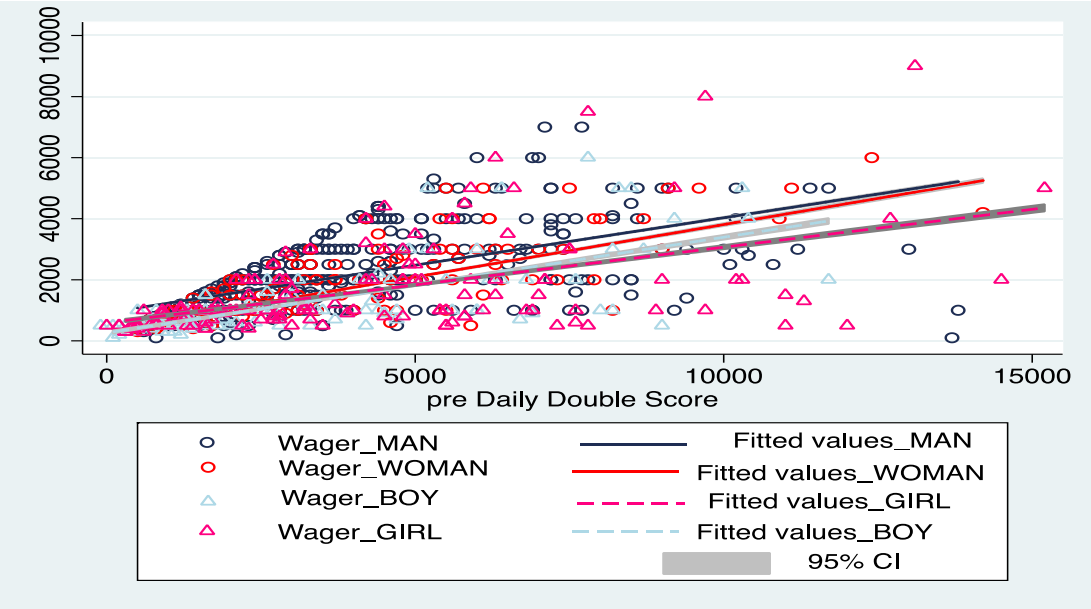
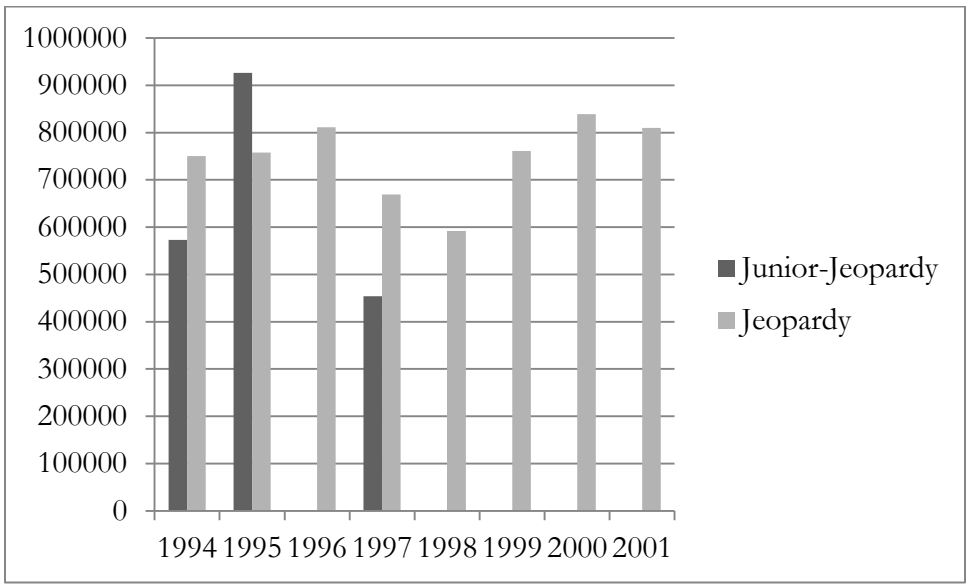


Figure 4: The predicted *Daily Double* wagers for boys, girls, men and women from random effects models.



Appendix Figure 1: The number of viewers out of approximately 8 million inhabitants in Sweden for the years for which data is available from Media Statistics Sweden (MMS, 2013).

Tables

Table 1 Descriptive statistics of *Junior Jeopardy* and *Jeopardy*

	Junior Jeopardy Children	*Jeopardy* Adults
Number of games	85	206
Number of players	222	449
Number of female players	103	110
Number of male players	119	339
Number of *Daily Double* observations	238	556
Number of female *Daily Double* observations	104	125
Number of male *Daily Double* observations	134	431
Number of *Daily Double* per player	1.14	1.37
	1.06	*1.53*
Number of *Daily Double* per female players	1.11	1.3
	1.02	*1.85*
Number of *Daily Double* per male players	1.18	1.40
	1.10	*1.42*
Amount won (in Swedish Kronor)	14 665	13 098
	5 943	*7 400*

Notes
Source: Swedish *Junior Jeopardy* shows broadcast in 1993-1994, 1996-1997, 1999-2003 and *Jeopardy* shows broadcast in 2000 and 2001. Standard deviations in italics.

Table 2a Descriptive statistics of game performance for *Junior Jeopardy* and *Jeopardy*

	Girls	Boys	Women	Men	All
Score after first scoreboard	2 216.2	2 326.1	2 116.3	2 324.5	2 275.1
	1 190.4	*1 325.5*	*1 479.4*	*1 384.9*	*1 368.1*
p-value t-test of a gender difference	0.245		0.054		
p-value t-test of a within-gender difference	0.274	0.437			
Observations	117	138	160	457	872
Pre-final score	6 223.6	6 996.3	5 255.7	6 059.6	6 080.1
	3 864.4	*4 483.9*	*3 921.7*	*3 691.5*	*3 917.9*
p-value t-test of a gender difference	0.078		0.010		
p-value t-test of a within-gender difference	0.023	0.007			
Observations	110	135	158	449	852
Post-final score	8 117.3	9 282.2	6 544.4	7 030.4	7 437.4
	6 677.8	*6 684.6*	*6 978.4*	*7 320.1*	*7 125.7*
p-value t-test of a gender difference	0.088		0.234		
p-value t-test of a within-gender difference	0.033	0.001			
Observations	110	135	158	449	852
Amount won (winners)	15 300.0	14 348.2	11 951.8	13 530.6	13 548.9
	6 145.3	*5 870.1*	*7 720.9*	*7 254.1*	*7 037.8*
p-value t-test of a gender difference	0.088		0.085		
p-value t-test of a within-gender difference	0.024	0.225			
Observations	28	56	57	141	852
Share of winners	0.24	0.41	0.36	0.33	0.34
	0.43	*0.50*	*0.04*	*0.47*	*0.47*
p-value t-test of a gender difference	0.002		0.276		
p-value t-test of a within-gender difference	0.019	0.052			
Observations	117	138	160	457	617

Notes

Source: Swedish *Junior Jeopardy* shows broadcast in 1993-1994, 1996-1997, 1999-2003 and *Jeopardy* shows broadcast in 2000 and 2001. Standard deviations are in italics. Values are equivalent to SEK apart from share of winners.

Table 2b Descriptive statistics of game performance in score accumulation and winning for children assigned different gender compositions of their opponents

	Girls assigned same-gender opponents	Girls assigned mixed-gender opponents	Girls assigned opposite gender opponents	Boys assigned same-gender opponents	Boys assigned mixed-gender opponents	Boys assigned opposite gender opponents
Score after first scoreboard	2 411.9	2 056.5	2 186.2	2 238.6	2 331.0	2 530.4
	1 232.1	*1 163.6*	*1 171.3*	*1 294.5*	*1 363.5*	*1 340.1*
p-value t-test col. 1 to 2	0.084			0.355		
p-value t-test col. 2 to 3		0.320			0.276	
p-value t-test col. 1 to 3			0.221			0.185
Observations	42	46	29	57	58	23
Pre-final score	7 045.2	6 004.9	5277.8	6 633.3	7 276.8	7 222.7
	3 942.7	*3 736.2*	*3810.9*	*3 764.8*	*5 627.2*	2 634.7
p-value t-test col. 1 to 2	0.110			0.238		
p-value t-test col. 2 to 3		0.219			0.483	
p-value t-test col. 1 to 3			0.035			0.252
Observations	42	41	27	57	56	22
Post final score	9 228.6	8 302.4	6107.4	8 471.9	9 585.7	10 609.1
	6 633.8	*6 947.9*	*6086.0*	*5 526.3*	*7 703.8*	*6661.9*
p-value t-test col. 1 to 2	0.268			0.189		
p-value t-test col. 2 to 3		0.093			0.293	
p-value t-test col. 1 to 3			0.027			0.075
Observations	42	41	27	57	56	22
Amount won (winners)	15 778.6	15 941.7	8 100.0	13 726.3	14 233.3	15 840.0
	5 222.6	*7 081.4*	*1272.8*	*3 730.3*	*7 365.0*	*4765.6*
p-value t-test col. 1 to 2	0.473			0.392		
p-value t-test col. 2 to 3		0.078			0.263	
p-value t-test col. 1 to 3			0.032			0.099
Observations	14	12	2	19	27	10
Share of winners	0.33	0.26	0.07	0.33	0.47	0.43
	0.48	*0.44*	*0.26*	*0.48*	*0.50*	*0.51*
p-value t-test col. 1 to 2	0.231			0.075		
p-value t-test col. 2 to 3		0.019			0.403	
p-value t-test col. 1 to 3			0.004			0.200
Observations	42	46	29	57	58	23

Notes

Source: Swedish *Junior Jeopardy* shows broadcast in 1993-1994, 1996-1997, 1999-2003. Standard deviations are in italics. Values are equivalent to SEK apart from share of winners.

Table 2c Descriptive statistics of game performance in score accumulation and winning for adults assigned different gender compositions of their opponents

	Women assigned same-gender opponents	Women assigned mixed-gender opponents	Women assigned opposite gender opponents	Men assigned same-gender opponents	Men assigned mixed-gender opponents	Men assigned opposite gender opponents
Score after first scoreboard	2 081.9	2 078.8	2 238.9	2 291.1	2 401.4	2 584.0
	1 432.5	*1 421.2*	*1 678.1*	*1 394.5*	*1 269.6*	*1 573.9*
p-value t-test col. 1 to 2	0.495			0.267		
p-value t-test col. 2 to 3		0.316			0.281	
p-value t-test col. 1 to 3			0.307			0.157
Observations	72	52	36	360	72	25
Pre-final score	5 076.1	5 059.6	5 911.4	5 927.1	6 533.3	6 640.0
	3 463.8	*3 826.7*	*4 876.8*	*3 699.3*	*3 599.6*	*3 814.6*
p-value t-test col. 1 to 2	0.490			0.106		
p-value t-test col. 2 to 3		0.183			0.450	
p-value t-test col. 1 to 3			0.156			0.177
Observations	71	52	35	356	69	25
Post final score	5 889.5	6 426.1	8 048.6	7 060.2	6 831.2	7 157.6
	6 261.2	*6 215.8*	*9 108.3*	*7 263.0*	*7 541.1*	*7 802.4*
p-value t-test col. 1 to 2	0.319			0.406		
p-value t-test col. 2 to 3		0.163			0.427	
p-value t-test col. 1 to 3			0.078			0.474
Observations	71	52	35	355	69	25
Amount won (winners)	11 336.0	11 003.1	13 862.5	13 302.8	14 820.0	13 708.8
	6 311.0	*7 494.5*	*9 857.6*	*7 365.7*	*7079.5*	*6 589.3*
p-value t-test col. 1 to 2	0.440			0.196		
p-value t-test col. 2 to 3		0.182			0.341	
p-value t-test col. 1 to 3			0.161			0.433
Observations	25	16	16	121	20	10
Share of winners	0.35	0.31	0.44	0.34	0.28	0.40
	0.48	*0.47*	*0.50*	*0.47*	*0.45*	*0.50*
p-value t-test col. 1 to 2	0.324			0.168		
p-value t-test col. 2 to 3		0.097			0.1296	
p-value t-test col. 1 to 3			0.166			0.258
Observations	72	52	36	360	72	25

Notes

Source: Swedish *Jeopardy* shows broadcast in 2000 and 2001. Standard deviations are in italics. Values are equivalent to SEK apart from share of winners.

Table 3a Descriptive statistics of answering correctly for all contestants

	Girls	Boys	Women	Men	All
Daily Double correct	0.79	0.73	0.62	0.68	0.68
	0.41	*0.45*	*0.49*	*0.47*	*0.47*
p-value t-test of a gender difference	0.131		0.115		
p-value t-test of a within-gender difference	0.002	0.122			
Observations	114	140	143	473	870
Final correct	0.71	0.73	0.57	0.57	0.61
	0.46	*0.44*	*0.50*	*0.50*	*0.49*
p-value t-test of a gender difference	0.338		0.466		
p-value t-test of a within-gender difference	0.010	0.000			
Observations	110	135	158	431	794

Notes Source: Swedish *Junior Jeopardy* shows broadcast in 1993-1994, 1996-1997, 1999-2003 and *Jeopardy* shows broadcast in 2000 and 2001. Standard deviations are in italics

Table 3b Descriptive statistics of answering correctly for children by assignment of opponents

	Girls assigned same-gender opponents	Girls assigned mixed-gender opponents	Girls assigned opposite gender opponents	Boys assigned same-gender opponents	Boys assigned mixed-gender opponents	Boys assigned opposite gender opponents
Daily Double correct	0.88	0.80	0.62	0.72	0.77	0.64
	0.33	*0.40*	*0.50*	*0.45*	*0.42*	0.49
p-value t-test col. 1 to 2	0.166			0.264		
p-value t-test col. 2 to 3		0.041			0.113	
p-value t-test col. 1 to 3			0.005			0.239
Observations	42	46	26	57	61	22
Final correct	0.74	0.73	0.63	0.74	0.71	0.77
	0.45	*0.45*	*0.49*	*0.44*	*0.46*	*0.43*
p-value t-test col. 1 to 2	0.474			0.395		
p-value t-test col. 2 to 3		0.190			0.303	
p-value t-test col. 1 to 3			0.173			0.373
Observations	42	41	27	57	56	22

Notes Source: Swedish *Junior Jeopardy* shows broadcast in 1993-1994, 1996-1997, 1999-2003. Standard deviations are in italics.

Table 3c Descriptive statistics of answering correctly for adults by assignment of opponents

	Women assigned same-gender opponents	Women assigned mixed-gender opponents	Women assigned opposite gender opponents	Men assigned same-gender opponents	Men assigned mixed-gender opponents	Men assigned opposite gender opponents
Daily Double correct	0.58	0.64	0.69	0.68	0.72	0.56
	0.50	*0.48*	*0.47*	*0.47*	*0.45*	0.50
p-value t-test col. 1 to 2	0.267			0.225		
p-value t-test col. 2 to 3		0.344			0.046	
p-value t-test col. 1 to 3			0.163			0.080
Observations	72	42	29	360	79	34
Final correct	0.53	0.62	0.57	0.58	0.51	0.52
	0.50	*0.49*	*0.50*	*0.49*	*0.50*	0.51
p-value t-test col. 1 to 2	0.190			0.132		
p-value t-test col. 2 to 3		0.343			0.457	
p-value t-test col. 1 to 3			0.364			0.278
Observations	71	52	35	355	69	25

Notes Source: Swedish *Jeopardy* shows broadcast in 2000 and 2001. Standard deviations are in italics.

Table 4a Descriptive statistics of wagering in the *Daily Double*

	Girls	Boys	Women	Men	All
Daily Double wager	1 393.3	1 663.4	2 009.6	2 042.5	1 888.3
	1 241.0	*1 551.3*	*1 396.0*	*1 276.5*	*1 359.4*
p-value t-test of a gender difference	0.074		0.402		
p-value t-test of a within-gender difference	0.002	0.000			
Pre *Daily Double* score if *Daily Double*-contestant	3 616.3	4 375.4	4 028.0	3 597.4	3 799.0
	2 684.4	*3 240.0*	*3 089.5*	*2 506.8*	*2 772.7*
p-value t-test of a gender difference	0.027		0.055		
p-value t-test of a within-gender difference	0.144	0.002			
Relative *Daily Double* wager (%)	0.46	0.49	0.58	0.66	0.59
	0.25	*0.30*	*0.24*	*0.26*	*0.28*
p-value t-test of a gender difference	0.190		0.001		
p-value t-test of a within-gender difference	0.000	0.000			
Share wagering the total score	0.07	0.09	0.07	0.16	0.12
	0.25	*0.29*	*0.26*	*0.37*	*0.33*
p-value t-test of a gender difference	0.266		0.005		
p-value t-test of a within-gender difference	0.445	0.016			
Expected *Daily Double* gain	869.2	970.9	470.4	732.6	749.4
	1 612.1	*2 060.2*	*2 407.7*	*2 332.5*	*2 220.0*
p-value t-test of a gender difference	0.340		0.136		
p-value t-test of a within-gender difference	0.075	0.145			
Observations	104	134	125	431	794

Notes

Source: Swedish *Junior Jeopardy* shows broadcast in 1993-1994, 1996-1997, 1999-2003 and *Jeopardy* shows broadcast in 2000 and 2001. Standard deviations are in italics. Borrowers are excluded; all borrowers except one girl borrowed the maximum value.

Table 4b Descriptive statistics of wagering in the *Daily Double* by assignment of opponents' gender in *Junior Jeopardy*

	Girls assigned same gender opponents	Girls assigned mixed gender opponents	Girls assigned opposite gender opponents	Boys assigned same gender opponents	Boys assigned mixed gender opponents	Boys assigned opposite gender opponents
Daily Double wager	1 286.1	1 392.9	1 542.3	1 369.2	2 023.3	1 377.2
	1 142.0	*1 125.4*	*1 550.0*	*1 178.2*	*1 899.6*	*1 030.5*
p-value t-test col. 1 to 2	0.340			0.017		
p-value t-test col. 2 to 3		0.323			0.067	
p-value t-test col. 1 to 3			0.228			0.511
Pre *Daily Double* score	4 183.3	3 421.4	3 146.2	4 628.8	4 411.7	3 677.3
	2 839.6	*2 786.3*	*2 216.3*	*3 557.2*	*3 328.9*	*1 986.7*
p-value t-test col. 1 to 2	0.118			0.370		
p-value t-test col. 2 to 3		0.336			0.167	
p-value t-test col. 1 to 3			0.063			0.122
Relative *Daily Double* wager (%)	0.35	0.52	0.50	0.44	0.54	0.47
	0.19	*0.25*	*0.26*	*0.31*	*0.29*	*0.29*
p-value t-test col. 1 to 2	0.001			0.040		
p-value t-test col. 2 to 3		0.389			0.169	
p-value t-test col. 1 to 3			0.004			0.347
Share wagering the total score	0.03	0.12	0.04	0.10	0.08	0.09
	0.17	*0.33*	*0.20*	*0.30*	*0.28*	*0.29*
p-value t-test col. 1 to 2	0.068			0.407		
p-value t-test col. 2 to 3		0.131			0.457	
p-value t-test col. 1 to 3			0.409			0.472
Expected *Daily Double* gain	1 061.1	959.5	457.7	692.3	1 380	513.6
	1 369.9	*1 392.2*	*2 158.4*	*1 676.6*	*2 415.6*	*0.071*
p-value t-test col. 1 to 2	0.374			0.044		
p-value t-test col. 2 to 3		0.124			0.063	
p-value t-test col. 1 to 3			0.092			0.338
Observations	36	42	26	52	60	22

Notes

Source: Swedish *Junior Jeopardy* shows broadcast in 1993, 1994, 1996, 1997, 1999-2003. Borrowers are excluded. Standard deviations are in italics.

Table 4c Descriptive statistics of wagering in the *Daily Double* by gender context for *Jeopardy* contestants

	Women assigned same gender opponents	Women assigned mixed gender opponents	Women assigned opposite gender opponents	Men assigned same gender opponents	Men assigned mixed gender opponents	Men assigned opposite gender opponents
Daily Double wager	2 024.6	2 025.0	1 945.8	2 015.8	2 117.6	2 140.6
	1 333.7	*1 342.4*	*1 676.2*	*1 255.0*	*1 310.6*	*1 437.5*
p-value t-test col. 1 to 2	0.499			0.266		
p-value t-test col. 2 to 3		0.420			0.468	
p-value t-test col. 1 to 3			0.409			0.298
Pre *Daily Double* score	3 710.8	4 116.7	4 754.2	3 491.6	3 870.3	4 040.6
	2 611.0	*2 733.6*	*4 502.5*	*2 428.9*	*2 729.7*	*2 731.8*
p-value t-test col. 1 to 2	0.232			0.119		
p-value t-test col. 2 to 3		0.249			0.384	
p-value t-test col. 1 to 3			0.089			0.114
Relative *Daily Double* wager (%)	0.62	0.57	0.50	0.67	0.65	0.59
	0.57	*0.49*	*0.25*	*0.26*	*0.26*	*0.26*
p-value t-test col. 1 to 2	0.149			0.206		
p-value t-test col. 2 to 3		0.152			0.165	
p-value t-test col. 1 to 3			0.016			0.046
Share wagering the total score	0.08	0.11	0.00	0.19	0.08	0.09
	0.27	*0.32*	*0.00*	*0.39*	*0.27*	*0.30*
p-value t-test col. 1 to 2	0.284			0.012		
p-value t-test col. 2 to 3		0.047			0.416	
p-value t-test col. 1 to 3			0.083			0.088
Expected *Daily Double* gain	147.7	675.0	1 037.5	732.4	844.6	475.0
	2 433.0	*2 356.1*	*2 374.3*	*2 308.8*	*2 353.7*	*2 570.7*
p-value t-test col. 1 to 2	0.147			0.354		
p-value t-test col. 2 to 3		0.281			0.236	
p-value t-test col. 1 to 3			0.064			0.276
Observations	65	36	24	325	74	32

Notes
Source: Swedish *Jeopardy* shows broadcast in 2000 and 2001. Borrowers are excluded. Standard deviations are in italics.

Table 5 Random-effects probit model estimates of the probability to answer the *Daily Double* correctly

Dependent variable: *Daily Double* correct	Children Model (1)	Children Model (2)	Children Model (3)	Children Model (4)	Adults Model (1)	Adults Model (2)	Adults Model (3)	Adults Model (4)
Female	0.196	0.558**	0.364*	-0.700	-0.153	-0.254	-0.217	0.177
	0.183	*0.327*	*0.218*	*0.433*	*0.133*	*0.175*	*0.145*	*0.389*
Absolute performance (pre-*Daily Double* score 1000)	0.079**	0.076**	0.077**	0.077**	0.018	0.076**	0.018	0.0182
	0.037	*0.037*	*0.0373*	*0.037*	*0.023*	*0.037*	*0.023*	*0.0233*
Daily Double level (1-8)	-0.124**	-0.130**	-0.134**	-0.138**	-0.176**	-0.179	-0.177***	-0.178***
	0.060	*0.061*	*0.060*	*0.060*	*0.034*	*0.000*	*0.034*	*0.034*
Experience (nr of shows played (1-5))	-0.090	-0.119	-0.156	-0.051	0.110*	0.125*	0.114*	0.104
	0.268	*0.279*	*0.270*	*0.268*	*0.064*	*0.067*	*0.066*	*0.064*
Female with opponents of mixed gender		-0.188				0.200		
		0.361				*0.270*		
Female with opponents of opposite gender		-0.831**				0.261		
		0.370				*0.323*		
Male with opponents of mixed gender		0.177				0.193		
		0.264				*0.178*		
Male with opponents of opposite gender		-0.184				-0.319		
		0.331				*0.237*		
Female in strictly male-dominated environment			-0.728**				0.198	
			0.306				*0.310*	
Male in strictly female-dominated environment			-0.276				-0.348	
			0.305				*0.235*	
Nr of female opponents				-0.047				-0.057
				0.162				*0.104*
Female* Nr of female opponents				0.476*				-0.091
				0.249				*0.186*
Constant	0.974**	1.007**	1.149***	1.040**	1.107***	1.100***	1.133***	1.142***
	0.409	*0.456*	*0.421*	*.439*	*0.197*	*0.203*	*0.200*	*0.201*
Log likelihood	-129.71	-126.13	-126.50	-126.99	-343.31	-341.13	-341.99	-342.70
Wald chi	6.83	13.48	12.88	11.67	33.80	37.81	36.35	34.93
/lnsig2u	-14.01	-14.13	-15.34	-15.32	-13.22	-13.51	-13.48	-13.51
	319.51	*311.40*	*397.54*	*399.66*	*25.69*	*22.71*	*23.90*	*22.90*
# Obs.	238	238	238	238	556	556	556	556
# Groups	145	145	145	145	295	295	295	295

Notes ***/**/* indicate significance at the 1/5/10 percent levels, respectively. Random effects models with clustering on individuals are used. Borrowers are excluded.

Table 6 Random-effects model estimates of wagering behavior in the *Daily Double* for *Junior Jeopardy* and *Jeopardy* contestants

	Children	Children	Children	Children	Adults	Adults	Adults	Adults
Dependent variable: *Daily Double* wager	Model (1)	Model (2)	Model (3)	Model (4)	Model (1)	Model (2)	Model (3)	Model (4)
Female	-86.12	18.29	-182.78	594.71	-168.20*	-65.67	-102.34	-651.50***
	160.48	*258.81*	*180.25*	*384.33*	*99.11*	*118.19*	*107.76*	*244.44*
Absolute performance (pre-*Daily Double* score)	0.300***	0.298***	0.300***	0.304***	0.346***	0.347***	0.347***	0.348***
	0.027	*0.046*	*0.028*	*0.048*	*0.017*	*0.0242*	*0.017*	*0.024*
Daily Double level (1-8)	-109.77**	-89.48**	-105.08**	-102.93**	-70.75***	-68.39***	-68.78***	-68.40***
	47.12	*43.10*	*47.64*	*44.10*	*24.67*	*22.65*	*24.67*	*22.60*
Experience (nr of shows played (1-5))	132.66	65.69	140.25	90.16	25.20	43.71	44.93	38.45
	221.76	*268.85*	*223.01*	*263.01*	*44.44*	*41.60*	*45.81*	*40.93*
Female with opponents of mixed gender		208.05				-442.26**		
		224.77				*198.92*		
Female with opponents of opposite gender		484.26				-108.32		
		298.47				*171.80*		
Male with opponents of mixed gender		583.46**				-10.19		
		271.51				*133.59*		
Male with opponents of opposite gender		282.09				-81.57		
		294.52				*168.24*		
Female in strictly male-dominated environment			366.66				-404.52*	
			270.89				*224.91*	
Male in strictly female-dominated environment			-28.32				-80.19	
			283.75				*179.18*	
Nr of female opponents				241.02				-30.62
				160.95				*79.89*
Female* Nr of female opponents				-475.55**				232.08*
				216.87				*125.82*
Constant	737.43**	416.62	711.86**	551.79*	1 118.97***	1 084.18***	1 083.50***	1 093.36***
	336.55	336.42	*342.96*	*323.87*	*140.59*	*131.96*	*141.93*	*132.08*
R-squared within	0.508	0.527	0.507	0.518	0.446	0.450	0.449	0.450
R-squared between	0.289	0.297	0.304	0.301	0.454	0.457	0.456	0.457
Wald Chi	134.49	62.75	134.76	59.61	457.19	234.11	461.73	231.78
Rho	0.182	0.192	0.166	0.193	0.000	0.000	0.000	0.000
# Obs.	238	238	238	238	556	556	556	556
# Groups	145	145	145	145	295	295	295	295

Notes.***/**/* indicate significance at the 1/5/10 percent levels, respectively. Random effects models with clustering on individuals are used. Borrowers are excluded.

Table 7 Random-effects model estimates of wagering behavior in the *Daily Double* for *Junior Jeopardy* and *Jeopardy* contestants combined

Dependent variable: *Daily Double* wager	All Model (1)	All Model (2)
Absolute performance (pre-*Daily Double* score)	0.326***	0.329***
	0.023	*0.022*
Daily Double level (1-8)	-81.71***	-77.57***
	20.34	*20.26*
Experience (nr of shows played (1-5))	38.18	48.48
	39.09	*40.50*
Girl	-522.14	509.70
	135.54	*413.05*
Boy	-653.73***	-859.78***
	156.82	*217.77*
Woman	-167.261*	-638.24***
	96.20	*238.23*
Nr of female opponents		-28.28
		79.55
Girl*Nr of female opponents		-465.99***
		173.35
Boy*Nr of female opponents		286.01
		189.24
Woman*Nr of female opponents		224.73*
		124.27
Constant	1231.33***	1194.64***
	115.97	*119.91*
R-squared within	0.461	0.467
R-squared between	0.417	0.424
Wald Chi	397.56	414.17
Rho	0.018	0.017
# Obs.	794	794
# Groups	440	440

Notes ***/**/* indicate significance at the 1/5/10 percent levels, respectively. Random effects models with clustering on individuals are used. Borrowers are excluded.

Table 8 Random-effects model estimates of wagering behavior in the *Daily Double* for *Junior Jeopardy* and *Jeopardy* contestants controlling for competition, relative position and sharing the money won with the classmates

Dependent variable: *Daily Double* wager	Children Model (1)	Children Model (2)	Children Model (3)	Children Model (4)	Adults Model (1)	Adults Model (2)	Adults Model (3)
Female	586.34	593.82	792.65	378.65	-654.04***	-659.41***	-763.32***
	381.78	*385.72*	*527.87*	*388.36*	*251.94*	*245.41*	326.00
Absolute performance (pre-*Daily Double* score)	0.297***	0.302***	0.222***	0.313	0.346***	0.350***	0.287***
	0.049	*0.047*	*0.055*	*0.045*	*0.025*	*0.025*	*0.031*
Daily Double level (1-8)	-104.10**	-101.50**	-131.53**	-78.27*	-68.65**	-70.39***	-167.57***
	45.14	*43.86*	*50.87*	*41.40*	*23.09*	*22.82*	*32.88*
Experience (nr of shows played (1-5))	93.01	94.20	274.65	143.88	38.58	40.17	70.38
	263.50	*264.64*	*397.94*	*267.41*	*41.01*	*41.14*	*57.97*
Nr of female opponents	241.00	241.75	338.73	212.62	-30.54	-30.00	-18.13
	161.07	*161.16*	*207.82*	*148.49*	*79.80*	*80.01*	*96.61*
Female* Nr of female opponents	-473.03**	-474.39**	-613.39**	-340.28[a]	232.95*	236.10*	264.57
	215.76	*217.69*	*292.14*	*207.80*	*128.51*	*126.54*	*167.19*
Tightness of the game	0.010				0.002		
	0.031				*0.023*		
Subjective relative position		13.63				-7.78	
		29.39				*12.49*	
Performance feedback			478.19***				10.31
			154.02				*56.08*
Share with class (0=keep ≥ 0.5, 1=keep 0)				-867.98***			
				209.64			
Constant	545.55*	528.229	324.33	516.26*	1 092.53***	1 106.23***	2 022.26***
	325.60	*329.91*	*538.85*	*313.32*	*133.18*	*133.92*	*244.11*
R-squared within	0.519	0.517	0.270	0.515	0.450	0.451	0.234
R-squared between	0.300	0.302	0.362	0.372	0.457	0.458	0.414
Wald Chi	59.68	59.05	50.66	70.52	247.14	231.75	178.70
Rho	0.195	0.191	0.207	0.118	0.000	0.000	0.000
# Obs.	238	238	165	238	556	556	394
# Groups	145	145	117	145	295	295	251

Notes ***/**/* indicate significance at the 1/5/10 percent levels, respectively. [a] p-value=0.102. Random effects models with clustering on individuals are used. Borrowers are excluded.

Appendix

Appendix Table 1 Descriptive statistics over winners final gains

	Girls [1]	Boys [2]	All children [3]	Women [4]	Men [5]	All adults [6]
Final gain (the score equivalent in SEK)						
Mean	15 300.0	14 348.2	14 665.5**	11 951.8*	13 530.6	13 097.9
Stdv	*6 145.3*	*5 870.1*	*5 943.2*	*7 720.9*	*7 254.1*	*7 399.8*
Min	4 300	1 500	1 500	200	100	100
Max	33 700	28 000	33 700	44 000	32 800	44 000
Observations	28	56	84	57	151	208

Notes

Source: Swedish *Junior Jeopardy* shows broadcast in 1993-1994, 1996-1997, 1999-2003 and *Jeopardy* shows broadcast in 2000 and 2001. Values are equivalent to SEK. ***/**/* indicate difference between measures for boys and girls or men and women statistical significant at the 1/5/10 percent levels, respectively, in a t-test of equal variance.