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Gender, risk preferences and willingness to compete in a random sample of the Swedish population*

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Abstract:

Experimental results from student or other non-representative convenience samples often suggest that men, on average, are more risk-taking and competitive than women. Here we explore whether these gender preference gaps also exist in a simple random sample of the Swedish adult population. Our design comprises four different treatments to systematically explore how the experimental context may impact gender gaps; a baseline treatment, a treatment where participants are primed with their own gender, and a treatment where the participants know the gender of their counterpart (man or woman). We look at willingness to compete in two domains: a math task and a verbal task. We find no gender differences in risk preferences or in willingness to compete in the verbal task in this random sample. There is some support for men being more competitive than women in the math task, in particular in the pooled sample. The effect size is however considerably smaller than what is typically found. We further find no consistent impact of treatment on (the absence of) the gender gap in preferences.

Keywords: Gender differences, competitiveness, risk-taking, experiment, random representative sample

JEL codes: D91, C83, C91

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1. Introduction

Gender differences in economic preferences have been put forward as a potential explanation to gender gaps observed in educational choices and labor market outcomes (e.g. Croson and Gneezy 2009; Bertrand 2011). In particular, substantial attention has been given to gender differences in risk preferences and competitiveness, where the experimental literature from both the lab and the field suggests that, if anything, men tend to be more risk-taking and competitive than women (e.g. Eckel and Grossman 2008a, 2008b; Croson and Gneezy 2009; Bertrand 2011; Niederle and Vesterlund 2007; Niederle 2014)

Experimental measures of risk preferences and competitiveness have been shown to relate to important economic choices and outcomes. These preferences seem to play a role in explaining individual outcomes as well as gender differences in outcomes. For example, studies by Bonin et al. (2007) and Dohmen et al. (2011) indicate that risk-averse individuals are more likely to work in sectors with little salary variation and less likely to be self-employed. On competitiveness, Zhang (2013) finds that students who are willing to compete in a math task in the lab are more likely to take a competitive high school entrance exam in China than uncompetitive individuals. In a similar vein, Buser et al. (2014) find that competitive individuals choose more math oriented and prestigious high school tracks in the Netherlands and that the gender gap in willingness to compete partially explains the gender gap in the choice of educational specialization. Buser et al. (2017) find similar results exploring the choice of specialization among students in Swiss academic high schools. Further, Reubenet al. (2017) find that competitive college students have higher expectations for their future salaries. In a large field experiment, Flory et al. (2015) also find that women are in some, but not most, contexts less likely to apply for jobs with competitive payment schemes than men. The experimental results on gender preference gaps thus largely support the observation that these gaps may have important economic consequences and contribute to gender differences in economic outcomes.

In this study, we test whether there are gender differences in risk preferences and willingness to compete in a random sample of the Swedish population aged 18-73. While the existence of gender preference gaps has been replicated in experimental studies in different countries using different types of samples, it is also clear that the existence and strength of gender gaps vary with the context such as the social framing or the gender composition of the reference group, the exact measurement used, and the specific population studied (e.g. Gneezyet al. 2003;

Croson and Gneezy 2009; Dreber et al. 2011; Booth and Nolen 2012a, 2012b; Cárdenas et al. 2012; Gong and Yang 2012; Datta Gupta et al. 2013; Apicella and Dreber 2015; Filippin and Crosetto 2016).

We contribute to this literature by exploring gender gaps in risk preferences and willingness to compete in a randomly drawn and representative sample which minimizes many of the selection issues that could be relevant in other samples. We further systematically vary the decision context across four treatments to explore if gender gaps in risk preferences and willingness to compete depend on the social context and gender salience. In a first condition, the *Baseline* treatment, participants make decisions anonymously. This treatment is close to the setting used in most laboratory experiments. In the *Priming* treatment, participants are in a subtle way reminded of their own gender before they make any decisions in the experiment. We hypothesize that the prime will make behavior more gender stereotypical than in the control condition, i.e. that the potential gender gap in risk preferences and competitiveness increases. However, our hypothesis is silent on how this increase would occur.[6] Moreover, the only other study on gender priming and risk preferences find no effect (Benjamin et al. 2010).[7]

We further include two treatments where participants are informed about the gender of their counterpart before each decision; these are the *Male Counterpart* and the *Female Counterpart* treatments. Previous results on whether the gender of the opponent matters for competitive decisions are mixed. For example, Cardenas et al. (2012) find that girls in Colombia compete more against other girls, whereas Gneezy and Rustichini (2004) find that girls in Israel compete less against other girls. Datta Gupta et al. (2013) is the only study so far randomizing the gender of the counterpart, and they find that men compete more against women than against men. We hypothesize, as in the priming treatment, that the gendered behaviors will be more pronounced in these treatments compared to the baseline treatment. As for the priming treatment, our hypothesis is silent on whether men or women, or both, are impacted by the treatment.

[6] Some studies show that both men and women's behavior react to variations of the decision context (e.g. Gneezy et al. 2003; Ellingsen et al. 2012, 2013; Boschini et al. 2012). However, changes in behavior often occur in the direction predicted by gender stereotypes (Espinosa and Kovářík 2015).

[7] Exposure to same- or mixed-sex groups could potentially have priming-related effects and could thus influence risk preferences and competitiveness. The results from Booth and Nolen (2012a; 2012b) suggest that girls from same-sex schools are more willing to compete, as well as more risk-taking, than girls from mixed-sex schools. Similar results are also reported in a study where first year college students were randomly allocated to all male, all female or coeducational groups (Booth et al. 2014). After eight weeks in a same-sex environment, women are significantly more risk taking than their counterparts in mixed-sex groups. The exact mechanism behind these results remains to be explored, but priming could potentially be involved.

Finally, we study competitiveness in two different tasks that vary in gender stereotypes: a math task and a verbal task. Some studies show that the competitive task may matter for the gender gap in willingness to compete. While boys or men are often found to be more competitive than girls or women in math-related tasks there is typically no gender gap in verbal tasks (e.g. Günther et al. 2010; Grosse et al.2014; Shurchkov 2012; Dreber et al. 2014; though Wozniak et al. 2014 find that men are more competitive also in a verbal task). We thus hypothesize that the typical gender gap, with men being more competitive than women, will be observed in the math task but not in the verbal task in all treatments.

The study was conducted using phone interviews. Our sample consists of about 1,000 individuals, making it relatively large compared to most other experimental studies on gender differences in preferences. In addition to the economic choice tasks we also collected basic socio-demographic information, such as age, income, and level of education, about the participants.

To preview our results, despite using a multiple price list with a safe option to elicit risk preferences, which normally produce larger gender gaps (Crosetto and Filippin 2017), we find no overall gender differences in risk preferences. We also do not find any gender difference in willingness to compete in the verbal task. Our results suggest that men are more competitive than women in the math task in particular in the pooled sample. However, the effect size is considerably lower than what is typically found among students. In addition, we do not find any behavioral differences in willingness to compete in the math task (or the verbal task) between the baseline and the three other treatments, neither in general nor for each gender separately. A post power analysis presented in section 3.4 suggests that the overall null results found are not due to lack of statistical power. However, to what extent our results for the Swedish population can be generalized to random samples in other countries remains to be explored.

Only a handful of studies explore gender preference gaps among representative samples of a country population, and with sometimes mixed results. Representativeness in these studies is typically assessed by comparing the general population to the sample at hand along a few key variables. The studies differ in sampling methods, using either probabilistic sampling methods, such as simple random samples, where the inclusion probability is known, or non-probabilistic sampling methods, where the inclusion probability is unknown.

Harrison et al. (2007) use the Holt and Laury task to elicit risk preferences in a random sample of the Danish population aged 19 to 75 (253 individuals, 40% response rate). They find no gender difference, and the lack of gender gap is not influenced by the inclusion of some socio-economic variables. Dohmen et al. (2010) and Dohmen et al. (2011) study two different random samples of German adults (1012 and 22019 individuals respectively, overall response rates are not reported). Using incentivized and un-incentivized risk measures, Dohmen et al. (2010) find no gender gaps in risk-taking. Dohmen et al. (2011), on the other hand, find that women, on average, self-report to be less willing to take risks. However, this gap is not confirmed among participants answering the incentivized task. Using the same self-reported measure as in Dohmen et al. (2011), Almenberg and Dreber (2015) also find that men are, on average, more risk-taking than women in a random sample of Swedish adults (1,300 individuals, 45% response rate). von Gaudecker et al. (2011), using both hypothetical and incentivized measures on a Dutch sample (using the CentER internet panel), find that women on average are less risk-taking than men (1422 participants).[8] Beauchamp et al. (2017) use a random sample (approximately 11,000 individuals) of the Swedish twin population (the sample of twins is similar to the general population on some selected characteristics). Also using the non-incentivized risk measure mentioned above, they find that male twins on average are more risk-taking than female twins (only looking at same-sex twins). Two recent papers use the non-incentivized risk question on country populations. Falk et al. (2017) study random samples of households in 76 countries and find women to be significantly more risk-averse than men at least at the 10% significance level in 82% of the countries. Sephavand and Shahbazian (2017) study the same risk question in a stratified (by region) random sample from Burkina Faso, also finding women to be less risk-taking compared to men.

To our knowledge, there are no other studies on willingness to compete in a representative sample. Instead, the most related studies are Almås et al. (2015) and Buser et al. (2017), which both elicit willingness to compete in a math task. Almås et al. (2015) study competitiveness in a sample of 523 14-15 year-olds in Bergen, a city which is roughly comparable to the rest of the Norwegian population. They find that family background matters in explaining gender differences in willingness to compete, where the gender gap is higher among individuals with a high socio-economic background as compared to low. Buser et al. (2017) use a sample of 249 students from a region in Switzerland. Their sample is similar to the regional population

[8] The recruitment for the CentERpanel is conducted by TNS-NIPO. Households complete an internet based survey every week. When a household leaves the panel it is replaced with another household with similar characteristics.

concerning the share of women. They find that women are less competitive and that competitiveness can partly explain the gender gap in study choice.

In sum, the results from representative samples in different countries suggest that men self-report to be more risk-taking in almost all studies, whereas there is not always a gender difference with incentivized measures. When it comes to willingness to compete there are no previous studies using priming. However, two studies using samples that are similar to larger country or regional populations suggest that women are less willing to compete than men, at least in math-related tasks.

The remainder of the paper is organized as follows. In section 2 we present our experimental design and data. In section 3 we present the results from each treatment separately as well as a potential treatment effects. Finally, in section 4 we discuss our results in comparison with previous literature and then conclude.

2. Experimental design and data

We conduct an artefactual field experiment (following the definition of Harrison and List 2004) on a simple random sample of the Swedish population aged 17-83. The sampling was performed in close collaboration with a professional polling company based in Stockholm, Sweden, with the main sampling and data collection performed in September through November 2011 and additional follow-up collection of income and education data in October 2012. The polling company received a random sample of the Swedish population from Statistics Sweden and collected the data through telephone interviews.[9] The polling company then provided us with anonymized data.[10]

2.1 Setup and treatments

Sampled individuals received a letter a few days ahead of the first phone call inviting them to take part in a phone interview study on economic decision-making conducted by researchers at Stockholm University. The letter provided information on the length of the study

[9] The polling company (MIND Research) conducted the inverviews according to the standards of Statistics Sweden. The length of an interview was maximum 30 minutes. Up to 14 attempts to reach each individual in the sample were made, and all interviews and attempts to contact participants were conducted in the afternoon and evening during normal working days.

[10] An application to the Stockholm Ethical Review Board (*Etikprövningsnämnden i Stockholm*: EPN) for the present project was submitted in June, 2011. EPN stated that our project did not need to undergo full ethical review since we only handle anonymized information.

(approximately 30 minutes) and earnings (A SEK 100 participation fee plus potentially more depending on the participant's choices).[11] In the interview, each participant made decisions in eight independent situations and answered demographic questions. The eight decisions included the following measures and games: the dictator game (in the role of the dictator), the ultimatum game (in the role of the proposer), the trust game (in the role of the trustor), the prisoner's dilemma, the battle of the sexes, risk preferences, and willingness to compete in a math task and willingness to compete in a verbal task.[12] In this paper, we focus on risk preferences and willingness to compete (Results for the dictator game are reported in Boschini et al. 2018, and the other results will be reported elsewhere.).

For all decisions, an interviewer read the instructions to the participant.[13] Before each decision, participants answered some control questions allowing us to measure participants' understanding of each decision (no control questions were used for the part measuring risk preferences). Participants received no feedback on outcomes during the experiment.

Participants in the phone interview were randomly assigned to one of four treatments; Baseline, priming, female counterpart or male counterpart. In the baseline treatment, the interaction was fully anonymous for the participants vis-à-vis each other, and no reference was made to gender.[14] In the priming treatment, participants were asked to state their gender at the beginning of the interview. Finally, in the female and male counterpart treatments, the gender of the counterpart was revealed, and this information was repeated and kept constant for each decision involving a counterpart.

All decision situations were presented to the participants in standard language. Participants were informed that one of the eight decisions would be randomly chosen for payment by the decision(s) made by the participants involved. If the risk decision was selected for payment, one out of the seven risk decisions was randomly chosen for payment.

2.2 Experimental measures and demographic questions

We elicit risk preferences by using a multiple price list where participants make seven choices between a risky option and a safe option. The risky option was the same across the different

[11] At the time of the study, SEK 100 was approximately USD 14.
[12] We used a postal survey for participants who were recipients in the Dictator Game, proposers in the Ultimatum Game and second players in the Trust Game.
[13] In order to minimize the individual differences between the interviews we conducted a pilot were we listened in on a few interviews.
[14] Unlike in a standard lab experiment, participants are however not anonymous vis-à-vis the interviewer.

decisions, giving SEK 200 or 0 with equal probability, while the safe options varied from SEK 40 to SEK 160 in increments of 20 SEK. We measure risk preferences from the number of times the participant chose the risky option.

We measure willingness to compete as the binary decision to compete or not in two different tasks: a verbal and a math task. Participants first decided whether to compete in a verbal task and then in a math task. The choices in these two tasks allow us to compare the gender gap in willingness to compete in a verbal task with a neutral or potentially female stereotype and a math task with an implicit male stereotype.[15] In the verbal task, participants were asked to form as many words as possible of at least three letters from eight given letters during two minutes. In the math task, participants were asked to find as many number combinations as possible that added up to 25 from nine given numbers, also during two minutes. After the task was described to them but before performing the task, participants chose their preferred payment form – an individual piece-rate payment or a competitive tournament payment. In our individual payment scheme, participants were paid SEK 10 per correct word or number sequence. The tournament payment scheme involved comparison with a randomly selected counterpart (who also chose to compete). The best performer was paid SEK 20 for each correctly solved exercise, and otherwise, they were paid SEK 0.

Finally, we asked the participants a set of socio-demographic questions. In particular, we asked for age, legal gender, income, and education (Table 1 below describes our variables and show descriptive statistics of our sample). These variables are included since some previous work has indicated that they may correlate with gender differences in preferences.[16] In research on survey methods characteristics of the interviewer are sometimes found to affect the answers. We, therefore, collected information on the gender of the interviewer.

Table 1. Descriptive statistics

	N	***Mean***	***Sd***	***Min***	***Max***
Outcome variables					
Number of risky choices	997	3.520	2.240	0	7

[15] See, for example, Nosek et al. (2002) and Steffens et al. (2010) who investigate tasks and implicit gender stereotypes.

[16] Other socio-demographic measures we elicited, but do not use in the analysis of this paper, were: civil status, number of children below age 18, household income, occupation, occupational sector, and the position within the workplace. Including these variables in the current analysis does not change our result in a qualitative way.

Share of competition in word task	997	0.380	0.486	0	1
Share of competition in math task	997	0.282	0.450	0	1
Control variables					
Female (1=female, 0 otherwise)	997	0.488	0.500	0	1
Age (years at time of interview)*	994	45.516	15.758	18	74
Income (3 categories)**	953	2.848	1.272	1	7
Education (4 categories)***	989	3.247	0.810	1	4
Gender of the interviewer (1=female, 0 otherwise)	975	0.401	0.490	0	1

* Since we only have information on birth year we have defined age as the year the study was conducted deducted by the birth year. We thus assume that all individuals are born on the 1st of January and the sample will, therefore, include some individuals that are 74 years old.
**Low income=0-250000, Middle income=250001-750000, High income=750001-
*** Low education=0-9 years, Middle education=10-12 years, High education=<12 years

2.2 Data

Our data set comprises the 997 individuals that completed the phone interview. The response rate was 52.9%, and there is no evidence of systematic non-response based on gender and age (see Table A1 and A2 in Appendix).[17] Table 2 presents the number of observations in each treatment.

Table 2. Descriptive statistics

Treatment	***n***	***Percent***
Baseline	269	26.98
Priming	256	25.68
Male counterpart	218	21.87
Female counterpart	254	25.48
Total	997	100.00

Our sample can be considered representative of the Swedish population; it compares well to the population concerning gender, income and education, but consists, on average, of somewhat

[17] These response rates are comparable to standard surveys conducted by Statistics Sweden (www.scb.se).

older participants than the population (see Table A3 in Appendix).[18] A comparison across treatments also reveal no statistical differences in socio-demographic characteristics among the participants in different treatment groups (see Table A4 in Appendix). The instructions that were read to the participants can be found in the appendix.

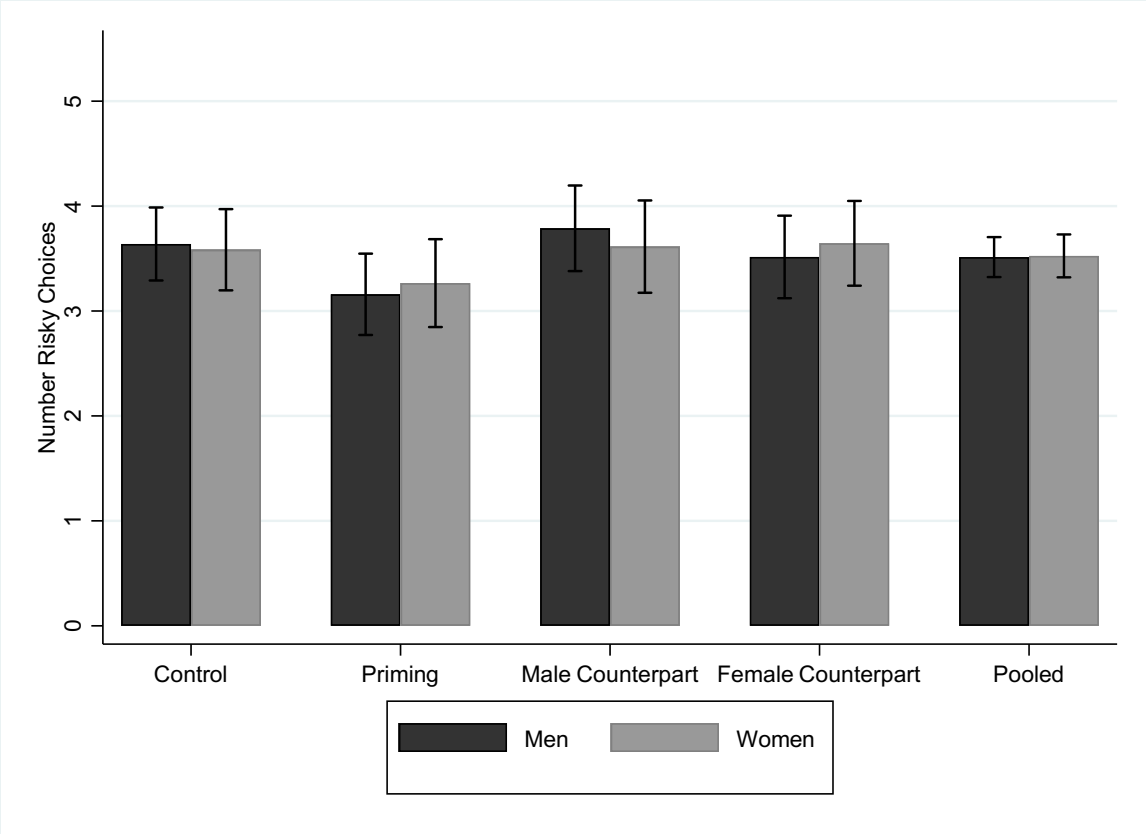
3. Results

We first explore gender gaps in risk-taking and willingness to compete within treatments and in the pooled sample. After that we turn to treatment effects before we present a robustness analysis. Throughout the analysis, we use parametric tests: t-tests and OLS regression analyses for the cardinal risk variable, and test of proportions and Logit regression for the dichotomous competition variable. The significance level we employ is 0.05. To simplify future meta-analyses, we also report effect sizes (Cohen's d). In the regression analyses, we control for the following socio-demographic variables: income, age, age squared, highest obtained educational level, income level and gender of the interviewer. To be able to compare across regressions we keep the sample constant, restricting the analysis to include only individuals that provided an answer to all the socio-demographic variables. The restricted sample includes 71 individuals less compared to the sample on which the Cohen's d calculations are based.

3.1 Risk preferences

Contrary to most previous studies employing a risk task with a safe option (Filippin and Crosetto 2017), we find no evidence of a gender gap in risk preferences in our sample. In the baseline treatment, both men and women choose, on average, 3.6 risky choices out of seven possible (Cohen's d=0.026, p=0.834). In the priming treatment, men choose on average 3.2 risky choices and women 3.3 risky choices (Cohen's d=-0.05, p=0.710). The equivalent numbers for the treatment with a female counterpart are 3.8 and 3.6 (Cohen's d=0.08, p=0.567) and for the treatment with a male counterpart, the numbers are 3.5 and 3.7 (Cohen's d=-0.06, p=0.649). Pooling across all treatments, we find that both men and women choose an average of 3.5 risky decisions (Cohen's d=-0.005 and p=0.933).

[18] Since our random sample seems to be fairly representative of the population we do not consider population weights necessary.



Bars denote 95% confidence intervals.

Figure 1. Number of risky choices by men and women

Table 3 further explores any potential gender gap in risk preferences using OLS regressions. For each of the four different treatments, and the pooled sample, we run one regression controlling only for whether the participant is female or not, and one also controlling for socio-demographic variables.

The regression results are similar to the results from the t-tests presented above – we find no gender gaps in risk-taking in any of the treatments, or in the pooled sample. Further, including control variables do not change these results.

Table 3. The Gender Gap in Risky Choices

OLS: Gender differences in number of risky choices within treatments.

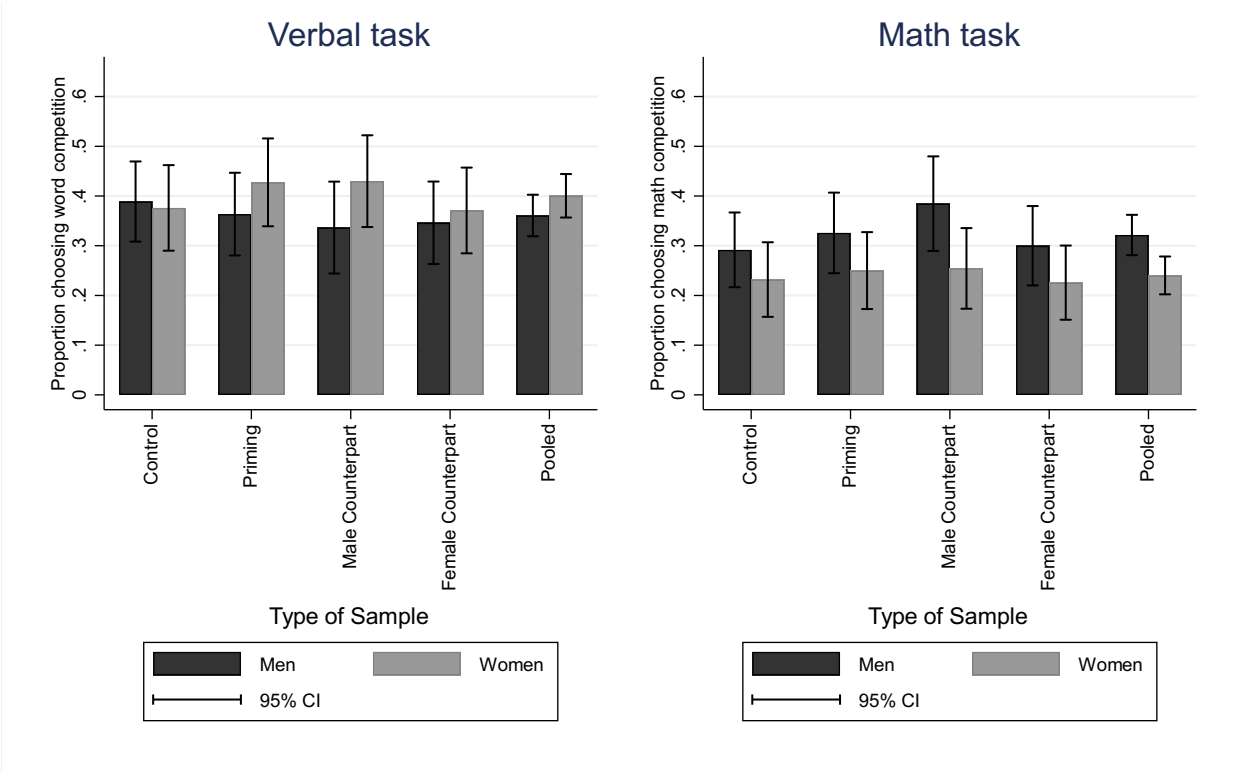
	Baseline		**Priming**		**Male counterpart**		**Female counterpart**		**Pooled**	
Female	0.026	0.070	0.200	0.426	-0.168	-0.207	0.129	0.278	0.052	0.134
	(0.271)	(0.277)	(0.300)	(0.318)	(0.318)	(0.319)	(0.290)	(0.303)	(0.147)	(0.152)
Age		-0.013		0.147*		0.159*		0.003		0.069*
		(0.060)		(0.066)		(0.070)		(0.062)		(0.032)
Income		0.267*		0.264		0.043		0.164		0.180**
		(0.126)		(0.139)		(0.145)		(0.118)		(0.066)
Education		0.032		-0.204		-0.181		-0.380		-0.172
		(0.193)		(0.221)		(0.241)		(0.240)		(0.112)
Age squared		-0.000		-0.002*		-0.002*		-0.000		-0.001*
		(0.001)		(0.001)		(0.001)		(0.001)		(0.000)
Gender of the interviewer		-0.265		-0.272		-0.634		-0.334		-0.372*
		(0.277)		(0.295)		(0.328)		(0.289)		(0.146)
Constant	3.581***	3.413**	3.090***	0.479	3.770***	1.384	3.520***	4.333***	3.480***	2.505***
	(0.177)	(1.162)	(0.203)	(1.372)	(0.211)	(1.333)	(0.201)	(1.247)	(0.099)	(0.633)
Adjusted R^2	-0.004	0.008	-0.002	0.054	-0.004	0.018	-0.003	-0.003	-0.001	0.023
Observations	248	248	239	239	203	203	236	236	926	926

Robust standard errors

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

3.2 Willingness to compete

Figure 2 presents the raw shares of men and women willing to compete in the two tasks.[19] In the verbal task, exploring each treatment separately, we find no statistically significant gender differences in willingness to compete. In the baseline group, 39% of men and 38% of women choose to compete (Cohen's d=0.03, p=0.828). Equivalent numbers for the other treatments are 36% vs 43% (Cohen's d =-0.13, p=0.297) in the priming treatment, 34% vs 43% (Cohen's d=-0.19, p=0.158) in the male counterpart treatment and 35% vs 37% (Cohen's d=-0.05, p=0.680) in the female counterpart treatment. Pooling all four treatments, we find that 36% of men vs 40% of women choose to compete; again this difference is not significant (Cohen's d=-0.08, p=0.198).



Bars denote 95% confidence intervals.

[19] With respect to competitiveness, the participants answered a control question before each of the respective competitive measure began. In the main analyses, we include all participants, and as a robustness check presented in Section 3.4, we exclude those that did not answer the respective control question correctly (see Table A6 and A7).

Figure 2. Willingness to compete in the verbal and math task by men and women

The point estimates of the gender gap in the math task are reversed in comparison to the verbal task, and the magnitudes are slightly larger. However, contrary to most previous studies, also this gap is not consistently significant. In the baseline treatment, 29% of men and 23% of women choose to compete (Cohen's d=0.14, p=0.268). The equivalent numbers in the priming treatment and the male counterpart treatment are 33% vs 25% (Cohen's d=0.17, p=0.182), and 30% vs 23% (Cohen's d=0.17, p=0.180) respectively. When the counterpart is a woman, we find that 38% of men vs 25% of women choose to compete. This difference is statistically significant (Cohen's d=0.28, p=0.040). Pooling all four treatments also yields a statistically significant gender gap – among all participants 32% of men vs 24% of women choose to compete in the math task (Cohen's d=0.18, p=0.004).

Tables 4 and 5 display marginal effects from logit regressions for both measures of willingness to compete. Results are first presented for each treatment separately, and then for the pooled dataset, without and with control variables. The regression analyses confirm previous results with two exceptions. First, there is a significant gender difference in the math task in the treatment with a male counterpart, but it becomes non-significant when adding control variables. Second, the gender gap in the math task in the treatment with a female counterpart is no longer significant in the regression. The gender gap found when we pool the treatments decreases when adding socio-demographic controls. These results thus suggest that, if anything, there is a small gender gap in willingness to compete in Sweden in the math task and it is possibly related to socio-demographic characteristics.

It is not the purpose of this study, but little evidence exist on the extent to which behavioral gender gaps are influenced by sociodemographic characteristics. Since our study is one of the largest studies exploring gender gaps in preferences, and we also collect information about participant´s sociodemographic characteristics, we briefly explore whether sociodemographics correlate with how men and women behave in Table A8. The main finding is that a higher income is correlated with an increase in both risk-taking and competitive behavior among women. The effect is significant and economically meaningful.

Table 4. The Gender Gap in Willingness to Compete in the Verbal Task

Logit (marginal effects): Gender differences in the proportion of competitive choices in the verbal task.

	Baseline		**Priming**		**Male counterpart**		**Female counterpart**		**Pooled**	
Female	-0.162	-0.025	0.174	0.188	0.370	0.477	0.114	0.179	0.113	0.172
	(0.263)	(0.279)	(0.265)	(0.280)	(0.291)	(0.312)	(0.271)	(0.290)	(0.135)	(0.140)
Age		-0.195**		-0.027		-0.036		0.041		-0.047
		(0.064)		(0.065)		(0.066)		(0.060)		(0.031)
Income		0.442**		0.011		0.137		0.216		0.168**
		(0.154)		(0.127)		(0.136)		(0.122)		(0.064)
Education		0.029		0.264		0.356		0.096		0.176
		(0.193)		(0.179)		(0.226)		(0.219)		(0.098)
Age squared		0.002**		0.000		0.000		-0.000		0.000
		(0.001)		(0.001)		(0.001)		(0.001)		(0.000)
Gender of the interviewer		0.064		-0.138		0.127		0.343		0.092
		(0.277)		(0.276)		(0.307)		(0.281)		(0.139)
Constant	-0.387*	2.674*	-0.502**	-0.931	-0.663**	-1.572	-0.610**	-2.688*	-0.530***	-0.622
	(0.175)	(1.198)	(0.187)	(1.370)	(0.212)	(1.287)	(0.188)	(1.241)	(0.094)	(0.613)
Observations	248	248	239	239	203	203	236	236	926	926

Robust standard errors

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5. The Gender Gap in Willingness to Compete in the Math Task

Logit (marginal effects): Gender differences in the proportion of competitive choices in the math task.

	Baseline		**Priming**		**Male counterpart**		**Female counterpart**		**Pooled**	
Female	-0.356	-0.201	-0.392	-0.397	-0.629*	-0.491	-0.356	-0.233	-0.420**	-0.318*
	(0.292)	(0.324)	(0.289)	(0.306)	(0.304)	(0.324)	(0.297)	(0.320)	(0.147)	(0.156)
Age		-0.148*		0.042		0.014		-0.038		-0.031
		(0.071)		(0.065)		(0.073)		(0.062)		(0.034)
Income		0.715***		-0.014		0.257		0.361*		0.283***
		(0.183)		(0.131)		(0.145)		(0.146)		(0.072)
Education		0.090		0.142		0.114		-0.229		0.081
		(0.230)		(0.210)		(0.236)		(0.234)		(0.110)
Age squared		0.001		-0.000		-0.000		0.000		0.000
		(0.001)		(0.001)		(0.001)		(0.001)		(0.000)
Gender of the interviewer		0.494		-0.097		0.205		0.220		0.211
		(0.303)		(0.294)		(0.320)		(0.302)		(0.150)
Constant	-0.840***	-0.100	-0.718***	-2.100	-0.405*	-2.088	-0.828***	-0.107	-0.712***	-1.185
	(0.187)	(1.400)	(0.193)	(1.493)	(0.205)	(1.416)	(0.195)	(1.295)	(0.097)	(0.689)
Observations	248	248	239	239	203	203	236	236	926	926

Robust standard errors

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

3.3 Treatment effects

In this section, we test whether systematically modifying the decision context across the four treatments impact gender gaps. In Table 6 we present the results from nine regressions testing whether the gender gap in risk-taking and willingness to compete in the two tasks differ between the baseline treatment and the other treatments. All regressions include a variable for treatment (reducing the number of treatments to the two in the pairwise comparison), whether the participant is female or not, and the interaction between the two variables. In Table 6 we report the coefficient and standard error for the interaction variable of each regression, which measures the extent to which the gender gap differs between the treatments of comparison. (Full regressions are displayed in Table A9-A11.) In line with the regressions investigating gender differences within the baseline and treatments, we use OLS for number of risky choices and marginal effects from logit regressions for willingness to compete in the verbal and the math task respectively.

Table 6. Comparison of gender differences between baseline and the treatments

	Baseline vs Priming	Baseline vs Male counterpart	Baseline vs Female counterpart
Number of risky choices	0.174	-0.194	0.102
	(0.404)	(0.417)	(0.397)
Competition in the verbal task	0.336	0.532	0.276
	(0.373)	(0.392)	(0.378)
Competition in the math task	-0.036	-0.273	-0.000
	(0.410)	(0.421)	(0.416)
Observations	498	458	492

Robust standard errors * p<0.05, ** p<0.01, *** p<0.001

As indicated in the table, we find no impact of the different treatments on the gender gap. Further, we find no impact on the behavior of men and women in general.

3.4 Robustness

We find no overall robust gender differences in risk taking or competitive behavior in our representative sample of the Swedish adult population. To evaluate our null result in terms of

statistical power we conduct a post power analysis. To do so, we use the R-code by Gelman and Carlin (2014) and the effect size from previous studies.

Regarding risk taking we assume that the true effect size is the results from Crosetto and Filippin (2016), who across a large number of studies document an average gender gap corresponding to a Cohen´s d of 0.55 in different versions of the Eckel and Grossman task which is similar to the one we use in that it has a safe option. The measure of standard errors comes from our study (from Table 3; the baseline (column 1) and the pooled sample (column 9)). If our study comprised only the 248 participants in the Baseline treatment, we have 53% power to detect this Cohen's d of 0.55. If we use the standard errors from the pooled group, with a sample size of 926 participants, however, we have 96% power to detect the Cohen's d of 0.55.

When it comes to willingness to compete in the math task, Niederle and Vesterlund (2007) is the standard reference. Using their results, we find that they have an effect size of 0.80 in terms of Cohen's d (which can be considered a large effect). As with the gender gap in risk preferences, we use the standard errors from our study, starting with the standard error from our Baseline treatment (Table 5, column 1). With 248 participants our sample size is more than three times the sample size of Niederle and Vesterlund (2007), and we have 78% power to detect their full effect size. With our pooled sample of 926 participants, we instead have 100% power (the standard error is taken from Table 5 column 9). This indicates that our results are not due to low power.

As an additional robustness check, we excluded participants who did not answer the control questions correctly to see if this influenced the results. While the risk task did not have any control questions, we can identify the share of participants that has multiple switching points between the risky and the safe option. In our sample, a larger share of women (19%) than men (12%) are inconsistent (p=0.002). Dropping these observations, we still find no gender differences within the baseline or in any of the treatments or pooled samples (see Table A5).

About 75 % and 79 % of all participants answered the control question about the competitive part in the verbal task and the math task correctly, and there are no systematic gender differences in number of correct answers (p=0.900 for the verbal task and p=0.594 for the math task, prtest). Excluding the participants who did not answer the control question correctly for each measurement does not impact our results in important ways (see Tables A6 and A7).

In this study, we conduct 21 tests (within the full sample, dependent as wells as independent tests). Multiple testing increases the probability of Type I errors. When designing the study, we did not take Bonferroni corrections into account and do not include the corrections in the text to avoid an increase of Type II errors. A simple Bonferroni correction of the size would imply approximately a p-value threshold of 0.002 (0.05/21) for statistical significance. The only test that survives such a correction is the gender gap in competitiveness in the math task in the pooled sample, when no control variables are included. Since we found few gender differences in our study, this correction makes little difference to the overall inference.

4. Discussion

To achieve greater gender equality, or increase our knowledge of gender differences in economic preferences, it is important to understand where gender differences come from and in what type of populations they occur. In this experiment on a random and representative sample of the Swedish adult population, we find no robust evidence of gender differences in risk preferences or willingness to compete in two different tasks. With respect to risk preferences, our result stands in contrast to many previous studies using student samples but corroborates two other studies using incentivized measures on representative samples in Denmark (Harrison et al. 2007) and Germany (Dohmen et al. 2010) respectively. To our knowledge, there are no previous studies of willingness to compete using a random and representative sample. Most studies on students find that women are less willing compete than men in math tasks but not necessarily verbal tasks. While we find an indication of this in our pooled sample, the effect size is smaller than, e.g. what Niederle and Vesterlund (2007) find in their seminal paper.

There may be several reasons why our findings differ from previous studies that find gender differences in risk and competitive preferences. One potential explanation is the specific country studied here: Sweden is one of the most gender equal countries in the world. However, previous studies do not indicate that gender gaps in preferences are necessarily smaller in more gender equal countries or cultures (e.g., Cárdenas et al. 2012; Khachatryan et al. 2015; Zhang 2013; and Falk et al. 2017, but see also, e.eg, ; Gneezy et al. 2009; Andersen et al. 2013).

Our study differs from the majority of previous studies in the sense that data collection was done through phone interviews. Using phone interviews to collect data may have both positive

and negative response effects (de Leeuw 2008). Another aspect of phone interviews is that they may influence anonymity. Although anonymity is arguably greater in phone interviews than in face to face interviews, the phone interview setting does not allow for the same degree of anonymity as the laboratory. While our intuition is that less anonymity would rather increase gender preference gaps – for example, through a concern to adhere to gender norms prescribing different behavior for men and women – it is, of course, possible that this setting reduces the size of gender preference gaps compared to laboratory experiments.

The lack of a priming effect may be due to the fact that the priming occurred at the beginning of our study. In Boschini et al. 2018, where we explore the outcome in the Dictator Game of the same study, we find suggestive evidence of women in the DG giving more than men in the priming treatment. It is possible that any effect of the treatment had disappeared by the time the participants make decisions in the risk domain and whether to compete. It should, however, be noted that we did not have any manipulation check, and also that the priming literature has come under heavy critique during the last few years (see, e.g., Yong 2012).

Another possible reason is the type of sample. The random sample used here is less selected than the student samples most commonly used in previous studies. As indicated above, at least a few studies employing representative samples also fail to find gender preference gaps in the risk domain, but on the other hand, other studies on Swedish representative samples have found gender differences in risk attitudes measured through self-reported risk-taking.

Further, while it is possible that we are underpowered to detect true, but small sized, gender differences, our robustness analysis indicates that we have enough observations to detect gender gaps of the size that have previously been found.

It is of course also possible that, in line with our findings, gender preference gaps in Sweden are small or non-existing in a representative sample, at least for these specific preferences. One important reason why we are interested in gender preference gaps is the previous findings relating gender preference gaps to labor market outcomes and economic outcomes in general. However, the Swedish labor market and the educational choices of Swedish youth, remain characterized by vertical and horizontal segregation on gender (Albrecht et al. 2003). Thus our results suggest that these (specific) gender gaps in the labor market should be studied through other lenses than that of gender differences in risk preferences and willingness to compete. To what extent this holds for other countries remains to be explored.

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Appendix A: Tables and Figures

Table A1. Sample sizes, non-response and under-coverage

		Telephone	Postal
Sample size		2349	800
Response		996	374
Non-response			
	Declined	610	8
	No contact	271	370
Under-coverage			
	Not part of the population	89	
	No active phone number/address	320	37
	Wrong sampling	56	
	Late postal responses		11
	Older than the population	6	

Table A2. Phone interview: non-response analysis

	Non-responders		Responders			
	Mean	SD	Mean	SD	p-value ttest	p-value KS**
Gender	0.4915	0.50	0.4885	0.50	0.896	1
Age category*	6.5142	3.0298	6.5166	3.1839	0.987	0.901

* Age categories are; 1=18-20, 2=21-25, 3=26-30, 4=31-35, 5=36-40, 6=41-45, 7=46-50, 8=51-55, 9=56-60, 10=61-65, 11=66-70, and 12=71-73. Since the age for responders is collected as a continuous variable when comparing the figures we forced the responders actual age into the same categories as for non-responders.

** We also tested the equality of distribution between the non-responders and the responders using a Kolmogorov-Smirnov test with the combined p-value for large samples.

Table A3. Comparing population and sample

	Population		Our sample	
	Mean	**Sd**	**Mean**	**Sd**
Gender (0=man, 1=woman)	0.502	0.50	0.488	0.50
Age	40.616	23.678	45.516	15.758
Income	**Proportion**	**Share of women**	**Proportion**	**Share of women**
<= 100.000	0.196	0.470	0.133	0.520
100 001-250 000	0.315	0.392	0.277	0.576
250 001-375 000	0.299	0.478	0.360	0.493
375 001-500 000	0.114	0.326	0.113	0.306
500 001-750 000	0.056	0.261	0.084	0.325
750 001-1 000 000	0.012	0.226	0.020	0.263
>1 000 000	0.008	0.165	0.013	0.333
Education				
< 7 years	0.064	0.462	0.042	0.390
8-9 years	0.119	0.433	0.110	0.422
10-12 years	0.468	0.475	0.409	0.493
> 12 years	0.350	0.550	0.440	0.508

Statistics Sweden provided aggregate estimates based on individual data, from 2011 of the full Swedish population aged 18-73. The distribution of age is somewhat flatter and more skewed to the right of the mean compared to the population distribution (comparing kurtosis and skewness).

Table A4. Confirmed random assignment

	Control		Priming		Female Counterpart		Male counterpart	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Gender	0.4647	0.500	0.484	0.501	0.523	0.501	0.488	0.501
Age	45.647	15.663	46.439	15.539	44.326	15.843	45.472	16.030
Income category*	2.758	1.115	2.923	1.331	2.809	1.294	2.898	1.343
Interaction: gender and income category	1.210	1.488	1.258	1.547	1.287	1.485	1.275	1.621
Interaction: gender and age	21.699	25.587	22.839	25.920	22.477	24.181	21.456	24.547

*In line with regulations of statistical disclosure control from Statistics Sweden we collected income in categories. Income is categorized in 7 brackets of SEK; 1=<100 000, 2=101-250k, 3=251-375k, 4=376-500k, 5=501-759k, 6=751-1000k, and 7= >1000k.

None of the variables are significantly different between the treatments using a ttest.

Table A5. OLS: Gender differences in number of risky choices. Restricted to those that answered consistent.

	Baseline		**Priming**		**Male count.p**		**Female count.p**		**Pooled**	
Female	0.133	0.210	0.364	0.514	-0.138	-0.180	0.083	0.178	0.116	0.181
	(0.317)	(0.320)	(0.349)	(0.359)	(0.350)	(0.347)	(0.334)	(0.351)	(0.169)	(0.173)
Age		-0.015		0.225**		0.168*		0.046		0.098*
		(0.076)		(0.084)		(0.079)		(0.074)		(0.038)
Income		0.307*		0.206		0.036		0.105		0.165*
		(0.138)		(0.153)		(0.158)		(0.130)		(0.072)
Education		0.092		-0.117		-0.257		-0.347		-0.154
		(0.237)		(0.255)		(0.272)		(0.291)		(0.131)
Age squared		-0.000		-0.003**		-0.002*		-0.001		-0.001**
		(0.001)		(0.001)		(0.001)		(0.001)		(0.000)
Gender of the interviewer		-0.500		-0.358		-0.660		-0.389		-0.462**
		(0.319)		(0.344)		(0.361)		(0.331)		(0.166)
Constant	3.474***	3.212*	3.057***	-1.218	3.793***	1.609	3.577***	3.573*	3.467***	1.981**
	(0.200)	(1.335)	(0.228)	(1.716)	(0.225)	(1.577)	(0.220)	(1.407)	(0.109)	(0.740)
Adj. R^2	-0.004	0.026	0.001	0.068	-0.005	0.017	-0.005	-0.011	-0.001	0.029
Obs.	205	205	200	200	182	182	199	199	786	786

Robust standard errors

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A6. Logit (marginal effects): Gender differences in proportion of competitive choices in the verbal task. Restricted to those that answered the control questions correctly.

	Baseline		Priming		Male counterpart		Female counterpart		Pooled	
Female	-0.169	-0.037	0.113	0.158	0.286	0.330	0.154	0.203	0.088	0.144
	(0.307)	(0.327)	(0.303)	(0.321)	(0.335)	(0.358)	(0.310)	(0.350)	(0.156)	(0.163)
Age		-0.242**		-0.042		-0.030		0.030		-0.060
		(0.078)		(0.075)		(0.077)		(0.068)		(0.036)
Income		0.493**		0.074		-0.046		0.184		0.151*
		(0.165)		(0.149)		(0.161)		(0.152)		(0.074)
Education		0.024		0.213		0.568*		0.251		0.231
		(0.258)		(0.219)		(0.269)		(0.282)		(0.123)
Age squared		0.002**		0.000		0.000		-0.000		0.001
		(0.001)		(0.001)		(0.001)		(0.001)		(0.000)
Gender of the interviewer		0.314		-0.072		0.211		0.178		0.125
		(0.322)		(0.311)		(0.347)		(0.321)		(0.158)
Constant	-0.423*	3.222*	-0.575**	-0.504	-0.636**	-2.071	-0.470*	-2.696	-0.521***	-0.522
	(0.209)	(1.413)	(0.209)	(1.609)	(0.239)	(1.501)	(0.216)	(1.439)	(0.108)	(0.714)
Obs.	183	183	188	188	153	153	174	174	698	698

Robust standard errors

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A7. Logit (marginal effects): Gender differences in proportion of competitive choices in the math task. Restricted to those that answered the control questions correctly.

	Baseline		Priming		Male counterpart		Female counterpart		Pooled	
Female	-0.499	-0.257	-0.631	-0.704*	-0.915**	-0.742*	-0.368	-0.222	-0.591***	-0.492**
	(0.339)	(0.383)	(0.328)	(0.343)	(0.347)	(0.366)	(0.333)	(0.369)	(0.168)	(0.176)
Age		-0.145		0.080		-0.004		-0.039		-0.029
		(0.087)		(0.076)		(0.082)		(0.074)		(0.038)
Income		0.624**		-0.109		0.307		0.349*		0.259**
		(0.204)		(0.151)		(0.162)		(0.172)		(0.081)
Education		-0.053		0.168		0.036		-0.165		0.048
		(0.302)		(0.249)		(0.259)		(0.274)		(0.128)
Age squared		0.001		-0.001		0.000		0.000		0.000
		(0.001)		(0.001)		(0.001)		(0.001)		(0.000)
Gender of the interviewer		0.446		0.081		0.173		0.233		0.226
		(0.350)		(0.331)		(0.358)		(0.337)		(0.167)
Constant	-0.833***	0.896	-0.664**	-2.530	-0.251	-1.547	-0.811***	-0.287	-0.655***	-0.901
	(0.219)	(1.671)	(0.209)	(1.745)	(0.226)	(1.606)	(0.213)	(1.573)	(0.107)	(0.786)
Obs.	190	190	196	196	160	160	189	189	735	735

Robust standard errors

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A8. Socio-economic variables correlated with number of risky choices and willingness to compete for women and men.

	Risky choices		Competitive choices verbal task		Competitive choices math task	
	Females	*Males*	*Females*	*Males*	*Females*	*Males*
Age	0.104*	0.039	-0.013	-0.078	-0.011	-0.038
	(0.046)	(0.045)	(0.044)	(0.043)	(0.052)	(0.044)
Income	0.310**	0.094	0.270**	0.107	0.430***	0.177*
	(0.107)	(0.084)	(0.099)	(0.086)	(0.116)	(0.088)
Education	-0.235	-0.127	0.101	0.234	-0.271	0.320*
	(0.178)	(0.143)	(0.151)	(0.131)	(0.163)	(0.148)
Age squared	-0.001*	-0.001	0.000	0.001	0.000	0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Gender of the interviewer	-0.331	-0.379	0.038	0.168	-0.192	0.551**
	(0.216)	(0.200)	(0.202)	(0.194)	(0.234)	(0.200)
Constant	1.843*	3.154***	-1.200	0.014	-0.940	-1.678
	(0.921)	(0.884)	(0.877)	(0.854)	(1.094)	(0.892)
Adj. R^2	0.044	0.005	-	-	-	-
Obs.	443	483	443	483	443	483

Robust standard errors

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A9. OLS: Gender differences in number of risky choices between baseline and treatments.

	Baseline vs. Priming	Baseline vs. Male counterpart	Baseline vs. Female counterpart
Treatment	-0.491	0.189	-0.061
	(0.270)	(0.276)	(0.268)
Female	0.026	0.026	0.026
	(0.271)	(0.271)	(0.271)
Treatment x Gender	0.174	-0.194	0.102
	(0.404)	(0.417)	(0.397)
Constant	3.581***	3.581***	3.581***
	(0.177)	(0.177)	(0.177)
Adj. R^2	0.003	-0.006	-0.006
Obs.	487	451	484

Robust standard errors
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A10. Logit (marginal effects): Gender differences in proportion of competitive choices in the verbal task between baseline and treatments.

	Baseline vs. Priming	Baseline vs. Male counterpart	Baseline vs. Female counterpart
Treatment	-0.115	-0.276	-0.223
	(0.256)	(0.274)	(0.256)
Female	-0.162	-0.162	-0.162
	(0.263)	(0.263)	(0.263)
Treatment x Gender	0.336	0.532	0.276
	(0.373)	(0.392)	(0.378)
Constant	-0.387*	-0.387*	-0.387*
	(0.175)	(0.175)	(0.175)
Obs.	487	451	484

Robust standard errors
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A11. Logit (marginal effects): Gender differences in proportion of competitive choices in the math task between baseline and treatments.

	Baseline vs. Priming	Baseline vs. Male counterpart	Baseline vs. Female counterpart
Treatment	0.122	0.435	0.012
	(0.269)	(0.277)	(0.270)
Female	-0.356	-0.356	-0.356
	(0.292)	(0.292)	(0.292)
Treatment x Gender	-0.036	-0.273	-0.000
	(0.410)	(0.421)	(0.416)
Constant	-0.840***	-0.840***	-0.840***
	(0.187)	(0.187)	(0.187)
Obs.	487	451	484

Robust standard errors
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Appendix B: Telephone instructions in English (read by an interviewer)

Hello,

I'm calling on behalf of Stockholm University. We previously sent you a letter with information about a research study on financial decision-making. I hope you've had the opportunity to read through it and that you're willing to take part in our study.

[Wait for Yes/No; if No, read out a summary of the letter]

Thank you for taking part in this study!

Our research study looks at financial decisions relating to how money is distributed among different individuals. The money is real, and depending on what decisions you and other participants in the study make, you can earn some. How this works will become clearer as I describe the various decisions, you'll be required to make.

You will receive 100 crowns for taking part, over and above whatever money you receive for one of your decisions.

In the course of this interview, you'll take a position on 8 different kinds of decisions – what we call decision situations. Now there's no such thing as a "correct decision" – rather, it's a matter of which decision you decide to make in a given situation. As the interviewer, I'm not allowed to advise you or help you with your decisions. A number of them concern the distribution of money between you and another participant in the study. You and the other party are unknown to one another, and neither of you gets to know who the other is. The other party is a new person each time. The 8 decision situations are independent of one another, and you can think of them as eight separate situations.

You'll be paid for **one** of the 8 decision situations. If you collaborate with a second party on that decision, that person will also be paid. In a letter that will be sent out **on completion** of the study, you'll be told which decision you are being paid for and how you're to go about arranging payment. Which decision your payment is based on is not influenced by what you decide. All decisions are **equally common** as a basis for payment. The interview takes about 25 minutes.

Please feel free to ask questions if anything is unclear.

Before each of the different decisions, you'll be asked to answer some check questions, so that we know our explanations are clear to all participants.

Before we begin, we'd like you to have a pen and paper in front of you. [if necessary, wait while the participant fetches pen and paper]

[The following question is asked before the interview only in the priming treatment, otherwise at the end of the interview:]

Before we start the interview, I'm required to ask you a check question – are you a woman or a man?
_ Woman _Man

Decision 1

For this decision, you are paired anonymously with another participant/man/woman from the study.

In this part, you get 400 crowns, and the other person gets nothing. You are the only decision-maker in this part, so the other person has no decision to make. You can choose to give away money to the other person. The question we will ask you is how much of the 400 crowns you keep yourself and how much you give the other person.

Before you make your choice, we have a couple of check questions.

1. If you choose to keep 200 crowns, how much does the other person get?
2. If you choose to keep nothing, how much will the other person get?

It's now time for you to choose.
How much of the 400 crowns do you keep and how much does the [*person/man/woman]* you are paired with get?

Decision 2

In this part, you are paired anonymously with another [*male/female]* participant from the study, and both you and the other person are decision-makers. To the [*other participant/him/her]*, you are another anonymous participant.

The other party has 400 crowns and must decide how to divide this money between the two of you. You can say Yes or No to the proposed split. If you say Yes, the money will be divided between you as proposed by the other party. If you say No, neither of you will get any money. You will not be told what the other party has proposed. Instead, we now want you to decide the minimum sum you would say Yes to if the 400 crowns are divided between you. This means that you say No to any kind of split that gives you less than this sum. Should you say No, neither you nor the other person will get any money in this part.

In other words, you say Yes or No to the other party's proposal as to how the 400 crowns is to be divided between the two of you. If you say Yes, both of you will get money in accordance with the proposal; if you say No, neither of you will get any money.

Before you make your choice we have a couple of check questions.

Imagine that the other party proposes keeping 300 crowns, which means you get 100 crowns.

1. What happens if you've said the minimum sum you would agree to is 200 crowns?
2. What happens if you've said the minimum sum you would agree to is 10 crowns?

It's now time for you to decide.
So – the [*person/man/woman]* you are paired with can divide the money between the two of you. What is the minimum sum you would agree to in such a split?

Decision 3

[Interviewer, please note: This part is slightly more complicated, and you may have to read it out twice]

In this part, you are paired anonymously with another [*male/female]* participant in the study. Here, both you and the other person are decision-makers. The economic decision we now want to study is the following: You are to choose one of two alternatives, *A* or *B*. The other person will also be choosing one of these two alternatives. Depending on what choices you and the other person make, you will get different sums of money. You don't know beforehand which alternative the other person chooses, and the other person doesn't know beforehand which alternative you choose.

I want you to write down the alternatives I'll now read out to you.

If you choose A, the other person gets 300 crowns.
If you choose B, you and the other person get 100 crowns each.

In the same way, the other person chooses between the same two alternatives.

This means:

If both of you choose *A,* you get 300 crowns, and the other person gets 300 crowns.

If you choose *A* and the other person chooses *B*, you get 100 crowns, and the other person gets 400 crowns.

If you choose *B* and the other person chooses *A*, you get 400 crowns, and the other person gets 100 crowns.

If both of you choose *B*, you get 200 crowns, and the other person gets 200 crowns.

Before you make your choice, we have a few check questions for you. Have you written down the alternatives? [wait for the answer]

1. If both of you choose A, how much do you get and how much does the other person get?
2. If you choose *A* and the other person chooses *B*, how much do you get and how much does the other person get?
3. If you choose *B* and the other person chooses *A*, how much do you get and how much does the other person get?
4. If both of you choose B, how much do you get and how much does the [*person/man/woman]* you have been paired with get?

It's now time for you to decide.
Do you choose alternative A or alternative B?

Decision 4

[Interviewer, please note: This part is slightly more complicated, and you may have to read it out twice]

If you like, you can write down the alternatives I'm going to read out to you soon.
Here, you're paired with an anonymous [*male/female]* participant from this study. Both you and the other person are decision-makers. You are initially given a sum of money, while the other person initially has no money at all. This part is in two stages.

In the first stage, you choose between three alternatives: keep all the money you've got, send half to the other party, or send all the money to the other party. Whatever you send will be tripled, so the other person will get three times the sum you've sent. In the second stage, the other party chooses whether to send money back to you.

If you keep all the money, you get everything, and the other party gets nothing. If you give away half, you keep the other half plus that part of the tripled sum that the other person sends back to you. If you give away all the money, you get what the other person sends back. The other person gets whatever he/she keeps of the tripled sum. So you have three alternatives: 1. Keep the money. 2. Give away half the money. 3. Give away all the money.

Before you make your choice, we have a few check questions.

For this decision, you have 100 crowns.

1. How much money do you get and how much does the other party get if you decide to keep the 100 crowns?
2. How much money does the other party have for distribution if you send 50 crowns?
3. How much money do you get if you send 100 crowns to the [*person/man/woman]* you are paired with, and [*that person/he/she]* decides to send back half?

Now it's soon time for you to choose.

You have the sum of 100 crowns. Which alternative do you choose: to keep the 100 crowns, to give away 50 crowns or to give away 100 crowns?

Decision 5

In this part, you are paired anonymously with another [*male/female*] participant in the study. The economic decision we now want to deal with is the following: Both you and the other person are to choose one of two alternatives, A or B. Depending on how you both choose, you will get different sums of money. You earn more if you both choose A, the other person earns most if you both choose B. However, both of you earn the least amount of money if you choose different alternatives. You don't know beforehand which alternative the other person chooses, and the other person doesn't know beforehand which alternative you choose.

I want you to write down the alternatives I'll now read out to you.

Alternative A gives you 300 crowns and the other person 150 crowns if you both choose alternative A.

Alternative B gives you 150 crowns and the other person 300 crowns if you both choose alternative B.

If one of you chooses alternative A and the other person chooses alternative B, you each get 50 crowns.

So:

If both of you choose *A*, you yourself get 300 crowns, and the other person gets 150 crowns.

If both choose *B*, it will be the other way round - you yourself get 150 crowns, and the other person gets 300 crowns.

If you choose *A* and the other person chooses *B*, you get 50 crowns each.

If you choose *B* and the other person chooses *A*, you also get 50 crowns each.

Before you make your choice, we have a few check questions. Have you written down the alternatives? [wait for the answer]

1. If both of you choose A, how much do you get and how much does the other person get?
2. If you choose *A* and the other person chooses *B*, how much do you get and how much does the other person get?
3. If you choose *B* and the other person chooses *A*, how much do you get and how much does the other person get?
4. If both of you choose B, how much do you get and how much does the [*person/man/woman]* you have been paired with get?

It's now time for you to decide.
Do you want to choose:
alternative A
(If both choose A, you yourself get 300 crowns, and the other person gets 150 crowns, and if the two of you make different choices you both get 50 crowns)

or

alternative B
(If both choose B, you yourself get 150 crowns, and the other person gets 300 crowns, and if the two of you make different choices you both get 50 crowns)

Decision 6

In this part, you will NOT be paired with another participant. You are the only decision-maker, and there is no other party. In this part, you'll be presented with seven choices. In each of them, you choose between getting a certain sum of money **for sure** or **tossing a coin** to win either **200 crowns** (heads) or nothing at all (tails).

Should this part become the basis for your financial remuneration, payment will be based on one of the seven choices/alternatives below (which one it will be has nothing to do with how you reply). If in that alternative, you chose money for sure, you get that money. If you chose coin-tossing, we will toss a coin to arrive at a decision.

a) Which alternative do you choose:
_____40 crowns
_____the toss of a coin to either win 200 crowns or get nothing at all

b) Which alternative do you choose:
_____60 crowns
_____the toss of a coin to either win 200 crowns or get nothing at all

c) Which alternative do you choose:
_____80 crowns
_____the toss of a coin

d) Which alternative do you choose:
_____100 crowns
_____the toss of a coin

e) Which alternative do you choose:
_____120 crowns
_____the toss of a coin

f) Which alternative do you choose:
_____140 crowns
_____the toss of a coin

g) Which alternative do you choose:
_____160 crowns
_____the toss of a coin

Decision 7

This is the second to last decision situation.

In this part, you are paired anonymously with another [*male/female]* participant in the study. It's important that you have a pen and paper for this. The economic decision we now want to look at is the following: Both you and the other person will each be given the same series of 7 letters, and over a period of 2 minutes you will compose words of at least 3 letters each. You'll be paid for the number of words you compose, however long they may be.

Here's an example by way of illustration. I will now read out a series of 7 letters. To make it easier to understand, it's a good idea to write down this example: ABCDEFG. These letters may only be used once in each word. In this series, there are many words containing at least 3 letters, e.g. BAD, FED, DAB, AGE etc. Your task is to compose as many words as possible. As to which words are permitted, ordinary "Scrabble rules" apply. This means, for instance, no conjugations, no names, no abbreviations and no compound words. The words you use must be listed in a reputable dictionary such as Collins or the Oxford English.

Before you begin, you must choose how you want to be paid. This can be done in two different ways. Under Payment Method 1, you get 10 crowns for every correct word you compose, regardless of how many words the other person puts together. Under Payment Method 2, your result will be compared to the other person's result. If you compose more words than the other person, you get 20 crowns per correct word. Otherwise you get nothing. If it's a draw, you both get 20 crowns per correct word. Do you have any questions before we set about this task?

Before you make your choice, we have a few check questions.

1. How much will you get paid per word if you choose Payment Method 1?
2. How much will you get paid per word if you choose Payment Method 2 and you compose more words than the person you are paired with?
3. How much will you get paid per word if you choose Payment Method 2 and you compose fewer words than the person you are paired with?
4. How much will you get paid per word if you choose Payment Method 2 and you compose the same number of words as the [*person/man/woman]* you are paired with?

After you've made your choice, I'll read out the series of 7 letters that you're to compose words from. Once I've read out the letters, the 2 minutes you have in which to perform the task will begin. You have to read out the words during these 2 minutes, and the words must contain at least 3 letters. When 2 minutes have passed, no more answers will be accepted.

Before I read out the series of letters, you have to decide about payment.

Which payment method do you choose: individual payment, in other words, 10 crowns for sure for each word you compose, or competition, which means you get 20 crowns per word if you compose more words than the other party?

[Respondents who say they do not want to compete are given the proposal about individual payment]

Please write down the series of letters that I'm now going to read out.

SERIES OF LETTERS: (A) Adam, (E) Edward, (I) for India, (K) King, (R) Robert, (S) Stephen, (V) Victory, (T) Tango.

You now have 2 minutes in which to compose words and read them out to me.

[2 min]

Your 2 minutes are now at an end so you can't read out any more words.

Decision 8

The final part.

In this part, you are paired anonymously with another [*male/female]* participant in the study. It's important that you have a pen and paper for this. Over a period of 2 minutes, both you and the other person will now solve maths sums. You'll be paid for the number of sums you solve.

Here is an example by way of illustration. I'm going to read out a series of nine numbers. To make it easier to understand, it's a good idea to write this example down. 102141563.

Based on these nine numbers, you're to find as many combinations as possible that add up to 25. In the series, I've given you there are many numbers that add up to 25, for instance, 10+15=25, 24+1=25, 4+6+15=25. Each number in the series may only be used once for each combination. In other words, the number one appears twice in the series so you cannot use a one more than twice in your combination. 10 + 14 + 1 also makes 25, for instance, but that would not be accepted. Your task is to find as many combinations as possible.

Before you begin, you're to choose the payment method you prefer. You can be paid in two different ways. Under Payment Method 1, you get 10 crowns for every correct combination you find that adds up to 25, regardless of how many combinations the other party finds. Under Payment Method 2, your result will be compared to the other person's result. If you find more combinations than the other person, you get 20 crowns per correct combination. Otherwise, you get nothing. If it's a draw, you both get 20 crowns per correct combination. Do you have any questions before we begin this task?

Before you make your choice we have a few check questions:

1. How much will you get paid per combination if you choose Payment Method 1?
2. How much will be paid per combination if you choose Payment Method 2 and you find more combinations than the other person?
3. How much will you get paid per combination if you choose Payment Method 2 and you find fewer combinations than the person you are paired with?
4. How much will you get paid per combination if you choose Payment Method 2 and you find the same number of combinations as the [*person/man/woman]* you are paired with?

After you've made your choice, I'll read out the series of numbers that you're to use to find combinations that add up to 25. Once I've read out this series of numbers, the 2 minutes you have in which to perform the task will begin. You must read out your combinations during the 2 minutes. When 2 minutes have passed, no more answers will be accepted.

Before I read out the series of numbers, you have to decide about payment.

Which payment method do you choose: individual payment, in other words, 10 crowns for sure for each combination of numbers you find, or competition, which means you get 20 crowns per combination if you find more than the other party, otherwise nothing?

So your task is to find combinations of numbers that add up to 25. Please write down the series of numbers that I'm now going to read out.

SERIES OF NUMBERS: 519326142

You now have 2 minutes in which to put together combinations that add up to 25 and to read them out to me.

[2 min]

Your 2 minutes are now at an end so you can’t read out any more combinations.

Concluding questions

We'd now like to conclude this study by asking you a few standard questions.

Before we start, I'm required to ask you a check question – are you a woman or a man?

_ Woman
_Man
Do not know Int: Do not read this option!

What is your marital status?
Married
Cohabitant
Single
Other
Do not know/Refuse to give an answer Int: Do not read this option!

How many children under 18 do you have?
None
1
2
3
More than 3
Do not know/Refuse to give an answer Int: Do not read this option!

What year were you born?
Four figures

What is your household income per annum before tax (SEK)?
< 100.000 kr
101.000 – 250.000 kr
251.000 – 375.000 kr
376.000 – 500.000 kr
501.000 – 750.000 kr
751.000 – 1.000.000 kr
> 1.000.000 kr
Do not know/Refuse to give an answer Int: Do not read this option!

What is your income per annum before tax (SEK)?
< 100.000 kr
101.000 – 250.000 kr
251.000 – 375.000 kr
376.000 – 500.000 kr
501.000 – 750.000 kr
751.000 – 1.000.000 kr
> 1.000.000 kr
Do not know/Refuse to give an answer Int: Do not read this option!

We'd also like to know what is the highest level of education you've completed?
Compulsory school (maximum 7 years of schooling)
Upper secondary school (8-9 years of schooling)
Vocational college / Folk high school (10-12 years of schooling)
University/University college without formal degree

University/University college with formal degree
University/University college without formal degree
Studying part time
Studying full time
Do not know/Refuse to give an answer Int: Do not read this option!

What is your principal occupation?
Self-employed
Employee
Student
Pensioner
Unemployed
Military service
Other occupation
Do not know Int: Do not read this option!

Do you work for/in…?
The public sector (state, municipal, county council)
A state, municipal or county council company (wholly owned)
A state/municipal *and* private company (mixed ownership)
A private company
An organisation (NGO, an advocacy group, trade union etc.)
Do not know Int: Do not read this option!

What position do you hold at work?

Salaried employee/Office worker
Staff officer
Senior manager
Expert
Another type of employee
Other
Do not know Int: Do not read this option!

We're very grateful to you for taking part in this study on economic decision-making. In a few weeks' time, you'll receive a letter from us showing how much you're to be paid and how you're to contact Stockholm University so that the money can be paid out to you. That letter will also tell you how you can find out about the results of the study. In time, those results will be presented in one or more research reports. It will also be possible to access preliminary conclusions from the study on a website from the beginning of next year.