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Searching for a better deal – On the influence of group decision making, time pressure and gender in a search experiment[*]

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Abstract

We study behavior in a search experiment where sellers receive randomized bids from a computer. At any time, sellers can accept the highest standing bid or ask for another bid at positive costs. We find that sellers stop searching earlier than theoretically optimal. Inducing a mild form of time pressure strengthens this finding in the early periods. There are marked gender differences. Men search significantly shorter than women. If subjects search in groups of two subjects, there is no difference to individual search, but teams of two women search much longer than men and recall more frequently.

JEL Classification: C91, C92, D83

Keywords: Search experiment, Time, Group decision, Gender differences

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1. Introduction

The importance of search strategies to reduce market frictions has been recognized for a long time and inspired a plethora of theoretical and empirical investigations (for recent surveys on searching on labor markets, for example, see Rogerson et al. 2005, or Eckstein and van den Berg 2007). The empirical study of search behavior has a long history and there is a relatively large literature using experimental methods to test the theoretical predictions of different search models (e.g., Schotter and Braunstein, 1981; Hey, 1982; Harrison and Morgan, 1990; Cox and Oaxaca, 1992; Sonnemans, 1998; Zwick et al., 2003; Einav, 2005; Schunk and Winter, 2007). Generally speaking, the existing experimental evidence suggests that individuals stop searching too early in comparison with the optimal strategy[1] and that there is some recall (take an option that previously was rejected). Particular heuristics seem to drive this result. For example, Sonnemans (1998) asked individuals to write a strategy that would be played subsequently, and he found that most strategies focused on (absolute) earnings rather than optimal stopping strategies. Interestingly, stopping behavior does not seem to be related to risk aversion (e.g. Kogut, 1992; Sonnemans, 1998), but rather to loss aversion (Schunk and Winter, 2007).

In this paper we examine how search behavior is affected by the following three variables: (1) a mild form of time pressure, (2) group decision making, and (3) gender. The first variable, time pressure, is obviously important in many economically interesting situations. For example, a company which unexpectedly receives a large order that has to be delivered within a very short time period needs to choose very quickly between different input factors (overtime of existing workforce, hiring of new workers, outsourcing activities etc.); a worker who suddenly looses his/her job has to search for a new source of income; a researcher may feel time pressure to publish before someone else comes up with the same idea. Several experimental studies have pointed out that decision making under time pressure can reduce the accuracy of a decision, produce extreme judgments and reduce the propensity to take risks (see Maule et al., 2000; Sutter et al., 2003; Kocher and Sutter, 2006; Trautmann and Kocher, 2008). It

[1] Einav (2005) shows in a clever modification of Sonnemans' (1998) design that the relative frequency of searching too little can be reduced considerably by giving subjects an opportunity for observational learning. The latter is implemented by informing subjects at the moment when they stop searching about what would have happened if they had continued searching.

also seems to be the case that time pressure leads to an increased use of heuristics in decision making (Payne et al., 1993). Whether time pressure influences search behavior has not been studied thoroughly, though.

Our second variable of interest refers to the study of different search behavior between individuals and groups. We are not aware of any previous experiment addressing this issue, although it is evident that many search decisions are taken by small groups. To continue our previous examples, the task force of the company that faces a large order has to decide which input factors should be chosen, the family of the unemployed worker decides which job offer to accept, and the research group decides on the publication strategy for a given idea and paper. Given the real-world relevance, it seems interesting to examine whether groups are more or less rational in searching. Many previous studies have established that groups behave, in general, more rational and that their actions are closer to standard game theoretic predictions (e.g., Bornstein and Yaniv 1998; Bone et al. 1999; Bornstein et al. 2004; Cooper and Kagel 2005; Kocher and Sutter, 2005). We wonder whether this is also true in a search task.

Our third variable of interest is the influence of gender on search behavior. Croson and Gneezy (2008) provide a comprehensive overview on gender differences in economic decision making, with a particular focus on risk taking, social preferences, and behavior under competition. Given that search behavior has to do with risk taking (since it is uncertain whether the next alternative will be better than the current one), search behavior might be related to risk attitudes, and therefore gender might play a role. Croson and Gneezy (2008) conclude that the results of most lab and field studies suggest that women are more risk-averse than men.[2] If that were the case, we might also find differences in search behavior between men and women.

We use a search experiment of Sonnemans (1998) to address the influence of time pressure, group decision making and gender. Subjects can sell a fictitious good to a computer which submits random bids from a known interval. Searching for better bids has fixed costs and a constant cost per additional bid. The optimal strategy for a risk neutral individual would be to stop searching when the expected marginal benefits from searching equal the marginal costs. As a consequence, there should be no recall.

[2] Croson and Gneezy (2008) note, of course, that there are also inconsistent results (see, e.g., Byrnes et al. 1999; Schubert et al., 1999; Eckel and Grossman, forthcoming). Yet, they show that the overall picture emerging from a multitude of studies seems to suggest that women are, on average, more risk averse.

We find that on average individuals stop searching too early and this effect is magnified when individuals are confronted with time pressure, in particular when subjects are still rather inexperienced with the search task. As subjects gain experience in later rounds the effect of time pressure vanishes. Although group decision making requires time consuming coordination, we find no significant differences in the search behavior of individuals and groups of two subjects. Most interestingly, we find strong gender differences in search behavior. Women search longer than men. However, this difference is not explained by a higher proportion of women taking optimal searching decisions, but rather by a higher proportion of women who search longer than optimal.

The rest of the paper is organized as follows: Section 2 presents the experimental design. Section 3 reports the experimental results, and section 4 concludes.

2. Experimental design

Subjects are confronted with the following search problem. They can sell a fictitious good to a computer. Within each round out of a total of 15 rounds, the computer submits integer bids with equal probability from the interval [0, 100]. Subjects can accept bids, and thus stop searching, or continue to ask for a bid. There are fixed costs of searching of 50 units. Each time the subject asks for another bid, it has variable costs of 2 units. A round is finished whenever a subject does not ask for another bid. In this case it receives the current highest standing bid and has to pay the fixed and variable costs from searching. If the last bid is not the highest standing bid, we speak of "recall". Within each round, a subject always gets informed on its screen (using zTree by Fischbacher, 2007) about the current bid, the total number of bids asked for, the highest standing bid, the total costs of searching, and the potential earnings if a subject stopped searching with that bid. Note that with our parameters the optimal stopping point is whenever a bid greater than 80 units is submitted by the computer. Of course, if subjects stop optimally there will be no recall.

We have implemented three different treatments. The benchmark treatment is called **Ind60**. Subjects in this treatment have to make decisions individually and for each bid received from the computer they have 60 seconds time to decide on whether or not to continue searching. This benchmark treatment is then varied in two dimensions. Treatment **Ind10** is identical to **Ind60**, expect that subjects only have 10 seconds to decide whether to stop searching with a particular bid or not. This treatment induces a mild form of time pressure as it sets a rather tight time restriction for making a decision.[3]

The other variation concerns the type of decision maker. In treatment **Group60** we let two subjects decide jointly in the search task. Groups are seated in soundproof cabins where they can discuss whether or not to stop searching at a particular point in time. Note that both group members receive exactly the payoffs that they would have earned if they had taken identical decisions individually. This procedure keeps the per capita incentives constant across treatments.

Note that all bids from the computer were drawn randomly before the experiment, and all participants in all treatments were presented with the same sequence of bids across all 15 rounds.

The experiment was run at the Max Planck Institute of Economics in Jena, with a total of 61 women and 49 men as participants. They were all students at the University of Jena, and none of them was allowed to participate in more than one treatment. We had 29 participants each in treatments **Ind10** and **Ind60**, and 26 groups in treatment **Group60**. The experimental instructions were distributed among participants and read out aloud. Before the start of the experiment participants were required to answer control questions to verify that they understood the task. The conversion rate was 100 units for 4 Euro. The average payment per person (including a show-up fee of 2.50 Euro) was 18.5 Euro, and the average duration was 45 minutes.

3. Results

3.1. The influence of time pressure (Ind10) and group decision making (Group60)

Table 1 summarizes the main results in the three different treatments. As becomes clear from the first row, the number of bids per round before stopping the search process does not differ across treatments, if we consider the total aggregate over all 15 rounds. Compared with the optimal strategy, searching stops too early (Wilcoxon signed ranks

[3] Subjects were informed that they would not receive any payment for a given round if they failed to make a decision on stopping or continuing the search within the respective time limit of 10 seconds in **Ind10**, respectively 60 seconds in **Ind60**. It never happened, though, that the time limit was exceeded before a subject had made a decision.

test; $p < 0.01$ in any treatment[4]). However, efficiency is high in all treatments, where efficiency is defined as the actual earnings divided by the earnings that would accrue if stopping was optimal.

Table 1 and Figure 1 about here

Figure 1 shows some treatment differences with respect to the stopping point in the early rounds, though. In fact, in each of the first two rounds the number of bids before stopping is significantly smaller in **Ind10** than in any of the other treatments (Mann-Whitney U-test; $p < 0.06$ in each case). After round 2 there are no longer any significant differences in the number of bids asked for. Hence, it seems that the time restriction in **Ind10** has only short-term effects.

In the middle of Table 1 we classify the number of bids asked for as “optimal”, “too small”, or “too large” according to the theoretical benchmark. Overall, there are no significant differences in the distribution across treatments (χ^2-test, $p > 0.1$).[5] Across all rounds and treatments, about 70% of searches stop optimally, about 20% too early, and about 10% too late. The penultimate row of Table 1 indicates the percentage of recall, i.e. of cases where the search process is stopped when the current bid is not the highest standing bid. It turns out that recall is significantly less frequent with a tighter time restriction than without it (**Ind10** vs. **Ind60**; χ^2-test, $p < 0.05$). Additionally our results show that recall is less frequent in the case of group decision making than if individuals decide (**Ind60** vs. **Group60**; (χ^2-test, $p < 0.1$).

The bottom row of Table 1 indicates that the average decision time per bid is very short in all treatments, and shorter than 10 seconds in each of them. This might be one reason why the tighter time restriction in **Ind10** does not seem to affect searching behavior more persistently (except for the very first rounds), since 10 seconds might not have been perceived as a very tight constraint at all. Nevertheless, it is interesting to note from Figure 2 that the decision time in **Ind10** is clearly the shortest, whereas the one in **Group60** is the longest (Kruskal-Wallis-test; $p < 0.01$).

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[4] All non-parametric tests used in this section are two-sided tests.

[5] There is only a significant difference in the relative share of late responses, which is significantly larger in **Ind60** than in **Ind10** (χ^2-test, $p < 0.05$). Hence, the more stringent time limit in **Ind10** makes suboptimally long searching less likely.

Table 2 and Figure 2 about here

A closer look at the time for making a decision reveals some interesting details, as can be seen from Table 2. There is a non-monotonic pattern of decision time and the value of the current bid. For very low and very high bid values the decision time is typically shortest, since with these values the decision is pretty straightforward (reject small bids, accept high bids). Decision time is longest around the optimal value of 80, where it is obviously most demanding to make a decision on stopping or continuing the search.[6] It can also be seen from a comparison of panels "Continue" and "Stop searching" that it takes more time to accept low bids (i.e. stop searching with bidesbelow 76) than reject them (i.e. continue searching), whereas it takes less time to accept high bids (those above 75) than to reject them (Wilcoxon signed ranks tests; $p < 0.01$ in all cases and treatments).

It is also interesting to note that it takes more time to stop the search (by accepting the current highest standing bid) than to continue it by rejecting the current bid (Wilcoxon signed ranks tests, $p < 0.01$ in each treatment). Furthermore, it takes more time to reject a high bid (86-100) than to reject a low bid (0-75), and it takes more time to accept an intermediate bid (76-85) than a high bid (86-100) (Wilcoxon signed ranks tests, $p < 0.01$ in all cases and treatments).

Table 3 about here

Table 3 presents the estimated elasticities from a random effects panel probit model on the likelihood to stop searching with a particular bid. The elasticities are evaluated at the average values of the independent variables, except that for dummy variables we indicate the effect when the dummy has value one. The values for the constant and correlation coefficient rho correspond to the estimated coefficients. We find that the rho coefficient is significant which supports the use of a random effects probit model. As expected the likelihood to stop searching with a particular bid increases significantly with the value of the bid. Controlling for the value of the bid we also find that the total number of bids received within a round has a positive effect on stop searching. The

[6] This latter result is reminiscent of the findings in Rubinstein (2007). He has shown that decisions that require more cognitive effort take more time.

negative and significant effect of the number of rounds played so far suggests that through the experiment subjects update their acceptance threshold level upwards. Hence, they learn to wait for better bids. No significant effects are found in treatment **Ind10** with tighter time restrictions or in treatment **Group60** with groups of two subjects making decisions.

We summarize the findings in this subsection as follows:

Result 1: Time pressure leads to less searching when subjects are inexperienced with the task. This effect vanishes quickly with more experience, although subjects with a tighter time restrictions make decisions quicker throughout the whole experiment. The search behavior of groups is largely similar to the one of individuals, except that groups recall less often than individuals.

3.2. The influence of gender

Table 4 decomposes the data for men and women. Concerning the number of bids per round we note that women search longer than men in all treatments. The difference is significant in **Ind60** (Mann-Whitney-U-test; $p < 0.1$) and **Group60** ($p < 0.01$), where in the latter treatment we compare groups with two women to groups with two men. Figures 3 and 4 display the gender differences for single rounds by subtracting the average number of bids of men (respectively of pure male groups) from those of women (respectively of pure female or mixed groups). It is interesting to note from Figure 4 that groups with two women search longer than groups with two men, but that there is no noteworthy difference between mixed groups and pure male groups.

Table 4, Figure 3 and Figure 4 about here

Despite the differences in the number of bids asked for, there are no gender differences with respect to efficiency (see Table 4), because searching longer may yield better bids, but these potential gains are on average offset by the higher searching costs. There is a strong gender difference concerning the actual stopping point in relation to the optimal one, though. Women are significantly more often searching for too long (χ^2-test; $p < 0.05$ in any treatment), and their relative frequency of stopping too late is 6 to 18 percentage points higher than the one for men. It is also important to note from Table

4 that women recall significantly more often than men (χ^2-test; $p < 0.05$ in any treatment, including mixed groups vs. groups with two men). The bottom row of Table 4 indicates that men and women have practically the same decision time under the more stringent time restriction of 10 seconds (in **Ind10**). Yet, in the other treatments there is a difference between men and women, albeit in opposite directions. As individuals, women decide quicker than men (Mann-Whitney-U-test; $p < 0.1$). But groups of two women become slower than men ($p < 0.01$). Mixed groups are as quick as pure male groups, implying again that mixed groups have similar characteristics as groups with two men. This similarity seems to indicate that men have relatively more influence in mixed groups than women.

Table 5 about here

Table 5 presents a panel probit model with random effects where we estimate the influence of gender on the likelihood to stop searching with a particular bid. On the left-hand side of Table 5 we present the estimations for the individual treatments (**Ind10** and **Ind60**), controlling for the treatment. Like in Table 3, we find positive effects of the value of the current bid and the total number of bids received so far, and a negative effect of the number of rounds played. Gender turns out to be highly significant, meaning that women stop searching later than men. The right-hand side of Table 5 presents a model for the group-treatment (**Group60**), where groups with two men serve as the benchmark. We see that mixed groups do not differ significantly from pure male groups, whereas groups with two women search (weakly) significantly longer than male groups.

We summarize the findings in this subsection as follows:

Result 2: Women search significantly longer than men, and they search more often for too long. This result holds for individual as well as for group decision making, except when women are paired with a man in a group.

4. Conclusion

We have found that subjects typically stop searching earlier than would be optimal, which is largely in line with most previous research on search behavior (see

Sonnemanns, 1998, or Einav, 2005, for example). This finding holds both for individuals as well as groups. The latter is a novel contribution. It is interesting to note, though, that we have not found any differences between individuals and groups in the aggregate. Whereas remarkable differences between groups and individuals have been shown in many other tasks – like in dictator games (Luhan et al., forthcoming), trust games (Cox, 2002; Kugler et al., 2007), centipede games (Bornstein et al., 2004), signaling games (Cooper and Kagel, 2005), guessing games (Kocher and Sutter, 2005) or in non-strategic decision-making under risk (Charness et al., 2007) – groups are obviously neither more efficient nor closer to theoretically optimal behavior in our search task. One intuitive explanation for this finding is the fact that individual search behavior is already very efficient, leaving practically no room for an improvement through group decision making. It is, however, also noteworthy that the need to coordinate actions and making compromises in group decision making has not led to a deterioration of the quality of search behavior. Rather to the contrary, groups recall less often than individuals, indicating more rational behavior in this particular aspect.

Setting a tighter time limit for making decisions has been found to influence search behavior in initial rounds, i.e. when subjects are still inexperienced. This impact of time pressure in the early phase of the experiment is an important finding since it indicates that searching may be particularly suboptimal when subjects face a situation for the first time (think of an employee who suddenly looses his job and urgently needs to find a new source of income, which might induce him to accept the first opportunity of a new occupation, even if it is not an optimal one). The effects of tighter time restrictions on search behavior vanish quickly as subjects gain experience with the task, though. More experience leads in general also to quicker decisions. However, getting quicker does not backfire in the form of worse decisions, as efficiency stays practically constant across all rounds. Hence, there is no speed-accuracy tradeoff (Maule et al., 2000) in our search task.

The most important finding of our experiment concerns the marked and persistent differences in the search behavior of men and women. Women search for too long significantly more often than men do, and they recall more often (i.e. stop searching at a current bid below the highest standing one). This finding holds both for individual decision making as well as group decision making, as long as there are only women in groups. In terms of efficiency, the longer searching of women and the more frequent recalls do not put women at a significant disadvantage, though, because women and men are almost equally efficient when comparing their earnings with those in case the optimal search duration had been chosen. The lack of a gender difference in efficiency is also driven by men searching for too short.

It is also interesting to note that the search behavior of groups depends crucially on the presence or absence of a man. There are no differences in search behavior between groups with one man or two men. But it makes a large difference whether groups have only female members or a woman is paired with a man. These findings call attention to the importance of the gender composition of groups for the behavior of groups. Recently this aspect has received some attention in economics. For example, Dufwenberg and Muren (2006) have shown in a dictator game that groups with more women are more generous in giving. Our results suggest that group composition is also important in other tasks, such as searching. Since search tasks – such as when committees have to decide on how to fill vacancies – are of obvious importance for organizations, it seems a worthwhile endeavor for future research to further explore the influence of gender composition on group decisions, for example by measuring more rigorously the relative influence of men and women on decisions in groups.

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Tables and Figures

Table 1. Average data

Treatment	**Ind10**	**Ind60**	**Group60**
Number of bids per round[#]	4.03	4.15	4.03
Efficiency (in percent)*	97	97	99
Percentage of number of bids that is …			
Optimal	70	67	69
Too small (early stopping)	23	22	22
Too large (late stopping)	7	11	9
Percentage of recall	8	12	9
Decision time per bid (in seconds)	1.19	2.91	4.42

[#] The optimal number of bids per round is 5.00 on average.

* Efficiency is defined as the ratio of actual earnings and earnings when stopping is optimal.

Table 2. Average time for decision and value of current bid

	Continue search (reject bid)				**Stop search (accept bid)**			
Value of current bid	≤65	66-75	76-85	>85	≤65	66-75	76-85	>85
Ind10	0.50	1.39	2.47	2.10	2.61	2.23	1.75	1.03
Ind60	1.47	3.14	5.03	5.27	3.37	6.64	4.92	2.04
Group60	2.64	5.25	10.59	9.00	5.30	7.67	5.51	3.72
Overall	1.51	3.25	6.08	5.57	3.74	5.12	3.99	2.33

Table 3. Determinants for stopping search (random effects panel probit regression)

Variable	Elasticity	Std. Error	*p*-value
Value of current bid	4.207	0.183	0.000
Number of bids received in round	0.465	0.069	0.000
Round	-0.790	0.110	0.000
Ind10-dummy	0.019	0.061	0.754
Group60-dummy	0.009	0.056	0.869
Constant+	-3.509	0.127	
Rho+	0.079	0.019	

+ Estimated coefficients
N = 84
5116 observations

Table 4. The influence of gender

Treatment	Ind10		Ind60		Group60*		
	Women	Men	Women	Men	Two Women	Mixed Groups	Two Men
Number of bids per round	4.2	3.7	4.3	3.8	4.9	3.9	3.8
Efficiency (in percent)	96	98	97	99	98	0.99	100
Percentage of number of bids that is …							
Optimal	68	73	63	73	65	67	74
Too small (early stopping)	23	24	22	22	13	23	23
Too large (late stopping)	9	3	15	5	21	9	3
Percentage of recall	10	3	16	6	22	8	3
Decision time per bid (in sec)	1.15	1.20	2.16	4.12	5.45	4.42	3.90

Table 5. Gender and stopping search (random effects panel probit regression)

	Individuals			Groups		
Variable	**Elasticity**	**Std. Error**	**p-value**	**Elasticity**	**Std. Error**	**p-value**
Value of current bid	4.095	0.382	0.000	4.319	0.796	0.000
# bids in round	0.269	0.116	0.020	0.406	0.104	0.000
Round	-0.710	0.155	0.000	-0.716	0.165	0.000
Ind10-dummy	0.061	0.092	0.508			
Female	-0.259	0.106	0.014			
Mixed group				-0.051	0.140	0.713
Two females				-0.107	0.062	0.084
Constant+	-3.253	0.189		-3.475	0.355	

+ Estimated coefficients

N = 58 Individuals
3544 observations

N = 26 groups
1572 observations

Figure 1. Average number of bids before search is stopped

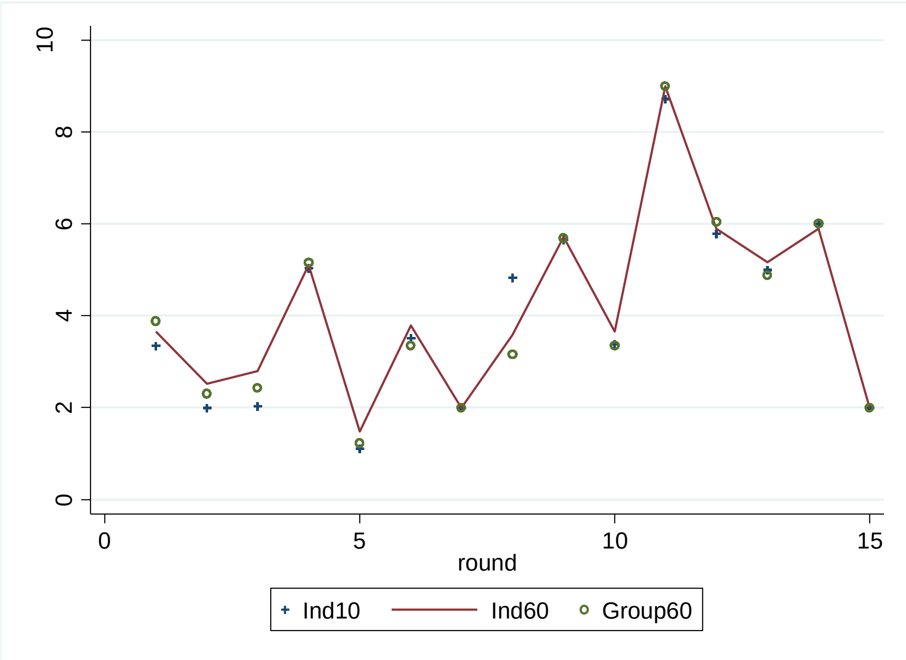


Figure 2. Average time to decide on continue/stop searching

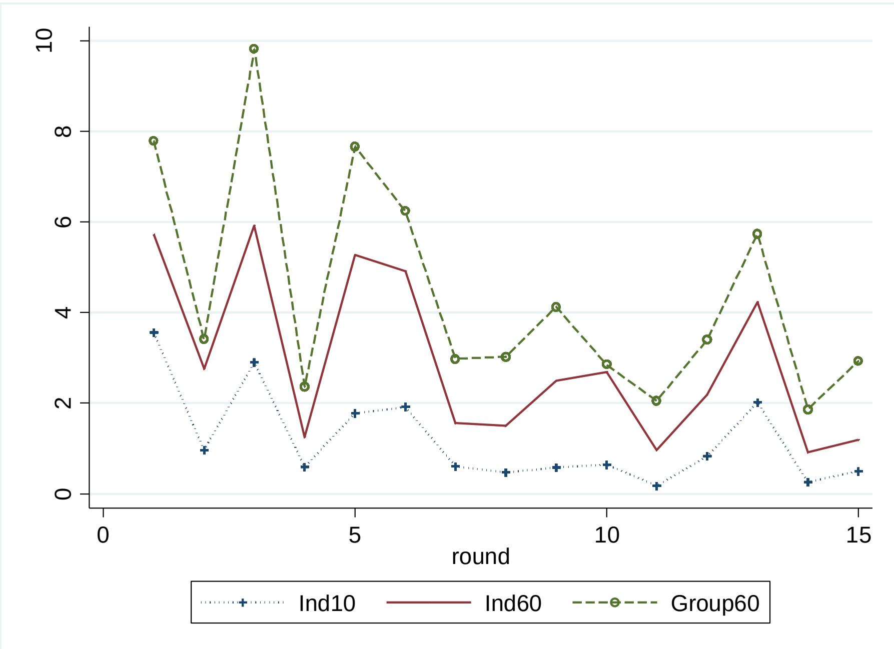


Figure 3. Gender difference in the number of bids in individual treatments

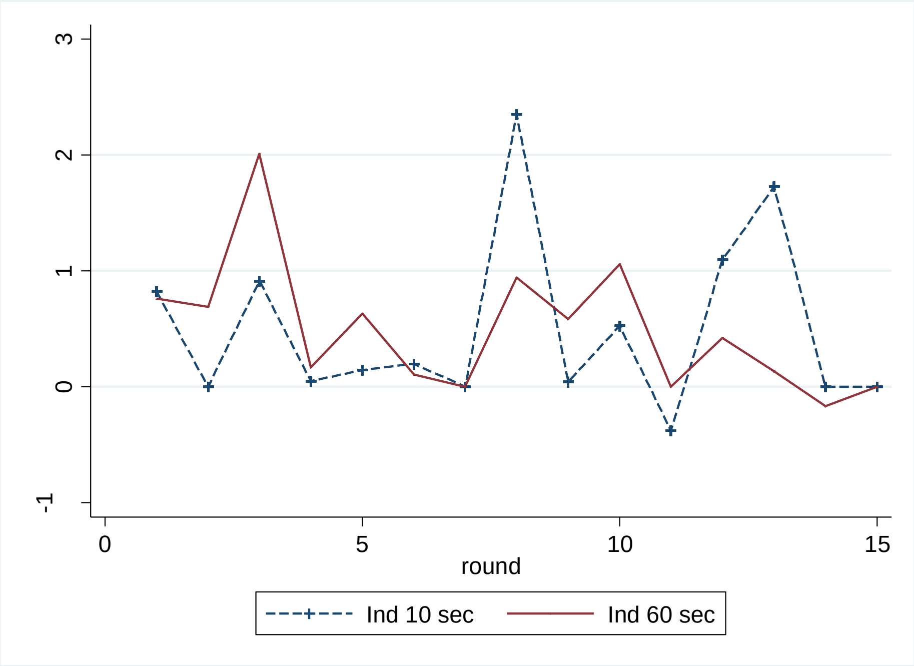
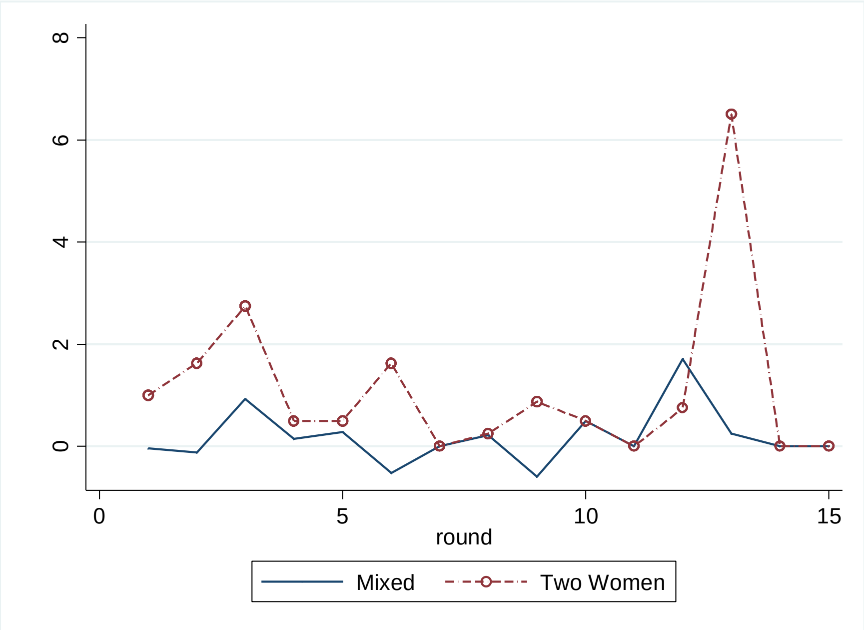


Figure 4. Gender composition of groups and number of bids



Appendix: Experimental instructions

The following instructions are those for treatment **Ind60**, except that modifications for treatment **Ind10** are included within brackets (in italic font) and those for treatment **Group60** are underlined.

You are participating in an experiment investigating economic decision behavior. <u>All decisions need to be taken in pairs (this means there are two persons in each cabin).</u>
This experiment is consisting of **15 equal rounds**. In each round you have the possibility to sell a fictitious good to the computer. For that purpose the computer is successively submitting bids to you. At every point of time you have the chance to sell the fictitious good for the highest bid the computer has submitted to you so far.
In connection with the bids of the computer and your profits you need to take care in particular about the following points:

1) In every round you need to pay **fixed costs** of **50 monetary units** (you can consider these costs as production costs of the fictitious good). Additionally each additional bid you request from the computer costs you another 2 monetary units. This means, in sum you face costs of 50 monetary units + (number of requested bids)* 2 monetary units.
2) Your **profit** in a certain round results from the **difference** of the **computers highest bid** at the point of time you sell the good and the **costs** you face in this certain round. <u>Please take care that this profit is accrues to each person in the cabin.</u>
3) All **bids** submitted by the computer are **integers from 1 to 100** monetary units. Each integer is drawn with equal probability, and each draw is independent of previous draws.

When you receive a new bid from the computer you have **60 *(10)* seconds** to decide <u>in your pair</u> if you want to request a new bid or stop the process. That means you can either click onto the button **"next bid please"** or the button **"stop".** In the upper right corner of the screen you see the remaining time to make a decision.

- When you click onto the button **"stop"** your profit is calculated as mentioned above. An example can be found below.
- When you click onto the button **"next bid please"** you receive a new bid from the computer, which costs you 2 monetary units each. There is a **maximum of 25 bids** the computer will submit in each round.
- If you are **not taking a decision** within 60 *(10)* seconds, you do not receive any payment in that particular round.

On your screen, you are informed at any time of a given round about the following items.

- current bid
- number of bids so far (including the current bid)
- highest bid so far (including the current bid)
- costs so far (= 2* number of bids)
- your profit in case click "stop" in the current round (= highest bid – 50 – costs for bids)

An example
Let's assume you have received the following bids from the computer so far:
43 12 78 63
In this case you can see on your screen:

- current bid 63

-	number of bids so far (including the current bid)	4
-	highest bid so far (including the current bid)	78
-	costs so far (= 2* number of bids)	8
	your profit <u>(for each person)</u> in the case that you click “stop”	20 (=78-50-8)

Note that in principle it is possible for you to make a loss in a given round. This happens if you would click “stop” when the highest bid is smaller than the total costs of searching (including fixed costs of 50 plus variable costs depending on the number of bids). Of course, such a loss can be regained in later rounds.

The whole profit over all 15 rounds will be paid to you privately directly after the experiment. The following exchange rate will be used:

1 monetary unit = 4 eurocent

Before starting with the experiment we ask you to answer the following three questions. With this procedure we want to make sure that you correctly and completely understand the instructions. If you have any questions, please raise your hand and the supervisor of the experiment will assist you.

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Control questions

Question 1
In case the last 4 bids of the computers were smaller than 50, what is the probability that the next bid will be higher than 50?

a) smaller than 50%
b) exactly 50%
c) higher than 50%

Question 2
Let’s assume the computer made the following bids so far:
23 42 3 74 50
What would be your profit if you clicked “stop” at that moment?

Question 3
Let’s assume you have received the following bids from the computer so far:
23 32 13 64 50 60
What would be your profit if you did not make a decision within 60 *(10)* seconds, meaning that you did not click any button?