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The effect of intergroup competition on group coordination: an experimental study ☆

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Abstract

We studied the effect of intergroup competition on behavior in the minimal-effort game (Van Huyck et al. 1990. Amer. Econ. Rev. 80, 234–248). The group with the higher minimum won the competition and its members were paid according to the game's payoff matrix. The members of the losing group were paid nothing. We found that intergroup competition improved collective efficiency as compared with single-group control treatments where each group played an independent coordination game (either with or without information about the minimum chosen by the outgroup). We then studied another intergroup competition treatment in which the members of *both* groups were paid according to the original payoff matrix, and, in addition, each member of the winning group was paid an extra flat bonus. We found that this milder type of intergroup competition also led to better group coordination than in the single-group case.

JEL classification: C70; C92

Keywords: Tacit coordination games; Strategic uncertainty; Coordination failure

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1. Introduction

It is a well-documented fact that groups often fail to coordinate on the socially optimal outcomes (Ochs, 1995). An experiment by Van Huyck et al. (1990) provides one of the clearest examples of such a coordination failure. Van Huyck et al. studied the minimal-effort game—a pure-coordination game with multiple equilibria that are Pareto-ranked. The game is played by a group of 14 to 16 players, each of whom simultaneously chooses an integer from 1 to 7. The payoff to a player depends on that player's choice as well as the minimal number chosen by any of the other players in the group (including the player herself). The payoff parameters are chosen so that all the players have a common interest in a high minimum, but there is a penalty for choosing a number higher than the group's minimum. The game has seven strict equilibria, at each of which every player chooses the same integer. However, the equilibrium at which all the players choose 7 results in the highest possible payoff to every player, while the equilibrium at which all the players choose 1 gives each player the lowest payoff. Van Huyck et al. (1990) found that, when the game is played repeatedly, with the outcome made public after each round, choices quickly converged to 1. The payoff matrix of the minimal-effort game (as also used in the present study) is shown in Table 1 below.

The results reported in Van Huyck et al. (1990) have been replicated many times by now (see Ochs, 1995, for a survey). Similar results were reported by Cooper et al. (1990), who studied two-person games and showed that, although the equilibria in these games are Pareto-ranked, i.e., both players do better on one of the equilibria than the other, subjects often coordinated on the less desirable equilibrium. Keser et al. (1998) examined a symmetric three-player coordination game in which there is one pure strategy equilibrium that is payoff-dominant and another that is risk-dominant. When subjects were positioned in a circle, and each player interacted with her neighbor on the right, subjects converged on the risk-dominant equilibrium. In another treatment in which players repeated the game

Table 1
The payoff table

	Smallest number chosen by the participants in your group						
Your decision	7	6	5	4	3	2	1
7	130	110	90	70	50	30	10
6	–	120	100	80	60	40	20
5	–	–	110	90	70	50	30
4	–	–	–	100	80	60	40
3	–	–	–	–	90	70	50
2	–	–	–	–	–	80	60
1	–	–	–	–	–	–	70

with the same counterparts, they learned to coordinate on the payoff-dominant equilibrium.

The research on group coordination cited above was restricted to single-group settings. However, in many real-life situations a group's payoffs are contingent on its performance *relative* to that of other groups, rather than its absolute level of performance. This is the case in competition between different organizations (e.g., firms) as well as between subgroups within the same organization (e.g., independent profit centers, R&D teams). Keeping other things equal (e.g., the groups' size, skill level, and other relevant resources), the group that wins the competition is the one whose members are better coordinated with one another than the members of the competing groups. The purpose of the present study was to see whether competition between groups improves coordination within the group.

To incorporate intergroup competition, we modified the Van Huyck et al. (1990) game in the following way. The game involved two groups, A and B, with n players in each group. Each player in each group independently chose an integer $e_{i\in A(B)}$ from 1 to 7. If the minimum chosen in team A, $\min_A = \min\{e_{i\in A}\}$, was larger than the one chosen in team B, $\min_B = \min\{e_{i\in B}\}$, team A won the competition and each of its members was paid according to the original payoff matrix. Members of team B were paid nothing. In case of a tie, $\min_A = \min_B$, each player in both teams was paid half the payoff in the original matrix.

The competition between the groups does not change the set of strict equilibria within each group. As in the original, single-group game, the best response in the intergroup game is for each player in each team to match the minimal number chosen in *her* team. Thus, the intergroup game, like the single-group game, has seven strict equilibria, with the equilibrium at which all team members choose 7 being the most efficient and the equilibrium at which all players choose 1 being the least efficient.[1] However, intergroup competition may change the equilibrium on which players coordinate. As demonstrated by Schelling (1960), players are often able to coordinate by focusing on aspects of the environment that are ignored by economic models. We surmise that winning (or not losing) the competition against the outgroup might constitute such a focal point. This conjecture is consistent with Bornstein and Ben-Yossef (1994) and Schopler and Insko (1992), which shows that interaction between groups is highly competitive—much more so than interaction between individuals under the same structural conditions. However, since none of those experiments dealt with a pure-coordination problem, substantiating this hypothesis remains an empirical matter. As pointed out by several researchers (e.g., Schelling, 1960; Lucas, 1986; and

[1] In addition, there is a large number of weak equilibria where non-critical players in the losing team can change their strategies without affecting the outcome. This issue is dealt with both theoretically and experimentally later in the paper.

Ochs, 1995), one cannot know what makes an equilibrium focal without studying how individuals actually behave.

2. Experimental design and procedure

2.1. Design

To study the effect of intergroup competition on behavior in the minimal-effort game, we compared the intergroup game described above with the standard, single-group game. Since coordination is a rather subtle issue, in the sense that a wide variety of theoretically irrelevant cues could make an outcome prominent, we were particularly careful in designing this comparison.[2] First, intergroup competition necessarily involves the copresence of two distinctly labeled groups. Therefore, to exclude the possibility that the mere categorization of subjects into groups (Tajfel, 1982), rather than the actual competition between the groups, is responsible for any potential effects, we included two groups in the control condition as well. But rather than competing against each other, each group in the control treatment was engaged in a separate (independent) game. Second, following each period of play, subjects in the intergroup competition treatment were informed about the minimal-effort chosen in both groups. Therefore, to ensure that this information per se was not affecting their behavior, we included in our design a second control treatment where, in addition to the minimum chosen in their own group, the players were informed about the minimum chosen in the other group.

2.2. Subjects

The participants were 210 undergraduate students at the University of Pompeu Fabra with no previous experience with the task. Subjects were recruited by campus advertisements offering monetary reward for participating in a decision task. Subjects participated in the experiment in cohorts of 14.

2.3. Procedure

Upon arrival each participant received 500 pesetas for showing up and each was seated in a separate cubicle facing a personal computer. The subjects were given written instructions concerning the rules and payoffs of the game (see Appendix A) and were asked to follow the instructions as the experimenter read

[2] As pointed out by Roth (1995), "...details of how [coordination] experiments are conducted may be of considerable importance, even if they concern features of the environment not addressed by existing theories" (p. 12).

them aloud. Then subjects were given a quiz to test their understanding. Their answers were checked by the experimenters and explanations were repeated when necessary.

At the beginning of the experiment, the 14 subjects were randomly divided into two equal-sized groups. Subjects played 10 rounds of the game. The number of rounds to be played was made known in advance. In each round each subject had to choose an integer from 1 to 7. Following the completion of the round, each subject received feedback concerning: (a) the lowest number chosen by the members of her group in that round; (b) her earnings (in pesetas) in that round; and (c) her cumulative earnings. In two of the treatments (as detailed below), subjects also received feedback concerning the lowest number chosen in the outgroup. Each session lasted about 30 min with an average payment of 1109 pesetas (approximately US $9) per subject (including the fixed show-up fee of 500 pesetas). Subjects were paid in private. Each 14-person cohort took part in one of the three following treatments.

2.3.1. Intergroup competition (IC)

The group with the higher minimum won the competition and each of its members was paid according to the original payoff matrix. Members of the losing team were paid nothing. In case of a tie, each player in both groups was paid half the payoff in the original matrix (see Appendix A). Following each round, the participants were informed about the minimum chosen in *both* groups. Six 14-person cohorts participated in this treatment.

2.3.2. No competition (NC)

In this control treatment the payoff for each player was determined by her own choice and the minimum chosen in her group (see Appendix A). There was no interdependence between the two groups. The participants were informed only about the minimum number chosen in their own group. Three 14-person cohorts participated in this treatment.

2.3.3. No competition with information (NCI)

This control treatment is identical to the NC above (that is, each of the two groups played an independent game) with one exception—following each round subjects were informed about the minimum of the outgroup in addition to that of their own group (as was the case in IC experimental treatment). Six 14-person cohorts participated in this treatment.

3. Results

3.1. *Overall effort levels*

First we compared the three treatments with regard to the mean effort level per period averaged across the 10 periods of the game. The mean effort level was 5.3 in the IC treatment, 3.6 in the NC treatment, and 3.5 in the NCI treatments. The difference between the IC and the NC treatment is statistically significant by a Wilcoxon rank test[3] ($z = 2.248$, $p < 0.0246$), and so is the difference between the IC and NCI treatment ($z = 2.830$, $p < 0.0047$). The difference between the NC and NCI control treatments is not significant.

3.2. *Convergence*

Subjects' initial decisions were unaffected by treatment. The mean effort level in Period 1 was 5.7, 5.6, and 5.5 in treatments IC, NC, and NCI, respectively. These means are not significantly different from one another.

Before long, however, subjects in the NC and NCI control treatments began reducing their effort level as compared with those in the IC experimental treatment, whose effort level remained, on average, quite stable throughout the 10-period game. Figure 1 displays the mean choice per period in each of the three treatments. The difference between the IC treatment and the two control treatments is already visible in Period 3.[4] From Period 4 onward, the mean effort

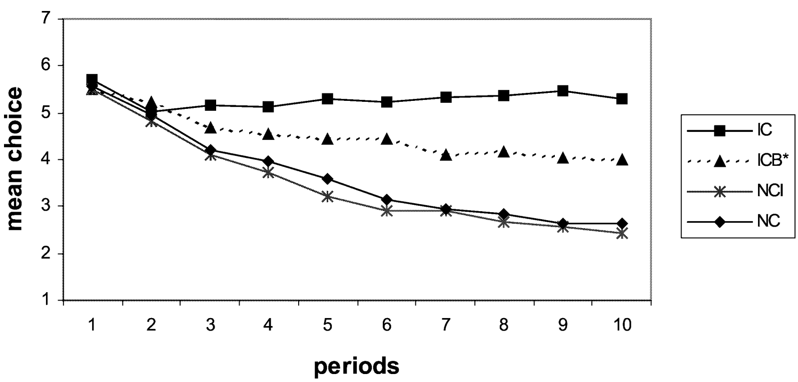

Fig. 1. Average mean choice over time for each treatment separately. (The ICB treatment is discussed in the next section.)

[3] All reported tests are one-tailed.

[4] The mean effort in the third period was 5.1 in the IC treatment, as compared with 4.2 and 4.1 in treatments NC and NCI, respectively.

level in the IC treatment is significantly higher than that in the NC treatment ($z = 2.256$, $p < 0.0241$), and from Period 5 onward, it is also significantly higher than that in the NCI treatment ($z = 2.831$, $p < 0.0046$). The difference between the NC and NCI control treatments remains insignificant throughout the entire game.[5]

The difference between the intergroup competition treatment and the two control treatments became even more pronounced as the game progressed. In the tenth and last period, the mean effort level in the IC treatment was 5.3, which is more than twice as high as the mean effort levels of 2.6 and 2.4 in the NC and NCI treatments, respectively. The difference between the mean choice in the IC treatment and the NC and NCI treatments is statistically significant ($z = 2.817$, $p < 0.005$, and $z = 3.297$, $p < 0.001$, respectively). The difference between the two control treatments is not.

The distribution of individual choices showed that in the first period approximately half of the subjects chose the highest effort level of 7, while the others chose a lower level, with a modal choice of 4 or 5. In the second period, a sharp drop in the number of players choosing 7 occurred in all treatments. In the IC treatment subjects were able to recover from that drop, and the distribution of choices in the final period is similar to that in the initial period. In the other two treatments, however, there was an almost monotonic decease in the number of subjects choosing 7, accompanied by a monotonic increase in the number of subjects choosing 1.

3.3. *Minimum effort levels*

Next we compared the *minimum* effort levels in the three treatments. The average minimum choice per period in each treatment appears in Fig 2. As can be seen in this figure, the minimal-effort levels in the first four periods are very similar across the three treatments.[6] From Period 5 onward, however, there was an increase in the average minimum in the IC treatment, as compared with a slight decrease in the minimum choice in the other two treatments. The mean minimums in Period 5 are 3.5, 2.2, and 2.3 in treatments IC, NC, and NCI, respectively. The differences between the IC experimental treatment and the NC and NCI control treatments are statistically significant ($z = -1.93$, $p < 0.02$; $z = -1.55$, $p < 0.06$, respectively). The mean minimum in the last period was 4.1 in treatment IC as compared with 2.2 and 2.25 in treatments NC and NCI, respectively. The differences between the IC treatment and the NC and NCI

[5] To avoid violating the independence assumption, this statistical test, as well as all other tests (apart from those pertaining to the first period), treated each (14-person) cohort in treatments IC and NCI and each (7-person) team in treatment NC, as a single observation.

[6] The minimal-effort levels in the first period were 3.2, 3.0, and 2.8 in treatments IC, NC, and NCI, respectively. These means are not statistically different from one another.

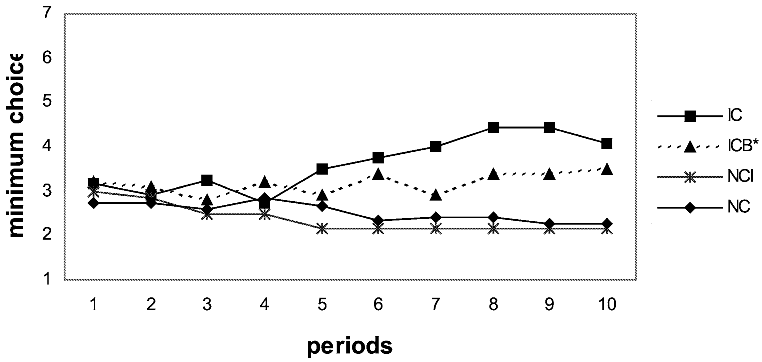

Fig. 2. Average minimum choice over time for each treatment separately. (The ICB treatment is discussed in the next section.)

Table 2
Changes of minimum (underlined numbers indicate highest frequency of change within specific case)

Min ingroup >, =, < Min outgroup	Change of min from previous period	IC	NCI	NC
>	Decrease	0.23	0.10	
>	Unchanged	0.54	0.88	n.a.
>	Increase	<u>0.23</u>	0.02	
=	Decrease	0.20	0.15	
=	Unchanged	0.53	0.85	n.a.
=	Increase	<u>0.27</u>	0.00	
<	Decrease	0.23	0.15	
<	Unchanged	0.26	0.66	n.a.
<	Increase	<u>0.51</u>	0.20	
Overall	Decrease	0.22	0.13	0.15
Overall	Unchanged	0.44	0.78	0.79
Overall	Increase	<u>0.34</u>	0.08	0.06

treatments are statistically significant ($z = -0.203$, $p < 0.02$, and $z = -1.85$, $p < 0.03$, respectively). The difference between the two control treatment is not significant.

Table 2 displays the proportion of rounds in which the group minimum decreased, increased, or remained the same as a function of whether the group won, tied, or lost the competition in the previous period. As can be seen in the table, the rate of increase in the IC treatment was 0.23 when the group won the last round, 0.27 when the last round was tied, and 0.51 when the group lost the previous round. These increase rates are much higher than those in the NCI treatment, where, following a “win,” a “tie,” and a “loss,” the minimum increased in 0.02, 0.00, and 0.20, of the cases, respectively.[7]

The assumption that players used a fictitious-play strategy can perhaps explain why (1) the minimum was much more likely to increase in the IC treatment than in the NC and NCI treatments, and (2) the rate of increases in the IC treatment was much higher following a loss than following a tie or a win. In the NC and NCI control treatments, if a player assumes that the behavior of all other players remains constant, her optimal response in Period $t + 1$ is to select the team’s minimum in Period t. The same is true in treatment IC, if the ingroup won or tied the competition in the previous period. Following a loss in the IC treatment, however, a player can choose a higher effort level without decreasing her outcome. As was the case in Cachon and Camerer’s experiment (1996), there is only one direction in which behavior can be modified to (possibly) improve one’s payoffs.

4. An additional treatment: intergroup competition for a bonus

The results just described demonstrate that intergroup competition improves coordination in the minimum effort game by moving group members in the direction of the collectively rational equilibria. It also shows that for this to happen the competition must have payoff consequences. Merely providing the members of each group with information about the performance of the other group is not sufficient to generate this effect.

Intergroup competition was induced by only paying the members of the winning group. While we maintain that many real-life competitions are of this “winner-take-all” nature, modifying the minimum effort game in this way had an important effect on its structure.[8] The main problem faced by players in the standard minimum effort game (such as the one in treatments NC and NCI) is a tradeoff between efficiency and security. Whereas choosing 7 maximizes collective efficiency, choosing 1 maximizes individual security, as it guarantees a player a payoff of 70—more than can be guaranteed by any other strategy.

In contrast, in the intergroup game (such as the one in treatment IC) a player cannot guarantee a payoff of 70 by choosing 1, since in this case her group can do no better than tie the game, resulting in a payoff of 35. Therefore action 1 is no longer selected for security considerations. In fact, since there is no action that can ensure a player a payoff greater than zero, no equilibrium is selected by security.

[7] It is interesting to note that the group’s minimum in the NCI treatment increased by 20% following a lose in the previous round.

[8] For example, the literature on R&D races (e.g., Gilbert and Newberry, 1982; Fudenberg et al., 1983; and Amaldos et al., 2000) commonly assumes that the winner can secure monopoly profit through patent protection.

To separate the effect of intergroup competition from that of security considerations, we ran an additional treatment called *intergroup competition for a bonus* (*ICB*). In this treatment the members of both teams were paid according to the original game matrix *regardless* of the outcome of the competition and, in addition, the members of the winning group (i.e., the one with the higher minimum) were paid a (fixed) bonus (or half of it for a tie). This new treatment does not change the security considerations of the original minimal-effort game. In the ICB treatment, as in the single-group game, a player can secure a payoff of 70 by choosing 1.

4.1. Subjects and procedure

The participants were 70 undergraduate students at the University of Pompeu Fabra having no previous experience with the task. Subjects participated in the experiment in cohorts of 14. The procedure was identical to that described above for the IC treatment, except, of course, for the payoff scheme. In the ICB treatment, the members of both groups were paid according to the original payoff matrix. In addition, each member of the group with the higher minimum was paid an extra bonus of 100 pesetas. Members of the losing team received no bonus. In case of a tie, each player was paid half the bonus (i.e., 50 pesetas). The participants in this treatment earned on average 1676 pesetas per subject, including the fixed show-up fee of 500 pesetas (approximately US $13).

4.2. Results

4.2.1. Overall effort level

The mean effort level per period in the ICB treatment, averaged across the 10 periods of the game, was 4.5. This effort level is not significantly different by a Wilcoxon rank-test from that observed in the IC treatment ($z = -0.82$, $p < 0.206$). However, it is significantly higher than the effort level in the NCI treatment ($z = 1.55$, $p < 0.06$).[9]

4.2.2. Convergence

The mean effort level in Period 1 of the ICB treatment was 5.5, which is practically identical to that observed in the other treatments. In Period 10 the mean effort level was 4. This mean is not significantly different from that in the IC treatment ($z = -1.10$, $p < 0.138$). It is, however, significantly higher than the last period mean in the NCI treatment ($z = 1.55$, $p < 0.06$).

[9] Since the NC and NCI control treatments in the original experiment were practically identical, we discuss only the tests comparing the ICB treatment with the NCI treatment. The ICB and the NCI treatments not only have similar security considerations but also similar information available to the players.

4.2.3. Minimum effort levels

Next we examined the *minimum* effort level in the ICB treatment. In the first period, the average minimum choice was 3.2, which is almost identical to the first period minima in the other treatments. In the 10th and last period, the mean minimum in treatment ICB was 3.5. This mean is not statistically different from the minimum observed in the IC ($z = -0.55$, $p <$ not significant) and, although it is somewhat higher than the mean minimum observed in treatment NCI, this difference does not reach acceptable levels of statistical significance ($z = 1.10$, $p < 0.138$). The mean effort levels and the minimal-effort levels in the ICB treatment appear in Figs. 1 and 2, respectively.

4.2.4. Learning

Finally, we looked at the number of times the group's minimum in treatment ICB decreased, increased, or remained the same as a function of whether the group had won, tied, or lost the competition in the previous period. Following a win or a tie, the minimum remained the same in 81% of the cases, decreased in about 12% of the cases, and increased in the remaining 7% of the cases. This pattern of changes is similar to that observed in the NCI control treatment. Following a loss, however, the minimum in the ICB treatment increased in 41% of the cases (it decreased in 15% and remained unchanged in 44% of the rounds). This rate of increase, while somewhat lower than that in the IC treatment (i.e., 51%), is twice as high as that in the NCI treatment (i.e., 20%). It seems that, following a win or a tie, subjects in the ICB treatment acted similarly to those in the NCI control treatment. Following a loss, however, their behavior was similar to those in the IC experimental treatment.

5. Conclusions

This paper studied the effect of intergroup competition on group coordination. First, we examined a case in which the winning group, the one which coordinates better, gets the entire "pie." We found that group coordination in this case is much better than that observed in the single-group control treatments. Then, we studied a milder type of intergroup competition in which the members of both groups benefit from better internal coordination, but the members of the better coordinated group benefit more, as they receive a bonus. This second treatment enabled us to study the effect of intergroup competition while keeping the security considerations of the original, single-group game intact. Our results show that, although coordination in this case is somewhat less efficient than that in the winner take all game, it is still significantly better than in the no-competition control condition.

The present experiment demonstrates that intergroup competition improves coordination in groups of seven. A seven-person group is somewhere between a small group (in which coordination sometimes succeeds) and a large group (in which coordination typically fails). Increasing group size obstructs coordination by making the security consideration more attractive.[10] Therefore, the size of the group is more likely to be a factor in the ICB treatment than in the IC treatment, since the structure of the IC game renders security considerations less crucial. Of course, this is an empirical issue that will have to await further research.

The existing literature covers a limited set of means for improving group coordination. These include imposing participation costs such that coordinating on some equilibria results in losing money (Van Huyck et al., 1993; and Cachon and Camerer, 1996), allowing one-sided (but not two-sided) communication (Cooper et al., 1989), repeating the game for a large number of periods (Berninghaus and Ehrhart, 1998), and introducing a group leader into small groups (Weber et al., 2000). The mechanism studied here, namely, competition with another group, appears to be considerably more useful, as it can be implemented regardless of participation cost, communication pattern, and interaction length.

5.1. Implications

Actual group performance typically falls short of its potential performance, as estimated from the capabilities of the individual group members (Steiner, 1972). This phenomenon was first documented by Ringelmann (1913), who had students pull on a rope either alone or in groups, and discovered that groups exerted less force than could have been expected from their combined individual efforts. This drop in group production was later confirmed in numerous experiments using a wide variety of tasks (e.g., Latane et al., 1979; Kerr and Bruun, 1981; and Harkins and Petty, 1982). Group production loss is attributed to two basic phenomena: Free riding (e.g., when they are being evaluated and rewarded as a group, individual group members do not pull as hard as they can; Ingham et al., 1974) and coordination loss (e.g., group members do no pull on the rope at exactly the same time or in exactly the same direction; Steiner, 1972).

In previous research we demonstrated that intergroup competition increases group productivity by decreasing free riding within the competing groups (Bornstein et al., 1990; Erev et al., 1993; and Bornstein and Erev, 1994). The present study demonstrated that intergroup competition enhances productivity by improving intragroup coordination. A similar effect of competition on productivity was reported by Nalbantian and Schotter (1997). These researchers compared group productivity under different group incentive schemes and found that tournament-based group incentives led to higher outputs than all other mechanisms investigated.

[10] If each player initially places a small subjective probability on anyone choosing less then 7, then the larger the size of the group, the larger is the probability that at least one other group member will choose a number less than 7 (Ochs, 1995).

From a policy point of view, it is clearly desirable to introduce competition in contexts where groups still act in isolation. For example, universities in Europe are funded without much regard to their performance compared to that of other universities. The performance of these institutions can be greatly improved by endowing them, at least to some extent, on a competitive basis. To use Nalbantian and Schotter's (1997) words, it indeed seems that "a little [intergroup] competition goes a long, long way."

Appendix A

A.1. Instructions for the intergroup competition (IC) treatment

This is an experiment on the economics of decision making. Your earnings will depend on your own decision and the decisions of the other participants. You will be paid in cash at the end of the experiment. Please read the instructions carefully. The instructions are identical for all the participants in the room. If you have a question raise your hand and the instructor will come over and answer your question in private. Please do not communicate from now on with the other participants.

A.1.1. The rules

The experiment consists of 10 rounds. At the beginning you will be divided into two groups of seven players. The groups will stay the same for all ten rounds of the experiment.

Each participants has to choose a number from 1 to 7 $\{1, 2, 3, 4, 5, 6, 7\}$ in each of the 10 rounds. In each round the smallest number chosen in each group will be identified.

Your payoff depends upon your own choice, the smallest number chosen by the participants in your group and the smallest number chosen by the participants of the other group. More specifically, the group with the smaller of the two smallest numbers wins 0 points, while the participants in the group with the larger of the smallest numbers win points according to the table. In case of a tie, the payoff table will be split evenly, with each cell being divided by 2.

Here is the payoff table:

	Smallest number chosen by the participants in your group						
Your decision	7	6	5	4	3	2	1
7	130	110	90	70	50	30	10
6	–	120	100	80	60	40	20
5	–	–	110	90	70	50	30
4	–	–	–	100	80	60	40
3	–	–	–	–	90	70	50
2	–	–	–	–	–	80	60
1	–	–	–	–	–	–	70

Let us explain the table. If the smallest number in your group is higher than that of the other group, your points in each round depend on your own choice (indicated by the first column of the table "your decision," 7, 6, ..., 1)) and the smallest number chosen in your group, including your number (indicated by the first row of the table 7, 6, 5, ..., 1). Since your choice can be a number from 1 to 7, the smallest number can be range from 1 to 7. Your points are determined by the cell in the row of your decision and the column of the smallest number in your group. An example is given below.

In the table there are cells with "–." This indicates that a combination of your choices and the smallest chosen number in your group is not possible. For example, if you choose 4, the smallest number in your group cannot be 7, 6, or 5.

Remember that if both groups have the same smallest number then the cell which determines your payoff is divided by 2. If the smallest number chosen in your group is smaller than that of the other group, you will win 0 points.

A.1.2. Examples

If the smallest number in your group is higher than that of the other group and

- you chose 3 and the smallest number in your group was 3, you win 90 points (row “3” and column “3”),
- you chose 5 and the smallest number in your group was 3, you win 70 points (row “5” and column “3”),
- you chose 5 and the smallest number in your group was 4, you win 90 points (row “5” and column “4”),
- you chose 4 and the smallest number in your group was 1, you win 40 points (row “4” and column “1”),
- you chose 3 the smallest chosen number in your group cannot be 4 (there is a – in row “3” and column “4”),
- you chose 7 and the smallest number in your group is 4, your points are ______________ (**WRITE DOWN YOUR POINTS**).

If the smallest numbers in both groups are the same and

- you chose 5 and the smallest number in both groups is 4 , you win 45 points (row “5,” column “4,” points 90/2),
- you chose 4 and the smallest number in both groups is 1, you win 20 points (row “4,” column “1,” points 40/2),
- you chose 6 and the smallest number in both groups is 3, you win ________ **(WRITE DOWN YOUR POINTS**).

A.1.3. Information following each round

Following each round you will be informed about the smallest number of your group, the smallest number in the other group, your own payoff and your accumulated payoffs in the rounds completed so far. We also remind you of your own choice.

A.1.4. Computer screen

On the middle of the screen you will find 7 buttons labeled from 1 to 7. You can indicate your choice by a mouse click on one of the buttons or by pressing the corresponding key from 1 to 7. You will then be asked whether you “are sure” about this choice. If you click Yes with the mouse or press the key Y the choice will be final. If you click No with the mouse or press N, you return to the window to make your choice again. After you have made your decision, please wait until all the other participants have completed their choices.

At the top of the screen you will find the results of the current period, with your decision, the smallest number chosen in your group, the smallest number chosen in the other group, your payoff for that period, and the cumulative payoffs of the rounds completed so far.

A.1.5. Payments

At the end of the experiment all your cumulative points will be converted into pesetas with 1 point being x pesetas, thus if you have made 10 points you will receive $x * 10$ pesetas.

If you have any question please raise your hand.

A.2. Instructions for the single-group (NC and NCI) treatments

This is an experiment on the economics of decision making. Your earnings will depend on your own decision and the decisions of the other participants. You will be paid in cash at the end of the experiment. Please read the instructions carefully. If you have a question raise your hand and the instructor will come over and answer your question in private. Please do not communicate from now on with the other participants.

A.2.1. The rules

The experiment consists of 10 rounds. At the beginning you will be divided into two groups with seven participants. The groups will stay the same for all ten rounds of the experiment.

Each participant has to choose a number from 1 to 7 {1, 2, 3, 4, 5, 6, 7} on each of the 10 rounds.

In each round the smallest number chosen in each group will be identified.

Your payoff is determined according to the following payoff table:

	Smallest number within your group						
Your decision	7	6	5	4	3	2	1
7	130	110	90	70	50	30	10
6	–	120	100	80	60	40	20
5	–	–	110	90	70	50	30
4	–	–	–	100	80	60	40
3	–	–	–	–	90	70	50
2	–	–	–	–	–	80	60
1	–	–	–	–	–	–	70

Let us explain the table: Your points in each round depend on your own choice (indicated by the first column of the table "your decision" 7, 6, ..., 1)) and the smallest number chosen in your group, including your number (indicated by the first row of the table 7, 6, 5, ..., 1). Since your choice can be a number from 1 to 7, the smallest number can range from 1 to 7. Your points are determined by the cell in the row of your decision and the column of the smallest number in your group. An example is given below.

In the table there are cells with "–." This indicates that a combination of your choices and the smallest chosen number in your group is not possible. For example, if you choose 4, the smallest number in your group cannot be 7, 6, or 5.

A.2.2. Examples

– you chose 3 and the smallest number in your group was 3, you win 90 points (row "3" and column "3"),
– you chose 5 and the smallest number in your group was 3, you win 70 points (row "5" and column "3"),
– you chose 5 and the smallest number in your group was 4, you win 90 points (row "5" and column "4"),
– you chose 4 and the smallest number in your group was 1, you win 40 points (row "4" and column "1"),
– you chose 3 then smallest chosen number in your group cannot be 4 (there is a—in row "3" and column "4"),
– you chose 7 and the smallest number in your group is 4, your points are ______________ (**WRITE DOWN YOUR POINTS)**.

A.2.3. Information following each round

Following each round you will be informed about the smallest number of your group [in the NCI treatment subjects were informed about the smallest number of the other group], your own payoff and your accumulated payoffs for the rounds completed so far. We will also remind you of your own choice.

A.2.4. Computer screen

On the middle of the screen you will find 7 buttons labeled from 1 to 7. You can indicate your choice by a mouse click on one of the buttons or by pressing the corresponding key from 1 to 7. You will then be asked whether you "are sure" about this choice. If you click Yes with the mouse or press the key Y the choice will be final. If you click No with the mouse or press N, you return to the window to make your choice again. After you have made your decision, please wait until all the other participants have completed their choices.

At the top of the screen you will find the results of the current period with your decision, the smallest number chosen in your group, your payoff for that period, and the cumulative payoffs in the rounds completed so far.

A.2.5. Payments

At the end of the experiment all your cumulative points will be converted into pesetas with 1 point being x pesetas, thus if you have made 10 points you will receive $x * 10$ pesetas.

Appendix B. The raw data

Player	Round 1	2	3	4	5	6	7	8	9	10
					IC session 1/1					
1	7	6	6	6	7	5	7	7	7	7
2	7	7	7	7	7	7	7	7	7	7
3	7	7	5	6	6	7	7	7	7	7
4	7	5	6	7	7	6	7	7	7	7
5	7	6	6	6	7	7	7	7	7	7
6	7	7	7	7	7	6	7	7	7	7
7	3	3	5	6	5	6	7	7	7	7
Average	6.43	5.86	6.00	6.43	6.57	6.29	7.00	7.00	7.00	7.00
					IC session 1/2					
1	3	2	3	4	5	7	7	7	7	7
2	7	5	5	5	7	7	7	7	7	7
3	7	4	6	7	7	7	7	7	7	7
4	6	7	5	5	7	7	7	7	7	7
5	7	7	7	7	7	7	7	7	7	7
6	7	4	5	7	7	6	6	7	7	7
7	4	4	1	3	7	7	6	7	7	7
Average	5.86	4.71	4.57	5.43	6.71	6.86	6.71	7.00	7.00	7.00

Player	Round 1	2	3	4	5	6	7	8	9	10
IC session 2/1										
1	7	6	6	7	6	5	5	5	6	6
2	7	6	6	5	1	5	5	5	6	5
3	7	4	5	7	3	5	5	5	6	1
4	7	3	7	1	7	7	5	6	7	6
5	7	7	7	7	7	7	7	5	7	7
6	4	4	2	3	2	4	4	4	4	5
7	6	5	7	6	5	5	5	5	5	5
Average	6.43	5.00	5.71	5.14	4.43	5.43	5.14	5.00	5.86	5.00
IC session 2/2										
1	7	6	6	7	6	7	7	5	7	7
2	5	6	6	7	4	6	4	6	7	6
3	7	7	7	7	7	7	7	7	7	7
4	7	7	7	7	7	3	7	5	6	7
5	7	7	7	7	7	6	7	6	6	6
6	5	6	6	7	5	6	4	5	6	5
7	4	5	6	1	7	5	6	6	5	5
Average	6.00	6.29	6.43	6.14	6.14	5.71	6.00	5.71	6.29	6.14
IC session 3/1										
1	6	7	5	5	4	5	4	3	7	7
2	6	4	5	5	4	4	5	6	5	6
3	3	4	4	3	4	3	3	4	4	4
4	7	6	6	5	5	4	4	6	4	7
5	7	7	7	7	7	7	7	7	7	1
6	5	5	7	7	7	6	7	7	5	4
7	7	5	5	6	7	5	4	7	7	7
Average	5.86	5.43	5.57	5.43	5.43	4.86	4.86	5.71	5.57	5.14
IC session 3/2										
1	4	5	5	4	4	4	4	4	4	4
2	3	4	5	6	2	3	4	4	4	4
3	7	5	6	5	5	5	4	5	5	4
4	5	4	5	5	5	4	4	4	4	5
5	6	5	6	7	3	5	5	5	6	6
6	4	5	5	1	2	4	5	4	4	4
7	6	4	3	7	4	7	7	7	7	7
Average	5.00	4.57	5.00	5.00	3.57	4.57	4.71	4.71	4.86	4.86
IC session 4/1										
1	4	4	3	4	3	4	4	4	4	4
2	7	6	7	5	7	6	6	4	4	4
3	7	7	5	5	4	4	4	5	4	4
4	7	5	3	4	5	4	6	6	5	4
5	4	2	3	1	5	4	5	4	5	4
6	6	6	7	4	7	6	5	5	5	5
7	7	6	4	4	4	4	4	4	5	4
Average	6.00	5.14	4.57	3.86	5.00	4.57	4.86	4.57	4.57	4.14

	Round									
Player	1	2	3	4	5	6	7	8	9	10
IC session 4/2										
1	5	2	2	3	4	3	2	5	4	4
2	7	4	2	4	3	3	4	4	4	4
3	5	1	4	3	7	2	4	3	4	5
4	7	4	5	6	7	4	6	7	5	7
5	3	4	3	4	4	5	4	5	4	5
6	7	4	2	4	1	7	3	2	3	4
7	4	6	5	4	4	4	4	4	4	4
Average	5.43	3.57	3.29	4.00	4.29	4.00	3.86	4.29	4.00	4.71
IC session 5/1										
1	7	7	7	7	7	7	7	7	7	7
2	3	4	6	5	7	7	7	7	7	7
3	5	5	6	5	7	7	7	7	7	7
4	4	5	5	6	6	7	7	7	7	7
5	5	5	5	6	7	7	7	7	7	7
6	7	5	4	4	7	5	4	6	4	3
7	7	7	7	7	7	7	7	7	7	7
Average	5.43	5.43	5.71	5.71	6.86	6.71	6.57	6.86	6.57	6.43
IC session 5/2										
1	7	7	7	7	7	7	7	7	7	7
2	7	7	7	7	7	7	7	7	7	7
3	7	6	7	7	7	7	7	7	7	7
4	7	7	7	7	7	7	7	7	7	7
5	7	7	7	7	7	7	7	7	7	7
6	7	6	7	7	7	7	7	7	7	7
7	4	5	6	7	7	7	7	7	7	7
Average	6.57	6.43	6.86	7.00	7.00	7.00	7.00	7.00	7.00	7.00
IC session 6/1										
1	3	1	1	3	2	1	1	2	2	2
2	5	4	3	5	3	6	6	4	6	2
3	1	3	7	1	3	2	6	3	3	3
4	6	5	6	5	5	7	7	6	7	7
5	7	4	2	1	3	4	4	7	7	7
6	3	3	5	5	3	4	2	2	3	3
7	3	3	2	2	2	2	2	2	3	3
Average	4.00	3.29	3.71	3.14	3.00	3.71	4.00	3.71	4.43	3.86
IC session 6/2										
1	7	7	7	7	7	2	2	2	3	3
2	6	1	7	4	2	3	3	3	2	1
3	7	7	3	4	3	4	4	3	3	3
4	5	4	3	5	3	4	4	5	3	2
5	6	5	4	4	3	3	3	2	3	2
6	3	3	2	2	7	3	4	2	2	3
7	5	6	4	4	6	2	3	3	2	2
Average	5.57	4.71	4.29	4.29	4.43	3.00	3.29	2.86	2.57	2.29

Player	Round 1	2	3	4	5	6	7	8	9	10
NC session 1/1										
1	7	5	5	4	4	4	4	5	4	4
2	7	7	4	4	4	4	4	4	4	4
3	6	7	7	6	6	5	5	4	5	4
4	7	7	4	4	4	4	4	4	4	4
5	6	7	7	4	4	4	4	4	4	4
6	7	7	4	4	4	4	4	5	6	4
7	4	4	4	4	4	4	4	4	4	4
Average	6.29	6.29	5.00	4.29	4.29	4.14	4.14	4.29	4.43	4.00
NC session 1/2										
1	7	4	6	4	3	1	2	1	1	1
2	7	7	6	4	4	3	1	1	2	1
3	6	7	6	6	6	6	4	6	1	1
4	3	4	3	3	2	3	3	2	3	2
5	7	7	6	5	6	5	5	5	4	3
6	4	4	5	4	4	3	3	2	2	1
7	6	6	6	5	3	3	2	2	1	1
Average	5.71	5.57	5.43	4.43	4.00	3.43	2.86	2.71	2.00	1.43
NC session 2/1										
1	4	3	3	3	3	2	3	2	2	2
2	6	4	2	5	4	3	3	2	3	2
3	7	7	7	7	7	5	3	3	3	3
4	7	7	7	7	7	5	4	4	2	7
5	3	4	4	4	3	4	2	3	2	3
6	7	1	4	5	3	3	3	3	3	2
7	3	4	2	2	2	2	3	2	3	2
Average	5.29	4.29	4.14	4.71	4.14	3.43	3.00	2.71	2.57	3.00
NC session 2/2										
1	7	6	7	7	6	5	4	4	4	4
2	7	6	6	6	4	4	5	5	4	6
3	6	5	6	6	5	4	5	5	4	4
4	7	7	7	7	7	7	7	7	7	1
5	4	5	6	5	4	4	4	4	4	4
6	7	6	6	6	5	4	6	5	4	5
7	7	5	4	4	3	5	4	4	5	4
Average	6.43	5.71	6.00	5.86	4.86	4.71	5.00	4.86	4.57	4.00
NC session 3/1										
1	4	4	3	3	2	1	1	1	2	1
2	7	7	2	1	2	1	1	1	1	1
3	7	5	1	1	2	1	1	1	1	1
4	7	4	2	1	1	1	1	1	1	1
5	3	2	4	1	1	2	1	1	1	1
6	4	5	5	4	4	4	3	1	1	1
7	4	4	4	3	3	2	2	2	1	1
Average	5.14	4.43	3.00	2.00	2.14	1.71	1.43	1.14	1.14	1.00

	Round									
Player	1	2	3	4	5	6	7	8	9	10
NC session 3/2										
1	3	7	3	2	1	1	1	1	1	7
2	7	7	1	1	5	1	1	1	1	1
3	5	5	3	2	2	2	1	1	1	1
4	7	5	1	1	2	1	1	1	1	1
5	4	2	1	2	1	2	1	1	1	2
6	1	1	1	6	3	1	1	1	1	4
7	7	3	1	1	1	1	1	1	1	1
Average	4.86	4.29	1.57	2.14	2.14	1.29	1.00	1.00	1.00	2.43
NCI session 1/1										
1	7	6	5	6	6	6	5	6	6	7
2	7	7	7	4	7	7	6	5	6	4
3	7	4	5	5	5	5	5	4	4	4
4	3	4	6	4	5	6	5	5	4	5
5	7	7	7	5	7	6	4	5	4	4
6	7	7	7	7	7	7	5	5	5	5
7	7	6	1	5	6	1	6	6	5	4
Average	6.43	5.86	5.43	5.14	6.14	5.43	5.14	5.14	4.86	4.71
NCI session 1/2										
1	7	7	7	5	7	7	5	7	7	5
2	5	5	5	5	5	5	5	5	5	5
3	7	6	6	6	5	5	5	5	5	5
4	6	7	7	7	6	5	5	6	5	6
5	7	7	7	7	7	7	7	7	6	5
6	7	5	6	6	5	5	6	5	5	5
7	4	5	6	6	5	6	5	5	5	5
Average	6.14	6.00	6.29	6.00	5.71	5.71	5.43	5.71	5.43	5.14
NCI session 2/1										
1	6	5	4	3	2	2	2	2	2	2
2	7	4	2	7	4	2	2	3	2	2
3	4	3	2	2	3	3	2	2	3	2
4	7	7	6	6	2	2	2	4	2	2
5	5	3	2	3	2	2	3	2	4	2
6	7	7	5	3	3	3	2	2	2	2
7	7	7	3	4	2	2	2	2	2	2
Average	6.14	5.14	3.43	4.00	2.57	2.29	2.14	2.43	2.43	2.00
NCI session 2/2										
1	7	5	1	1	2	1	1	1	1	1
2	7	5	3	1	1	2	1	1	1	1
3	2	2	1	1	1	1	1	1	1	1
4	4	1	1	1	1	1	1	1	1	1
5	4	7	5	7	5	6	4	3	1	1
6	5	5	1	1	1	1	1	1	1	1
7	5	3	3	1	1	1	1	1	1	1
Average	4.86	4.00	2.14	1.86	1.71	1.86	1.43	1.29	1.00	1.00

Player	Round 1	2	3	4	5	6	7	8	9	10
NCI session 3/1										
1	7	5	4	4	4	4	3	3	3	3
2	5	5	4	4	4	3	3	3	3	3
3	2	3	3	4	3	3	4	3	3	3
4	5	7	6	3	3	3	3	3	3	3
5	7	5	4	4	3	3	3	3	3	3
6	5	5	4	4	4	3	4	3	3	4
7	7	5	4	4	3	3	3	4	3	3
Average	5.43	5.00	4.14	3.86	3.43	3.14	3.29	3.14	3.00	3.14
NCI session 3/2										
1	4	4	4	3	1	3	2	1	1	2
2	5	5	2	3	2	2	1	1	1	1
3	6	5	4	4	3	2	1	1	1	1
4	4	3	4	2	2	1	1	1	1	1
5	7	7	2	1	7	1	1	1	1	5
6	7	7	7	7	1	2	2	1	2	1
7	5	6	4	4	3	1	7	1	1	2
Average	5.43	5.29	3.86	3.43	2.71	1.71	2.14	1.00	1.14	1.86
NCI session 4/1										
1	4	3	4	3	3	4	3	4	3	3
2	7	5	3	6	3	4	4	4	3	4
3	4	3	6	7	4	3	7	5	6	5
4	4	5	5	4	5	4	4	4	4	3
5	7	6	5	4	3	4	3	3	3	3
6	5	4	4	5	4	3	4	3	3	3
7	3	4	2	7	3	3	3	3	4	3
Average	4.86	4.29	4.14	5.14	3.57	3.57	4.00	3.71	3.71	3.43
NCI session 4/2										
1	7	4	3	4	1	1	3	1	3	1
2	7	5	3	4	3	3	1	1	1	2
3	7	6	5	5	4	3	1	2	2	1
4	3	3	4	2	2	1	3	2	1	1
5	7	6	4	4	1	2	1	2	1	1
6	5	7	4	3	4	2	1	1	1	1
7	2	3	4	3	3	4	2	2	1	2
Average	5.43	4.86	3.86	3.57	2.57	2.29	1.71	1.57	1.43	1.29
NCI session 5/1										
1	4	4	5	4	4	3	1	2	1	1
2	7	7	7	7	4	5	3	2	2	2
3	3	4	3	2	3	1	1	1	1	1
4	7	7	7	3	3	1	3	1	2	1
5	6	5	4	5	1	3	1	4	1	1
6	6	6	6	4	4	3	1	1	1	4
7	5	6	4	4	3	1	3	1	1	3
Average	5.43	5.57	5.14	4.14	3.14	2.43	1.86	1.71	1.29	1.86

	Round									
Player	1	2	3	4	5	6	7	8	9	10
NCI session 5/2										
1	7	7	7	7	7	7	7	7	7	7
2	7	4	4	4	4	4	4	4	4	4
3	7	7	6	5	4	4	5	4	4	4
4	4	6	4	4	5	4	4	4	4	4
5	7	6	5	4	5	4	4	4	4	4
6	7	6	5	4	4	4	4	4	4	4
7	6	5	5	5	4	4	4	4	4	4
Average	6.43	5.86	5.14	4.71	4.71	4.43	4.57	4.43	4.43	4.43
NCI session 6/1										
1	1	1	1	1	1	1	1	1	1	1
2	7	1	2	2	1	2	1	1	1	1
3	7	7	7	1	1	1	1	1	1	3
4	7	1	1	1	1	1	1	1	1	1
5	1	1	2	1	1	1	1	1	1	1
6	5	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1
Average	4.14	1.86	2.14	1.14	1.00	1.14	1.00	1.00	1.00	1.29
NCI session 6/2										
1	3	1	5	6	2	1	7	1	1	4
2	7	5	1	1	1	1	1	1	1	1
3	5	3	1	1	1	1	1	1	1	1
4	7	7	7	1	1	1	1	1	1	1
5	1	2	2	1	2	1	1	1	1	1
6	7	5	3	1	1	1	2	1	1	1
7	7	7	7	2	1	1	1	1	1	1
Average	5.29	4.29	3.71	1.86	1.29	1.00	2.00	1.00	1.00	1.43
ICB session 1/1										
1	6	6	7	7	7	5	4	3	2	4
2	5	4	4	4	4	4	4	4	3	3
3	3	3	3	3	3	3	3	3	3	3
4	5	4	3	3	3	4	3	3	3	3
5	7	6	7	5	6	7	5	3	3	2
6	4	5	3	6	3	4	3	5	3	3
7	5	6	3	4	3	3	3	3	4	3
Average	5.00	4.86	4.29	4.57	4.14	4.29	3.57	3.43	3.00	3.00
ICB session 1/2										
1	4	6	3	3	3	1	1	1	1	1
2	4	3	3	2	3	1	1	2	1	2
3	6	5	7	3	3	1	2	1	2	1
4	6	5	1	5	4	4	3	3	3	3
5	6	7	5	3	3	1	1	4	1	1
6	1	4	6	2	1	3	1	1	3	6
7	3	1	2	1	1	2	1	3	1	1
Average	4.29	4.43	3.86	2.71	2.57	1.86	1.43	2.14	1.71	2.14

Player	Round 1	2	3	4	5	6	7	8	9	10
ICB session 2/1										
1	7	7	7	7	7	7	7	7	7	7
2	7	7	7	7	7	7	7	7	7	7
3	7	7	7	5	5	7	7	7	7	7
4	7	7	7	5	7	7	7	7	7	7
5	5	5	6	6	6	7	5	7	7	7
6	5	5	5	5	6	6	6	7	7	7
7	7	7	7	5	5	6	6	7	7	7
Average	6.43	6.43	6.57	5.71	6.14	6.71	6.43	7.00	7.00	7.00
ICB session 2/2										
1	5	6	5	6	6	7	7	7	7	7
2	7	7	7	7	7	7	7	7	7	7
3	7	7	7	7	6	7	6	7	7	7
4	7	6	6	6	6	7	6	7	7	7
5	7	7	7	6	7	7	7	7	7	7
6	7	7	7	7	7	7	7	7	7	7
7	7	7	7	7	6	7	7	7	7	7
Average	6.71	6.71	6.57	6.57	6.43	7.00	6.71	7.00	7.00	7.00
ICB session 3/1										
1	7	7	6	5	5	5	5	4	4	5
2	7	6	4	4	4	4	4	4	4	4
3	7	7	6	5	6	4	5	4	4	5
4	7	6	6	5	6	5	5	5	4	5
5	4	4	4	4	4	4	4	4	4	4
6	7	6	6	5	4	4	4	4	4	5
7	7	7	5	4	4	5	4	4	4	5
Average	6.57	6.14	5.29	4.57	4.71	4.43	4.43	4.14	4.00	4.71
ICB session 3/2										
1	4	4	4	5	4	4	3	3	4	5
2	7	5	4	4	4	4	4	4	4	5
3	7	7	7	6	6	6	6	5	4	5
4	5	3	2	5	1	5	5	5	5	5
5	4	4	4	3	4	4	4	4	4	4
6	5	4	3	3	4	3	3	3	4	5
7	2	7	5	4	5	5	2	4	5	5
Average	4.86	4.86	4.14	4.29	4.00	4.43	3.86	4.00	4.29	4.86
ICB session 4/1										
1	4	4	3	4	3	3	3	3	3	3
2	3	2	3	1	2	2	1	7	6	6
3	4	4	3	4	3	4	3	2	4	2
4	7	4	2	3	2	3	3	2	2	2
5	7	6	1	4	7	4	4	3	3	2
6	5	4	5	4	4	4	3	3	3	3
7	5	5	6	4	2	3	5	2	2	2
Average	5.00	4.14	3.29	3.43	3.29	3.29	3.14	3.14	3.29	2.86

	Round									
Player	1	2	3	4	5	6	7	8	9	10
ICB session 4/2										
1	4	2	3	4	3	3	2	2	3	2
2	7	4	4	4	4	4	4	4	1	7
3	5	4	3	3	2	3	3	2	3	3
4	3	5	7	7	6	2	1	1	1	7
5	7	6	5	5	6	5	3	7	3	4
6	4	5	4	3	4	6	4	3	4	4
7	7	7	7	7	7	6	6	4	4	2
Average	5.29	4.71	4.71	4.71	4.57	4.14	3.29	3.29	2.71	4.14
ICB session 5/1										
1	4	6	3	3	3	3	3	3	3	3
2	7	7	3	3	3	3	3	3	4	3
3	4	3	5	5	7	4	5	4	3	3
4	7	7	3	3	5	4	3	3	4	3
5	3	5	4	5	2	7	5	3	3	4
6	7	5	4	4	3	3	4	3	3	3
7	5	4	1	5	4	4	3	3	3	3
Average	5.29	5.29	3.29	4.00	3.86	4.00	3.71	3.14	3.29	3.14
ICB session 5/2										
1	7	5	4	3	4	3	3	3	3	3
2	7	5	4	4	4	4	4	4	4	4
3	4	3	5	6	3	3	4	3	3	3
4	6	6	6	7	7	7	6	6	7	6
5	7	7	7	7	6	5	4	3	3	3
6	3	3	3	3	3	3	3	4	3	3
7	4	5	4	4	5	6	6	7	6	5
Average	5.43	4.86	4.71	4.86	4.57	4.43	4.29	4.29	4.14	3.86

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