I. ABSTRACT

Do we make better decisions in a group? Does group decision-making suffer from groupthink? In this paper, I conduct an innovative laboratory experiment to investigate the causal impact of group setting (compared with solo situations) and the group effect free from free-rider incentives. Key experimental design: an individual’s own expected investment prospect coincides the expected investment prospect of one’s group, making solo and group settings directly comparable. The experiments provide strong evidence that group settings induce overinvestment. When subjects are in groups, they 1) choose to invest more often (by 12 to 17 percent), lowering their final payoff, and 2) exhibit a 20 percent increase in the rate of investment (by 12 to 17 percent), lowering their final payoff, and 2) exhibit a 20 percent increase in the rate of investment prospect and vice versa. The true group type does not explain the tendency to invest, which explains why communication structures do not have a significant impact (learning is minimal). Male subjects tend to invest more often than females. A subject’s belief of being a high type increases by 36 percent on average. (Not shown on the poster: Available upon request.) Being in the group part before the individual part makes a subject more likely to have an increase in belief by 14 percentage points (Not shown on the poster: Available upon request.) Implications: A significant part of “investments,” including financial investments, commitments, political movements, as well as time and energy devoted to social groups such as non-profit organizations, amateur sports teams, and religious institutions, may simply be the result of the nature of the group setting.

III. MODEL AND THEORETICAL PREDICTIONS

1. There are a total of N subjects in an experiment session.
2. \( \theta_i \) = \{1, 0\}, \( \delta_i \) is the type of individual i in group j, \( \delta_i \) is the raw score on the pretest. \( \delta \) is the median score. Intuition: A high-type has positive impact on the group investment prospect and vice versa.
3. The expected returns to investment positively correlate with the ability of the subject (in the solo setting) and with the ability of the group (in the group setting).
4. Let \( p_i = p(\theta_i = 1) \) be agent i’s belief of himself being a high type. Agent i’s expected payoff from investing \( E_i(\theta_i) = p_i \cdot E(\theta_i = 1) + (1 - p_i) \cdot E(\theta_i = 0) = c_i - c_e \).

II. EXPERIMENTAL DESIGN

1. Subjects take an incentivized pretest and the scores remain unknown to them until the end of the experiment.
2. Each subject then independently makes binary investment decisions (invest or not) in two settings: a solo setting and a group of three settings.
3. Investment returns are determined by whether a subject scores above the median (subject defined as ‘high-type’) or otherwise (subject defined as ‘low-type’).
   - Each setting contains 8 rounds of investment decision with the costs randomly varying.
   - Half of the subjects were randomly chosen to start with the solo setting. Other half, group setting.
4. Group members do not change throughout the group phase.
5. In the group phase, three structures of communication are considered: no communication, full communication (open meeting), and one-way leadership.
6. The experiment sessions were conducted at Rutgers University – New Brunswick in the Gregory Vacherli Experimental Economics Laboratory in May, June, and September 2016. The total number of subjects over all sessions was 138.

IV. RESULTS

1. By design (size of given costs), an average risk-neutral profit maximizer should invest in exactly half of the rounds. Therefore, the average contribution would be 0.5 (one being investing and zero being not investing).
2. Overall, the average contribution is significantly higher when the subjects are involved in groups (0.61 in groups vs. 0.44 in solo).
3. Probit analysis (probability of choosing to invest):

   \[ P(\epsilon = 1 | x) = \Phi(x \beta \theta) + \beta_2 \text{group} + \beta_3 \text{group} \times \text{individual} + \beta_4 \text{chat} + \beta_5 \text{chat} \times \theta - \beta_6 \theta. \]

   \[ \text{Dependent variable: \( \epsilon \)} \]
   \[ \text{Model (1) Model (2) Model (3) Model (4)} \]
   \[ \text{Overall Group} \quad (1.00) \quad (1.00) \quad (1.00) \quad (1.00) \]
   \[ \text{Group to Solo} \quad (1.00) \quad (1.00) \quad (1.00) \quad (1.00) \]
   \[ \text{Group to No Chat} \quad (1.00) \quad (1.00) \quad (1.00) \quad (1.00) \]
   \[ \text{Group to Full Chat} \quad (1.00) \quad (1.00) \quad (1.00) \quad (1.00) \]
   \[ \text{Group to One Way} \quad (1.00) \quad (1.00) \quad (1.00) \quad (1.00) \]
   \[ \text{Group to No Chat} \quad (1.00) \quad (1.00) \quad (1.00) \quad (1.00) \]
   \[ \text{Group to Full Chat} \quad (1.00) \quad (1.00) \quad (1.00) \quad (1.00) \]
   \[ \text{Group to One Way} \quad (1.00) \quad (1.00) \quad (1.00) \quad (1.00) \]

V. CONCLUDING REMARKS

SELECTED REFERENCES

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