Pre-Analysis Plan:
Magical Thinking and Self-Similarity

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1 Introduction

Magical thinking – the belief that one's actions affect things which they cannot – is a phenomenon which has received some attention in psychology and sociology but which remains little studied in economics. One particular form of magical thinking has been proposed in the context of strategic interaction: the belief that one's own actions induce similar actions from others. This experiment investigates the relationship between seemingly magical reasoning and the perceived self-similarity between oneself and one's counterpart.

Shafir and Tversky (1992) showed that subjects playing prisoners' dilemmas are substantially more likely to cooperate when they do not know their opponent's choice of action (37%), than when they know that the opponent has cooperated (16%) or defected (3%). Standard beliefs would prohibit this, since the propensity for cooperation under uncertainty should, to the extent that it depends upon beliefs, be a convex combination of that propensity under the two respective cases of complete certainty. Magical beliefs offer an explanation: subjects believe it more likely that the opponent will cooperate if they themselves do so. Other experimental results

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have since shown (usually as an incidental finding) that prosocial behavior is more prevalent when there is scope for magical reasoning. Iriberri and Rey-Biel (2011) show that giving in binary-decision dictator games is more common under role uncertainty, i.e. when subjects do not know if the decision implemented will be their own or their opponent's. The design of this study builds on a similar and more recent experiment by Grech and Nax (2020). They show that giving is higher in dictator games when subjects are matched with different opponents to act once as dictator and once as receiver, than under traditional single-role dictator game protocols. I consider the possibility that part of this effect stems from magical beliefs. Such beliefs would create incentives for (seemingly) prosocial behavior under role duality which are absent among single-role dictators. This experiment asks whether such beliefs, to the extent that they exist, vary with the degree of perceived *similarity* between the decisionmaker and those she would affect.

2 Sample and design

I will recruit 1200 data-generating participants through the research recruitment platform Prolific. The selection criteria are a 99% (or higher) approval rate as well as current residence in either the US or the UK.

The experiment consists of two main parts. In the first part, subjects take a "personality test" consisting of 120 statements with which subjects state their level of agreement.[1] This part is the same for all participants.

The second part of the experiment follows a 2x2 treatment design wherein subjects are matched to play binary dictator games. Decisionmakers face 20 binary decisions, choosing one of two token allocations between themselves and the receiver. In each decision, there is a "selfish" option and an "unselfish" option, with the latter implying a lower payoff for the decider but a higher payoff for the receiver.

[1]The items come from the International Personality Item Pool, a public-domain collection of personality items. I use the 120-item test from Johnson (2014), which is designed to mimic the Revised NEO Personality Inventory test of a person's Big Five personality traits, with two exceptions: I replace two items asking explicitly about voting behavior with two other items measuring the same facet (liberalism).

The unselfish option is always the efficient one.[2] This part of the experiment varies across two dimension. The first dimension of treatment varies whether subjects are matched with one other participant or two. In the Single Role (SR) treatment, participants are matched one-on-one and play as either Decider or Receiver. In the Dual Role (DR) treatment, subjects are matched with two different opponents, and play as Decider against one of them and as Receiver against the other.

The second dimension of treatment is the similarity dimension, which seeks to vary the perceived similarity between participants. In the Low Similarity (LS) treatment, subjects are matched at random. In the High Similarity (HS) treatment, subjects are matched with others who are especially similar to themselves based on the first part of the experiment.[3]

2.1 Main Analysis

The main outcome of interest is the interaction between the treatment dimensions: does self-similarity increase giving more under the dual-role protocol? Specifically, I will estimate the following equation:

$$G_{ij} = \beta_0 + \beta_1 DR_i + \beta_2 HS_i + \beta_3 (DR_i \times HS_i) + \epsilon_i, \tag{1}$$

where G_{ij} is a binary outcome equal to one if participant i chose to "give" in decision screen j, DR_i is a treatment indicator equal to one if participant i is in the Dual Role condition, and HS_i is a treatment indicator equal to one if participant i is in the High Similarity condition. Standard errors are clustered on the individual level. The coefficient of interest is β_3. The hypothesis is that self-similarity does increase giving more under the dual-role protocol. Accordingly, I will test the hypothesis $H_0 : \beta_3 \leq 0$ against the one-sided alternative hypothesis $H_1 : \beta_3 > 0$.

[2]Each decision has a transfer multiplier from the set $\{2, 3, 4, 5, 6, 7, 8\}$.

[3]In practice, this treatment group will be divided into trios who form a giving circle. This is not stated in the instructions to mitigate concerns of group-based attitudes. Participants are simply told that they will be matched with two people who are especially similar to themselves based on the first part of the experiment.

2.2 Secondary Analyses

The experiment will conclude by asking decisionmakers about the motives behind their actions, as well as the frequency with which they believe that other decisionmakers choose allocations that favor the receiver. This exit survey is unincentivized. I will run a second regression using the belief data as the outcome variable:

$$B_i = \beta_0 + \beta_1 DR_i + \beta_2 HS_i + \beta_3 (DR_i \times HS_i) + \epsilon_i, \tag{2}$$

where B_i is participant i's stated belief about the frequency with which other participants choose the allocation which favors the receiver. Here, the hypothesis is that beliefs respond to treatments in the same direction as giving behavior. In other words, I will test the hypothesis $H_0 : \beta_3 \leq 0$ against $H_1 : \beta_3 > 0$. Finally, I will perform exploratory analysis on the motives survey.

References

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