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Implicit vs. explicit deception in ultimatum games with incomplete information☆

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ABSTRACT

We explore bargaining, using ultimatum games, when one party, the proposer, possesses private information about the pie size and can either misrepresent this information through untruthful statements (explicit deception) or through information-revealing actions (implicit deception). Our study is the first such direct comparison between two ways in which people can deceive. We find that requiring informed parties to make an explicit statement yields greater deception than when information is communicated implicitly, particularly for larger stakes. However, allowing the explicit statement to be accompanied by a promise of truthfulness reverses this effect. In contrast with many previous studies, we generally observe very high frequencies of dishonesty.

1. Introduction

Considerable work in behavioral economics explores strategic situations involving asymmetric information, in which one party can deceive the other (see for instance, Croson et al., 2003; Gneezy, 2005; Charness and Dufwenberg, 2006), producing the overall result that most players do not lie. Such truth telling has typically been interpreted as ethical behavior (see e.g. Brandts and Charness, 2003).[1]

Bargaining often contains informational asymmetries, opening doors for deception. For example, in employer-employee wage bargaining the employer can benefit by strategically misrepresenting the employee's contribution. While there is an

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[1] Neurological data suggest that lying requires both a moral disinhibition and the cognitive ability to keep track of untrue statements (Yang et al., 2005). Thus, the determinants of lying may be more complicated than of simple moral preferences.

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abundant experimental literature on bargaining with complete information about relevant game parameters, addressing mainly issues of social preferences, there are fewer papers examining bargaining under incomplete information.[2]

We study deception in a simple (ultimatum) bargaining game with (one-sided) asymmetric information about the allocation over which the parties bargain (e.g., Ockenfels and Selten, 2000; Mitzkewitz and Nagel, 1993; Güth et al., 1996; Kagel et al., 1996). Our focus is on comparing different ways proposers can misrepresent information. In particular, we compare *explicit* deception, whereby proposers explicitly communicate the drawn allocation together with the offer, to *implicit* deception, whereby proposers convey such information solely through offers. While explicit and implicit deception have been studied separately in bargaining games (e.g., Boles et al., 2000; Besancenot et al., 2013, both with explicit lying, and Mitzkewitz and Nagel, 1993 with implicit lying), no prior study presents a direct comparison.

We conduct a laboratory experiment using an ultimatum game in which the size of the allocation (w) can vary between a low amount, w_L, and a high amount, w_H, with equal probability – i.e., $p(w = w_L) = p(w = w_H) = 0.5$. The proposer is informed of the allocation, while the responder knows nothing beyond the prior. The proposer then makes an offer contingent on the allocation, $x(w)$, $0 \leq x \leq w$, which the responder either accepts or rejects. If we let a denote the responder's decision to accept ($a = 1$) or reject ($a = 0$), the proposer's payoff is $\pi_P = a(w - x)$, while the responder's payoff is $\pi_R = ax$.

In such situations, responders averse to unfavorable inequality (e.g., Fehr and Schmidt, 1999) may be unable to perceive the inequality that results from a particular offer, due to the informational asymmetry. Thus, a proposer who draws a large allocation can obtain higher payoffs when the responder believes that the allocation may be small, by making uninformative offers that convey no information. Additionally, with explicit lying, the proposer can send uninformative "small pie" messages regardless of the allocation size. Therefore, explicit deception involves a misleading or an unambiguously false statement in addition to the information conveyed, implicitly, through an uninformative offer. For the purposes of deceiving the responder, this additional step is strategically irrelevant, since it requires only sending an additional uninformative message.

However, there are reasons to believe that behavior and outcomes may differ when proposers deceive implicitly compared with when they must do so explicitly. For instance, prior research on deception and dishonesty shows that people will often forgo making explicitly false statements, as if they experience an internal psychological cost to lying (Gibson et al., 2012; Gneezy, 2005; Charness and Dufwenberg, 2006). Thus, even if the ability to deceive and the monetary gain from doing so are equivalent between situations involving explicit and implicit deception, the willingness to deceive may be lower with explicit deception.

Another way in which behavior and outcomes may differ when deception is explicit versus implicit is in the response of the party being deceived. For example, if the responder in the ultimatum game is convinced more easily that the allocation is small when also receiving a deceptive message than when solely receiving a small offer, the potential benefit from acting deceptively for the proposer can also be greater. Thus, proposers may find it easier to mislead responders when they do so explicitly, rather than implicitly.

Our experiment compares bargaining behavior and outcomes across conditions involving explicit and implicit deception. We particularly focus on offers under w_L and w_H allocations in each condition. We study the difference between offers for the two allocations, as a measure of the informativeness of offers regarding the actual allocation. As another measure of deceptive proposals, we study the percentage of offers that are greater than half of the small allocation, as these send a strong signal that the allocation is large. We also study whether (small) offers are accepted, implying successful deception, differentially across conditions. Finally, we vary the size of the large allocation to explore whether the willingness to deceive, implicitly or explicitly, is affected by the potential monetary gains from doing so.

2. Experimental design

Sessions took place at the Pittsburgh Experimental Economics Laboratory (PEEL) at the University of Pittsburgh using the software *z-tree* (Fischbacher, 2007).

For each session, 16 participants were recruited via e-mail from the student populations of the University of Pittsburgh and Carnegie Mellon University.

At the beginning of a session, participants drew cards with letters "A" (proposer) and "B" (responder), and were seated separately by roles. They received written instructions read aloud by the experimenter.

In each of six experimental conditions the basic two-player ultimatum game with asymmetric information described earlier was repeated for 10 rounds with random re-matching and no pairing repeated in consecutive rounds. In every round one of two possible allocations, w_H and w_L, was drawn with equal probability. The proposer alone observed the draw (w) and then made an offer, in ten-cent increments between \$0 and w, to the responder, who either accepted or rejected this proposal. Payoffs were as described earlier. The true allocations were never revealed to responders, to reduce the detection of lying. At the end of the experiment, the software selected one round at random for payment, additional to a \$6 participation fee.

[2] Tingley and Wang (2010) review the literature on sequential bargaining with one- or two-sided incomplete information and Croson et al. (2003) on one- and two-sided incomplete information in ultimatum games. Several theoretical papers on bargaining with incomplete information focus on mechanisms to achieve efficiency (e.g., Sanchez-Pages, 2011; Ausubel et al., 2002).