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Disadvantageous lies in individual decisions

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Disadvantageous lies in individual decisions

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Abstract

We present experimental evidence on the existence of lies which are disadvantageous to the person lying in individual decision problems. Potential reasons for this behavior are preferences for manipulating others' perceptions or preserving a positive self-perception. If the utility gained from a certain perception outweighs the monetary payoff gained from an advantageous lie or the truth, people will tell a disadvantageous lie.

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Keywords: Lying, experiment.

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1. Introduction

“You shall not bear false witness against your neighbor.” (Exodus, 20: 16) Indeed, many experimental studies have shown that a significant share of people are lying averse.¹ Nevertheless people also lie. There are various reasons why people do so. The most prominent one is for material advantage. For example, somebody who evades taxes tries to increase income. Another reason is to manipulate others’ perceptions or opinions. This type of lie should convey the belief that the person who lies has favorable traits. For example people exaggerate their athletic achievements or number of girlfriends in order to impress others. Sometimes these potential motives for a lie are in conflict with immediate self-interest. For example, in Balzac’s novel *Splendeurs et misères des courtisanes*, the protagonist lies at a cost in order to appear honest. He cheats in a card game in order to counter his father-in-law’s (justified) mistrust. Thus, he tells a lie that reduces his financial well-being because the utility gained through the lie’s consequences (here: manipulating another person’s belief) outweigh the material payoff gained from the truth or a lie that increases his financial well-being.

Erat and Gneezy (forthcoming) discuss the increase of another person’s payoff as a lie’s consequence. They present experimental evidence that people are willing to lie to help others even if it decreases their own payoff. The authors explain the result with the role of social preferences in determining deception. For individual decision problems, where social preferences cannot explain behavior the literature has not yet tackled disadvantageous lies.

Our paper contributes to this issue. In a laboratory experiment we study disadvantageous lies in individual decision problems. We do so by using two subject pools: students and nuns. The reason for conducting our experiment with nuns is that religious people face an interesting conflict. On the one hand, they are supposed to strictly comply with religious rules and to not lie in particular. On the other hand, nuns might also have a strong interest in appearing honest to emphasize the compliance to their religious vows. Should they be honest and risk that others believe they are lying? Or should they lie to secure an honest appearance? In line with Akerlof (1983) and Hao and Houser (2011) we assume that a significant share of people prefer to appear honest rather than to actually be honest.

We measure the distribution of lying behavior with the experimental design of Fischbacher and Heusi (2008). In this game participants privately roll a six-sided die. Payoffs depend on what subjects report to be the outcome of the roll. The payoff equals the reported outcome in euros, except for a reported die roll of 6, in which case the payoff equals 0. There

¹ See for example Gneezy (2005), Cai and Wang (2006), Sutter (2009), Rode (2010), Charness and Dufwenberg (2006), Lundquist et al. (2009), Sánchez-Pagés and Vorsatz (2007), Sánchez-Pagés and Vorsatz (2009), Kartik (2009), Hurkens and Kartik (2009). Fischbacher and Heusi (2008), Eisenkopf et al. (2011).

are several studies applying this particular design² and also some studies adapting the design to a more simple mechanism.³ There are at least two possible predictions. If all subjects honestly report their outcome, the reported outcomes will follow an equal distribution. If all subjects are payoff maximizing, they will report the number with the highest payoff possible.

In previous experiments, there are three very robust findings: First, the outcome with the highest possible payoff is significantly higher than one sixth. Second, the frequency of reports of the second highest payoff is also significantly higher than one sixth. This means that people cheat, but not all of them do so to the maximum extent⁴. The third basic finding is that there is a positive number of people who report the minimum outcome. Those minimum reporters are defined as honest.⁵

Our findings show that in line with previous results our student subjects overreport their outcomes. However, our nun subjects do not overreport but underreport high outcomes. This shows the existence of disadvantageous lies also in individual decision problems and raises the question of whether previous studies have overestimated the fraction of honest people in individual decision experiments.

The rest of the paper is organized as follows. In the next section we describe the experimental design and procedure, section 3 presents the results, and section 4 concludes.

2. Experimental Design and Procedure

For the experiment we use the lying game by Fischbacher and Heusi (2008), a generosity game and a dictator game. In the lying game every participant privately rolls a die. The payoff equals the corresponding number of the die in euros, but equals 0 if the die shows a 6. A table of these payoffs is shown in Table 1. Participants were explicitly told to roll the die more than once in order to check whether the die was fair. Afterwards, participants had to indicate the number of the first roll.

reported die number	1	2	3	4	5	6
Payoff	1	2	3	4	5	0

Table 1: The payoff table of the experiment

In the generosity game a player can decide upon the payoff of another player (from 0 to

² See for example Shalvi et al. (2011), Shalvi et al. (2010), Lammers et al. (2010).

³ See Bucciol and Piovesan (2010), Houser et al. (2010), Hao and Houser (2011).

⁴ Fischbacher and Heusi (2008) state maintaining a favorable self-concept or preferences for appearing honest as possible explanations for this behavior. Similarly, Kartik (2009) explains incomplete cheating with lying costs, such as technological, legal, or psychological constraints.

⁵ See for example Fischbacher and Heusi (2008) or Hao and Houser (2011).

7 euros) while his own payoff is fixed (3.50 euros). In the dictator game the pie size is 7 euros. The dictator can choose how to split the pie between himself and the responder.

Each subject sat at a randomly assigned individual desk, such that her actions could not be observed by others or the experimenter, and was given an envelope. The envelope contained the instructions of the pen-and-paper experiment, a die, a pen, a key, and a smaller envelope. After having written down their decisions on the instructions, participants were asked to put the instructions into the smaller envelope and drop the envelope into a provided urn. We implemented the payout procedure in the following way: Every participant received a copy of instructions which was labeled with the same number as a unique key. The key belonged to a mailbox stand whose boxes were also numbered. For every number we calculated the payoff and filled the corresponding mailbox with the respective payoff. After all the mailboxes were filled, participants could one by one – and without being observed by the experimenter – open their box, take out their envelope, leave their key in the box, and lock the mailbox. After every participant had picked up her payoff, we opened the mailboxes with an extra key. By this means we could guarantee a strictly double anonymous procedure.

We conducted the experiment with students and nuns. All participants were female.⁶ The students' session was conducted with a total of 19 participants in May 2010 at the University of Konstanz, Germany. The nuns' session was conducted with 12 participants in March 2011. The nuns were members of a Franciscan community in Germany.⁷

Among the Franciscan vows, one is the poverty vow. One might object that this vow makes nuns believe that the experimenter might need the money more than themselves. We control for this possible confound with the generosity game.

There are at least two reasons for understating the die roll in the lying game: a preference to appear honest and a preference for not being or appearing greedy. To control for greed we conducted the dictator game.

3. Results and Discussion

If subjects reported truthfully, reported numbers should follow a uniform distribution. Every number should be reported with probability $1/6$. As Figure 1 shows, students' reports⁸

⁶ For gender differences in lying see Dreber and Johannesson (2008) and Erat and Gneezy (forthcoming).

⁷ We approached the nuns with a formal letter explaining the method of experimental economics. We invited them to participate in a study analyzing economic behavior across different professions. Since we guaranteed anonymity, we do not explicitly mention the name of the convent.

⁸ Students' reports are in line with the results of Fischbacher and Heusi (2008) who uses a single-blind procedure. Reporting behavior does not seem to be affected by our double-blind procedure (Fisher exact test, $p > 0.3$)

do not follow an equal distribution. (Kolmogorov-Smirnov⁹, $p < 0.001$). Nor are the nuns' decisions equally distributed (Kolmogorov-Smirnov, $p = 0.081$). Thus, the likelihood is low that the average reported numbers are different because the nuns and students rolled different numbers. Students report 3.84 on average, i.e. the distribution is shifted to the right. Nuns report 1.67. The nuns' distribution is thus shifted to the left. A Wilcoxon ranksum test confirms that students report significantly higher numbers than nuns ($p < 0.001$). The difference is most evident if we focus on the number of reported fours and fives. These are the number that are reported with a probability higher than $1/6$ in Fischbacher and Heusi (2008), i.e. the numbers for which we can infer an increased probability of lying. While 64% of the students report a number higher than three, no nun reports a four or five. Using a binomial test, the numbers are significantly different from a $1/3$ probability (Binomial test, two-sided; nuns: 0.011; students: 0.012). In order to estimate whether the observed behavior is just random, we calculate the likelihood according to the binomial distribution that a certain number of nuns lied in a downward direction. The probability that at least 1, 2, 3, or 4 nuns understated their die roll is 99%, 95%, 82%, and 61%. The probability that at least 1, 2, 3, or 4 students overstated their die roll is 99%, 99%, 99%, and 98%. Admittedly, as a consequence of the small sample the results are not very robust. If one nun had reported 4 or 5, the p-value of the binomial test would have been 0.072.

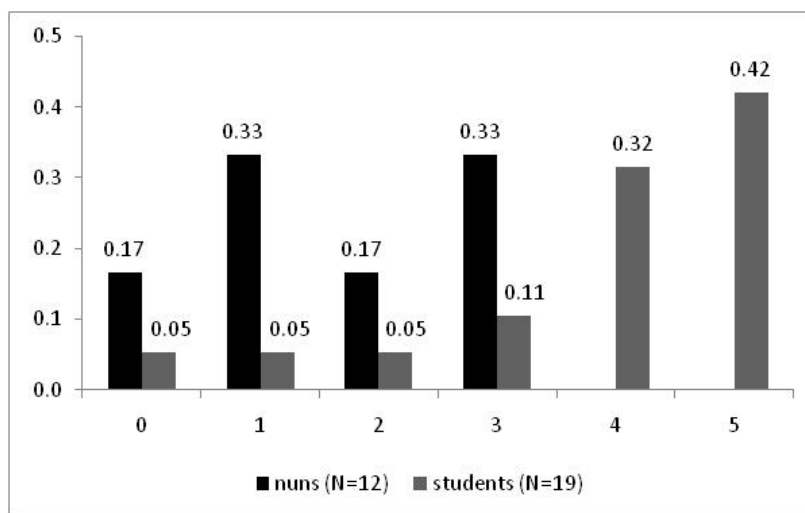


Figure 1: Frequency of payoffs of nuns and students

Our results show that both students and nuns lie. However, motivation and impact are different. By lying, students increase their profits, while nuns decrease their profits. So far the literature has not explored the possibility that people do not cheat in individual decision

⁹ Since Kolmogorov-Smirnov assumes continuous distributions and the Chi-squared test requires a minimum of five observations per class, we calculated the p-value for the Kolmogorov-Smirnov test based on the discrete distribution.

problems to obtain worse outcomes. However, our results show that disadvantageous lies do exist.

In the generosity game the more money that is transferred to the other player, the less there is remaining for the experimenter. Thus, if nuns believe that others need the money more than their convent, they should choose a low payoff for the other nun. However, nuns' behavior does not differ from students' decisions (students: 5.9, nuns: 5.8, Wilcoxon ranksum: $p > 0.7$). Hence, nuns do not seem to take the experimenter's payoff into account more than students.

Apart from a preference to appear honest, another reason for understating the die roll might be a preference for not being or appearing greedy. These two preferences are, however, very difficult to disentangle. In the dictator game we find that nuns are in fact more generous and therefore less greedy than students (students: 1.4, nuns: 4.3, Wilcoxon ranksum: $p = 0.01$). Nevertheless, this result cannot clarify which preference drives the nuns' behavior.

4. Conclusion

This paper explores people's motivations when lying in individual decision problems by exploiting differences between two subject pools: students and nuns. We show that nuns are willing to lie with the effect of reducing their income and provide evidence that people understate the truth, thereby lying to their detriment, even if no social preferences are involved.

We find evidence for overstating and understating the truth, and we suggest potential explanations for lying which understates the truth. First, people might want to influence others' perceptions and have preferences for appearing honest or for not appearing greedy. If the utility gained from a manipulation of another person's belief (in our case: the experimenter) outweighs the material payoff gained from an advantageous lie or the truth, a person will tell a disadvantageous lie. This concept has been ignored so far in individual decision problems. Previous studies might therefore have overestimated the fraction of honest people in individual decision experiments.

A second motivation for undercutting one's own payoff with a lie might be the preservation of a positive self-image. Many people and nuns in particular have a strong moral code or a behavioral norm that they believe defines them or the peer group as a whole. If a person thinks of herself as being honest, she will report honestly. If this person additionally thinks of herself as being modest, lying aversion and greed aversion are in conflict. If greed aversion outweighs lying aversion, the preservation of a positive self-image can make people tell disadvantageous lies.

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