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Abstract

We present experimental evidence on the existence of disadvantageous lies. Literature so far assumes that people do not lie to their monetary disadvantage. However, some people have preferences for appearing honest. If the utility gained from appearing honest outweighs the monetary payoff gained from an advantageous lie or the truth, people will tell a disadvantageous lie.

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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. Thus, people will tell a lie that actually reduces their financial wellbeing if the utility gained from a manipulation of another person's belief outweighs the material payoff gained from a lie to one's monetary benefit or the truth.

In Balzac's oeuvre *Splendeurs et misères des courtisanes*, the main character lies to his own detriment. In this novel, Lucien de Rubenplé cheats in a card game, in order to counter his father-in-law's (justifiable) mistrust. The protagonist lies in order to appear honest. There are also other reasons why people might lie to their monetary disadvantage. For example, a hungry person will not admit to being hungry if it is more important to her to not appear greedy.

However, disadvantageous lies are difficult to detect - especially in environments where we cannot directly measure lying since the event of lying is private information to the potential liar. Nevertheless, in this paper we present evidence for disadvantageous lying. 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 are several studies applying this particular design[2] 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.

Generally, there are three very robust findings: First, the outcome with the highest

[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), Lundquist et al. (2009), Eisenkopf et al. (2011).
[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).

possible payoff (5 in the experiment) 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 people cheat, but not all of them do so to the maximum extent. This incomplete cheating can for example be explained by Akerlof (1983) who states that people prefer appearing honest to actually being honest. He argues that this behavior stems from the substantial long-run economic returns available to those who develop a reputation of integrity. In a laboratory experiment Hao and Houser (2011) show that incomplete cheating can be attributed to an aversion to appearing dishonest rather than an aversion to maximum cheating. The third basic finding is that there is a positive number of people who report the minimum outcome. So far, the literature commonly assumes that people will not lie to their monetary disadvantage and defines those minimum reporters as honest. [4]

We conducted the experiment with nuns and our findings show a completely different pattern. In particular, our subjects do not overreport but underreport high outcomes. Thus, the data rejects the assumption of people not lying to their monetary disadvantage. This shows the existence of disadvantageous lies.

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

2. Experimental Design and Procedure

For the experiment we use the lying game by Fischbacher and Heusi (2008). In this 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. Participants were explicitly told to roll the die more than once in order to check whether the die was fair, but the first roll was the relevant one.

die	1	2	3	4	5	6
payoff	1	2	3	4	5	0

Table: The game

We conducted the experiment with students and nuns. All participants were female. The students' session was conducted with a total number of 19 participants in May 2010. The nuns' session was conducted with 12 participants in March 2011. Each subject sat at a randomly assigned individual desk, such that her actions could not be observed by others, and was given an envelope. The envelope contained the instructions of the pen-and-paper

[4] See for example Fischbacher and Heusi (2008) or Hao and Houser (2011).

experiment, a die, a pen, a key, and a smaller envelope. After having written down their outcome 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 copy of instructions was marked 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 their payoff, we opened the mailboxes with an extra key. By this means we could guarantee a strictly anonymous procedure.

3. Results and Discussion

If subjects reported truthfully, reported numbers should follow an equal distribution. Every number should be reported with probability 1/6. As Figure shows, students' reports do not follow an equal distribution. (Kolmogorov-Smirnov[5], $p<0.001$). Nor are the nuns' decisions equally distributed (Kolmogorov-Smirnov, $p<0.02$).

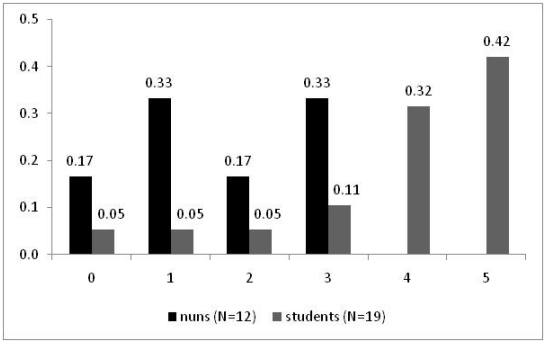

Figure: Frequency of payoffs of nuns and students

Students report 3.84 on average which shifts the distribution 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 ($p<0.001$). Our results show that both students and nuns lie. However, motivation and impact are different. By lying, students

[5] Since Kolomororv-Smirnov assumes continuous distributions and the Chi-squared test requires a minimum of five observations per class, we approximated the theoretical distribution for our game with simulation.

increase their profits, while nuns decrease their profits. So far the literature assumes that people do not cheat to obtain worse outcomes. However, our results show that disadvantageous lies do exist.

One concern regarding the subject pool of nuns deserves discussion. One might object that incentives did not work correctly on the nuns. However, if incentives had not worked, reported outcomes would have been equally distributed. If subjects do not have income-maximizing preferences and no preferences for underreporting their outcome, they will just report their true outcome. But this is not what we see in the data. On the contrary, our subjects are underreporting their outcome, therefore lying to their disadvantage. Apart from a preference to appear honest, another reason for this behavior might be a preference for not appearing greedy. These two preferences are, however, very difficult to disentangle. In a dictator game we find that nuns are in fact more generous and therefore less greedy than students. Nevertheless, this result cannot clarify which preference drives the nuns' behavior.

4. Conclusion

In this paper we present evidence that people are willing to lie with the very purpose of reducing their income. People will do so if the utility gained from a manipulation of another person's belief (in our case: the experimenter) outweighs the material payoff gained from a lie to one's monetary benefit or the truth. This concept has been ignored so far. Until now, the literature assumes that people will not lie to their monetary disadvantage. Previous studies might therefore have overestimated the fraction of honest people in experiments.

5. Literature

Akerlof, G. A. 1983. "Loyalty filters", The American economic review 73 (1), 54-63.

Bucciol, A. and M. Piovesan. 2010. "Luck or cheating? A field experiment on honesty with children", Journal of Economic Psychology 73-78.

Cai, H. and J. T.-Y. Wang. 2006. "Overcommunication in Strategic Information Transmission Games", Games and Economic Behavior 56 (1), 7-36.

Charness, G. and M. Dufwenberg. 2006. "Promises and partnership", Econometrica 74 (6), 1579-1601.

Eisenkopf, G., R. Gurtoviy and V. Utikal. 2011. "Size Matters–When it Comes to Lies", Working Paper Series of the Department of Economics, University of Konstanz

Fischbacher, U. and F. Heusi. 2008. "Lies in Disguise. An experimental study on cheating", TWI Research Paper Series

Gneezy, U. 2005. "Deception: The Role of Consequences", American Economic Review 95

(1), 384-394.

Hao, L. and D. Houser. 2011. "Honest Lies", Interdisciplinary Center for Economic Science, George Mason University, Discussion Papers

Houser, D., S. Vetter and J. Winter. 2010. "Fairness and Cheating", Discussion Papers

Hurkens, S. and N. Kartik. 2009. "Would I lie to you? On social preferences and lying aversion", Experimental Economics 12 (2), 180-192.

Kartik, N. 2009. "Strategic communication with lying costs", Review of Economic Studies 76 (4), 1359-1395.

Lammers, J., D. A. Stapel and A. D. Galinsky. 2010. "Power Increases Hypocrisy", Psychological Science 21 (5), 737-744.

Lundquist, T., T. Ellingsen, E. Gribbe and M. Johannesson. 2009. "The aversion to lying", Journal of Economic Behavior and Organization 70 (1), 81-92.

Rode, J. 2010. "Truth and trust in communication: Experiments on the effect of a competitive context", Games and Economic Behavior 68 (1), 325-338.

Sánchez-Pagés, S. and M. Vorsatz. 2007. "An experimental study of truth-telling in a sender-receiver game", Games and Economic Behavior 61 (1), 86-112.

Sánchez-Pagés, S. and M. Vorsatz. 2009. "Enjoy the silence: An experiment on truth-telling", Experimental Economics 12 (2), 220-241.

Shalvi, S., J. Dana, M. J. J. Handgraaf and C. K. W. De Dreu. 2011. "Justified ethicality: Observing desired counterfactuals modifies ethical perceptions and behavior", Organizational Behavior and Human Decision Processes 181-190.

Shalvi, S., M. J. J. Handgraaf and C. K. W. De Dreu. 2010. "Ethical Manoeuvring: Why People Avoid Both Major and Minor Lies", British Journal of Management 16-27.

Sutter, M. 2009. "Deception Through Telling the Truth?! Experimental Evidence From Individuals and Teams", The Economic Journal 119 (534), 47-60.

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