Are people really averse to lying?

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Abstract

We conducted experiments with deception and dictator games to investigate whether and how subjects tell lies to manipulate their own and counterparts' payoffs. We observed that (1) subjects' experiences of dictator games make them less likely to tell spite and self-interested lies in subsequent deception games, (2) subjects are lie-averse for the altruistic payoff allocations, but lie-loving for the spite and self-interested payoff allocations, (3) the proportion of subjects who tell self-interested lies in our study is larger than that in Gneezy (2005)'s study, and (4) male subjects are more likely to tell lies than female subjects.

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JEL classifications: C91, D63, D64, D83

1. Introduction

Lying sometimes yields benefits. However, people do not always lie even if lying would be advantageous. Therefore, in what situation do people lie for profit? More generally, how are peoples' lying behaviors related to their payoffs? Gneezy (2005) first analyzed how and when people lie for monetary incentives by conducting a series of experiments. He found that subjects are less likely to obtain a certain amount of money by lying in deception games than to allocate the same amount between themselves and their counterpart in dictator games. He concluded that such behavior reflects subjects' aversion to lies.

In our study, using Gneezy (2005)'s framework, we reexamine subjects' lying behavior. By conducting deception games in which subjects can earn profits by telling a lie and dictator games in which they can allocate their payoffs, we examine whether subjects are lie-averse for various payoff functions. We observed the following: (1) subjects are lie-averse for one of the self-interested payoff allocations, but lie-loving for

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the spite payoff allocation; (2) the proportion of subjects who tell self-interested lies in our study is larger than that in Gneezy (2005)'s study; and (3) male subjects are more likely to tell lies than female subjects.

2. The experiment

We conducted a total of six experiments in June and November 2014. Subjects were recruited from undergraduate students at Kinki University; a total of 96 subjects participated in the experiment. The experiment consisted of two games, the *deception game* and the *dictator game*. All subjects played both games.

2.1 The deception game

In the deception games, each subject was paired with another subject in a random manner by the computer program. Subjects in each pair were then randomly assigned the role of either sender or receiver.

After assigning sender and receiver roles, the computer randomly presented one payoff number (as shown in the leftmost column in Table 1) to the computer screen of each sender. The sender was then asked to tell to the receiver which number she had observed by computer. After viewing the sender's message on the computer screen, the receiver was asked to report the number the sender had observed.

The allocation of the payoffs to the sender and receiver was determined by the receiver's answer. If the receiver reported the same number the sender had observed, the payoffs in allocation A in Table 2 were paid to both subjects (e.g., if the sender observed 1 and the receiver answered that the sender observed 1, then both sender and receiver would receive 1200 yen). If the receiver reported a different number than observed by the sender, then the payoffs in allocation B in Table 1 were paid to both subjects (e.g., if the sender observed 1 and the receiver reported that the sender observed 2, then the sender would receive 1200 yen and the receiver would receive 1600 yen).

In the deception games, there was the possibility that the sender would tell a lie and let the receiver report a number different to the one the sender had actually observed in order to receive the payoff in allocation B. In addition, depending on payoff numbers, the sender could tell various types of lies. Along the line of Erat and Gneezy (2012), we define the types of lies below.

Lying in payoff number 1 is defined as an "altruistic lie" because the receiver's payoff in allocation B is larger than that in allocation A. Similarly, lying in payoff number 2 is a "spite lie" because the receiver's payoff in allocation B is smaller than that in allocation A. Furthermore, lying in payoff numbers 3, 4, and 5 are "selfish lies" because

the sender's payoffs in allocation B are larger than those in allocation A.

The deception game was repeated for five rounds. During the five rounds, each sender observed all of the five payoff numbers in random order. For five sessions, each subject's role as either sender or receiver did not change, but the subject with which they were paired changed randomly.

2.2 The dictator game

In the dictator game, each subject was paired with another subject in a random manner by the computer program. Subjects in each pair were then randomly assigned the role of either sender or receiver.

After assigning the roles of sender and receiver, the computer presented the sender with payoff allocations A and B for one of the payoff numbers in Table 1. The sender then decided which allocation the sender and his/her counterpart would receive by selecting either allocation A or B on the computer screen. The receiver then approved the payoff allocation that the sender had decided.

The session was repeated five times. During the five sessions, each sender decided which payoff allocation both subjects would receive for all five payoff numbers in a random order. For five sessions, each subject's role as either sender or receiver did not change, but the subject with which they were paired changed randomly.

Table 1. Payoffs for deception and dictator games

Payoff number	Allocation A		Allocation B	
	Sender	Receiver	Sender	Receiver
1	1200	1200	1200	1600
2	1200	1200	1200	800
3	1200	1200	1600	800
4	1200	1200	1800	400
5	1200	1200	2000	0

3. Results

The results of all six experiments are presented in Table 2. We observe that the differences between the proportion of lies (B in the deception game) and that of unfair allocation (B in the dictator game) are significant for payoff numbers 2 and 3. These differences are not significant for the other payoff numbers. Thus, we obtain the following result.

Result 1: Subjects are lie-loving for the spite payoff allocation, and lie-averse for one of the self-interested payoff allocations.

Table 2. Results of all experiments

Payoff number	Deception game (all)			Dictator game (all)			Test of the equality of proportion
	Allocation			Allocation			
	A	B	% of B	A	B	% of B	
1	53	43	0.4479	53	43	0.4479	z = 0.000, p = 1.000
2	63	33	0.3438	73	23	0.2396	z = 1.588, p = 0.056
3	39	57	0.5938	25	71	0.7396	z = −2.143, p = 0.016
4	31	65	0.6771	32	64	0.6667	z = 0.1535, p = 0.439
5	35	61	0.6354	35	61	0.6354	z = 0.000, p = 1.000

Table 3 compares the proportions of lies in Gneezy (2005)'s study with those in payoff number 3 in our deception game. Although the payoff allocation of truth-telling (allocation A) and lying (allocation B) are different in Gneezy (2005) and our deception game, the proportion of lies in our study is significantly larger than that in Gneezy (2005) for all combinations of payoff allocations. Thus, we obtain the following result.

Table 3. Comparison of subjects' lying behavior in Gneezy (2005) and the present study

Gneezy's (2005) deception game (N = 450)			Deception game in this study (payoff number 3, N = 49)			Test of the equality of proportion
Allocation (sender, receiver)		% of B	Allocation (sender, receiver)		% of B	
A ($5, $6)	B ($6, $5)	0.36	A (¥1200, ¥1200)	B (¥1600, ¥800)	0.594	z = −4.818, p = 0.000
A ($5, $15)	B ($6, $5)	0.17				z = −8.686, p = 0.000
A ($5, $6)	B ($15, $5)	0.52				z = −2.591, p = 0.094

Result 2: The proportion of subjects who tell self-interested lies in our study is larger than that in Gneezy (2005)'s study.

Result 2 might be attributed to the fact that there would be a different cultural background on telling lies between Israeli and Japanese subjects. However, we did not consider the effect of cultural background on subjects' lying behavior in this study. Nevertheless, other characteristics may affect subjects' lying behaviors. In fact, Dreber

and Johannesson (2008) confirmed that male subjects are more likely to tell self-interested lies than female subjects. Can such gender differences in lying behavior be identified in our study?

Column (a) of Table 4 presents the results of a logistic estimation in which we regressed the dummy variable of *Lie* (which takes 1 if a subject lies and 0 otherwise) over the dummy variables of *Male*, *Second_session*, *Altruistic*, *Spite*, *Selfish2* (which takes 1 if the payoff number is 4 and 0 otherwise), and *Selfish3* (which takes 1 if the payoff number is 5 and 0 otherwise)

The estimated coefficient of *Male* is significantly positive, indicating that male subjects are more likely to tell lies than female subjects. This finding is consistent with Dreber and Johannesson (2008).[5] We also confirm that the estimated coefficient of Second_session is significantly negative, and the estimated coefficients of *Altruistic* and *Spite* are significantly negative. These results are consistent with our findings in Table 1.

Column (b) of Table 4 presents the results of the logistic estimation in which we regressed the dummy variable of *Unfair* (which takes 1 if a sender chooses an unfair allocation and 0 otherwise) over *Male*, *Second_session*, *Altruistic*, *Spite*, *Selfish2*, and *Selfish3*. The estimated coefficient of *Male* is significantly positive, indicating that male subjects are more likely to make unfair allocations than female subjects.

The estimated coefficient of *Second_session* is significantly positive, and the estimated coefficients of *Altruistic* and *Spite* are significantly negative. These results are consistent with our findings in Table 1.

From the analysis above, we obtain the following results:

Result 3-1: Male subjects are more likely to lie than female subjects.
Result 3-2: Male subjects are more likely to choose unfair allocations than female subjects.

4 Conclusions

Conducting deception and dictator games, we investigated subjects' lying/dictator behaviors. We observed that (1) subjects are lie-averse for one of the self-interested payoff allocations, but lie-loving for the spite payoff allocation; (2) the proportion of subjects who tell self-interested lies in our study is larger than that in

[5] Erat and Gneezy (2012) observed that women are more likely to tell altruistic lies. However, our results do not confirm this result because the estimated coefficient of Male is not significant in the regression for altruistic lies (which is not reported here).

Gneezy (2005)'s study; and (3) male subjects are more likely to tell lies than female subjects.

Table 4. Results of the logistic regression

(a) Deception game		(b) Dictator game	
Dependent variable: Lie	Estimated coefficient	Dependent variable: Unfair	Estimated coefficient
Male	0.7949** (0.3569)	*Male*	1.3318*** (0.3837)
Second_session	−0.8059** (0.3399)	*Second_session*	0.7419** (0.3613)
Altruistic	−1.0290*** (0.3569)	*Altruistic*	−1.6970*** (0.3937)
Spite	−1.3355*** (0.3632)	*Spite*	−3.1474*** (0.4491)
Selfish2	0.4646 (0.3665)	*Selfish2*	−0.3888 (0.3887)
Selfish3	0.1202 (0.3581)	*Selfish3*	−0.5302 (0.3868)
Constant	0.4409 (0.4174)	*Constant*	0.0499 (0.4306)
Observation	445	Observation	445
Log likelihood	−267.8620	Log likelihood	−243.5917
Wald $\chi^2(6)$	40.48	Wald $\chi^2(6)$	68.19
Pr>χ^2	0.000	Pr>χ^2	0.000

Standard errors are in parentheses. ***: $p < 0.01$, **: $p < 0.05$, *: $p < 0.1$

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