Honesty and Observability

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Introduction

Lying is a fundamental human behavior, yet peoples' motivations for lying and truth-telling are often ambiguous. People often refrain from lying, even when it is advantageous to them. This apparent preference for truth-telling can be explained by factors such as a social cost of lying (the harm felt from being viewed as dishonest) and an intrinsic cost of lying, caused by an underlying moral or psychological desire to be honest.

In Fishbacher & Föllmi-Heusi (2013), participants privately roll a die and report the outcome. Individual results are unknown to experimenters, but since die rolls have a known distribution, lying patterns can be detected on a group level. Gneezy, Kajackaite, & Sobel (2018) introduced an observed treatment in which participants' true messages are recorded by a computer, so individual lies can be detected. They found that people lie less when their lies can be observed, suggesting a social cost of lying. We refer to these experiments as settings with 0% experimenter observability and 100% experimenter observability, respectively.

We expand on these settings by conducting trials at 20% and 50% observability, in which a proportion of decisions are observed but the remainder are not. Our new experimental design allows us to discreetly observe the true message of a fraction of decisions. By varying the likelihood that lies will be observed, we gain greater insight into the tension between personal gains and the desire to be (or appear to be) honest. Additionally, an understanding of how lying behavior changes as the probability of being observed changes could give us insight into methods to maximize truth-telling.

We also use this experimental design to study the effect of a deniable lie option (Tergiman & Villeval, 2023) in this setting, which would allow participants to increase their payoff while facing lower lying costs.

References

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Results

- Data collection is currently in progress, so we do not have finalized results. However, we predict that as observability increases, lying will decrease, as this aligns with our theory of a lying cost tied to social image.
- Below are preliminary results from the 0% and 100% observability treatments of our initial experiment as well as a graph showing generated data for a 20% observability treatment of the "deniable lie" experiment.
- Note that reports directly correspond to payment: A report of 10 results in a payment of $5 and a report of 1 results in a payment of $0.50.
- "Detectable lies" are ones that could be discovered if the participants were in an observed bag, but "deniable lies" always avoid direct detection.

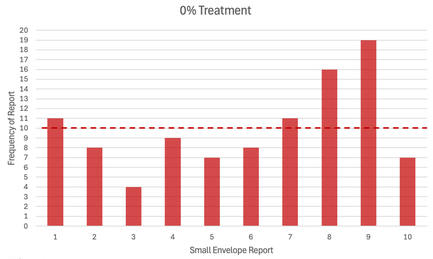

Fig. 1

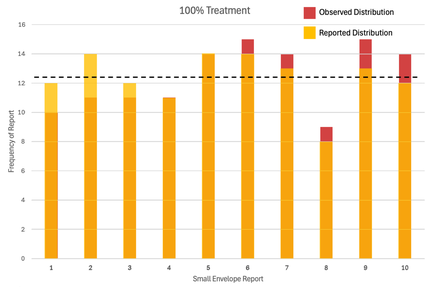

Fig. 2

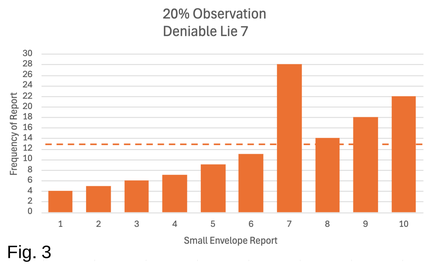

Fig. 3

- Notice that in the 100% treatment (Fig. 2), lower reports are under-reported and higher reports are over-reported compared to the observed frequencies. However, overall lying seems to decrease compared to the 0% treatment (Fig. 1).
- In the deniable treatment (Fig. 3), the generated data shows disproportionately high reports of 7, suggesting people prefer deniable lies.

Modeling + Theory

- In our analysis, we use these utility models to analyze behavior in the context of our experimental scenarios, providing a theoretical framework to accompany our findings.
- We develop proofs to predict how participants will make choices given a certain equilibrium.

Utility for an agent with detectable true message i when j is the detectable lie that maximizes utility and k is the deniable lie that maximizes utility:

$$u_{ii} = v_i + \lambda\beta\theta_i^i + (1-\lambda)\beta\rho_i$$
$$u_{ij} = v_j - t + (1-\lambda)\beta\rho_j$$
$$u_{ik} = v_k - t + \lambda\beta\theta_k^i + (1-\lambda)\beta\rho_k$$

Utility for an agent with deniable true message k when j is the detectable lie that maximizes utility and l is the deniable lie that maximizes utility:

$$u_{kk} = v_k + \sum_m \rho_m\beta\theta_k^m + (1-\lambda)\beta\rho_k$$
$$u_{kj} = v_k - t + \rho_j\beta\theta_j^j + (1-\lambda)\beta\rho_j$$
$$u_{kl} = v_l - t + \sum_m \rho_m\beta\theta_l^m + (1-\lambda)\beta\rho_l$$

Methods

Table 2: Distribution of Folders in the 20% Treatment

Folders	Set of Possible Draws	Frequency of Folder
Observed 1	{1, 1, 1, 1, 1, 1, 1, 1, 1, 1}	2
Observed 2	{2, 2, 2, 2, 2, 2, 2, 2, 2, 2}	2
Observed 3	{3, 3, 3, 3, 3, 3, 3, 3, 3, 3}	2
Observed 4	{4, 4, 4, 4, 4, 4, 4, 4, 4, 4}	2
Observed 5	{5, 5, 5, 5, 5, 5, 5, 5, 5, 5}	2
Observed 6	{6, 6, 6, 6, 6, 6, 6, 6, 6, 6}	2
Observed 7	{7, 7, 7, 7, 7, 7, 7, 7, 7, 7}	2
Observed 8	{8, 8, 8, 8, 8, 8, 8, 8, 8, 8}	2
Observed 9	{9, 9, 9, 9, 9, 9, 9, 9, 9, 9}	2
Observed 10	{10, 10, 10, 10, 10, 10, 10, 10, 10, 10}	2
Unobserved	{1, 2, 3, 4, 5, 6, 7, 8, 9, 10}	80

*The sets with repeated numbers represent 10 envelopes that all contain the same message.

- We use an experimental design based on the Fischbacher and Föllmi-Heusi (2013) die roll experiment with varying levels of observability: 0%, 20%, 50%, and 100%.
- Each treatment uses 100 folders that each contain ten envelopes containing a number from 1-10:
  - "Unobserved" folders contain all numbers from 1-10, so any report could be truthful.
  - "Observed" folders contain 10 of the same number, so any report other than that number is detectable as a lie.
- At the start of the experiment, participants are informed about the distribution of folders and the likelihood of observability and that their payment will be determined by their report.
  - A report of 10 results in the maximum payment of $5, and each lower report decreases the payment by $0.50 increments (9 receives $4.50, 2 receives $1.00, etc.)
- Each participant is randomly assigned a folder numbered 0-99. After drawing an envelope from the assigned folder, they write their report privately and are paid accordingly.
- Because payment is determined by their report, participants are incentivized to lie to receive a larger payment.

- We also implement a "deniable lie" treatment in which every folder contains a number k that if reported by participants, cannot be detected as a lie since it occurs in all possible drawn folders.
- This treatment will reveal if individuals prefer deniable lies that will allow them to better preserve social image.