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Personal Lies

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Comments

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Abstract

Using the mind game, we provide experimental evidence that people are more likely to lie when they disclose non-personal information (e.g., reporting a number they thought of) compared with personal information (e.g., reporting the last digit of their birth year). Our findings suggest that the type of information is an important factor for lying behavior.

Keywords: Lying behavior, personal information, impersonal information, self-concept-maintenance, moral costs, motivated beliefs.

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1. Introduction

Many economic interactions require that individuals disclose information that they possess. To ascertain whether people lie in these settings, experimental methods often employ lying games in which participants have a clear financial incentive to lie because their payments depend on their report. In the original lying game (Fischbacher and Follmi-Heusi, 2013), people roll a die privately and report the outcome, with different reports leading to different payoffs. The mind game makes it even clearer that observation is impossible. Here participants think about the realization of an outcome prior to observing it (Jiang 2013, Potters and Stoop 2016, Kajackaite and Gneezy 2017). Rather than reporting the outcome, participants disclose their thoughts after observing this outcome. For example, participants in Kajackaite and Gneezy (2017) roll a die and receive a payment if they declare that the outcome coincides with this number.[1]

In this paper we rely on the mind game to show that lying behavior depends on the *type* of information. We consider two different types of information: non-personal information (i.e., report an imagined number between 0 or 9, inclusive) or personal information (i.e., the last digit of their birth year).[2] In our pre-registered experiment (with more than 1,000 observations), participants receive a bonus if they report an even number. In the baseline conditions, the bonus is announced to participants after their report. In the treatment conditions, participants know the existence of the bonus before reporting the number. In line with our hypothesis, we find that participants are more likely to lie (and report even numbers) about their non-personal information.

[1] Lying games typically require that participants report the outcome the have observed in private, e.g., after flipping a coin (Bucciol and Piovesan 2011, Janezic and Gallego 2000) or rolling a die (Fischbacher and Föllmi-Heusi 2013, Charness et al. 2019). In fact, the fraction of participants who lie in the mind game is larger than in in the die-roll and coin-flip tasks used in the lying game (Kajackaite and Gneezy, 2017).

[2] Kajackaite and Gneezy (2017) is an example of impersonal information. As for personal information, participants are sometimes requested to report the last digit of their friend's phone number (Gill et al. 2013) or their mother's birth year (Hermann and Brenig, 2022). We argue that the information asked from participants is key to determine the extent to which they lie.

Our work contributes to current research looking at the importance of moral costs in lying. People can have a desire to consider themselves as honest or may want to appear honest in the eyes of others. There have been recent attempts to study the effects self and social-image concerns on lying (Abeler et al. 2019, Gneezy et al. 2018, Fries et al. 2021, Bašic and Quercia 2022; Fehr and Charness 2023 offers a review). Similarly, there are papers that examine whether people lie more when reporting something they did (e.g., their performance in a real-effort task) versus they something they observed (e.g., the outcome of a die-roll), as in Kajackaite (2018). To our knowledge, we are the first to show that the *type* of information (personal or non-personal) may influence the moral cost of lying, thereby affecting lying behavior.

2. Experimental Design and hypotheses

2.1. Experimental design

The experiment was conducted on Prolific in May 2023, through a survey built in Qualtrics. Participation was restricted to US or UK participants living in the UK (First Language: English, Minimum Approval Rate: 80%). There were four treatment conditions in a between-subject design:

- ***Baseline Even (BE)***. Participants were asked to think of a number between 0-9. Then, in a separate screen, they were asked to write it down. After doing so, participants learnt that they would receive a bonus payment of £0.20 if they reported an even number (otherwise, they would receive no bonus payment).
- ***Baseline Birthdate (BB)***. Instead of thinking of a number between 0-9, participants were asked to think of the last digit of their birth year and write it down. The bonus payment of £0.20 was received if they reported an even number.

- ***Report Even (RE).*** After thinking of a number between 0-9, participants were asked to report (in a separate screen) whether the number was odd or even. When making their report, participants knew that they would receive a bonus payment of £0.20 if they reported that this number was even.
- ***Report Birthdate (RB)***. Participants were asked to think of the last digit of their birth year and report whether this was odd or even. When making their report, participants knew that they would receive a bonus payment of £0.20 if they report that the last digit of their birth year was even.

The experiment took approximately 3 minutes. All participants who completed the study and provided the verification code received a show-up fee of £0.50. The hypotheses, design, sampling, and analysis plan were pre-registered at https://aspredicted.org/K2R_YVQ. The instructions are presented in the Online Appendix.

2.2. Hypothesis

Our hypothesis builds on two different results from the current literature. Theories of self-concept maintenance posit that people may want to appear honest (Abeler et al. 2016; Gneezy et al., 2018, Bašic and Quercia 2022). There is also evidence of motivated beliefs in that people manipulate their beliefs in a self-serving manner (Bénabou and Tirole 2002, Gino et al. 2016, Saucet and Villeval, 2019). We combine these two ideas to predict that people will lie more if they have to disclose non-personal information because updating or manipulating their beliefs would be easier in this case; e.g., if people have to report whether they thought of an even/odd number, it is easy for them to change their mind after realizing that they will be paid for reporting an even number. This change of opinion could well be more difficult to justify (higher moral cost) when considering the last digit of their birth.

Prediction. *People lie more when reporting non-personal information compared with reporting personal information.*

To test our prediction, we could compare the frequency of even reports in RE and RB conditions. Note, however, that participants may potentially have a preference regarding thinking of odd or even numbers in the RE condition (e.g., if people like prime numbers, there will be a tendency to think of odd numbers). This would bias the expected distribution of even reports in the RE condition. We expect the same frequency of even/odd birth years in our sample, but it is possible that the Prolific sample is unbalanced in this respect. To address these issues, our baseline conditions make numbers "observable" to the experimenter as participants write them down before learning about the bonus payment. This, in turn, implies that we can detect lying behavior in impersonal (personal) tasks by comparing behavior across the BE and RE treatments and across the BB and RB treatments.[3]

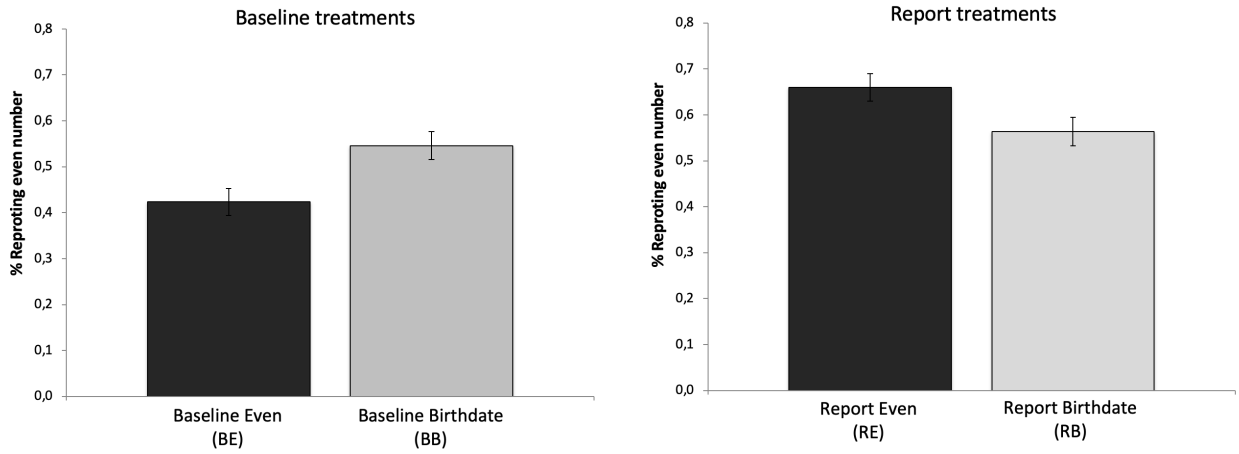
3. Results

Our variable of interest is a dummy variable that takes the value 1 when participants report "even". Figure 1 displays the frequency of even reports in each of the treatments.[4] Error bars reflect standard errors of the mean.

[3] In the instructions, we make it explicit to participants that we will not access their data in Prolific, and their Prolific ID will only be used to pay their bonus. Thus, participants have been (correctly) assured that we cannot learn their true birth year; there is no reason for them to disbelieve us.

[4] Following our pre-registered protocol, we exclude from the analysis participants who did not provide the correct verification code, or duplicate responses. This leaves us with 1,052 observations.

Figure 1: Frequency of even reports



In the BE treatment ($N = 274$), the frequency of even numbers is 42.3%. This is significantly different from 50% (Z = 2.54, $p = 0.011$, two-tailed) test.[5] Perhaps surprisingly, it appears that participants prefer to consider (or at least to report) odd numbers. The frequency of even numbers in the data from the BB treatment ($N = 271$) is 54.6%, which is not significantly different from 50% (Z = 1.52, $p = 0.129$, two-tailed binomial test).[6]

Our main hypothesis is that people are more likely to report even numbers with impersonal information. We find that the frequency of even reports in the RE condition ($N = 250$) is 66.0% and that the frequency of even reports in the RB condition (N= 257) is 56.4%. The difference in rates is significant (Z = 2.21, $p = 0.026$). In addition, the frequency of even reports in the BE treatment is differs significantly from the frequency of even reports in the RE treatment (66.0% vs 42.3%, $Z = 5.43$, $p = 0.000$, one-tailed), while there are no differences in the frequency of even reports when we look at the BB and RB conditions (56.4% vs 54.6%, giving $Z = 0.42$, $p = 0.674$).

[5] Throughout the paper, we report two-tailed *p*-values rounded to the closest three decimals. We follow our pre-registered plan and use the test of proportion in our statistical analysis.
[6] Comparing 42.3% (BE) and 54.6% (BB) gives Z = 2.87, $p = 0.004$.

Result: *People are more likely to lie when reporting impersonal information compared to when reporting personal information.*

Our pre-registered plan includes conducting a secondary analysis for explanatory purposes using linear probability models (see the Online Appendix for the details). We observe no gender differences in the frequency of even reports in any of the treatments (Muehlheusser et al. 2015, Ezquerra et al. 2018). There is a negative effect of age in the RE (Coeff = -0.007, $p = 0.004$) and the RB (Coeff = -0.008, $p = 0.001$); i.e., older people are apparently more honest, since they are less likely to report even numbers in the treatment conditions. Our econometric analysis suggests also that the change in the likelihood of reporting even numbers when the information is personal (RE – BE = 66.0% – 42.3% = 23.7%) is significantly different from the change when the information is impersonal (RB – BB = 56.4% – 54.6% = 1.8%, yielding $p < 0.001$).

4. Conclusion

We study lying behavior when participants are asked to reveal a piece of private information. This can be impersonal information (e.g., reporting an imagined number) or personal information (e.g., reporting the last digit of their birth year).

Our experimental findings provide clear evidence that people lie more frequently when reporting impersonal information. We argue that updating or manipulating beliefs is easier for participants when they need to disclosure impersonal information. Our work contributes to papers that highlight the importance of moral costs. Here we show that the *type* of information may affect lying behavior, as this can be related to self-image concerns.

References

Abeler, J., Nosenzo, D., Raymond, C. (2019). Preferences for truth-telling: A meta study. Econometrica, 87(4), 1115-1153.

Bašić, Z., Quercia, S. (2022). The influence of self and social image concerns on lying. Games and Economic Behavior, 133, 162-169.

Bénabou, R., Tirole, J. (2002). Self-confidence and personal motivation. Quarterly Journal of Economics, 117 (3), 871–915.

Bucciol, A., Piovesan, M. (2011). Luck or cheating? A field experiment on honesty with children. Journal of Economic Psychology, 32(1), 73-78.

Charness, G., Blanco-Jimenez, C., Ezquerra, L., Rodriguez-Lara, I. (2019). Cheating, incentives, and money manipulation. Experimental Economics, 22, 155-177.

Ezquerra, L., Kolev, G., Rodriguez-Lara, I. (2018). Gender differences in cheating: Loss vs. gain framing. Economic Letters, 163, 46-49.

Fehr, E., Charness, G. (2023). Social preferences: fundamental characteristics and economic consequences. CESifo Working Paper No. 10488.

Fischbacher, U., Follmi-Heusi, F. (2013). Lies in disguise: An experimental study on cheating. Journal of the European Economic Association, 11(3), 525-547.

Fries, T., Gneezy, U., Kajackaite, A., Parra, D. (2021). Observability and lying. Journal of Economic Behavior & Organization, 189, 132-149.

Gill, D., Prowse, V., Vlassopoulos, M. (2013). Cheating in the workplace: An experimental study of the impact of bonuses and productivity. Journal of Economic Behavior & Organization, 96, 120-134.

Gino, F., Norton, M. I., Weber, R. A. (2016). Motivated Bayesians: Feeling moral while acting egoistically. Journal of Economic Perspectives, 30(3), 189-212.

Gneezy, U., Kajackaite, A., Sobel, J. (2018). Lying Aversion and the Size of the Lie. The American Economic Review, 108(2), 419–453

Hermann, D., Brenig, M. (2022). Dishonest online: A distinction between observable and unobservable lying. Journal of Economic Psychology, 90, 102489.

Janezic, K. A., Gallego, A. (2020). Eliciting preferences for truth-telling in a survey of politicians. Proceedings of the National Academy of Sciences, 117(36), 22002-22008.

Jiang, T. (2013). Cheating in mind games: the subtlety of rules matters. Journal of Economic Behavior & Organization, 93, 328–336.

Kajackaite, A. (2018). Lying about luck versus lying about performance. Journal of Economic Behavior & Organization, 153, 194-199.

Kajackaite, A., Gneezy, U. (2017). Incentives and cheating. Games and Economic Behavior, 102, 433-444

Muehlheusser, G., Roider, A., Wallmeier, N. (2015). Gender differences in honesty: Groups versus individuals. Economics Letters, *128*, 25-29.

Potters, J., Stoop, J. (2016). Do cheaters in the lab also cheat in the field?. European Economic Review, 87, 26-33.

Saucet, C., Villeval, M. C. (2019). Motivated memory in dictator games. Games and Economic Behavior, 117, 250-275.

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Online Appendix

Personal Lies

Our pre-registered plan includes conducting a secondary analysis for explanatory purposes using linear probability models to see whether male/female participants are more likely to report even numbers. We also ask participants their age. These variables are included as control in our regressions analysis.

Table A.1. Linear probability model on the likelihood of reporting even in each treatment

	Baseline Even	Baseline Birth	Report Even	Report Birth
	(1)	(2)	(3)	(4)
Male	-0.011	0.021	0.013	0.017
	(0.047)	(0.063)	(0.055)	(0.053)
Age	0.001	-0.003	-0.007***	-0.008***
	(0.002)	(0.002)	(0.002)	(0.002)
Constant	0.411***	0.663***	0.917***	0.866***
	(0.103)	(0.105)	(0.099)	(0.104)
Observations	261	252	243	239
R-squared	0.001	0.007	0.034	0.044

Note. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

We observe no gender differences in the frequency of even reports in any of the treatments ($p > 0.737$). We find a negative effect of age in the RE (Coeff = -0.007, p = 0.004) and the RB (Coeff = -0.008, p = 0.001); i.e., older people are apparently more honest, since they are less likely to report even numbers in the treatment conditions.

In Table A.2 we to estimate the likelihood of reporting even in each treatment, with and without controls for gender and age.

Table A.2. Linear probability model on the likelihood of reporting even without controls (model (1)) and with controls for gender and age (model (2)).

	(1)	(2)
Baseline Even (b_{BE})	0.423***	0.591***
	(0.030)	(0.059)
Baseline Birth (b_{BB})	0.546***	0.712***
	(0.030)	(0.058)
Report Even (b_{RE})	0.660***	0.804***
	(0.031)	(0.057)
Report Birth (b_{RB})	0.564***	0.717***
	(0.031)	(0.058)
Male		0.003
		(0.027)
Age		-0.004***
		(0.001)
Observations	1,052	995
R-squared	0.559	0.568

Note. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

We can use these models to test the null hypothesis that changes in the likelihood of reporting even numbers when the information is personal ($b_{BE} - b_{RE}$) are the same as changes in the likelihood of reporting even when the information is impersonal ($b_{BB} - b_{RB}$). We can reject this null hypothesis at any common significance level, both in model (1) ($F = 12.97$, $p < 0.001$) and in model (2) ($F = 11.13$, $p < 0.001$). We therefore conclude that participants lie more when reporting impersonal information compared with reporting personal information.