Deception and Image Concerns: Experiments
Lecture 20, *Experimental Econ. & Psychology*

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19 November 2020

Abstract

We present experimental results about honesty and lying. Here we consider an experiment (Fischbacher & Föllmi-Heusi 2013) in which there are no material incentives for honesty. Moreover, lies will not affect negatively any other player, ruling out alternative explanations that rely on other-regarding preferences. The results are consistent with models of perceived cheating aversion such as the one of Dufwenberg & Dufwenberg (2018). We also report the results of a Meta-Analysis conducted by Abeler et al. (2019).

Introduction

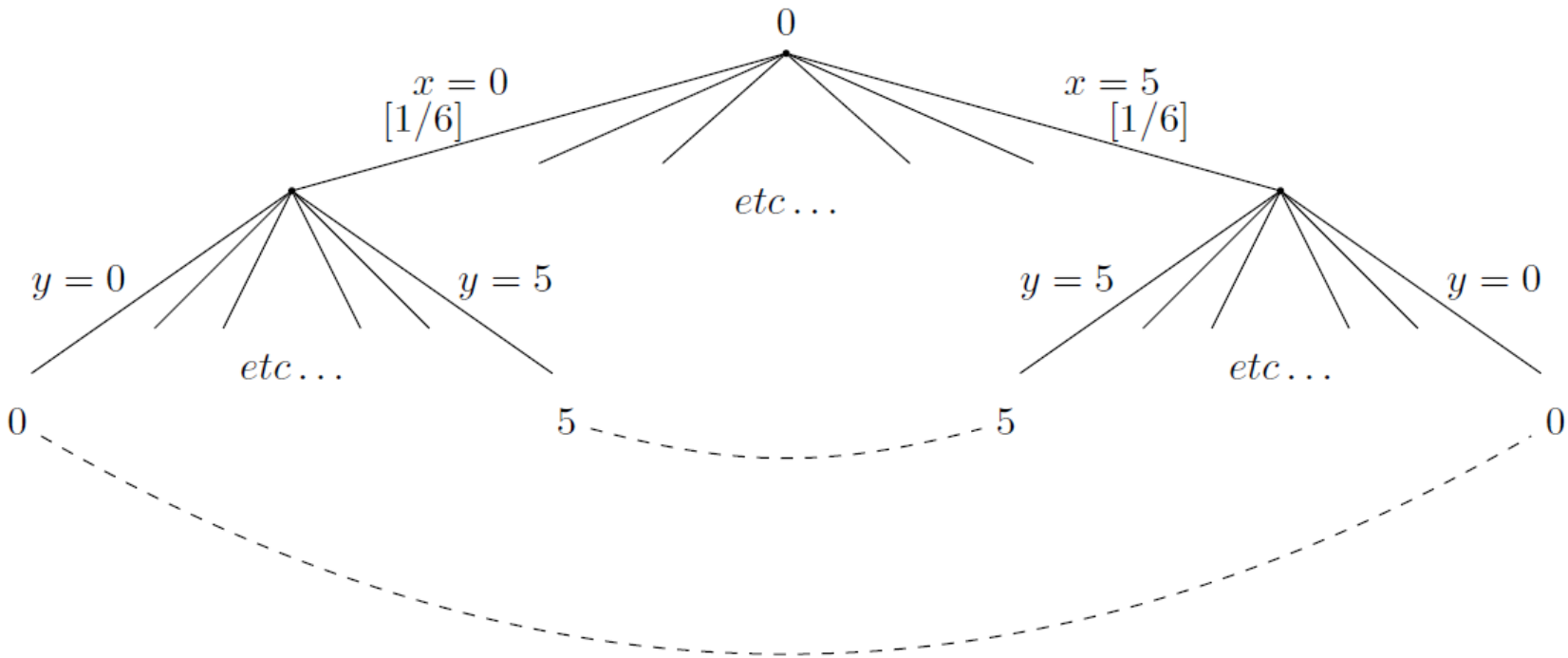
- Many previously analyzed papers involve communication, deception and lies (e.g., Gneezy 2005, Charness & Dufwenberg 2006).
- Here we focus on an experiment (Fischbacher & Föllmi-Heusi 2013, F&FH) in which participants were paid according to the reported realization of a die-roll.
- The seminal contribution of F&FH generated many follow-up papers, which are combined (with many other papers on deceptions in experimental economics, psychology and sociology) in the meta-analysis Abeler et al. (2019).

Reporting Game Form

$$\text{Ch} \xrightarrow{x\in\{0,\ldots,5\}} \text{Pl. 1} \xrightarrow{y\in\{0,\ldots,5\}} (y \ CHF)$$

- Fischbacher & Föllmi-Heussi (2013) analyze experimentally a Reporting Game where:
  - A die is rolled (face-6 of the die counts as 0).
  - The active player (Pl. 1) privately observes the die-roll realization x and then reports a number y.
  - The experimenter observes only the report y.
  - The payoff of the active player is equal to her report.
- Thus, the active player has material incentives to be dishonest and report the highest y, but she may tell the truth if she dislikes to lie or to be perceived as a cheater.

Reporting Game Tree



Experimental Design

- The experiment consists in a one-shot individual decision-making situation and it is part of a broader experimental project. The Reporting Game is used as method to pay the final questionnaire for the broader project. In this way, subjects are unaware of the purpose of the reporting task, avoiding possible biases.
- To experimentally investigate models of lying aversion, F&FH consider several alternative treatments. The main treatment manipulations in the design are:
  - *Payoff Manipulation*: The payoff is multiplied by a factor of 3, making monetary incentives to lie higher.
  - *Externality*: A second subject is added. He receives the remaining part of 5 CHF. Lies negatively affect others.
  - *Anonymity*: The remaining part of 5 CHF is sealed into an envelope and put in a box, ensuring complete anonymity.
  - *No-Die Treatment*: Instead of roll a die, participants choose their payoff. There is no incentive related to honesty to claim anything other than 5 CHF.

Results - Baseline

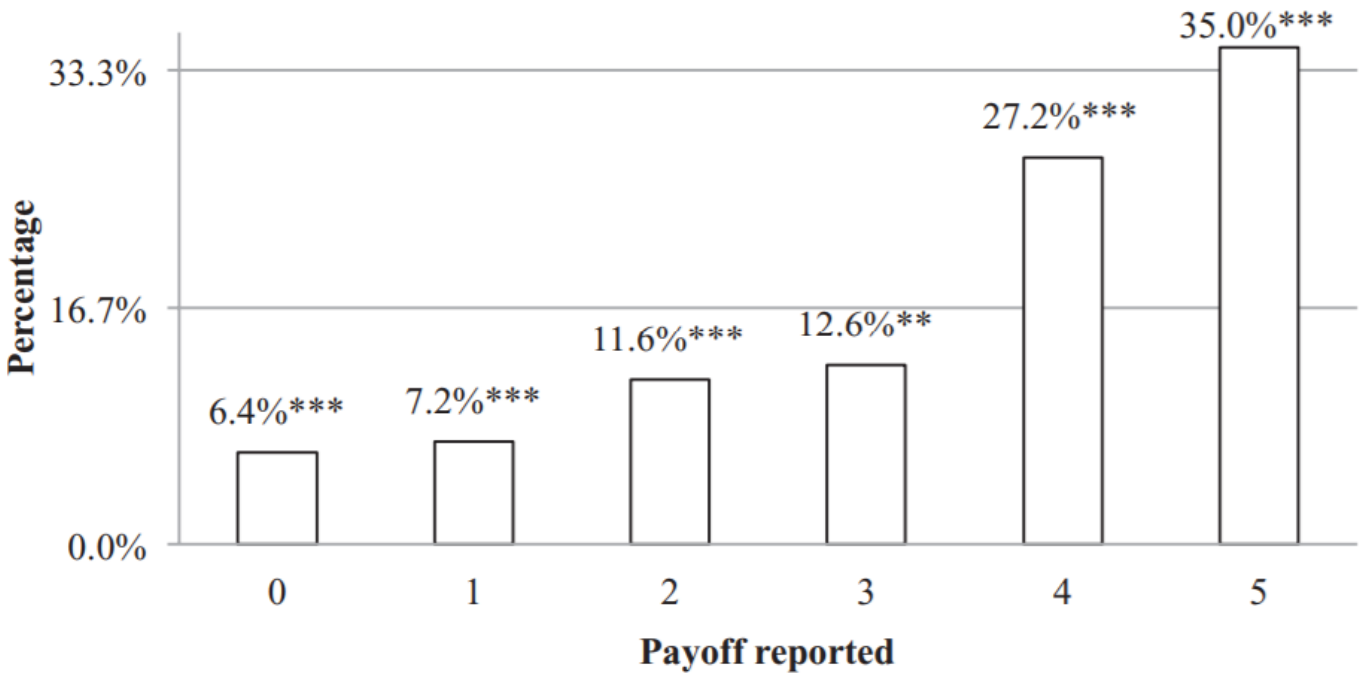


FIGURE 1. Percentage of reported number of subjects in baseline experiment; first participation only (stars display the significance of two-sided binomial test that the observed percentage differs from 16.7%; *10% level, **5% level, ***1% level).

Results - Baseline

- The frequency distribution of reports is increasing, showing that subjects tend to over-report (by the law of large numbers, complete honesty would yield, approximately, the uniform distribution).
- Assuming that no subject reporting a payoff of zero is lying, the estimated percentage of honest subjects is 39%.
- Assuming that a roll of 5 is always reported as such, the percentage of subjects acting as payoff maximizers is at most 22%.
- Significantly more than $\frac{1}{6} \approx 16.7\%$ of subjects report 4, which is evidence of partial lies.
- To sum up, there is evidence for 3 patterns of behavior:
  (1) *Honest subjects:* The fraction of subjects reporting a payoff of 0 is positive.
  (2) *Income maximizing subjects:* The fraction of subjects reporting a 5 is above 1/6.
  (3) *Partial liars:* The fraction of subject reporting a 4 is above 1/6.

Results - Treatments

TABLE 1. Summary of all treatments.

	Share of subjects (in percent) who reported corresponding payoff; one-sided binomial tests that it is smaller (larger) that 100%/6. *(+) = 10%-level, ** (++) = 5%-level, *** (+++) = 1%-level					
	0	1	2	3	4	5
(a) Baseline						
baseline ($n = 389$)	6.43***	7.20***	11.57***	12.60**	27.25+++	34.96+++
(b) High-stake sessions						
baseline ($n = 79$)	2.53***	10.13*	15.19	15.19	17.72	39.24+++
high stake ($n = 80$)	11.25	5.00***	15.00	8.75**	27.50+++	32.50+++
(d) Externality sessions						
baseline ($n = 80$)	8.75**	7.50**	7.50**	8.75**	40.00+++	27.50++
externality ($n = 78$)	8.97**	12.82	8.97**	16.67	25.64++	26.92++
(e) Double anonymous sessions						
baseline ($n = 140$)	5.71***	8.57***	10.71**	17.14	28.57+++	29.29+++
double anonymous ($n = 137$)	6.57***	8.76***	10.22**	17.52	24.09++	32.85+++
(f) No die session						
no die ($n = 34$)	0.00***	2.94**	0.00***	0.00***	11.76	85.29+++

- The results remain stable across all treatments: there is evidence of behavior (1), (2) and (3).

Results - Treatments

- The results of the baseline are replicated in the High-stake treatment. This suggests that the benefit of lying is counter-balanced by the negative effect of the increased cost of lying.
- The results of the Externality treatment do not seem to confirm the hypothesis of Gneezy (2005) that people take into account the payoff consequences of their lies.
- The results remain unchanged in the Anonymous treatment, which seems to show that the concern for the opinion of others does not play a major role.
- In the No-Die treatment there is no incentive related to honesty/truthtelling, and indeed the overwhelming majority of subjects take 4 or 5 CHF.

Results of the Reporting Game vs D&D: Discussion

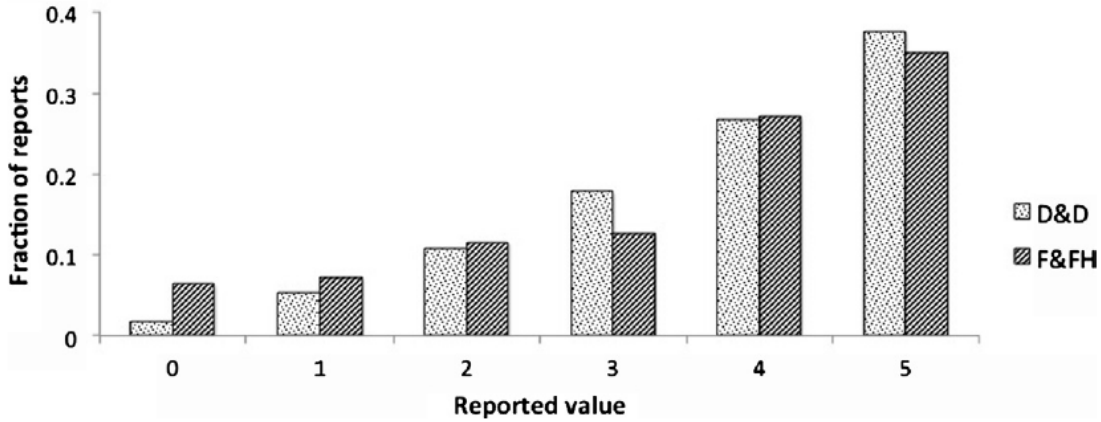


Fig. 2. D&D theory vs F&FH data.

- Recall that the D&D model assumes: $u_1((x,y),\alpha) = T \cdot y - \theta_1 \cdot \sum_{x'} \alpha_2(x'|y) \cdot T \cdot [y - x']^+$, where T is a scale parameter, but their predictions do not depend on T.
- The D&D model accurately explains behavior (1), (2), and (3) in the Baseline and High-stakes treatment.
- The behavior in the Anonymous treatment can't be explained by (a literal interpretation of) models assuming that the report is observed, like the one of D&D.

Reporting Game: Meta-Analysis of Abeler et al. (2019)

- Abeler et al. (2019) combine data from 90 studies, involving more than 44,000 subjects over 47 countries.
- Abeler et al. use the data to test models of preferences for truth-telling.
- To refine their tests, the authors implement additional treatments (let F denote the objective distribution of realizations):
  - *Distribution F*: An urn contains chips worth 4$ and 10$. In F-Low there are 45 chips worth 4$ and 5 worth 10$. In F-High there are 20 chips worth 4$ and 30 worth 10$.
  - *Observability*: The die-roll is simulated by a computer and the experimenter observes it. The subjects are aware of this.

Meta-Analysis: Results

- From the aggregate data:
  - The average report is bounded away from the maximal report.
  - For each objective distribution F, more than one realization is reported with positive frequency.
  - When the objective distribution is uniform, the frequency of reports is weakly increasing w.r.t. the associated payoffs.
  - When the objective distribution has more than three possible realizations, some nonmaximal-payoff realizations are reported more often than their objective probability.
- From their experiment:
  - The objective distribution F influences behavior.
  - Introducing observability has a strong and significant effect on the distribution of reports, making it more similar to the objective distribution of realizations.
  - There is no downwards lying when the realization x is observable.

Meta-Analysis: Results

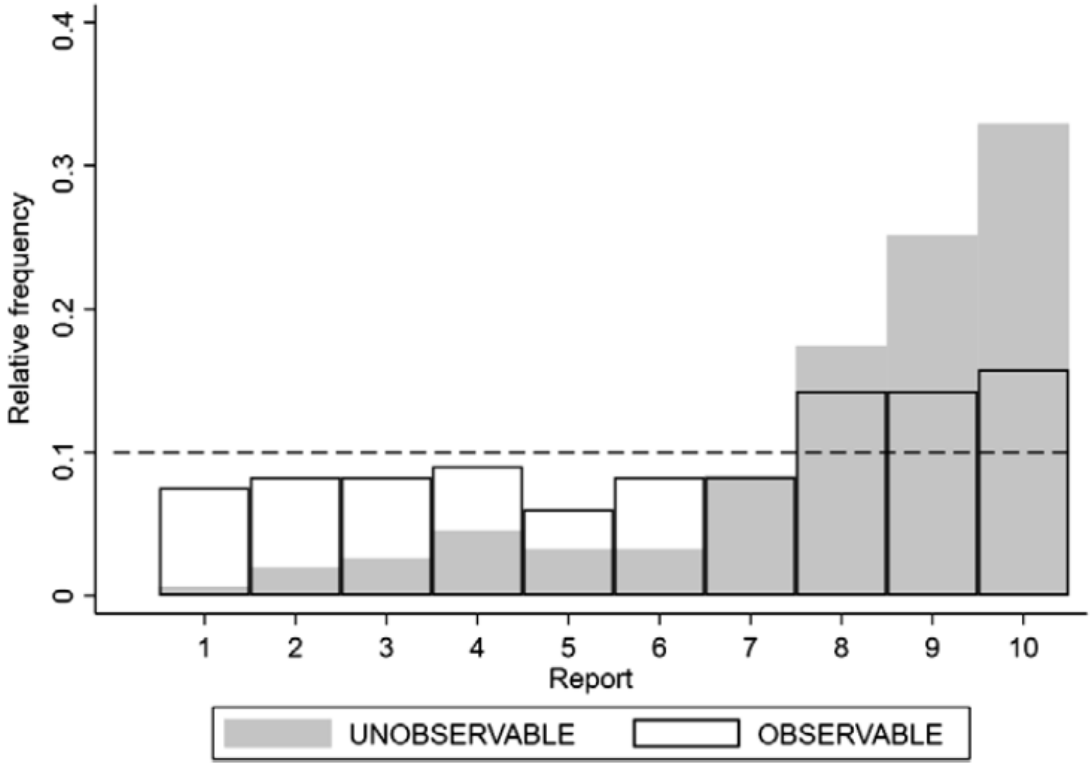


FIGURE 6.—Effect of changing the observability of states.

- **Exercise**: What happens in D&D if x is observable?

Meta-Analysis: Theory Testing

- Among the models considered by Abeler et al. (which do not include D&D), only the Reputation for Honesty + Lying Cost model is not falsified by the data.
- Abeler et al. propose a calibrated utility function with a fixed cost of lying and reputation for honesty. To fit the data they assume that θ is drawn from an uniform distribution.
- The D&D model is not tested explicitly in the paper, but it is consistent with all the aforementioned findings of Abeler et al.

References: general

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