Contents lists available at ScienceDirect

Economics Letters

The bad consequences of teamwork

Ivan Soraperra [a],[*], Ori Weisel [b], Ro'i Zultan [c], Sys Kochavi [c], Margarita Leib [a], Hadar Shalev [c], Shaul Shalvi [a]

[a] CREED, Faculty of Economics and business, University of Amsterdam, Roetersstraat , 11, 1018WB Amsterdam, The Netherlands
[b] Coller School of Management, Tel Aviv University, Tel Aviv 6997801, Israel
[c] Ben Gurion University of the Negev, Beer-Sheva, 8410501, Israel

HIGHLIGHTS

- In collaborative settings people lie more than in settings where they work alone.
- This may be ascribed to the need to collaborate or to exposure to dishonest norms.
- We experimentally test if the need to collaborate increases lying compared to norm exposure.
- We do not find a difference between the two at aggregate level.
- Collaboration increases the frequency of lying of at least one of two partners.

ARTICLE INFO

ABSTRACT

People are rather dishonest when working on collaborative tasks. We experimentally study whether this is driven by the collaborative situation or by mere exposure to dishonest norms. In the collaborative treatment, two participants in a pair receive a payoff (equal to the reported outcome) only if both report the same die-roll outcome. In the norm exposure treatment, participants receive the same information regarding their partner's action as in the collaborative treatment, but receive payoffs based only on their own reports. We find that average dishonesty is similarly high with and without collaboration, but the frequency of dyads in which both players are honest is lower in collaboration than in the norm exposure setting.

1. Introduction

People are averse to lying (Lundquist et al., 2009; Abeler et al., 2016), and often avoid it even in private, tempting situations, in which lies cannot be detected (Fischbacher and Föllmi-Heusi, 2013). However, when the moral cost of lying is offset by engaging in normatively acceptable behavior, such as collaborating with others, people lie more than in comparable settings in which they work alone (Weisel and Shalvi, 2015; Kocher et al., 2016). The increased lying in collaborative settings can be attributed to two factors: (i) exposure to the behavior of others, i.e., to corrupt norms, or (ii) the desire to work together, which fosters closeness and diffusion of responsibility. This paper is the first attempt to test whether working together affects lying beyond the mere exposure to another persons' (corrupt) behavior.

Recent work revealed that exposure to norm violations increases the likelihood to violate rules; In countries with a high prevalence of rule violations (i.e., corruption, political fraud, and tax evasion), people are more likely to engage in self-serving lies compared to countries low on these measures (Gächter and Schulz, 2016), and people are more likely to litter and trespass on private property when the surroundings show signs of negligence (Keizer et al., 2008). With respect to collaboration, there is evidence that bonding, or sharing with others, increase cheating. People lie more when sharing profits than when they work alone (Conrads et al., 2013), are less honest when they are allowed to communicate (independently of whether they share the payoff or not; Kocher et al., 2016), and are more willing to bribe when primed to a collectivistic mindset (Mazar and Aggarwal, 2011). Finally, increasing the feeling of bonding through the administration of oxytocin – a hormone that promotes altruism and bonding with others – fosters group-serving lies (Shalvi and De Dreu, 2014).

* Correspondence to: Postbus 15867, 1001NJ Amsterdam, The Netherlands.
E-mail address: i.soraperra@uva.nl (I. Soraperra).

While these latter studies suggest that collaboration and bonding with others increase lying, they do not disentangle these aspects from the mere exposure to the behavior of others. To address this issue, we designed an experiment to test whether collaboration fosters corrupt behavior above and beyond exposure to corrupt norms. Additionally, we test whether altruistic motives are indeed the underlying factor leading to the shift in lying when collaborating. We do so by manipulating exposure to oxytocin, which was shown to increase pro-social behavior (De Dreu, 2012; Marsh et al., 2015). We hypothesize that oxytocin administration, by boosting social bonding, leads to more corrupt behavior, especially in the collaborative settings.

2. Experimental design and procedures

The experiment consisted of two treatments of a dyadic die-rolling task; *Norm Exposure* and *Collaboration*. The level of bonding with others was manipulated via the administration of either Oxytocin or Placebo.

Task. Two players (A and B) privately roll two dice each and report the outcomes after each roll. The actual outcome of the reports was truly private, allowing players to misreport. In Norm Exposure player A rolled two yellow dice, and player B rolled two blue dice. In Collaboration player A rolled a yellow die first, and then a blue die, and player B rolled a blue die and then a yellow die. In both cases, before rolling for the second time, each player was informed about the number reported by the other player in the first roll, thus holding the level of norm exposure constant between the two treatments.

Payoff. A payoff was generated when two like-colored dice were reported to fall on the same number. The size of the payoff equaled the reported number in New Israeli Shekels (NIS), e.g., a pair of 4's yielded a payoff of 4 NIS. In Norm Exposure each player received the payoff that she generated (i.e., player A (B) received the payoff that stems from the yellow (blue) dice). In Collaboration the players equally shared the payoff that was generated from each pair of like-colored dice.

By comparing the level of dishonesty observed in the Norm Exposure and Collaboration, we can assess the unique contribution of collaboration to lying rates. Note that the two conditions provide the same expected payoff both under the assumption of full honesty and under the assumption of complete dishonesty.

The experiment was programmed in z-Tree (Fischbacher, 2007) and conducted in the Experimental Economics laboratory at Ben Gurion University. 160 healthy male undergraduate students, recruited using ORSEE (Greiner, 2015), took part in a double-blind, randomized placebo-controlled experiment. Participants were assigned to either role A or B, and self-administered a single intranasal dose of either 24 IU oxytocin ($n = 80$; 40 dyads) or placebo ($n = 80$; 40 dyads). After 30 min, allowing the effect of oxytocin to peak (Kirsch et al., 2005; Baumgartner et al., 2008), participants were paired into dyads and each dyad repeated the die rolling task for 10 rounds. At the end of the experiment each participant earned the payoff of one randomly selected round. The average earnings were 90.3 Shekels (23.2 US dollars) including a fixed participation fee of 80 Shekels.[1]

3. Results

As we do not find any notable difference between the Oxytocin and Placebo treatments, we focus in the following discussion and

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[1] In some sessions, participant took part in additional unrelated tasks after the die rolling task was completed. The average earnings include the earnings, about 8.5 Shekels, obtained in these tasks.

presentation of results on the effect of collaboration. An oxytocin dummy is included in the regression analysis for completeness.

We first test whether dyads misreported the actual die rolls, looking separately at the mean report in the first roll, and at the total number of doubles reported by the dyad. Assuming full honesty the mean report should be 3.5, and, given a probability of 1/6 to roll a double in a single round, the mean number of doubles per dyad should be 3.33 (20/6).

Panel (a) of Fig. 1 shows the distribution of first-roll reports along with the theoretical distribution assuming truthful reporting (shaded). The means of the observed distribution, 4.00 in Norm Exposure and 4.18 in Collaboration, differ from the expected 3.5 in both treatments (t-test *p*-values < 0.001). Comparing the two treatments, a Wilcoxon rank sum test does not reject the null hypothesis that the distributions do not differ (*p*-value = 0.444). Model 1 in Table 1 reports a random effects linear regression that tests for treatment effects on the average first-roll report, controlling for the period, the number of doubles observed in the previous period, and the average first-roll report in the previous period. We cannot reject the null hypothesis that collaboration and oxytocin have no effect on the number reported in the first roll. The average report in the first roll is significantly higher after the dyad reported a double in the previous period.

Panel (b) of Fig. 1 shows the distribution of the number of reported doubles per dyad by condition. Also here the means of the observed distributions, 7.25 in Norm Exposure and 8.30 in Collaboration, differ from the expected 3.33 (t-test *p*-values < 0.001). Despite the higher number of doubles observed in Collaboration, however, we cannot reject the null hypothesis that the distributions of the number of doubles per dyad have the same location parameter (Wilcoxon rank sum test *p*-value = 0.158).

Model 2 in Table 1 reports a random effects logit model that tests for collaboration and oxytocin effects on the probability to observe at least one double in a given period. The regression includes the same control variables as Model 1. Also in this case we cannot reject the null hypothesis that collaboration and oxytocin have no effect on the probability to observe at least one double. The probability to observe at least one double is increasing over periods and is higher if the dyad reported higher values in the previous period.

When looking at the data at the dyad level we find evidence that lying is widespread in both Norm Exposure and Collaboration, but we do not find support for additional effects of collaboration and bonding. In the following we open the dyad black-box and analyze dyads' composition in terms of lying. To do so we classify each participant as a (probable) liar or as (probably) honest according to the probability to observe higher outcomes than the ones they reported (see e.g., Greene and Paxton, 2009; Halevy et al., 2014). If the probability to observe a higher outcome is lower than 5% we classify the participant as a liar (L), otherwise we classify him as honest (H). Considering the first roll, the probability that the sum of 10 die rolls is greater than 44, assuming truth-telling, is 0.040 (a sum greater than 43 is obtained with probability 0.058), so we classify subjects as first-roll liars if the sum of their first rolls exceeds 44. For the second roll, the probability to roll 5 or more doubles in 10 attempts is 0.015 (the probability of 4 doubles or more is 0.070). Accordingly, we classify subjects as second-roll liars if the number of doubles exceeds 4. Therefore, each subject can be classified as one of four types – HH, HL, LH, or LL – according to whether they are probable liars in the first and in the second roll.

Fig. 2 shows the distribution of dyads according to the classification of their members. The distributions obtained in the two treatments differ in the number of fully honest dyads, i.e., dyads where both members are probably honest in both rolls (HH). The frequency of these dyads is much higher in Norm Exposure compared to Collaboration (45.5% vs. 17.5%; Fisher exact test, *p*-value

(a) Distribution of average report on the first roll per dyad.

(b) Distribution of doubles per dyad.
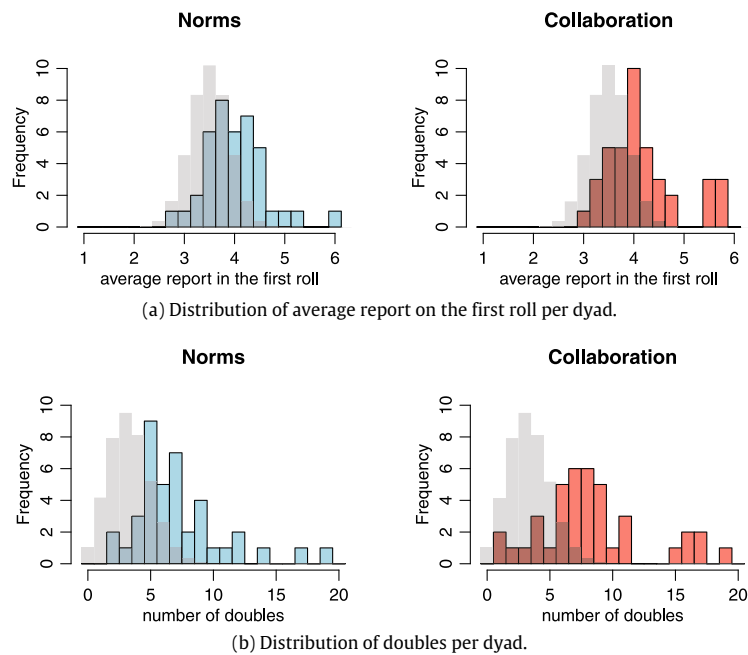
Fig. 1. Distribution of average report on the first roll and distribution of doubles by condition.
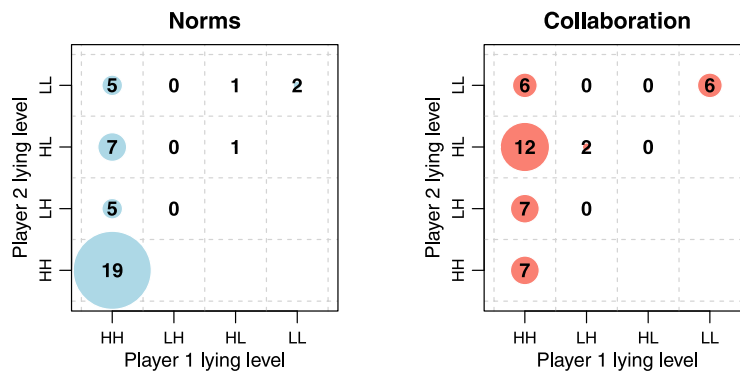

Fig. 2. Classification of dyads by treatment and status of its members (liar or honest).

Table 1
Regression models (standard errors in parenthesis).

	Model 1 RE linear model average of roll 1 at dyad level	Model 2 RE logit dummy: one if the dyad reports at least one double in the round	Model 3 Logit dummy: one if both members of the dyad are classified as HH
Intercept	4.013***	−0.768*	−0.201
	(0.232)	(0.423)	(0.449)
Collaboration	0.299	0.517	−1.534**
	(0.211)	(0.326)	(0.771)
Oxytocin	0.037	0.321	0.201
	(0.211)	(0.317)	(0.634)
Collaboration X oxytocin	−0.283	−0.566	0.148
	(0.298)	(0.456)	(1.052)
Number of doubles in prev. round	0.299***	0.075	—
	(0.068)	(0.152)	—
Mean report in prev. round	−0.033	0.135*	—
	(0.038)	(0.075)	—
Round	−0.020	0.082**	—
	(0.016)	(0.033)	—
N	80 x 9	80 x 9	80

$= 0.008$). Model 3 in Table 1 reports the results of a logit regression that tests treatment effects including oxytocin. The regression confirms the significant effect of collaboration and shows no effects of oxytocin on the likelihood to observe a fully honest dyad.

These results suggest that collaboration does not simply increase the overall level of cheating; rather, its effect is more fine tuned. Specifically, it leads one member of otherwise fully honest dyads (HH–HH) to increase her willingness to misreport in the

second roll and to move from being classified as probably honest in both rolls (HH) to being classified as probably honest in the first roll and a probable liar in the second (HL).

4. Conclusions

The robust finding in our data suggests that both the average report in the first roll and the number of doubles reported was much higher than would be expected if participants are honest, but these reports do not differ when people are exposed to corrupt norms or collaborate with each other. This suggests that exposure to rule violations suffices to liberates people to lie, and that collaboration does not provide further justification above and beyond such exposure.

We find, however, an interesting effect on dyads composition when looking at the classification of individuals to types. There is a significantly lower percentage of fully honest dyads in Collaboration compared to Norms, suggesting that the effect of collaboration in our setting is more nuanced than a simple shift in lying. Indeed, when conditioning on dyads where one subject is classified as fully honest, the likelihood that the other subject is honest as well is much lower in Collaboration (21.9%) than in Norms (52.8%). It seems that engaging in collaborative efforts may push some individuals to compensate for their partner's non-profit maximizing honesty, by lying more.

Acknowledgments

Appendix A. Supplementary data

Supplementary material related to this article can be found online at http://dx.doi.org/10.1016/j.econlet.2017.08.011.

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