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## ORIGINAL RESEARCH REPORT

# The Collaborative Roots of Corruption? A Replication of Weisel & Shalvi (2015)

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The present contribution highlights the importance of context while investigating dishonesty in collaborative settings.

**Keywords:** Dishonesty; Lying; Collaboration; Behavioral norm; Decision Making

People are social animals; many of our good and bad behaviors take place in groups. A recent study by Weisel and Shalvi shows that “collaborative settings led people to engage in excessive dishonest behavior” (2015, p. 10655). The effects are large, spurring concern about harmful real-life consequences. Here, we report two preregistered studies that replicate the original findings, but with a smaller effect size. Moreover, our findings suggest that context moderates corruption in collaboration.

Weisel and Shalvi (2015) examined corrupt collaboration using a novel sequential dyadic die-rolling paradigm. In their Aligned outcomes condition, player A privately rolls a die and reports the outcome to player B (anonymously). Next, player B privately rolls a die and reports the outcome to player A (anonymously). If both players reported the same number, they earned money; otherwise, they earned nothing. This interaction was repeated for 20 trials. The number of reported doubles was the dependent variable. Participants reported a double on 81.5% of trials. This is a staggering 489% more than the chance expectation of 16.7%, and vastly more than the 54.9% doubles that lone players throwing twice report.

Weisel and Shalvi (2015) tested students used to participating in economic studies. In Study 1, we conducted a preregistered replication study<sup>1</sup> of their Aligned outcomes condition to test whether their effect generalizes to students used to participating in psychological but not economic studies (see Simons, Shoda, & Lindsay, in press). Our results<sup>2</sup> are consistent with those of Weisel and Shalvi: participants reported a higher percentage of doubles (29.6%) than expected by chance (16.7%; generalized linear mixed model (GLMM):  $\chi^2(1) = 10.63$ ,  $p < .002$ ; see Appendix A for details). However, our results indicate a lower rate of corruption, with participants reporting fewer doubles than found by Weisel and Shalvi (GLMM:  $\chi^2(1) = 31.01$ ,  $p < .001$ ; **Table 1**)<sup>3</sup>.

There are multiple, mutually compatible explanations for the observed difference in effect sizes. Research shows that published effect sizes tend to overestimate true effect sizes, and such overestimation tends to be greater in pioneering studies that are the first to report an effect, a ‘decline effect’ (Anderson, Kelley, & Maxwell, 2017; Ioannidis, 2008; Simonsohn, 2015). It is possible that the effect sizes observed by Weisel and Shalvi (2015) overestimated the true effect. Further, contextual factors may have affected the difference in effect sizes, and behavioral norms in particular (e.g., Grube, Morgan, & McGree, 1986; Nucifora, Gallois, & Kashima, 1993). Some research suggests that the norm for students used to participating in economic studies is to maximize payoffs, more so than for students used to participating in psychological studies (Cappelen, Nygaard, Sørensen, & Tungodden, 2015; Carter & Irons, 1991; Gerlach, 2017). We do not compare the behavioral norms of these groups. Rather, we directly examine whether causally manipulating behavioral norms affects corruption in collaboration.

To this end, we included norms as a moderator in Study 2. We manipulated the norm by showing participants a visual representation of the findings of the two previous studies (for a similar manipulation, see Kroher & Wolbring, 2015; Rauhut, 2013). Participants were either shown a representation of a distribution of results in which participants lied very often (High behavioral norm), i.e., Weisel and Shalvi’s (2015) data, or less often (Low Behavioral norm), i.e., our Study 1 data (see Appendix B for details). We tested a sample similar to Weisel and Shalvi’s: students who are used to participating in economic studies (recruited with ORSEE; Greiner, 2015). The results showed that participants in the High behavioral norm condition reported more doubles ( $M = 67\%$ ,  $SD = 31\%$ ) than participants in the Low behavioral norm<sup>4</sup> ( $M = 47\%$ ,  $SD = 30\%$ ; see **Table 1**).

Our studies have several strengths, such as being preregistered and replicating a reported large effect, which may have real-life consequences. However, our studies also have limitations. First, we did not include Weisel and

**Table 1:** Median, mean, standard deviation and percentages across studies over 20 trials.

Study	Median	Mean (SD)	Percentage
Study 1 <sup>a</sup> (N = 46)	6.0	5.9(3.8)	30%
Study 2 Low behavioral norm <sup>b</sup> (N = 42)	8.0	9.3(5.9)	47%
Study 2 High behavioral norm <sup>b</sup> (N = 40)	13.0	12.6(6.2)	67%
Weisel and Shalvi (2015): Aligned-outcomes <sup>b</sup> (N = 40)	19.5	16.3(5.1)	82%

<sup>a</sup>Sample used to participating in psychological studies.

<sup>b</sup>Sample used to participating in economic studies.

Shalvi's (2015) Individuals condition in our studies. Hence, we did not replicate their core finding that collaboration increases cheating relative to solitary play. Second, we used a lower monetary compensation than Weisel and Shalvi, possibly reducing our participants' motivation to lie. Although higher incentives do not necessarily increase the magnitude of lies (Fischbacher & Föllmi-Heusi, 2013; Mazar, Amir, & Ariely, 2008), future research may systematically examine the extent to which size of incentives influence the magnitude of dishonesty in collaborative settings.

Finally, our results converge with the idea that collaborative settings can lead to dishonest behavior. Corrupt collaboration can have significant real-life consequences, but the severity of these consequences is likely to depend on context. Previous research highlights the role of social norms and beliefs about such norms in the spreading of dishonest behavior (Keizer, Lindenberg, & Steg, 2008; Rauhut, 2013). Here, we provided evidence suggesting that norms can shape dishonest behavior in a collaborative setting. Investigating what norms increase or decrease dishonesty in real-life settings is a promising avenue for future research.

### Data accessibility statement

The data has been uploaded to the Open Science Framework ([www.osf.io/gh5pd](http://www.osf.io/gh5pd)).

### Additional Files

The additional files for this article can be found as follows:

- **Appendix A.** Details analysis Study 1. DOI: <https://doi.org/10.1525/collabra.97.s1>
- **Appendix B.** Behavioral norm manipulation. DOI: <https://doi.org/10.1525/collabra.97.s2>
- **Appendix C.** Additional analyses. DOI: <https://doi.org/10.1525/collabra.97.s3>
- **Appendix D.** Details analysis Study 2. DOI: <https://doi.org/10.1525/collabra.97.s4>

### Notes

<sup>1</sup> [www.osf.io/gh5pd](http://www.osf.io/gh5pd).

<sup>2</sup> All data was processed and analyzed in RStudio (RStudio, 2012), which is an integrated development environment for R (R Core Team, 2015). Analyses were run with either MLwiN (Rasbash, Charlton, Browne, Healy, & Cameron, 2009) and / or the lme4 package (Bates, Mächler, Bolker, & Walker, 2015).

<sup>3</sup> For Studies 1 and 2, we also investigated whether the dishonesty of player A would influence the dishonesty of player B. These results are discussed in Appendix C.

<sup>4</sup> We used to two different models to analyze the data (see Appendix D for details of these models). The results were similar, both indicating a difference between the two conditions (model 1:  $\chi^2(1) = 4.18$ ,  $p = .04$ , model 2:  $\chi^2(1) = 3.04$ ,  $p = .09$ ).

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### Competing Interests

The authors have no competing interests to declare.

### Authors Contributions

- Contributed to conception and design: JW, GB, WF, DW
- Contributed to acquisition of data: JW
- Contributed to analysis and interpretation of data: JW
- Drafted and/or revised the article: JW, GB, WF, DW
- Approved the submitted version for publication: JW, GB, WF, DW

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#### Peer review comments

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