Probabilistic harm does not increase selfish behavior in a bribe-taking laboratory task

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Abstract

Negative consequences of dishonest behavior likely prevent people from breaking rules for selfish gains. However, dishonest behavior does not always necessarily cause harm and oftentimes, the probability with which its negative consequences occur is unknown. In the present study, we let participants to break rules in a sorting task in order to increase their rewards while simultaneously harming a third party, simulating a bribe-taking. We varied the probability with which the harm occurred while keeping the expected size of harm constant across experimental conditions. We found that probability of negative consequences of corrupt behavior had no effect on bribe-taking.

Key words: dishonesty; bribery; experiment; justification

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1. Introduction

Many studies have explored the effects of punishment probability on criminal and dishonest behavior (e.g., Friesen, 2012; Laske et al., 2018; Nagin, 2013). However, when people decide whether to act in such way, they take into account not only external costs associated with the probability and size of potential punishment, but also the internal psychological costs of wrong-doing (Thielmann & Hilbig, 2019). The perceived internal costs may depend on many factors that affect, for example, the current saliency of self-concept (Mazar et al., 2008), the ease of justification of the behavior (Pittarello et al., 2015), or diffusion of responsibility for it (Dana et al., 2012). However, in any case, the consequences of the dishonest behavior strongly influence the psychological costs: for example, people intuitively refrain from directly harming specific others, but are much more likely to behave dishonestly when nobody (or only the experimenters' budget) is harmed (Köbis et al., 2019). It follows that when dishonest behavior does not have certain negative consequences, the resulting harm may be perceived as less significant, which may help people justify their wrong-doing (Hauser et al., 2007). Moreover, when negative consequences do not always follow dishonest behavior, people may regret not acting selfishly because it might not have had any downside. They may therefore disregard norms of honest behavior to avoid this anticipated regret (Efron et al., 2015). Similarly, when negative consequences of wrong-doing are uncertain, people do not reliably experience negative feedback, which might increase their willingness to act dishonestly on the next occasion (Erev & Roth, 2014).

Bribe-taking is a type of dishonest behavior that may sometimes lead to direct harm to society or specific third parties, but often the harm is indirect or uncertain (Abbink & Serra, 2012). For example, a bribe may attempt to influence a decision that does not depend only on one person, such as when the decision has to be approved by multiple people. In such situation, the person taking the bribe could believe that her behavior does not necessarily have any certain negative consequences. Similarly, disregard for safety norms and regulations sanctioned by a corrupt official may lead to negative consequences only when an accident happens, probability of which is unknown.

Despite the intensive interest in the research of the dishonest behavior in general (Gerlach et al., 2019), and corrupt behavior in particular (Armantier & Boly, 2012; Barr & Serra, 2009), the effects of differing probability of harm are currently still poorly understood. The early bribery experiments (Abbink et al., 2002; Cameron et al., 2009) even failed to find any effect of harm caused by corrupt behavior. However, Barr and Serra (2009) noted that this absence of the effect might be caused by specifics of used experimental designs in which corruption either harms all participants (Abbink et al., 2002) or those harmed are able to reciprocate (Cameron et al., 2009). In their own study, Barr and Serra (2009) demonstrated that high negative externalities in combination with a petty corruption framing actually decreased the likelihood of offering a bribe. More recent studies also found that information about negative externalities effectively deters bribery (Guerra & Zhuravleva, 2019; Senci et al., 2019).

However, studies attempting to explore how the probability of negative consequences of bribery affects corrupt behavior are sparse and inconclusive. Rahimi (2020) found that halving the probability of causing harm increases the likelihood of taking bribes, but the effect was not significant at the conventional 5 % level. Moreover, Rahimi (2020) kept the size of harm constant across conditions, effectively lowering the expected size of harm with lowering its probability. The study design is therefore unable to distinguish whether any difference in

bribe-taking is caused by the uncertainty of harm or rather by the lower expected harm. While the effect of lower expected harm could be explained in line with the previous findings about lower negative externalities leading to more corrupt behavior, making the harmful effects uncertain might affect the bribe-taking in a unique way by creating “a moral wiggle room” for participants. It was suggested that people sometimes avoid information and prefer to stay ignorant about the negative consequences of their behavior to retain a positive self-image despite their harmful actions (Dana et al., 2007). In a similar fashion, when a harm caused by bribe-taking is uncertain, participants may preserve their self-image by believing that the harm will not occur in the specific instance when they decide to take a bribe. However, there are currently no empirical evidence supporting the existence of this mechanism in corruption setting. When participants had an opportunity to avoid information about the negative consequences of bribery, they did not take advantage of it, suggesting that they did not care about protecting their self-image by avoiding information about the caused harm (Balafoutas et al., 2021).

In the present study, we focused on the effect of uncertainty of consequences of bribe-taking on the likelihood of taking a bribe. We manipulated the probability that another party loses money after a participant breaks a rule when performing a given task in order get an additional reward (representing a bribe). Between the experimental groups, we varied the probability and size of the loss while holding the expected value of the loss constant to focus specifically on the uncertainty of the harm. Our expectation was that lower probability of harm will increase the likelihood of bribe-taking.

The paper has five sections. Following this introduction and review of existing literature, Section 2 presents our experimental design, procedure, and participants. Section 3 presents our results and finally, Section 4 reviews our findings and draws some tentative conclusions

2. Experimental design

Preregistration of the study as well as data, analysis scripts, and materials can be found at https://osf.io/pqzyr/?view_only=e6420767c4cc4ebfa42e147d513f1348

2.1. Participants

Participants were recruited from the laboratory subject pool consisting predominantly of university students (~74%) and women (~71%). For the sake of higher anonymity, we did not ask the participants any demographic questions. Three hundred participants finished the study. We excluded 8 participants who did not complete the task properly and performed the analysis with the remaining 292 participants. The participants took on average 13 minutes to complete the task earned on average 121 CZK (~5.7 USD) for themselves. The experiment had sufficient power (.80) to detect an effect $r = .16$.

2.2. Procedure

We modified a sorting task previously used for the laboratory study of bribe-taking (Bahnik & Vranka, 2022a, 2022b; Vranka & Bahnik, 2018) for online administration. Participants were asked to sort 200 objects appearing one-by-one on their computer screen according to the objects' color (see Figure 1 for an illustration of the task). They were awarded 3 points for each sorted object, even when it was sorted incorrectly. Randomly selected ~15 % of the

objects were shown with a number corresponding to “a bribe”¹ that participants could take, that is to earn an additional reward (varying from 30 to 180 points in 10-point increments) when they disregarded the rule and sorted the object according to its shape. However, for each incorrectly sorted object, there was a chance that a charity² loses certain number of points from the 2000 points endowed to it at the beginning. The loss simulated negative societal effects of not performing given work according to the given rule. The loss of points for the charity—if it occurred—was highlighted by increasing the size of the text displaying the current reward for the charity and changing its color to red for one second.

The experiment was conducted online using a custom-written Python (Django) and Javascript web application. Participants were explained the task, completed 10 practice trials and then proceeded with the task itself. The practice trials did not involve any reward or bribes and served only to accustom participants with the sorting task. Afterwards, participants were explained the possibility to earn money for themselves by sorting the objects and the consequences of breaking the sorting rule and sorting objects with numbers according to their shape instead of color. However, they were not told the size or probability of bribes. At the end of the session, all points were converted to a monetary reward using the rate 10 points = 1 CZK (~0.04 USD).

Figure 1. An illustration of a computer screen seen by a participant. The top row shows information about the number of the current trial, the total number of trials, and the number of points currently assigned to the charity organization. In the middle of the screen, an object (a yellow square in this case) is moving from the left side of the screen to the right. The current participant’s reward in points is shown to the right of the screen. In the bottom row, a participant sees which shapes and colors are assigned to keys “J”, “K”, and “L” in this trial (in

¹ While we use the term “bribe” for simplicity and in line with Vranka and Bahník (2018; Bahník & Vranka, 2022a, 2022b), the additional reward can also represent embezzled money or any gain from dishonest behavior in general.

² The charity was chosen by each participant from two well-known Czech charitable organizations before the task.

this example, J is a yellow circle, K is an orange square, and L is a blue triangle). If the participant presses “J” the object would be sorted by its color, that is correctly, and the participant would gain 3 points. If the participant presses “K,” the object would be matched to a wrong color and would cause a loss for the charity with the probability based on the experimental conditions. However, it would be sorted according to its shape, gaining the participant the 120 points marked on the object in addition to the 3 points awarded for each sorted object. Adapted from "Bureaucracy game: A new computer task for the experimental study of corruption," by M. A. Vranka and Š. Bahník, 2018, *Frontiers in Psychology*, 9:1511, p. 3. Copyright 2018 by Vranka and Bahník.

2.3. Design

Participants were divided in one of three groups. In the control group, the charity lost 200 points whenever a participant sorted the object incorrectly. In the medium-probability group, the charity lost 400 points with a 50% probability when a participant sorted the object incorrectly. In the low-probability group, the loss was 2000 points and the probability 10%.

3. Results

Trial-level analysis was conducted using a mixed-effect linear regression.³ The correctness of object classification served as the dependent variable. The model included only trials where the object was correctly sorted according to either shape or color and a bribe was offered. Order of the trial, squared order of the trial (rescaled to range from -0.5 to 0.5), and linear and quadratic contrasts for bribe size were included as covariates. The groups were compared using linear and quadratic contrasts (Schad et al., 2020). Random intercepts for participants were included in the model. Random slopes for participants were included for order and bribe size. Correlations were included only between the random effects for the same variable (i.e., order of the trial and squared order of the trial; linear and quadratic contrasts for bribe size).

Figure 2 shows the probabilities of taking bribes of different sizes in each experimental condition. Table 1 shows the results of the model. Participants were more likely to take higher bribes, but the quadratic effect of bribe size was not significant. Participants were less likely to take bribes in later trials and the quadratic effect suggested a concave relationship between trial order and the probability of taking a bribe. Most importantly, there was no significant linear or quadratic effect of condition.

³ See Gomila (2021) for arguments for the use of linear regression for binary variables. A mixed-effect logistic regression yields similar results:
https://osf.io/t7cph/?view_only=c184ca7645c645fa97c608f45a7d6b29

Figure 2. The relationship between bribe size and the probability of taking a bribe. The graph shows predicted probabilities from a model without order effects.

	Bribe-taking
Condition (linear)	-0.022 (-0.074, 0.029)
Condition (quadratic)	0.015 (-0.039, 0.069)
Bribe size (linear)	0.103*** (0.078, 0.128)
Bribe size (quadratic)	0.016 (-0.0004, 0.033)
Trial number (linear)	-0.071*** (-0.106, -0.037)
Trial number (quadratic)	-0.034** (-0.060, -0.009)
Constant	0.176*** (0.145, 0.207)
Observations	8,642
<i>Note:</i> *p<0.05; **p<0.01; ***p<0.001	

Table 1. The results of the study. The numbers in parentheses represent 95% confidence intervals around the regression coefficients. Random effects are not shown for simplicity.

4. Discussion

Unlike in most experiments, in real life people are seldom certain what the full consequences of their actions would be. When harmful consequences sometimes not necessarily follow a dishonest action, people may use this moral wiggle room as a justification and thus be more likely to behave dishonestly, e.g., to take a bribe. In the present study we explored how making the harmful consequences of bribe-taking less certain affects behavior.

Our results showed that the probability of the harm caused to a charity following bribe-taking did not affect the rate of dishonest behavior; that is, the likelihood of taking a bribe when it always caused harm did not differ from the likelihood when the probability of causing harm was 50 % or only 10 %.

As the expected harm was held constant across the conditions, it is possible that the effect of the lower probability of the negative consequences was fully compensated by the size of the loss. The results complement similar recent findings by Celse et al. (2019) that showed the absence of the effect of uncertainty of obtaining benefits from cheating on the likelihood of behaving dishonestly.

The processes that could have led people to take more bribes when the negative consequences of bribe-taking were uncertain might have been counteracted by opposing processes. For example, when deciding from description rather than experience, people

overestimate small probabilities, so the lowest probability of negative consequences might have seemed subjectively higher than it was objectively (Erev & Roth, 2014; Tversky & Kahneman, 1992), at least when first deciding whether to take a bribe. Potentially large consequences for taking a bribe in the low-probability group might elicit fear and could therefore loom larger than would correspond to their nominal value (cf. Slovic, 1987).

These mechanisms might have worked against the expected processes that would lead people to take more bribes when the negative consequences of bribe-taking were less likely. Given that we did not examine participants' decision process during the task or their perception of the task, these possible processes cannot be distinguished. A process-tracing study may clarify whether the manipulation has no effect or whether it influences different people differently (Schulte-Mecklenbeck et al., 2017). Future studies should also attempt to disentangle the probability and size of harm caused by dishonest behavior by manipulating both factors separately.

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