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Published in:
Journal of Economic Psychology

DOI:
[10.1016/j.joep.2019.102242](https://doi.org/10.1016/j.joep.2019.102242)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2020

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Mulder, L. B., Rink, F., & Jordan, J. (2020). Constraining temptation: How specific and general rules mitigate the effect of personal gain on unethical behavior. *Journal of Economic Psychology*, 76, [102242]. <https://doi.org/10.1016/j.joep.2019.102242>

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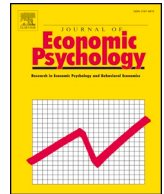
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Constraining temptation: How specific and general rules mitigate the effect of personal gain on unethical behavior



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ARTICLE INFO

Keywords:

Specific rules
General rules
Incentives
Personal gain
Unethical behavior
Moral rationalizations

JEL classifications:

Code
K2
K4

PsychInfo classification code:

3020

ABSTRACT

Rules are often installed in order to constrain unethical behavior. Rules can be framed either in specific (“Don’t accept gifts from clients.”) or general terms (“Don’t engage in conflicts of interest.”). The current investigation examines the effect of specific and general rules on unethical behavior and how this effect depends on personal gain resulting from the unethical behavior. The results of three preregistered experiments suggest that both specific and general rules counteract the increase in unethical behavior induced by high personal gain. Although the results were not fully consistent across all studies, specific rules appear more successful in doing this than general rules. In Studies 1 and 3, when personal gain from unethical behavior was (extremely) high, specific rules were more successful in reducing unethical behavior than were general rules. Results of Study 2 suggest that the larger effect of specific rules (compared to general rules) is caused by specific rules preventing people from engaging in moral rationalizations that justify their unethical behavior. A meta-analysis across all studies confirms this overall pattern. This research contributes to theory on rules, ethical codes, and the influence of personal incentives from unethical behavior.

1. Introduction

Supervisory bodies and governments are continuously struggling to reduce unethical behavior. One way in which authorities typically attempt to do this is by installing rules that prescribe ethical behavior or discourage unethical behavior. Rules can stand alone (i.e., street signs saying “do not litter”) or can be embedded in laws (Feldman & Harel, 2008) and codes of conduct (Kaptein, 2011). Whenever rules are developed, decisions need to be made about the terminology used to describe them. One important aspect of this is framing specificity: a rule can be framed in either a specific (e.g., “Do not accept gifts from clients.”) or a general way (e.g., “Do not engage in conflicts of interests.”). This investigation focuses on the effect of framing specificity on behavioral compliance and on how this is impacted by the temptation to behave unethically. We posit that specific (compared to general) rules are more effective in reducing unethical behavior because they limit people’s ability to morally rationalize these acts (Mulder, Jordan, & Rink, 2015). Further, we posit that this effect is moderated by the temptation of a personal gain resulting from unethical behavior. After all, self-serving moral rationalizations may play a bigger role in ethical decision making as personal gain increases. As specific rules reduce such self-serving moral rationalizations, they may be more effective in reducing the adverse effect of personal gain than are general rules.

We investigated our central proposition across three preregistered experiments and a meta-analysis of these experiments. Overall,

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the results suggest that the effect of personal gain on unethical behavior is mitigated by rules, and especially by specific rules. Particularly when gains from unethical behavior are high, specific rules are superior over general rules in decreasing unethical behavior. Study 2 suggests that this is because specific rules are better able to constrain moral rationalizations. Some isolated findings diverge from the original hypotheses, but in keeping with the philosophy of preregistration, we present the experiments with their original hypotheses from each pre-registration.¹ Unless otherwise stated, methods and analyses described in this manuscript are as specified in the preregistration. For the sake of brevity, some analyses and results are placed in the supplementary material rather than in the main body. Supplementary material and the data of all studies are publicly available at <https://osf.io/z3pt6/files/>.

2. Theory

2.1. Specific and general rules

Almost all organizations and societal institutions have rules intended to provide ethical guidelines. Rules can be formulated either in specific or general terms (Feldman & Harel, 2008; Mulder et al., 2015). Specific rules clearly describe which behaviors are expected of people (e.g., “Do not accept gifts from clients.” or “Keep to the 65 mph speed limit.”), while general rules provide more general, comprehensible guidelines (e.g., “Do not engage in conflicts of interests.” or “Drive safely.”). From a legal perspective, it has been argued that general rules are more costly because of their accompanying potential for litigation and the need to determine in court whether someone has acted in conflict with the rule (Kaplow, 1992; Parisi, 2004). However, in practice, institutions often prefer to use general over specific rules because they are more comprehensive, and thus, efficient (Raiborn & Payne, 1990), and because they are expected to better communicate the “spirit of the rule” (Tenbrunsel, Wade Benzoni, Messick, & Bazerman, 2000). Yet little research exists on the impact of specific and general rules on people’s own ethical decisions and behaviors (Feldman & Smith, 2014).

One reason why specific rules may be more successful than general rules in inducing ethical behavior is that, because of their concreteness, they constrain moral rationalizations. Moral rationalizations are cognitive strategies by which people convince themselves that their unethical behavior is morally acceptable (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; De Bock & Van Kenhove, 2011; Shalvi, Gino, Barkan, & Ayal, 2015). They are a form of motivated reasoning (Kunda & Sinclair, 2000; Kunda, 1990), which is a process whereby people execute cognitive maneuvers to arrive at conclusions that are desirable for them. Moral rationalizations are more likely to occur when judgment criteria are uncertain or vague (Hsee, 1996; Schweitzer & Hsee, 2002; Thompson & Loewenstein, 1992). As general rules are more ambiguous, they leave greater room for interpretation, and hence, for moral rationalizations. For example, when a rule forbids “engaging in conflicts of interest,” this may not stop employees from accepting a gift from a client because they rationalize that it is just “a small gesture of courtesy” that does not compromise their objectivity. As such, with general rules, people are able to reason that their behavior is not violating the rule. A specific rule against accepting gifts from clients allows for less freedom for such self-justifying interpretations, and restricts people from concluding that the act is not violating the rule. Research by Mulder et al. (2015) suggests that, for this reason, specific rules are more effective than general rules in reducing unethical behavior.

However, it is not self-evident that this effect of specific rules will also hold when temptations to engage in unethical behavior becomes very large. Considering the fact that specific rules do not help people understand the spirit of the rule (Tenbrunsel et al., 2000), one may reason that they may no longer stop people from behaving unethically when there are strong motives to do so. However, we argue that, exactly because they work to constrain moral rationalizations, when the gains from unethical behavior are high, specific rules are better tools to encourage ethical behavior than are general rules. We clarify this reasoning in the following sections.

2.2. Personal gain

Temptation to engage in unethical behavior is strongly linked with the personal gain resulting from that behavior (Harkrider et al., 2013; Harris & Bromiley, 2007; Miller, Visser, & Staub, 2005). In the economics and psychology literatures, the terms “incentives”, “personal gain”, “self-interest”, and “rewards” are used interchangeably to describe the extent to which unethical behavior is personally beneficial for an individual. We use the term “personal gain” (see also Kish-Gephart, Detert, Treviño, Baker, & Martin, 2014) to refer to the gain that a person has from unethical behavior. This gain can be financial (e.g., money earned when a sales person lies about a product defect) or non-financial (e.g., social standing in a group as a result of high performance). The importance of the role of personal gain in unethical behavior seems self-evident. In economic models of crime and rational choice theory, incentives for the offender are brought into the equation assuming that people are more likely to engage in unethical behavior when it is rewarding (Becker, 1968; Paternoster & Simpson, 1993). In the business literature, schemes of payments and rewards are generally seen to create perverse incentives to engage in unethical conduct (Carson, 2003). Also, incentives are one of the three corners of the “fraud triangle”, a framework underlying a major part of analyses in accounting and auditing literature on fraud or embezzlement (Buchholz, 2012; Littman, 2010; Soltani, 2014).

Indeed, many studies show support for the notion that unethical behavior increases when gain becomes larger (Conrads, Irlenbusch, Rilke, Schielke, & Walkowitz, 2014; Gneezy, 2005; Gneezy, Rockenbach, & Serra-Garcia, 2013; Harris & Bromiley, 2007;

¹ On request of a reviewer, hypotheses 3, 4, 5 7a and 7c were re-worded to enhance clarity. The content of these re-worded hypotheses remained the same as in the preregistration.

Johnson, Ryan, & Tian, 2009; Kibble, 2007; Soltani, 2014). For example, Gneezy (2005) and Gneezy et al. (2013) demonstrated that, when people earn more money from lying, they are more likely to lie. Comparative analyses of corporate failures identified distorted incentive schemes to be a major culprit of corporate fraud (Soltani, 2014). And research on CEO compensation demonstrated that stock option rewards contributed to financial misrepresentation of company results (Harris & Bromiley, 2007). With regard to non-financial personal gain, people cheated more on performance tasks when they could gain social prestige than when such potential gain was absent (Pascual-Ezama, Prelec, & Dunfield, 2013).

Nevertheless, there is a substantial amount of experimental research that has failed to find effects of personal gain on unethical behavior. For example, in a recent field experiment, people were less inclined to keep a found wallet when it contained a large amount of money than when it contained a small amount of money (Cohn, Maréchal, Tannenbaum, & Zünd, 2019). Moreover, two recent meta-analyses on dishonest behavior (Abeler, Nosenzo, & Raymond, 2019; Gerlach, Teodorescu, & Hertwig, 2019) concluded that people are only to a certain extent dishonest, and that in most experimental contexts, dishonesty levels do not increase when incentives for dishonesty are higher. These findings can be explained by the notion that people are motivated to see themselves as moral beings (Aquino & Reed, 2002; Blasi, 1983; Jordan, Leliveld, & Tenbrunsel, 2015). As engaging in extreme forms of unethical behavior poses a threat to their self-image (Jordan, Mullen, & Murnighan, 2011; Mazar, Amir, & Ariely, 2008; Mulder & Aquino, 2013; Zhong & Liljenquist, 2006), people are more likely to perceive “psychological lying costs” when temptations to behave dishonestly increase (Abeler et al., 2019; Harkrider et al., 2013).

Considering that personal gain may increase the temptation to engage in unethical behavior and, at the same time, brings about “psychological lying costs”, we propose that personal gain may only lead to more dishonesty when people are able to convince themselves that the dishonesty is morally acceptable. That is, when they can morally rationalize their behavior. As stated earlier, moral rationalizations are forms of motivated reasoning (Kunda & Sinclair, 2000; Kunda, 1990). Increasing personal gain is likely to contribute both to the motivation to pursue the gain, and to the motivation to relieve the psychological cost that comes with pursuing these gains. Hence, when personal gain for unethical behavior increases, the motivation to morally rationalize this behavior will concomitantly increase, allowing people to engage in the unethical behavior (Harkrider et al., 2013; Kish-Gephart et al., 2014; Soltani, 2014).

In support of our proposition, research has found that entrepreneurs’ motivation for financial gain increased unethical behavior through moral disengagement (Baron, Zhao, & Miao, 2015). In addition, accounting research suggested that incentives for “earnings management” (i.e., using techniques to present an overly positive view a company’s financial position in order to receive higher stock return), contributed to engaging in it, and this appeared to be explained by one’s inclination to morally disengage from this behavior (Beaudoin, Cianci, & Tsakumis, 2014).

Thus, it seems that the effect of personal gain on unethical behavior is conditional on whether people can engage in moral rationalizations. There may be several contexts that make engaging in such moral rationalizations harder, for example the salience of personal responsibility (Bersoff, 1999) or whether an increase in personal gain goes hand in hand with an increase in harm infliction, the latter of which contributes to awareness of the immorality of the act (Jones, 1991; Kish-Gephart et al., 2014). Another important factor complicating the use of moral rationalization, and hence decreasing the adverse effect of personal gains, is one that we focus on now, namely the presence of rules.

2.3. Personal gain and rules

As we reasoned above, rules interfere with the possibility of engaging in moral rationalizations because rules affect the extent to which a situation is morally ambiguous. Research from Pittarello, Leib, and Gordon-Hecker (2016) shows that ambiguous situations direct people’s attention to information that tempts them to lie. Rules make a situation less ambiguous, especially when they are framed in a specific way, which reduces the opportunity for people to convince themselves that their behavior is morally acceptable (Mulder et al., 2015). Thus, when increased personal gain evokes a motivation to engage in moral rationalizations, specific rules may be successful in depriving people from the opportunity to actually do so. As a result, specific rules may be more successful in constraining the effect of personal gain on unethical behavior than are general rules.

To test the combined effect of personal gain and rules on unethical behavior, we performed three experiments. In these experiments we use the “dice game” (adapted from Gneezy et al., 2013) in which the focal respondents (“Player A”) are each coupled to another respondent (“Player B”) to whom they can lie. More specifically, Player A is paid according to the dice roll that (s)he communicated, and can thus earn money by communicating a dice roll that is higher than the actual roll. Player B, if having decided to “trust” the message of Player A, earns less if Player A has lied than when Player A has told the truth. As such, the lie fosters the self-interest of Player A and harms Player B.

Importantly, however, in the game we use, the magnitude of gain for Player A resulting from lying can be manipulated independently from the size of the harm for Player B. This makes it possible to manipulate personal gain without also manipulating the harmfulness of the unethical behavior, preventing a critical confound. That is, Player A gaining more from their choice does not necessarily mean that Player B will be concomitantly harmed more, as well. Another advantage of this dice game is that Player B also needs to make a decision (trust Player A’s message or not). Hence, Player B is given some agency, which provides Player A with more opportunities to morally rationalize their lies (i.e., Player A could tell themselves that Player B can guess that they are lying which makes Player B partly responsible for their bad outcome). This mirrors many real life situations in which there are ample opportunities to morally rationalize one’s unethical behavior - including displacing blame.

Based on our reasoning, we first hypothesized a main effect of personal gain on unethical behavior. As we can see from the literature discussed, either personal gain has no effect on dishonestly (Abeler et al., 2019; Cohn et al., 2019; Gerlach et al., 2019), or

increases it (Conrads et al., 2014; Gneezy et al., 2013; Gneezy, 2005; Harris & Bromiley, 2007; Johnson et al., 2009; Kibble, 2007; Soltani, 2014). So overall, a (small) positive effect can be expected. Especially because we use an experimental paradigm in which an increase in personal gain is independent on the harm elicited (unlike most personal gain experiments, see Abeler et al., 2019; Gerlach et al., 2019). Hence, we formulate the following hypothesis:

H1. High personal gain will lead to more unethical behavior than low personal gain.

As argued above, we further expect personal gain to interact with rule type. At the time of preregistration, we formulated this effect such that the effect of rule type would be moderated by personal gain because we expected the superiority of specific rules over general rules to be more prominent when personal gain was high, rather than low. Given that a specific rule reduces people's ability to morally rationalize their behavior, we reasoned that it would succeed in reducing unethical behavior in any circumstance, irrespective of personal gain. Since a general rule allows for greater moral rationalization, we thought it would be less successful in decreasing unethical behavior when personal gain is high rather than low. Hence, we had formulated the following hypotheses to test in Study 1:

H2. General rules decrease unethical behavior (as compared to no rule) to a lesser extent when there is low personal gain for unethical behavior than when there is high personal gain for behavior.

H3. Specific rules decrease unethical behavior compared to when there are no rules, and this effect is the same in cases of low or high personal gain for unethical behavior.

Importantly though, progressive insights during this research project now leads us to predict an interaction effect by which the rule will shape the main effect of personal gains on unethical behavior. This reasoning is most coherent with our central theoretical framework, because it captures the notion that the effect of personal gain should become smaller when there is a specific rule (and not when there is a general rule).

3. Study 1

In Study 1, we test Hypotheses 1 through 3 to examine the main effect of personal gain on unethical behavior, as well as the interaction between personal gain and rule type.

3.1. Method²

3.1.1. Participants and design

Study 1 had a 3 (rule: none, specific, general) \times 2 (personal gain: low, high) between-subjects design. Participants were undergraduate business students from a European university who participated for either partial course credit or €4. In addition, they had a chance to win a bonus based on the decisions they made during the experiment. They were recruited using subject pool software and flyers. Each participant was randomly assigned to one of the six conditions and, situated in a private cubicle, completed the study on a computer. A power analysis (using G*Power 3.1 and F-tests) indicated that to obtain significant medium effects of $f = 0.20$, comparable to the ones found in Mulder et al. (2015), with a statistical power of 0.80 per effect and $\alpha = 0.05$, we needed at least 199 participants. We used the stopping rule of two weeks running in the lab and kept to this rule, which rendered 185 respondents (56% female, $M_{\text{age}} = 22.2$, $SD = 2.60$). Post-hoc sensitivity analyses showed that with this sample size, power of 0.80 and alpha of 0.05, the required effect size was $f = 0.21$.

3.1.2. Procedure

All instructions to and responses of the participants were given on the computer (see <https://osf.io/kue2q/> for the complete instruction). We used the "dice game" (adapted from Gneezy et al., 2013). In this game, there was a "Player A" who was paired with a "Player B" (participants of a separate session later in the semester). They played three rounds of the game. After all data had been collected, one A-B pair was randomly selected to be paid out according to their choices of one of the three rounds (also randomly determined). The game entailed that, in each round, the computer assigned either the number 1, 2, 3, 4, 5, or 6 that was shown to Player A. It was up to Player A to decide what message to send to Player B about the specific number assigned to them. Player A earned (in Euros) ten times the number that they reported in his/her message to Player B (i.e., €10 if (s)he reported that a '1' was assigned, €20 if they reported that a '2' was assigned, etc.). Player B decided to or not to follow this message. If Player B followed, (s) he earned €60 if Player A told the truth about the number assigned and nothing (€0) if Player A had not told the truth about the number assigned. If Player B did not follow, (s)he earned €20, irrespective of Player A telling the truth. So, Player A's payment was determined only by his/her own choice of what to report to Player B (the higher number reported, the more Player A earned). By telling a lie by communicating a higher number, (s)he would earn more, but at the same time disadvantage Player B (as following would entail not earning anything). Player B's payment was determined by both the decision whether or not to trust Player A and, if so, by whether Player A had told the truth.

After these instructions, depending on the condition, a rule was presented, after which we asked participants six comprehension

² A preregistration of this study can be found at <https://osf.io/99qv8>.

questions about the game. In order to ensure that they understood the game, we gave participants instant feedback about their answers. Ninety-one percent of participants answered all questions correctly. After a last summary of the game, we reminded participants one more time about the respective rule they had received. Three rounds followed. In each round, the allocated number was presented (the numbers differed between the high- and low-personal gain condition, see below), and Player A's decided what message to send to Player B's by clicking on the message of their choice. A suspicion probe, manipulation check, and several exploratory measures followed.

3.1.3. Rule manipulation

In the specific rule condition, participants read "The rule of the game is: Tell the truth about the assigned number." In the general rule condition, they read "The rule of the game is: Do what is morally right."

3.1.4. Personal gain manipulation

We manipulated personal gain, *between* subject, in Rounds 1 and 3, similar to the operationalization of personal gain that Gneezy et al. (2013) used, and similar to the "pay-off dimension" mentioned in Gneezy, Kajackaite, and Sobel (2018). For the respondents in the high-personal gain condition, the number '1' was allocated in Rounds 1 and 3, whereas for the respondents in the low-personal gain condition, the number '5' was allocated in Rounds 1 and 3. As such, in the high-personal gain condition, Player A could raise his/her earnings by €50 (from €10 by telling the truth to €60 by lying that a '6' had been allocated). In the low-personal gain condition, Player A could only raise his/her earnings by €10 (from €50 by telling the truth to €60 by lying that a '6' had been allocated). Thus, in Rounds 1 and 3, there was more to gain by telling a lie in the high-personal gain condition than in the low-personal gain condition.

As noted, in this set up, the harm done to Player B did not vary with personal gain to Player A. After all, a Player B who chose to follow earned €0 irrespective of whether Player A lied about the number "1" being allocated (high gain) or lied about the number "5" being allocated (low gain). As such, the manipulation of personal gain was not confounded with harm inflicted. In Round 2, the number '3' was allocated in all conditions and was therefore not part of the personal gain manipulation.

3.1.5. Dependent measure

We assessed the extent to which Player A lied about the number allocated in their message to Player B in Rounds 1 and 3. Participants could choose between six message options (e.g., "I will send the message *The assigned number is 1* and will earn €10"). The other five options only differed in the allocated number and the amount earned.

In our decision how to compute the dependent measure, we took into account that the gain manipulation also varied the number of options available to lie for higher gains (after all, in the high gain condition, people could report a 2, 3, 4, 5 or 6 to earn more, while in the low gain condition people could only a 6 to earn more). Hence, we computed two measures of unethical behavior that both included an equal number of possible lies in both the low and high personal gain condition. The first ("Lying behavior") was a count of how often (never, once, or twice) a participant reported a number different than the one allocated in Rounds 1 and 3. So, in this first measure any lie was counted, including "modest lies" (e.g., telling that a '3' was allocated when actually a '1' was allocated) and "irrational" lies (e.g., telling that a '1' was allocated when actually a '5' was allocated). A reasonable argument for this measure was that all lies clearly broke the specific rule of *telling the truth*, as well as the general rule of *doing what is moral*. That is, by deceiving Player B by telling a "wrong" low number, Player B could be "lured" into misguided trust in Player A.

The second unethical behavior measure ("maximal lying") was a count of how often (never, once, or twice in Rounds 1 and 3) a participant had reported that a '6' was allocated, because only the lie that a '6' had been allocated benefitted Player A's in the way intended with the personal gain conditions. The results for maximal lying are presented in the supplementary material at <https://osf.io/bg86w/>. This is also the case for Studies 2 and 3. Whenever the results for maximal lying differed from the results from lying behavior, this is mentioned explicitly in the body text.

3.1.6. Suspicion probe

In order to flag participants who suspected that the influence of personal gain and rules were the foci of the investigation, we asked participants to describe what they thought the experimenters were testing in the study

3.1.7. Manipulation checks

We checked the rule manipulation by the following question: "*In real life, some rules are more specific than others: they clearly specify what behaviors will not be tolerated (for example: "Keep within the 50 km/h limit."). Some rules are more general than others: they provide general guidelines for behavior (for example "Drive safely."). When you think about the rule in this game, do you think it was formulated in a specific or a general way?*" (7-point Likert answering scale, 1 = *very specific*, 7 = *very general*). We checked the personal gain manipulation with two questions: "*Considering the numbers that were assigned to me, it was very tempting to send an inaccurate message to Person B.*" and "*It was often very tempting to lie about the number assigned.*" (1 = *strongly disagree*, 7 = *strongly agree*, Cronbach's $\alpha = 0.78$).

3.1.8. Exploratory measures

Several exploratory measures were administered, including a 9-item measure of moral rationalization, comparable to the items used by Mulder et al. (2015), adapted to our specific experimental context.

3.2. Results

The suspicion probe indicated that 32 (17.3%) players referred to the effect of rules, effect of personal gain, or both, and therefore we excluded them.³ We checked outliers by means of studentized deleted residuals, with the cut-off being determined using a Bonferroni correction (Aguinis, Gottfredson, & Joo, 2012). This meant that the cut-off t-value was determined using a p -value of $0.05/n$, using $n - k - 1$ degrees of freedom (where n stands for the sample size and k for the number of independent variables).

3.2.1. Manipulation checks

As the rule check was not applicable for participants in the no rule condition, our analyses focused on the contrast between specific- and general-rule conditions only. A 2 (rule) \times 2 (gain) ANOVA on this check only demonstrated a main effect of rule, $F(1, 97) = 29.41$, $p < .001$, $\eta^2 = 0.23$; participants regarded the rule in the game as more general in the general- ($M = 4.87$, $SD = 1.69$) than in the specific- ($M = 3.04$, $SD = 1.74$) rule condition, regardless of the gain condition they were in. Thus, the rule manipulation was successful.

Next, a 3 (rule) \times 2 (gain) ANOVA on the gain check showed a main effect of personal gain, $F(1,147) = 24.98$, $p < .001$, $\eta^2 = 0.15$; participants more strongly felt tempted to lie in the high- ($M = 4.43$, $SD = 1.68$) than in the low- ($M = 3.15$, $SD = 1.56$) gain condition. There was no main effect of rule, $F(2,147) = 2.74$, $p = .07$, $\eta^2 = 0.04$, but there was a significant Rule \times Personal Gain interaction, $F(1,147) = 3.27$, $p = .04$, $\eta^2 = 0.04$. This interaction was similar to the pattern of means found in our main results (with gain perceptions only being higher in the high- than in the low-gain condition when there was no rule or a general rule, not when there was a specific rule).

3.2.2. Unethical behavior

Of the 153 respondents, 106 (69%) did not lie, 25 (16%) lied once, and 22 (14%) lied twice. Frequencies and percentages per condition are presented in Table 1.

We performed a 3 (rule) \times 2 (personal gain) ANOVA on unethical behavior.⁴ No outliers were identified. There was a main effect of personal gain, $F(1,147) = 31.09$, $p < .001$, $\eta^2 = 0.17$, with more lying when the gain was high ($M = 0.75$, $SD = 0.86$) rather than low ($M = 0.17$, $SD = 0.44$). There was also a main effect of rule, $F(2,147) = 13.40$, $p < .001$, $\eta^2 = 0.15$, with more lying when there was no rule ($M = 0.83$, $SD = 0.81$) than when there was a general ($M = 0.30$, $SD = 0.66$) or a specific ($M = 0.22$, $SD = 0.57$) rule, Tukey post hoc p 's < 0.001 . The general- and specific-rule conditions did not differ, $p = .81$. There was also a significant Rule \times Personal Gain interaction, $F(2,147) = 3.16$, $p = .045$, $\eta^2 = 0.04$. Pairwise comparisons showed that high personal gain increased lying when there was no rule or a general rule, not when there was a specific rule (see Table 2). In addition, general and specific rules were both more effective in decreasing lying (compared to the no rule condition), but only when gain was high rather than when gain was low.

The same analysis using maximal lying as DV see Table S1 of the supplementary material at <https://osf.io/bg86w/> differed in one aspect: the pairwise comparisons did not show a significant difference between low and high personal gains in the general rule condition.

3.2.3. Exploratory measure: moral rationalization

No significant effects of rules or personal gain, or their interaction, were found on the moral rationalization scale. The analyses are reported in Table S4 of the supplementary material at <https://osf.io/bg86w/>.

3.3. Discussion

The results support Hypothesis 1 that high personal gain leads to more unethical behavior than low personal gain. In addition, as expected, an interaction between rule and personal gain was found, albeit the pattern was different from how Hypothesis 2 and 3 were originally formulated (which proposed that general rules would be more effective in the presence of high rather than low personal gain and that specific rules would be equally effective across the gain conditions). Instead, and consistent with our current argumentation, the obtained pattern of results suggests that the main effect of personal gain is moderated by rule type. More specifically, both rules constrained the adverse influence of high personal gain on dishonesty, but the specific rule was more successful in doing so than was the general rule (at least when all levels of dishonesty were taken into account). Further, under conditions of high personal gain, both rules decreased unethical behavior and, although the specific rule seemed superior over the general rule in this regard, the effect did not reach significance. Interestingly, there was a stronger indication of superiority of specific rule over the general rule when all lies were considered as DV than when maximal lies were considered as DV. This suggests that, in case of high personal gain and a general rule, respondents often chose to lie at moderate levels (i.e. communicating a 2, 3, 4, or 5). This makes sense considering our reasoning that general rules allow for moral rationalizations and that, in presence of the general rule, it is easier to morally rationalize moderate levels of dishonesty than in presence of the specific rule. After all, when communicating a 4, it is easier to tell yourself that your act is in line with the rule of "doing what is morally right" than it is to tell yourself that your act is in line with "telling the truth about the allocated number.

Notably, we did not find evidence for the mediating role of moral rationalizations. This could be because moral rationalizations

³ We also analyzed our data with inclusion of those who referred to the effects of personal gain; doing so rendered similar results.

⁴ Although the distribution of lying was skewed, and according to the preregistration we should transform skewed distributions, we also performed analyses on the transformed measures. This led to roughly the same results. In our paper we report the untransformed ones, based on the suggestions of the reviewers, considering that, with our sample size, the Central Limit Theorem applies.

Table 1
Frequencies and percentage of lying per condition in Study 1.

Personal Gain	No Rule	Specific Rule	General Rule
Low	0 lies: 17 (68%)	0 lies: 26 (92%)	0 lies: 24 (96%)
	1 lie: 7 (28%)	1 lie: 2 (7%)	1 lie: 0 (0%)
	2 lies: 1 (4%)	2 lies: 0 (0%)	2 lies: 1 (4%)
High	0 lies: 5 (19%)	0 lies: 20 (77%)	0 lies: 14 (64%)
	1 lie: 10 (37%)	1 lie: 2 (8%)	1 lie: 4 (18%)
	2 lies: 12 (44%)	2 lies: 4 (15%)	2 lies: 4 (18%)

Table 2
Lying behavior as a function of Personal Gain and Rules, Study 1 (Means and SD).

Personal Gain	No Rule	Specific Rule	General Rule	Total
Low	0.36 ^a (0.57)	0.07 ^a (0.26)	0.08 ^a (0.40)	0.17 ^a (0.44)
High	1.26 ^c (0.76)	0.38 ^{ab} (0.75)	0.55 ^b (0.80)	0.75 ^b (0.86)
Total	0.83 ^b (0.81)	0.22 ^a (0.57)	0.30 ^a (0.66)	

Note: within both columns and rows, means that share a letter in the superscript do not differ, $p < .05$.

were assessed *after* rather than *during* Player A's decision about what message to send to Player B. Our reasoning implied that the temptation induced by high personal gain should evoke motivated reasoning *during* the decision-making process (i.e., ex-ante moral rationalization). After all, ex-ante moral rationalizations are an expression of motivated reasoning in the context of high temptations and possible ambiguity. In Study 1, however, we captured participants' post-hoc moral rationalizations, that is, justifications of behavior already performed. These rationalizations can effectively reduce the threat that people already experience as a reaction to their own immoral act, but would have a low level of connection to the type of rule presented. Thus, in Study 2, we aim to ameliorate this potential methodological artifact by measuring moral rationalizations before the decision occurs.

4. Study 2

For Study 2, we reformulated our hypotheses. Consistent with our argumentation in the theory section, we reasoned that high personal gain would induce moral rationalizations, thus increasing unethical behavior, but that specific rules would leave less room for these rationalizations than would general rules, and would therefore be more successful in constraining the influence of personal gain. So, we retained Hypothesis 1, but adapted Hypotheses 2 and 3 into the following Hypothesis 4:

H4. Personal gain and specific and general rules interact in the following way: high personal gain evokes more unethical behavior than low personal gain, but, a) compared to specific rules, the gap between low and high personal gain is larger when there are no rules and b) compared to specific rules, the gap between low and high personal gain is larger when there are a general rules.

Also, we still expected the specific rule to be superior over the general rule when gain was high. It is conceivable that the induced gain in Study 1 was insufficiently high to tempt people into cheating. Therefore, in Study 2, we increased the personal gain in the high-personal gain condition to €200 and formulated the following (alternative) hypothesis:

H5. A general rule leads to more unethical behavior than a specific rule, but there is only a difference between general and specific rules when personal gain is high and not when personal gain is low.

As a main underlying process variable is moral rationalization, and the post-hoc moralization exploratory measure did not render any results in Study 1, we included a measure of ex-ante moral rationalization in Study 2. This entailed that we asked people to write down their thoughts while making their decisions. As this measure was executed during decision making, it has more external validity than Study 1's post-hoc measure because we were capturing participants' rationalization during the decision-making process. In addition, it captured people's *own* rationalizations rather than items developed by researchers. Nevertheless, we still regarded this as an exploratory measure because people may not have been willing to be open about their reasons for lying and because having to think explicitly about their decision motives might have influenced their decision outcome.

4.1. Method⁵

4.1.1. Participants and design

This study had a 3 (rule: none, specific, general) \times 2 (gain: low, high) between-subjects design. Participants were undergraduate business students from a European university who participated under the same conditions, compensation, and in a similar setting as in Study 1. The same power analysis as in Study 1 was valid, and the same stopping rule of two weeks running in the lab was used and

⁵ A preregistration of this study can be found at <https://osf.io/fswj9>.

followed. This rendered us 242 respondents (41% female, $M_{\text{age}} = 21.4$, $SD = 3.37$). Post-hoc sensitivity analyses showed that with this sample size, power of 0.80 and α of 0.05, the required effect size was $f = 0.18$.

4.1.2. Procedure

The procedure was identical to that of Study 1 with two important adaptations. First, the gain for Player A was now the value of the assigned number as communicated in their message to B, but then multiplied to the third power. So, for example, communicating that a '1' was assigned, would yield Player A €1 ($1 \times 1 \times 1$), while communicating that a '6' was assigned, would yield Player A €216 ($6 \times 6 \times 6$). Second, just before the game started, we introduced the moral rationalization measure as a "think aloud task" by telling participants that we were interested in their thoughts while they were making a decision. In each round, after the allocation of the number, they read the following: "Before you make a decision about what message you will send, we ask you to first write down your thoughts. We are especially interested in the thoughts that you have about the assigned number and any considerations about what you might do." Below this instruction, they typed in their thoughts, and then proceeded to their decision of what message to send.

4.1.3. Manipulations and dependent variable

We manipulated personal gain and rules and operationalized unethical behavior in the same ways as in Study 1.

4.1.4. Moral rationalization

Two independent raters, who were unaware of the purpose of the study, coded participants' think-aloud task text. We instructed these raters to assess whether participants argued why it was justifiable to tell the wrong number to Player B and whether they attempted to convince themselves or the reader that lying was morally acceptable. They coded each text as showing no moral rationalization (0), moderately strong moral rationalization (1), or strong moral rationalization (2). The interrater percent agreement of Rounds 1 and 2 was 81%, and of Round 3 was 79%. For Rounds 1 and 3,⁶ the mean rating of the two raters was calculated and summed into a measure of moral rationalization. Two participants had missing values as they had not completed the think-aloud task.

4.1.5. Manipulation checks

The checks of personal gain and rules were the same as those in Study 1.

4.2. Results

Consistent with the preregistration, we excluded 11 participants who made explicit reference to the effect of rules (and did not exclude those who referred to personal gain). Further, one more participant was excluded as he finished suspiciously fast, failed the attention check, and did not describe his thoughts in the think-aloud tasks. Outlier analyses were identical to Study 1.⁷

4.2.1. Manipulation checks

As in Study 1, a 2 (rule) \times 2 (personal gain) ANOVA on the rule check only revealed a main effect of rule, $F(1, 144) = 37.67$, $p < .001$, with participants regarding the rule to be more general in the general- ($M = 4.95$, $SD = 1.58$) than in the specific- ($M = 3.11$, $SD = 1.98$) rule condition. A 3 (rule) \times 2 (personal gain) ANOVA on the gain check only revealed a main effect of gain, $F(1, 224) = 38.45$, $p < .001$, $\eta^2 = 0.15$, with participants indicating that it was more tempting to lie in the high- ($M = 5.12$, $SD = 1.59$) than in the low- ($M = 3.81$, $SD = 1.60$) gain condition. Hence, both manipulations were successful.

4.2.2. Unethical behavior

Of the 230 respondents, 130 (57%) did not lie, 48 (21%) lied once, and 52 (23%) lied twice. Frequencies and percentages are shown in Table 3.

We performed a 3 (rule) \times 2 (gain) ANOVA on lying behavior. No outliers were detected. There was a main effect of rule, $F(2, 224) = 4.84$, $p = .009$, $\eta^2 = 0.04$, indicating that participants lied more when there was no rule ($M = 0.85$, $SD = 0.88$) than when there was a specific rule ($M = 0.49$, $SD = 0.70$), Tukey post hoc $p = .004$. The general rule condition ($M = 0.62$, $SD = 0.76$) did not differ from the other two conditions. Moreover, as stated in Hypothesis 1, we obtained a main effect of gain, $F(1, 224) = 82.44$, $p < .001$, $\eta^2 = 0.27$, indicating that participants lied more when gain was high ($M = 1.08$, $SD = 0.85$) rather than low ($M = 0.23$, $SD = 0.52$). However, in contrast to Hypothesis 4, the Rule \times Gain interaction was not significant, $F(2, 224) = 1.92$, $p = .15$, $\eta^2 = 0.02$. The pattern of means with post-hoc differences (see Table 4) shows that personal gain increased lying, irrespective of the presented rule.⁸ The same analysis with maximal lying as DV rendered similar results (see Table S2 of the supplementary material at <https://osf.io/bg86w/>).

⁶ Round 2 was left out as, in this round, personal gain was not manipulated and number "3" was assigned for all participants.

⁷ As the results were different from hypothesized, we also used alternative filters (e.g., by using an attention check or different outlier cut-off values). These analyses showed similar results and pattern of means.

⁸ Again, the distribution of lying behavior was skewed. Similar to Study 1, we also performed analyses on the transformed measures. This led to the same results.

Table 3
Frequencies and percentage of lying per condition in Study 2.

Personal Gain	No Rule	Specific Rule	General Rule
Low	0 lies: 30 (75%)	0 lies: 35 (88%)	0 lies: 27 (82%)
	1 lie: 8 (20%)	1 lie: 3 (8%)	1 lie: 5 (15%)
	2 lies: 2 (5%)	2 lies: 2 (5%)	2 lies: 1 (3%)
High	0 lies: 8 (19%)	0 lies: 17 (49%)	0 lies: 13 (33%)
	1 lie: 10 (24%)	1 lie: 6 (17%)	1 lie: 16 (40%)
	2 lies: 24 (57%)	2 lies: 12 (34%)	2 lies: 11 (28%)

Table 4
Lying Behavior as a Function of Personal Gain and Rules (Means and SD), Study 2.

Personal Gain	No Rule	Specific Rule	General Rule	Total
Low	0.30 ^a (0.56)	0.18 ^a (0.50)	0.21 ^a (0.48)	0.23 ^a (0.52)
High	1.38 ^c (0.79)	0.86 ^b (0.91)	0.95 ^b (0.78)	1.08 ^b (0.85)
Total	0.85 ^b (0.88)	0.49 ^a (0.7)	0.62 ^{ab} (0.76)	

Note: within both columns and rows, means that share a letter in the superscript do not differ, $p < .05$.

4.2.3. Moral rationalizations

A 3 (rule) \times 2 (gain) ANOVA on rationalizations detected one outlier, which we excluded from the subsequent analysis. This slightly changed one of the results.⁹ There was a main effect of rule, $F(2, 221) = 6.87, p = .001, \eta^2 = 0.06$, showing that participants engaged more in rationalizations when there was no rule ($M = 0.77, SD = 1.01$) or a general rule ($M = 0.61, SD = 0.84$) compared to when there was a specific rule ($M = 0.29, SD = 0.55$), Tukey post hoc p 's < 0.05 . There was also a main effect of gain, $F(1, 221) = 16.25, p < .001, \eta^2 = 0.07$, showing that participants engaged in more moral rationalizations when gain was high ($M = 0.79, SD = 1.00$) rather than low ($M = 0.33, SD = 0.58$). Yet, in line with expectations, the main effects were qualified by a significant Rule \times Gain interaction, $F(2, 221) = 4.48, p = .01, \eta^2 = 0.04$, which revealed that only the specific rule constrained the temptation induced by a high gain to engage in moral rationalizations; the general rule did not have this effect (see Table 5). This is consistent with our expectations that a specific rule constrains moral rationalizations more than a general rule.

4.3. Discussion

Study 2 showed repeated support for Hypothesis 1: personal gain increased unethical behavior. Also, it once again showed that both rules were successful in mitigating the adverse effect of personal gain. However, in contrast to Hypotheses 4 and 5, the specific rule was now not more successful in decreasing unethical behavior compared to the general rule. Study 2, however, did find support for our reasoning that specific rules constrain moral rationalizations under high gain, and more effectively than do general rules.

A possible explanation for why, in Study 2 (unlike Study 1) specific rules were not superior to general rules in constraining the effect of high personal gain on unethical behavior might be that the exponential gain increase we induced was so high that the incentive structure may have caused people to willfully break the specific rule to benefit from it - even though they could not rationalize that this act was morally acceptable. This might suggest that a specific rule might only become superior to the general rule up to a certain point of gain increase: when gain become extremely high, even a specific rule might be unsuccessful in constraining temptation.

However, another important aspect of Study 2 was the think-aloud task. This task may have made respondents' decisions more deliberate and calculative. For example, when there was a large amount to gain from lying, the instruction to describe their thoughts might have induced participants to reason it would be foolish to tell the truth about their actions. The fact that one was breaking a rule might not change such a calculative way of reasoning and, as such, the specific rule might have been unable to constrain lying when personal gain increased.

5. Study 3

To further investigate these explanations, we performed a third study in which we investigated whether our expected effects only applied to cases in which personal gain was moderately high and not in cases in which personal gain was extremely high. Therefore, we incorporate three levels of personal gain: low, moderately high, and extremely high. In addition, we removed the think-aloud task in order not to interfere with people's spontaneous decision processes. To keep our design simple and limit the number of participants needed, we removed the no rule condition and focused on the specific and the general rule conditions only. We formulated the following hypotheses:

⁹ When including the outlier, the specific and general rule conditions did not significantly differ in the Tukey post-hoc test, $p = .10$.

Table 5
Moral rationalization as a Function of Personal Gain and Rules (Means and SD), Study 2.

Personal Gain	No Rule	Specific Rule	General Rule
Low	0.36 ^a (0.61)	0.27 ^a (0.58)	0.36 ^a (0.58)
High	1.15 ^b (1.17)	0.30 ^a (0.53)	0.82 ^b (0.97)

Note: within both columns and rows, means that share a letter in the superscript do not differ significantly, $p < .05$.

H6. Personal gain will lead to more unethical behavior such that there will be more unethical behavior in the extremely high-personal gain condition than in the moderately high-personal gain condition, and there will be more unethical behavior in the moderately high-personal gain condition than in the low-personal gain condition.

H7. Personal gain and rule type interact in such a way that:

- there is an increase in unethical behavior due to moderately-high personal gain (compared to low-personal gain), but the difference between moderately-high and low personal gain is greater when there is a general rule than when there is a specific rule.
- the increase in unethical behavior due to extremely-high personal gain is not moderated by type of rule: both in the specific rule condition and in the general rule condition, extremely-high personal gain increases unethical behavior to an equal extent.
- a general rule leads to more unethical behavior than a specific rule, but this difference between the general and specific rule is only present when personal gain is moderately high (and not when personal gain is low or extremely high).

5.1. Method

As in the previous studies, we formulated our hypotheses and predetermined our sampling plan, variables, design and analysis plan prior to data collection. However, due to a technical mistake, this plan was not officially preregistered (which was, unfortunately, discovered only after the data was collected). We therefore made an open registration of our original plan (without making changes).¹⁰ All of our methods and analyses described are as specified in this registration.

5.1.1. Participants and design

This study had a 2 (rule: specific, general) \times 3 (personal gain: low, moderately-high, extremely-high) between-subjects design. This time, our main dependent variable in Study 3 was dichotomous.¹¹ Power analysis (using χ^2) based on the small effects size of the specific and general rule contrast in Study 1 ($f = 0.11$) indicated that (with effect size $w = 0.11$, power of 0.80 and $\alpha = 0.05$) — we needed at least 797 participants. Adhering to the stopping rule of 900,¹² a total of 902 (“Player As”) United States citizens (52% female, $M_{\text{age}} = 38.4$, $SD = 11.96$) participated through Amazon Mechanical Turk). Post-hoc sensitivity analyses showed that with this sample size, power of 0.80 and α of 0.05, the required effect size was $w = 0.10$. Participants earned \$1 and had a chance to win a bonus based on the decisions they made during the experiment. The majority (68%) worked as paid employees and 14% was self-employed. Thirty-nine percent had a Bachelor’s degree, 34% had some college or an associate degree, 14% had a master’s degree or higher, 12% had a high school diploma, and $< 0.3\%$ had less than a high school degree. The average income category was \$50,000 to \$59,999. Each participant was randomly assigned to one of the six conditions.

5.1.2. Procedure

The procedure was identical to Studies 1 and 2, except for a few small changes. First, the earnings of Player A attached to the message communicated were now as follows: Communicating a that a ‘1’ was assigned would yield Player A \$10, a ‘2’ would yield \$50, a ‘3’ would yield \$90, a ‘4’ would yield \$130, a ‘5’ would yield \$170, and a ‘6’ would yield \$210. So, in Study 3, the gain of communicating that a ‘6’ was allocated was equally high as in Study 2, but unlike Study 2, the increase from 1 to 6 was not exponential but linear. Further, Player B earned \$210 when (s)he followed and Player A told the truth, \$0 when (s)he followed and Player A lied, and \$70 when (s)he did not follow — regardless of Player A’s truthfulness.

Second, we constructed the three rounds such that personal gain could be regarded as either a between-subjects or a within-subjects manipulation. Consistent with the preregistration, the between-subjects manipulation was of our main interest and the within-subjects manipulation was exploratory. More specifically, all Player A’s were allocated ‘1’ in one round, ‘3’ in another round and ‘5’ in yet another round. We randomized the order of the rounds in which these three numbers were drawn. In line with the between-subjects manipulation, respondents were randomly assigned to either a ‘5’, ‘3’, or ‘1’ in the first round, and hence to the low, moderately-high or extremely-high personal gain between-subjects condition, in which we only looked at behavior from Round 1.

¹⁰ A preregistration of this study can be found at <https://osf.io/btn3m>.

¹¹ This was because, this time, we focused only on Round 1 for our main DV and, as an exploratory DV, also varied the personal gain between rounds and in a within-subjects manner.

¹² The two extra respondents are due to respondents entering the study simultaneously, thus making it hard to arrive at the exact desired sample size.

5.1.3. Manipulations

We manipulated rules in the same way as in Studies 1 and 2: personal gain as a between-subject variable, only now by what number was allocated in Round 1. That said, since there were three rounds (in which Player As encountered the full array of numbers), one could alternatively regard the design as a mixed-subjects design, with personal gain as a *within*-subjects factor. This was an explorative option for data analysis.

Participants in the low-gain condition were allocated a ‘5’ in the first round (i.e., truthfulness would yield \$170 and the additional gain from lying would be \$40), participants in the moderately-high gain condition were allocated a ‘3’ in the first round (i.e., truthfulness would yield \$90 and the additional gain from lying would be \$120), and participants in the extremely-high gain condition were allocated a ‘1’ in the first round (i.e., truthfulness would yield \$10 and the additional gain from lying would be \$200).

5.1.4. Dependent measure

Unethical behavior was assessed as a dichotomous variable, with Player A either lying or telling the truth in Round 1. As in Studies 1 and 2, we computed two measures: “lying” and “maximal lying”.¹³

5.1.5. Manipulation check

The rule check was similar to that of Studies 1 and 2. As participants experienced all levels of personal gain, there was no gain check.

5.2. Results

We excluded eight participants who made explicit reference to the effect of rules. Outlier analyses were identical to Studies 1 and 2.

5.2.1. Manipulation check

A *t*-test with rule as the independent and the rule check as the dependent variable showed a significant effect, $t(892) = 14.00$, $p < .001$, demonstrating that participants regarded the rule as more general in the general ($M = 4.35$, $SD = 1.96$) than in the specific ($M = 2.61$, $SD = 1.75$) rule condition. Thus, the rule manipulation was successful.

5.2.2. Unethical behavior

Of the 894 respondents, 766 (86%) did not lie and 128 (14%) lied in the first round. Frequencies and percentages of lying in Round 1 per condition are presented in Table 6. We dummy coded personal gain into a low-personal gain dummy and a moderately-high personal gain dummy (to be contrasted against high personal gain when entered in the same analysis). We performed a logistic regression¹⁴ with lying in Round 1 as dependent variable and rule (dummy coded), the low- and moderately-high personal gain dummies and the interactions between those as independent variables. Also, we included income as a covariate.¹⁵ This rendered a main effect of rule ($B = 0.60$, $p = .03$, $Exp(B) = 1.82$) for the low-personal gain dummy ($B = -0.90$, $p = .01$, $Exp(B) = 0.41$). The moderately-high personal gain dummy ($B = -0.61$, $p = .08$, $Exp(B) = 0.54$), the interactions between rule and the low-personal gain dummy ($B = -0.30$, $p = .54$, $Exp(B) = 0.74$), and between rule and the moderately-high personal gain dummy ($B = -0.64$, $p = .18$, $Exp(B) = 0.53$) did not reach significance. Nonetheless, we performed post-hoc tests using separate crosstabs analyses, which showed that an extremely-high gain increased the percentage of liars (as compared to low- and moderately-high gain), but only in the presence of a general and not a specific rule. In addition, these post-hoc tests showed a difference between specific and general rules in the extremely-high personal gain condition (see Table 6). The same analysis with maximal lying as DV rendered similar results (see Table S3 of the supplementary material at <https://osf.io/bg86w/>).

In contrast to Hypotheses 7b and 7c, we found a differential effect of rule type for the extremely-high gain condition instead of for the moderately-high gain condition. For exploratory reasons, we also tested our effects over all rounds using a logistic regression with standard errors clustered on the individual level, and separate crosstabs and McNemar tests for contrast effects. Results of these analyses are roughly the same as the ones reported above (see Tables S5 and S6 of the supplementary material at <https://osf.io/bg86w/>).

5.3. Discussion

Hypothesis 6 predicted that the moderate-high personal gain condition would yield more lying than the low personal gain condition and that the extremely-high personal gain condition would yield more lying than the moderate- and low-personal gain conditions. This was partly supported, as results showed that extremely-high personal gain (compared to low- and moderately-high

¹³ For our exploratory mixed-design analyses, we also calculated similar dichotomous scores for Rounds 2 and 3.

¹⁴ In line with the preregistration, we first performed a hierarchical log-linear analysis. This rendered the same results. In answer to the suggestion of a reviewer, we reported the logistic regression.

¹⁵ This was consistent with the preregistration and was done because we considered personal gain to be subjective (depending on income, the same gain can be considered high by some and low by others). This was more of an issue in Study 3 because, with M – Turk workers as participants, we expected a larger variance in income than in Studies 1 and 2, where undergraduate students were participants.

Table 6
Frequencies and percentages of Liars in the First Round, Study 3.

Personal Gain	Specific Rule	General Rule
Low	13 (8.3%) ^a	15 (10.6%) ^a
Moderately high	14 (10.4%) ^a	16 (10.1%) ^a
Extremely high	29 (18.2%) ^a	41 (28.7%) ^b

Note: within both columns and rows, means that share a letter in the superscript do not differ, $p < .05$.

personal gain) increased lying, but that moderately-high personal gain did not increase lying compared to low personal gain. Apparently, lying about a “1” having been allocated was more tempting than lying about a “3” having been allocated, but lying about a “3” was not more tempting than lying about a “5”.

Hypothesis 7 predicted a difference between general and specific rules only in the moderately-high personal gain condition. This was disconfirmed as specific and general rules only differed in the extremely-high personal gain condition; it was not the case that the specific rule only constrained personal gain up to a certain level. An extremely-high gain increased lying in the presence of a specific rule, but this increase was lower than the increase in the presence of the general rule, supporting Hypotheses 4 and 5, as formulated before Study 2. This finding suggests that increased lying under extremely high gain is not due to people’s willful ignorance of (specific) rules - as we had argued to explain the results of Study 2. In retrospect, it is therefore more likely that Study 2’s “think aloud” rationalization task induced an unnatural deliberative or calculative decision-making process among participants, leading them to reason that it was foolish not to lie for such high personal benefit. In absence of this task (in Study 3), but with similarly high temptations to lie, the specific rule was better in constraining lying than the general rule - similar to Study 1. Hence, the data of Study 3 suggests that the manipulation of moral rationalizations in Study 2 had been obtrusive for testing the effects on unethical behavior.

More generally, the results of Study 3 supported our theorizing that specific rules better constrained the adverse effects of personal gain than did general rules, and that the specific rule was superior to the general rule when personal gain increased to a high level.

6. Meta-analysis

Overall, the results of the three studies suggest that personal gain increases unethical behavior and that both rules mitigate this effect. And, as long as there is no obtrusive measurement of moral rationalization (as in Study 2), the effect of personal gain on unethical behavior is moderated by the type of rule. More specifically, it seems to be moderated in such a way that a specific rule constrains the effect of personal gain more strongly than does a general rule, with the results that, under high personal gain, specific rules reduce unethical behavior compared to general rules. So, the results appear to be consistent with Hypothesis 1, 4 and 5. However, the results over the three studies on unethical behavior were inconsistent, which could be due to insufficient power. Therefore, we used all our data to test Hypotheses 1, 4 and 5 again by performing a meta-analysis.

In this meta-analysis, we estimated all effects (the Rule \times Gain interactions and their simple effects). For each effect in all three studies, we calculated the Cohen’s d . From this, we calculated the weighted average effect sizes of all effects, their significance and confidence intervals. The results are reported in Table 7.

Results of the meta-analysis showed support for an interaction effect between rules and personal gain, both including the no rule condition ($\bar{d} = 0.34$) and contrasting the specific and general rule ($\bar{d} = 0.27$ or $\bar{d} = 0.14$, depending on which personal gain contrast in Study 3 was used) conditions. Although the effect size of personal gain was significant in all conditions, the effects size was smaller in the specific rule condition ($\bar{d} = 0.39$ or 0.42) than in the general ($\bar{d} = 0.59$ or 0.60) and no rule ($\bar{d} = 1.48$) conditions. The specific rule versus general rule contrast ($\bar{d} = 0.22$) was significant only in the high-personal gain conditions and not in the low- or moderate-personal gain conditions ($\bar{d} = 0.08$ and $\bar{d} = 0$ respectively). Together, these results provide support for Hypotheses 1, 4 and 5.

7. General discussion

Overall, the results of three studies and the meta-analysis across these studies suggest that temptations due to personal gain for unethical behavior induces such behavior, but that this effect is decreased by rules, and more so by specific than by general ones. Particularly when potential gain for unethical behavior is high, specific rules are superior over general rules for decreasing unethical behavior. With concern to the underlying mechanism, results of Study 2 were consistent with earlier work (Mulder et al., 2015), showing that high gain increased moral rationalizations, and these rationalizations were only constrained by a specific rule, and not by a general rule. Thus, in total, the results indicate that when unethical behavior becomes more rewarding, both general and specific rules become an important tool to prevent people from behaving unethically. However, when the personal gain of unethical behavior is really high, a specific rule is preferable over a general rule because the specific rule is better able to constrain people’s to morally rationalize their behavior.

Table 7
Outcomes of meta-analyses across all three studies.

Interactions and simple effects	Cohen's d Study 1	Cohen's d Study 2	Cohen's d Study 3	Weighted average effect size \bar{d}	$\Sigma(d_i^* n_i) / \Sigma(n_i)$	z	CI lower	CI upper	p
Interaction 3(all rules) × 2	0.41*	0.29	–	0.34		6.61	0.237786	0.438089	< .00001
Interaction 2(spec vs gen) × 2	0.13	0.04	(EH vs MH) 0.35 (EH vs L) 0.17	0.27		7.82	0.201847	0.336779	< .00001
Effect PG within no rule	1.33*	1.57*	–	1.48		4.16	0.075384	0.209839	.00003
Effect PG within specific rule	0.56	0.94*	(EH vs MH) 0.22 (EH vs L) 0.29	0.39		17.10	1.307547	1.646184	< .00001
Effect PG within general rule	0.76*	1.12*	(EH vs MH) 0.45* (EH vs L) 0.42*	0.43		8.04	0.295765	0.486362	< .00001
Effect rule (spec vs gen) within low PG	0.02	0.06	0.10	0.08		9.12	0.339402	0.525228	< .00001
Effect rule (spec vs gen) within MH PG	–	–	0	0		12.32	0.505259	0.696308	< .00001
Effect rule (spec vs gen) within EH PG	0.22	0.11	0.25*	0.22		11.79	0.488236	0.683023	< .00001
						1.71	–0.01192	0.178227	.09
						0	0	0	1
						4.57	0.126832	0.316980	< .00001

MH PG = moderately-high personal gain.

EH PG = extremely-high personal gain.

* Significant difference, $p < .05$.

7.1. Theoretical and practical contributions

This research contributes to the literature on personal gain. So far, literature is divided about the question of whether personal gain for unethical behavior increases such behavior. Findings from rational choice theory (Becker, 1968; Paternoster & Simpson, 1993), business literature (Carson, 2003; Harris & Bromiley, 2007), accounting or finance literature (Buchholz, 2012; Johnson et al., 2009; Kibble, 2007; Littman, 2010; Soltani, 2014) and some findings in behavioral economics (Gneezy et al., 2013; Kajackaite & Gneezy, 2017) suggest that personal gain increases unethical behavior. However, most research in psychology and economics do not find an effect of personal gain (Abeler et al., 2019; Gerlach et al., 2019). Hence, whether personal gain induce unethical behavior is likely to depend on other factors. Our research shows that the presence of a rule is a contextual factor that determines the effect of personal gain. More precisely, it shows that specifically framed rules represent an effective means to counteract the influence of personal gain because they successfully reduce the likelihood that people will rationalize the moral acceptability of the unethical behavior. This addition is insightful as it highlights that when there is high gain attached to unethical behavior, organizations or institutions do benefit from installing formal measures (i.e., official regulations, ethical codes, or behavioral guidelines), especially when they frame these measures using specific language.

Continuing on this reasoning, the results also contribute to the literature on ethical codes (Erwin, 2011; Kaptein, 2011), which identify risk areas and comprehension aids (such as checklists and examples) as critical components of code quality (Erwin, 2011). Risk areas logically include situations in which there is much to gain by behaving unethically. Comprehension aids specify what behaviors should or should not be performed and, as such, are similar to specific rules. Our current findings strongly suggest, however, that the identification of risk areas and the implementation of comprehension aids are actions that should be performed concurrently. In a low-risk area, comprehension aids may only have a small surplus value, while in a high-risk area they can be a necessity. That is, they should be smartly combined to make the quality of a code even better. Especially for areas where risks are identified as high, comprehension aids should be given.

Apart from ethical codes, formal regulations and laws, specific rules can also be implemented in many other ways, such as on declaration forms, or on signs in places where unethical decisions are likely to occur. As our results suggest, it is especially important to use specific terminology in cases where an unethical act is highly rewarding and thus temptation is expected to be highest (e.g., cases in which large bonuses are attached to a good performance or for employees who are dealing with large accounts).

7.2. Strengths, limitations, and future directions

A strength of this investigation is that the studies were preregistered (van 't Veer & Giner-Sorolla, 2016). This method provided transparency in our data analysis and clarity about what were a priori hypotheses and what were post-hoc interpretations. As such, this investigation resulted in a forthright representation of how our hypotheses were developed and shaped throughout the process. Although the results of each study did not support the initial hypotheses belonging to that study, the results and the meta-analysis provided a clear overall picture, largely consistent with our reasoning upfront (and supportive of Hypotheses 1, 4 and 5).

Another strength of this investigation is that we tapped into the underlying process of our main finding: the results of Study 2 suggest that specific rules constrain the effect of personal gain on unethical behavior because they reduce moral rationalizations. However, a limitation is that we could not show actual mediation as the moral rationalization measure in Study 2 interfered with the decision task. Measuring moral rationalization after the behavior was not a solution, considering that we were studying the influence of temptation due to personal gain during the decision making. This temptation arguably plays no role in post-hoc moral rationalization when people are mostly concerned with resolving a self-threat resulting from a previous unethical behavior. Future research should seek to develop subtler methods of measuring moral rationalizations during decision making.

In the method that we used, the personal gain of the unethical behavior was independent of its harm because we aimed to test for the isolated effect of personal gain without confounding it with harm inflicted. This corresponds with many real-life unethical behaviors. For example, fabricating research data may gain either little (one more publication) or much (the one additional publication needed in order to be able to get tenure) for a scientist, while doing so harms the validity of science to an equal extent in both cases. The same could be said about many other behaviors – including employees' dishonesty about their performance, CEO financial misrepresentations, privacy violations, or disrespectful behaviors towards colleagues. However, sometimes a higher personal gain brings along a higher harm. This is the case in, for example, stealing office supplies (stealing more valuable supplies costs an organization more money), accepting bribes (higher bribes are a greater threat to one's objectivity), or lying about the quality of a product (expensive products lead to both higher profits for the seller and a worse deal for the buyer). This increasing harmfulness may put a limit on people's temptation to engage in unethical behavior, as the greater harm increases their awareness of the immorality of the act (Jones, 1991; Kish-Gephart et al., 2014) and they are motivated to maintain a moral self-concept (Harkrider et al., 2013; Jordan et al., 2015; Mazar et al., 2008). An interesting question is whether our results only apply to harm-independent behavior or whether they may generalize to harm-dependent behaviors, as well. In fact, the failure to find an effect of personal gain in many experimental studies (Abeler et al., 2019; Gerlach et al., 2019) may actually be explained by the overrepresentation of studies in this area in which personal gains are harm-dependent. With regard to the effects of gain and rules, it might be that general rules will exert a stronger effect when the harmfulness of the act is clear, as they are more likely to function as a moral guideline. This is an interesting area for further investigation.

Another limitation of this investigation is that we operationalized temptation only by presenting the potential for personal gain and not by the potential for preventing personal loss. According to the fraud triangle, people are not only motivated by incentives, but also by threats (Buchholz, 2012; Littman, 2010; Soltani, 2014). Thus, negative incentives (pressures or avoiding losses) should also

evoke unethical behavior. For example, if their job is at stake when their performance is substandard, employees may be motivated to lie about their performance. The stronger the pressure to perform well, the higher the temptation to engage in such dishonest representations when the actual performance is substandard. This is supported by findings that publication pressure is associated with research misconduct among scientists (Kornfeld, 2012; Tjebk, Verbeke, & Smulders, 2014). As losses loom larger than gains (Kahneman & Tversky, 1979), avoiding losses may be a stronger motivator to behave unethically than would be obtaining gains. An interesting question is, therefore, whether unethical behavior as a result of avoiding losses can at all be constrained by rules. As losses may bring about even more motivated reasoning than gains, unethical behavior may be harder to constrain when it results from avoiding losses than when it results from achieving gains. Or it might be the case that, when unethical behavior concerns avoiding losses, there is even a larger difference between the effect of specific and general rules, as motivated reasoning becomes more important.

Last, we should note that, although specificity of rules has the advantage that they are influential because they constrain people's moral rationalizations (Mulder et al., 2015), their drawback is that they do not provide a holistic coverage of unethical behavior. In order to cover a large domain of ethical behavior (e.g., "engagement in conflicts of interest"), one may need multiple specific rules (e.g., "don't accept gifts from clients", "do not engage in bribery when working in foreign countries", "do not accept a position in a client's organization"). It is unrealistic to think that any institution could create enough specific rules to cover every specific undesirable behavior that employees could engage in. Moreover, in contexts where there are multiple rules present, the effect of specific rules may be altered. After all, long lists of rules may be too cognitively overwhelming to digest. So, the presence of numerous specific rules, could serve to reduce the rules' effectiveness based on the cognitive load they present to the observer (c.f., Greene, Morelli, Lowenberg, Nystrom, & Cohen, 2008). Nevertheless, we expect that our results will generalize to situations in which a specific rule is accurately processed and in the awareness of people during the moment they face a moral decision for which the specific rule is relevant. Still, it would be an interesting area of future research to focus on how rules are processed and on how they affect behavior in the context of multiple rules.

7.3. Conclusion

This investigation provides evidence for the superior effectiveness of specific rules, especially in the presence of high personal gain. In a business world where unethical behavior is unfortunately too familiar, as well as one where high incentives are commonplace, the current research provides important insights into how best to present rules to constrain such behavior, as well as understanding why these rules are most effective.

Declaration of Competing Interest

The authors declared that there is no conflict of interest.

Acknowledgment

The research conducted by the second author is funded by the Dutch Science Foundation (NWO/VIDI 452-16-009).

Supplementary material

Supplementary material to this article can be found online at <https://doi.org/10.1016/j.joep.2019.102242>, <https://osf.io/z3pt6/files/>.

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