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Self-image and moral balancing: An experimental analysis

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ABSTRACT

In our experiment, a dictator game variant, the reported outcome of a die roll determines the endowment (low/high) in a subsequent dictator game. In one treatment the experimenter is present and no cheating is possible, while in another subjects can enter the result of the roll themselves. Moral self-image is also manipulated in the experiment preceding ours. The aim of this experimental set up is to analyze dynamic aspects of moral behavior.

When cheating is possible, substantially more high endowments are claimed and transfers of high-endowed dictators are bigger than when cheating is not possible (mediated by the preceding moral self-image manipulation). The preceding manipulations also have a direct effect on generosity, when subjects have to report the roll of the die truthfully. Moral balancing appears to be an important factor in individual decision making.

1. Introduction

The dilemma between behaving morally and the tempting alternative that bends the social conventions to our advantage is a constant feature of everyday life. The study of potential factors affecting people's choices in such situations has been the topic of a large body of past and still ongoing research. While the role of outcomes, social interaction (in the form of intentions or emotions), or the situational environment the decision is taken in dominate the analysis of social preferences, our paper focuses on the dynamic aspects of moral behavior. Is an individual's tendency to behave pro-socially a constant, that is, will he act always in the same generous way in a given situation? Or is the decision affected by the context, specifically by the inter-temporal context? Imagine the following situation. A young man just left the subway train, heads up the station with the other passengers, and sees a woman with a baby buggy unable to get up the stairs on her own. Will he be more likely to offer assistance, if he just dodged the fare for the ride? On a more general level, do we have a built-in morality barometer that guides our behavior back to the level we appreciate most?

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Recently, self-image concerns gained increased recognition as a successful determinant of human choices, especially in the realm of moral behavior.[1] While these models vary in their approach and terminology, their central message is arguably a common one. People desire to maintain a comfortable self-image. However, it remains an open question how they react, if there is a discrepancy between actual behavior and their self-image. Moral balancing theory (Nisan and Horenczyk, 1990) suggests that individuals keep account of their self-image over time. In line with the economics literature on self-image it also assumes that people wish at all times to keep their moral status on a level that they consider satisfactory. In addition, moral balancing proposes ways how people deal with deviations from their individual moral self-image. If one's moral self-image dropped below some standard, people would engage in moral cleansing to compensate. Likewise, when the moral self-image is above an ideal level, then people would have a tendency to behave immoral in an act of moral licensing.

The aim of our paper is to study such dynamic aspects of moral behavior in an experimental design that endogenously manipulates subjects' moral self-image. This allows us to analyze the effects of a variation of moral self-image on pro-social behavior. We test whether there are inter-temporal spillovers of (im)moral behavior within our experiment in which a dictator game's endowment depends on the roll of a six-sided die. Subjects who report an odd number receive a high endowment in the subsequent dictator game. Reporting an even number results in a low endowment. In one treatment (*Open Roll*) the experimenter is present and no cheating is possible, while in another (*Hidden Roll*) subjects can enter the result of the roll themselves. Therefore, in *Open Roll* the high endowment is legitimized by the transparent procedure. In contrast, subjects may cheat in *Hidden Roll* in order to claim a high endowment. As a consequence, average moral self-image is potentially lower in *Hidden Roll* and may lead to moral cleansing in the subsequent dictator game. Besides a *stand-alone* treatment our actual experiment was also conducted right after another experiment. This allows us to connect morally relevant information from the previous experiment to behavior in our experiment. In Kataria and Regner (2012), henceforth *Philanthropy*, a donation experiment involving a real effort task, moral self-image is supposedly low/high after one donated little/much in comparison to the other subjects. In Crosetto et al. (2012), henceforth *VCG punishment*, a voluntary contribution game with punishment, moral self-image is supposedly low/high, if one has been lucky/unlucky in the payment procedure.

To the best of our knowledge previous studies on moral balancing used an exogenous variation (priming methods) to induce different levels of moral self-image.[2] Instead, in our experiment subjects' moral self-image is endogenously manipulated. The potential effect on the self-image is caused by the subjects' own choice when they report the outcome of the roll of the die. In our condition *Hidden Roll*, they can report truthfully but they do not have to. Moreover, subjects are aware of the potential moral cleansing offered by the dictator game, when choosing whether to truthfully report the outcome of the die roll.

Several recent studies used the self-reported outcome of a random event as a measure for cheating (see, for instance, Fischbacher and Heusi, 2008; Shalvi et al., 2010, 2011; Fischbacher and Utikal, 2011; Shalvi and Leiser, 2013). Most comparable to our procedure are the following two studies. Bucciol and Piovesan (2011) used a binary event in a field experiment with children aged 5–15. The children were asked to toss a fair coin (black/white) in private. They knew that they would receive a reward only if they reported an outcome of white. Overall, 86% of the children reported the profitable outcome. Also Houser et al. (2012) used a binary cheating procedure. After playing a dictator game subjects were informed that they would get a chance to get an additional payment. They were told to flip a fair coin and report the outcome which determined the size of the extra payoff. Overall, 74.5% reported the high-payoff outcome.

In our experiment, when cheating is possible (*Hidden Roll* condition) around 85% percent of subjects claimed a high endowment. In the *stand-alone* treatment we do not observe that subjects compensate for their dishonesty. Only when moral self-image is also manipulated in a previous experiment – and controlled for in the data analysis – transfers of high-endowed dictators are higher in *Hidden Roll* than in *Open Roll* (when cheating is not possible). Moreover, our results show that morally relevant variation in a previous experiment carries over and affects the decision making of dictators in *Open Roll*. The worse subjects performed in generating donations in the *Philanthropy* experiment, the more they transfer as a dictator. The more subjects earned in the *VCG punishment* experiment, the more they transfer. Finally, we find evidence for a Robin Hood effect. In the *Philanthropy* condition, when subjects previously took part in an experiment that involved donations, the rate of cheating is significantly higher, if a treacherously earned endowment could be shared with another participant instead of being directly appropriated.

[1] Different approaches exist to model the role the self-image plays in decision making. Festinger (1957) proposed that a person experiences cognitive dissonance when she holds two psychologically conflicting cognitions. This concept has been sharpened in the modern theory of cognitive dissonance (Aronson, 1992; Beauvois and Joule, 1996) which argues that such dissonance primarily revolves around the self and a piece of behavior that violates that self-image, and applied, for instance, by Konow (2000), to a model of other-regarding behavior in dictator games. Bodner and Prelec (2003) as well as Bénabou and Tirole (2011) use a dual self approach to account for self-image as a motivation. Via the dual self which serves as an observer of one's own actions informative signals about the own identity or self-image are provided. Akerlof and Kranton (2000, 2005) incorporate identity in the utility function of individuals. They show that behavior in line with one's identity results in positive payoffs, while behavior that contrasts the own identity has the opposite effect. In their theory of self-concept maintenance, Mazar et al. (2008) suggest that people try to find a balance between two motivational forces (cheating in order to get a high material payoff versus maintaining the self-concept of being honest). In equilibrium the extent of their cheating would still just be compatible with their positive self-concept of being honest. Empirical evidence in favor of self-image concerns includes Dana et al. (2006), Dana et al. (2007), Larson and Capra (2009), Grossman (2010), Matthey and Regner (2011), Lazear et al. (2012), Gneezy et al. (2012) and Cappelen et al. (2013).

[2] See, among others, Monin and Miller (2001), Sachdeva et al. (2009), Mazar and Zhong (2010), Gneezy et al. (2011), Cornelissen et al. (2012).

The paper is organized as follows. Section 2 describes the experimental design and develops behavioral predictions. Results are presented in Section 3 and Section 4 concludes.

2. Method

2.1. Experimental design

Our experiment is designed to create an environment in which subjects' moral self-image is endogenously manipulated. Subsequently, we observe subjects' behavior in an allocation game. Hence, the experiment is made of two parts. Participants are informed about both parts in the instructions. In part 1, the roll of a fair die determines the endowment of participants: when the die lands on an odd number the participant who rolled the die gets an endowment of 15 ECU; when the die lands on an even number the participant gets an endowment of 5 ECU. The roll mode is experimentally manipulated to generate two alternative conditions. In *Open Roll* the die is rolled by the participant in the cubicle under the supervision of an assistant and, hence, the outcome of the roll is faithfully reported. In *Hidden Roll* the die is privately rolled by the participant in the cubicle without any supervision. Thus, participants can choose to treacherously report an odd number to maximize their endowment, knowing that the source of false reports could not be identified under any circumstance.

In part 2, participants play a Dictator Game (*DG*) in which they choose how much of the endowment determined in part 1 to donate to another participant. Every participant is asked to choose as a dictator, before knowing whether her choice is going to be implemented or not. After all participants have decided, half of them is randomly assigned to the role of dictators, half of them is randomly assigned to the role of recipient, mutually exclusive couples of dictators/recipients are formed and payoffs are computed according to choices of the dictator in the couple. We also implemented a control condition (*Bonus*) in which the participants directly obtain the endowment from the die roll, without playing the DG.

Overall, we implemented 3 experimental treatments obtained by the combination of alternative conditions in part 1 and part 2: *Open Roll-DG*, *Hidden Roll-DG*, and *Hidden Roll-Bonus*.

An important feature of our study is that it was conducted right after another experiment (except in the *stand-alone* treatment). This allows us to extend the scope of our analysis of inter-temporal spillovers. In *Philanthropy* subjects participated in a computerized real-effort task. Their performance in the task was transferred into a monetary donation to a charity, while they received a flat fee payment for themselves. All subjects performed the task in two rounds. One of the rounds was a 'public' setting (everyone learned the performance of all subjects during a public ceremony at the end of the experiment), while the other was a 'private' setting (feedback about their performance and ranking was given only to themselves at the end of the experiment). In one session both rounds were 'public' and in one both were 'private'. The experiment lasted about 60 minutes and average earnings amounted to € 7.07 (there is a slight variation in payoffs due to an incentivized belief elicitation).[3] In *VCG punishment* subjects played a sequential voluntary contribution game in which the first mover has the opportunity to costly punish the second mover when her contribution is perceived as unfair.[4] Participants were exposed to a 2×2 design manipulating the time interval elapsed between the punishment act and the choice of the second mover, and the degree to which punishment affected inequity in final payments. The experiment took about an hour and average earnings were € 9.60. Overall, the experiment resulted in sustained cooperation and low levels of punishment. For their research purposes, the authors adopted a stochastic payoff function that occasionally would generate small fixed earnings for participants, irrespectively of their choices in the experiment. Given the low levels of punishment observed, variance in final earnings was influenced mainly by the stochastic component of the payoff function. Hence, participants who obtained lower earnings are likely to have felt less lucky than those who obtained higher earnings.

2.2. Behavioral predictions

Our approach to predict behavior in the experiment assumes that people desire to maintain a comfortable self-image.[5] It is important to note, however not essential for our predictions, that the definition of the actually comfortable level is subjective. While at least in some moral situations (for instance, the trustee's decision in a trust game after the trustor sent everything) people unequivocally agree on the behavior that is moral (a fair split), this objective view does not have to be what individuals subjectively perceive as their comfortable level. It may well be that not returning anything as a trustee is the behavioral standard of some people and, hence, such a choice would result in a comfortable self-image. This extreme case would correspond to the case of pure self-interest in other model types of social preferences.

Applied to our experiment, subjects equipped with a self-image that does not value honesty at all are expected to always report the outcome that warrants them a high endowment (i.e., an odd number) in the *Hidden Roll* condition. On the other

[3] See Kataria and Regner (2012) for details of the experiment.

[4] Details about the experiment can be found in Crosetto et al. (2012).

[5] See the literature on cognitive dissonance (Festinger, 1957; Aronson, 1992; Beauvois and Joule, 1996; Konow, 2000), self-signaling (Bodner and Prelec, 2003; Bénabou and Tirole, 2011), identity (Akerlof and Kranton, 2000, 2005), self-concept maintenance (Mazar et al., 2008).

hand, subjects with a self-image that does value honesty are expected to appreciate truthful reporting. Any deviation from their ideal level comes at a cost (this psychological cost could be called cognitive dissonance)[6] and subjects with substantial moral concerns are expected to value being honest more than the material gain of untruthful reporting. Accordingly, they would report the actual outcome of the roll.

The two behavioral patterns outlined above are positioned at the extremes of the spectrum of moral behavior and provide a useful guide to interpret choices in the experiment. However, the material gain from an action that does not correspond to the self-image may also outweigh an individual's cost of deviating. Therefore, we expect that some subjects – driven by material interests – are cheating when they report the outcome of the roll, but, at the same time, are uncomfortable with having reported dishonestly, because this act violated their moral self-image. Subjects of this type may, thus, try to lower the cognitive dissonance they experience due to the discrepancy between their behavior and their self-image by behaving generously in the DG. In this way, generous behavior in the DG is at least partly driven by the desire to compensate, with a kind act, the damage to the self-image produced by the disloyal report of the die roll. Generally, we adopt an aggregate view of the two choices in the experiment. The cheating decision may increase generosity in the subsequent dictator game as subjects engage in moral cleansing. However, the knowledge about the possibility to share the pie with someone else later on may also increase the propensity to cheat. We control for this with a treatment that features a direct bonus payment instead of the dictator game.

Based on the existence of subjects who do not value honesty sufficiently and in line with previous empirical evidence of cheating behavior in similar experiments, we expect subjects to cheat, when they have a chance to do so.

Hypothesis 1. Significantly more than half of the subjects claim a high endowment, when subjects are given an opportunity to cheat.

As explained before subjects knew before the start of the experiment that there will be two parts: (i) the roll of the die determining their endowment, and (ii) the dictator game, respectively the bonus payment. Thus, subjects in the DG condition may not have perceived the two decisions as independent. Instead, knowledge of the entire procedure of the experiment may have led them to consider part two when they were taking their decision in part one.

More specifically, the decision to cheat may be positively affected by the prospect of sharing with someone else. Reminiscent of Robin Hood, participants could perceive the cheating as justified, because it can be regarded as a way to redistribute money from the 'rich' (experimenter) to the 'poor' (other participant). Thus, we expect more cheating when dishonesty results in a bigger pie that can be shared with someone (*Hidden Roll-DG*) in contrast to a situation when dishonesty solely leads to a bigger pie for oneself (*Hidden Roll-Bonus*).

Hypothesis 2. When subjects can share the endowment in a subsequent allocation game, they are more likely to cheat compared to a situation with a bonus being paid straight to them.

Given a significant amount of cheating in treatment *Hidden Roll-DG*, the average moral self-image of high endowed dictators tends to be lower in *Hidden Roll-DG* (some of them must have cheated, some not) than in *Open Roll-DG* (no one cheated). Hence, if cheating dictators do in fact engage in moral cleansing, we should observe high endowed dictators to be more generous in treatment *Hidden Roll-DG*.

Hypothesis 3. Subjects who cheated in order to get a high endowment are more generous in the dictator game.

We now extend our analysis of moral balancing to the experiment conducted before ours. First we look at the potential effect of earnings in the previous experiment on the moral self-image of subjects and subsequently on their choices in the dictator game. In *VCG punishment*, due to the stochastic nature of the payoff function, subjects either received (substantial) earnings from their choices or a small fixed payment. Thus, subjects who ended up with the small fixed payment may have reasons to feel unlucky and experience a high moral self-image (in comparison to lucky subjects who escaped the small fixed payment). In *Philanthropy* there was virtually no variation of the subjects' payments.

This variation of moral self-image induced by the earnings in the previous experiment may carry over to the dictator decision only if the effect is not diffused when the roll of the die is reported. In *Open Roll-DG* cheating is impossible and therefore high endowed dictators reported truthfully. In fact, they should perceive their high endowment as legitimized by the fair die roll. If they received a low payment in the previous experiment, their moral self-image may be at a high level ('I deserved better. . .') and the report of the roll did not change that. As a consequence they should tend to transfer small amounts as 'legitimized' open-roll dictators. Of course, the same line of reasoning applies to high endowed *Hidden Roll-DG* dictators who simply did not cheat, but we cannot distinguish them from high endowed *Hidden Roll-DG* dictators who did cheat.

Hypothesis 4. When subjects have to report the roll of the die truthfully, the transfers of high-endowed dictators are positively correlated to their earnings in the previous experiment.

[6] Gur and Sackeim (1979) or Konow (2000) stress the importance of self-deception in prosocial behavior, that is, people act below-standard yet genuinely believe that they did not violate their own moral self-image. While self-deception is clearly an important aspect, we do not focus on it in this study.

Table 1
Sample composition.

Preceding experiment	Condition			Total
	Open Roll-DG	Hidden Roll-DG	Hidden Roll-Bonus	
Philanthropy	94 (*43.1%*)	60 (*27.5%*)	64 (*29.4%*)	218
	(*29.6%*)	(*31.9%*)	(*50.0%*)	(*34.4%*)
VCG punishment	64 (*50.0%*)	32 (*25.0%*)	32 (*25.0%*)	128
	(*20.1%*)	(*17.0%*)	(*25.0%*)	(*20.2%*)
Stand-alone	160 (*55.6%*)	96 (*33.3%*)	32 (*11.1%*)	288
	(*50.3%*)	(*51.1%*)	(*25.0%*)	(*45.4%*)
Total	318 (*50.2%*)	188 (*29.6%*)	128 (*20.2%*)	634

In the *Philanthropy* experiment another instance of moral self-image has been varied. Subjects get feedback about their donation performance in a real-effort task. Their relative rank is announced in a public ceremony at the end of the experiment. Performing badly/well in comparison to the other subjects may lead to a low/high moral self-image. As a consequence we expect low/high performing subjects to donate high/small amounts as high endowment dictators.[7] Again, we hypothesize that the effect of the self-image manipulation will be observable in *Open Roll-DG* only, since in *Hidden Roll-DG* cheating potentially diffuses the spillovers.

Hypothesis 5. When subjects have to report the roll of the die truthfully, the transfers of high-endowed dictators are negatively correlated to their relative performance in a previous pro-social activity.

2.3. Participants and procedures

The experiment was run in Jena (Germany) at the laboratory of the Max Planck Institute of Economics. Participants were recruited using ORSEE (Greiner, 2004) among undergraduate students of the Friedrich Schiller University of Jena. The computerized experiment was programmed and conducted using the z-Tree software (Fischbacher, 2007). Subjects received written instructions for our experiment (after the previous experiment finished). Earnings were expressed in Experimental Currency Units (ECU). At the end of the session earnings were privately dispensed in cash at a conversion rate of 1 ECU = € 0.4 (together with earnings from the previous experiment).

Table 1 reports the composition of our sample of participants, in terms of preceding experiment and experimental condition.

A total of 634 participants took part in the 20 experimental sessions, with 34.4% of the participants in the *Philanthropy*, 20.2% in the *VCG punishment* experiment, and 45.4% in the *stand-alone* treatment. Concerning experimental manipulations, 50.2% of the participants were exposed to the *Open Roll-DG* condition, 29.6% to the *Hidden Roll-DG* condition and 20.2% to the *Hidden Roll-Bonus* condition.

3. Results

A descriptive analysis of the die roll outcomes and of the choices in the dictator game is presented below. Data are pooled together, irrespectively of the experiment conducted before ours. A regression analysis complements the analysis with an estimation of the determinants of donations in the dictator game.

3.1. Earnings

Fig. 1 illustrates the frequency of high and low endowments across experimental conditions. Furthermore, the frequency of each potential roll outcome is indicated within each bar.

We observe a disproportionate amount of high endowments, when participants are allowed to perform an hidden roll of the die. If they correctly reported the outcome of the roll, roughly the same share of high and low endowments should be observed in Fig. 1. This happens only in condition *Open Roll-DG* (exact binomial tests, all p-values ≥ 0.103). The bias is statistically significant when the endowments are directly appropriated (*Hidden Roll-Bonus*) as well as when they are potentially shared with another participant (*Hidden Roll-DG*), irrespectively of the experiment run before ours (exact binomial tests, all p-values < 0.001).[8]

[7] Low endowment dictators were either unlucky in the open roll, balancing out their moral self-image, or they were honestly reporting in the hidden roll, likewise leading to a balanced moral account.

[8] In an exploratory analysis not reported here, we also run a regression analysis to estimate the extent to which results in the experiment preceding ours may influence the size of the endowment claimed in the hidden roll condition. Neither earnings obtained in the experiment preceding ours nor rank in the donation task of Philanthropy significantly affect the likelihood of claiming an high endowment.

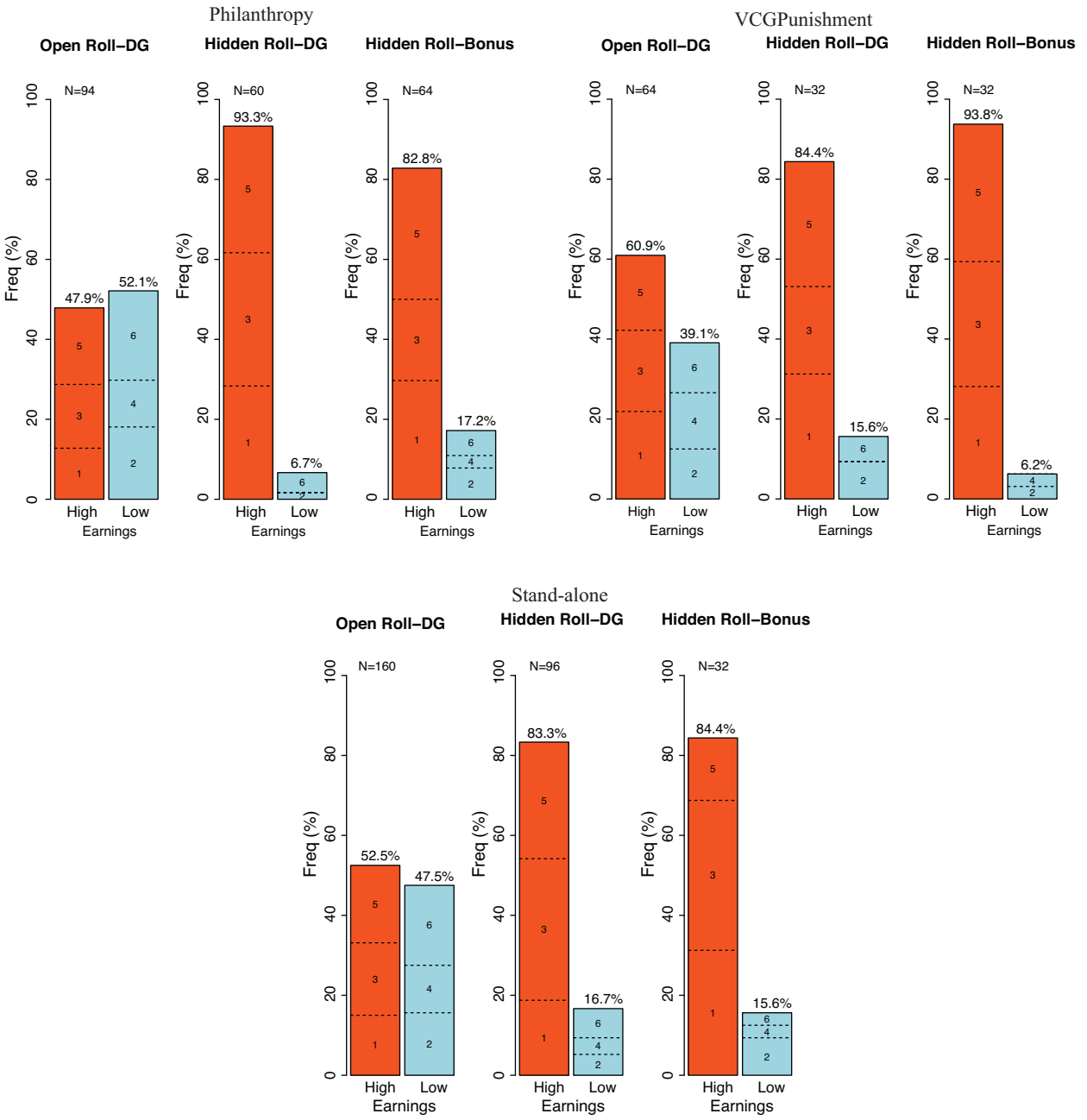

Fig. 1. Roll of the die.

Result 1. In the Hidden Roll condition, a disproportionately high share of participants claim a high endowment.

The proportion of cheaters in the population can be estimated from self-reported outcomes using the nonparametric procedure employed by Houser et al. (2012). The procedure simply assumes that the dishonest always report a high endowment, while the honest report an high endowment half of the times (when it is an odd number). Thus, the proportion of high endowment is equal to $p_H = \gamma 1 + (1-\gamma)1/2$, where γ is the fraction of those untruthfully reporting the outcome of the die roll. From this it follows that $\gamma = 2p_H - 1$ and to estimate γ we simply use the sample frequency of self-reported high endowments for p_H. When adopting this identification strategy, the following estimations are obtained: after Philanthropy, 86.7% of participants in the Hidden Roll-DG and 65.6% in the Hidden Roll-Bonus are estimated to be untruthful (Pearson's Chi-squared test, p-value = 0.012); after VCG punishment, 68.7% of participants in the Hidden Roll-DG and 87.5% in the Hidden Roll-Bonus are estimated to be untruthful (Pearson's Chi-squared test, p-value = 0.131); when no experiment was

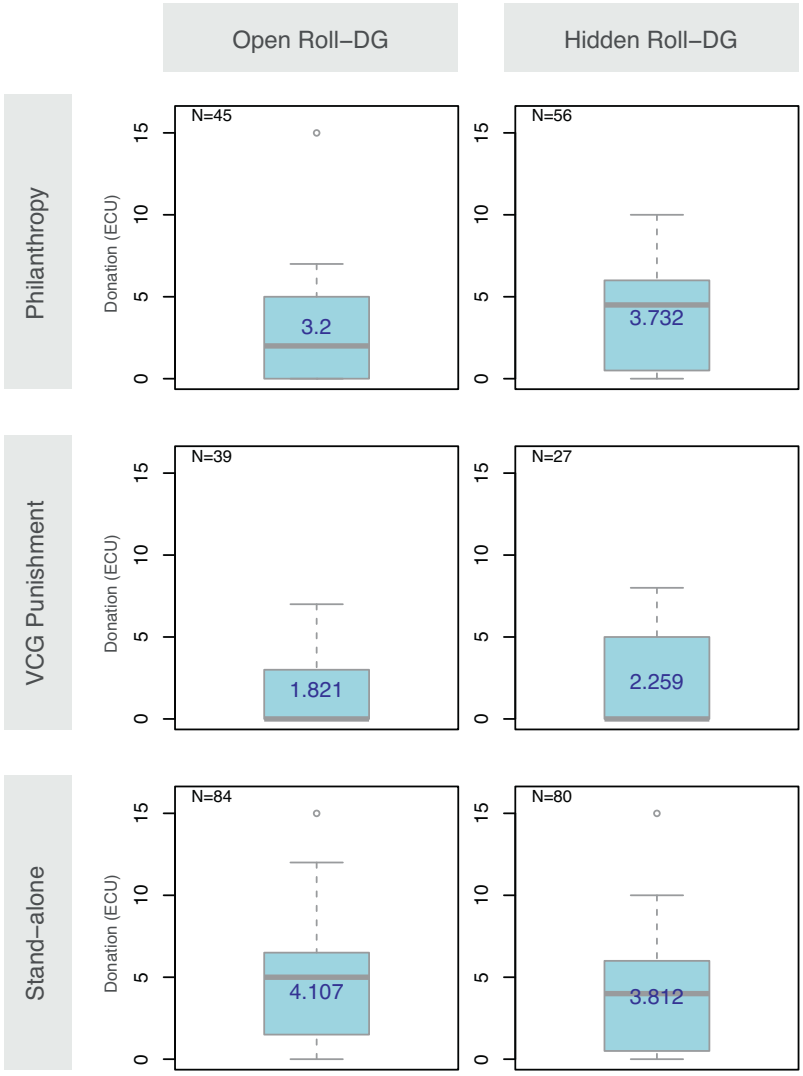

Fig. 2. Donations in the dictator game.

run before, 66.7% of participants in the Hidden Roll-DG and 68.7% in the Hidden Roll-Bonus are estimated to be untruthful (Pearson's Chi-squared test, p-value = 1.000).

Result 2. Participants who previously took part in the Philanthropy experiment are more likely to cheat in the DG condition than in the Bonus condition.

3.2. Donations

Fig. 2 provides a description of donations in the dictator game. We focus on the high endowment condition because, as shown above, large part of the endowments in this condition are the result of untruthful reports. Distinct box plots are drawn to account for the nature of the die roll (Hidden vs. Open) and for the experiment preceding our experiment (VCG punishment, Philanthropy, and stand-alone). In addition to standard features of information provided by the box plots, average values are reported within the graphs.

Average donations are between 12% and 27% of the endowment, in line with previous findings (for a survey of results, see Camerer, 2003). On average, high endowments induce higher donations than low endowments and, for a given endowment, higher average donations are observed in condition *Hidden Roll-DG* than in condition *Open Roll-DG* when another experiment precedes ours. However, no statistically significant differences are observed when comparing offers in the two roll conditions for a given experiment run before ours (Wilcoxon Rank Sum Test, all p-values ≥ 0.210).

Table 2
Donations when endowment is high (Tobit model).

Donation	Coeff. (std. err.)		
	(1) *VCG punishment*	(2) *Philanthropy*	(3) *Stand-alone*
(Intercept)	−7.566 (6.741)	0.985 (6.143)	5.714 (2.489)*
Hidden roll	5.985 (2.994)*	2.235 (6.341)	−0.416 (0.619)
Previous earnings	0.535 (0.212)*	0.326 (0.756)	
Ranks		0.252 (0.096)**	
Prev_earn × *Hidden*	−0.533 (0.154)*	0.283 (0.862)	
Ranks × *Hidden*		−0.230 (0.114)*	
Female	0.952 (1.522)	0.065 (0.903)	−0.260 (0.646)
Age	0.044 (0.252)	−0.216 (0.159)	−0.080 (0.101)
Obs (lc; rc)	66 (38; 0)	85 (24; 1)	164 (37; 2)

***0.1%: significance level.
** 1%: significance level.
* 5%: significance level.
◦10%: significance level.

In order to improve our understanding of donations determinants, in Table 2 we present the outcomes of a regression estimate.[9] The dependent variable in the regression (*Donation*) is given by the amount transferred to the other in the dictator game. Common to all three estimates, the main explanatory variable is *Hidden roll* which is equal to 1 if the dictator game is played after an hidden roll of the die, otherwise it is equal to 0. In the reported estimates, we also control for gender and age. For experiments which were preceded by another experiment some additional variables are added to capture potential spillovers from one experiment to the other. In column (1) the estimated parameters for the *VCG punishment* condition are reported with reference to the following explanatory variables: *Previous earnings*, which measures the earnings in the former stage of the session; the interaction between *Hidden roll* and *Previous earnings*. The estimation outcomes of column (2) refer to condition *Philanthropy* and the additional explanatory variable *Rank* is considered to capture the relative rank of an individual in the donation generating real-effort task of *Philanthropy*. The best performing subject has a rank of 1, while the subject who generated the lowest donation has a rank of 32. Finally, in column (3) the estimation for condition *stand-alone* is presented.

As shown by column (2) of Table 2, having obtained the endowment of the dictator game from an hidden roll does foster donations in the dictator game in the *VCG punishment* condition. Moreover, higher earnings in the experiment preceding our experiment induce more generous offers in the dictator game. However, the positive impact of higher earnings on generosity is counterbalanced by the negative impact of the interaction between hidden roll of the die and previous earnings. This is confirmed by a linear hypothesis test showing that the sum of the two coefficients is not statistically different from zero. Thus, earnings in the previous experiment seem not to affect choices of those in the hidden roll condition.

Result 3. Among those who previously took part in the VCG punishment experiment, the hidden roll of the die positively affects donations in the dictator game.

Result 4. Among those who obtained a high endowment in the dictator game by a truthful report, donations in the dictator game are positively affected by previous earnings in the VCG punishment experiment.

The regression output of column (1) shows that in the *Philanthropy* condition, the relative rank in the donation generating real-effort task negatively affects donations in the dictator game. However, a linear hypothesis test about the sum of the coefficients for *Ranks* and *Ranks* × *Hidden* shows that this effect vanishes for those whose endowment was potentially obtained by cheating.

Result 5. Those performing better in the donation task of the previous experiment are less generous in the dictator game. However, this does not hold for those who obtained their endowment in the dictator game by an untruthful report.

Finally, the regression for the stand-alone experiment (column (3)) does not highlight any significant effect of the explanatory variables on the size of the donation in the DG.

Result 6. Spillovers from previous experiments directly affect generosity and operate as mediators of the impact that honesty has on the subsequent donation task.

[9] In Table 2, the outcomes of Tobit regressions are presented, with left and right censoring set at 0 and 15, respectively. Three distinct estimations are reported conditional upon the experiment preceding ours. A linear model (OLS) with robust standard errors delivers results that are consistent with those reported in Table 2.

3.3. Discussion

Many participants in our experiment reap the benefits of cheating when self-reporting the outcome of a die roll. While we do not find that they are more generous in the subsequent dictator game of the *stand-alone* treatment, we observe that subjects compensate for their dishonesty in the treatments with a preceding experiment. Specifically, controlling for earnings in the previous experiment allows us to identify moral cleansing among subjects. It seems that in the *stand-alone* treatment the manipulation was not strong enough (or disturbed by subjects' prior history unknown to us) and an additional manipulation was necessary to isolate the effect.

The self-image manipulations of the previous experiments also have a direct effect on generosity, when subjects have to report the roll of the die truthfully (*Open Roll-DG*). In this condition, the moral self-image manipulation is not disturbed by the decision to cheat or not and we find that previous earnings as well as the relative position in the ranking of donors[10] are positively correlated with generosity.

Does moral balancing also work in a 'forward induction' sense? Knowledge of the possibility to donate in the subsequent dictator game fosters cheating behavior, relative to a condition in which returns of cheating are directly appropriated.[11] However, this effect is only significant, when subjects participated in *Philanthropy*. Exposure to an experiment with a distinct focus on charitable giving may have triggered a 'Robin Hood' attitude: participants may have felt entitled to 'steal' from the 'rich' experimenter to give to another 'poor' participant.

4. Conclusion

Overall, our study of dynamic aspects of moral behavior provides evidence that people engage in moral balancing. Our experimental design employs an endogenous manipulation of subjects' moral self-image as participants can choose themselves whether to be dishonest or not. A substantial fraction of participants make use of the opportunity to cheat and, at least partially, seize the opportunity to wash their conscience by donating more. In addition, also variations of moral self-image from the previous experiment have an effect on the dictator transfer. This highlights the relevance of contextual factors for the study of dynamic aspects of moral behavior.

We conclude that moral balancing appears to be an important factor in individual decision making. In a modeling framework that centers around self-image concerns, moral balancing complements other context-dependent motivations that have been found to be of importance. While, for instance, social-image models consider the situational environment of a decision and reciprocity/emotion models take the social or inter-personal dimension into account, moral balancing addresses the intertemporal context.

References

Akerlof, G.A., Kranton, R.E., 2000. Economics and identity. Quarterly Journal of Economics 115, 715–753.
Akerlof, G.A., Kranton, R.E., 2005. Identity and the economics of organizations. Journal of Economic Perspectives 19, 9–32.
Aronson, E., 1992. The return of the repressed: dissonance theory makes a comeback. Psychological Inquiry 3, 301–311.
Bénabou, R., Tirole, J., 2011. Identity, morals, and taboos: beliefs as assets. The Quarterly Journal of Economics 126. 2, 805–855.
Beauvois, J.-L., Joule, R.-V., 1996. A Radical Theory of Dissonance. European Monographs in Social Psychology. Taylor and Francis, New York, NY.
Bodner, R., Prelec, D., 2003. The diagnostic value of actions in a self-signaling model. In: Brocas, I., Carrillo, J.D. (Eds.), In: The Psychology of Economic Decisions, vol. 1. Oxford University Press, New york.
Bucciol, A., Piovesan, M., 2011. Luck or cheating? A field experiment on honesty with children. Journal of Economic Psychology 32, 73–78.
Camerer, C., 2003. Behavioral Game Theory: Experiments in Strategic Interaction. Princeton University Press, Princeton.
Cappelen, A., Soerensen, E., Tungodden, B., 2013. When do we lie? Journal of Economic Behavior & Organization 93, 258–265.
Cornelissen, G., Bashshur, M.R., Rode, J., Le Menestrel, M., 2012. Rules or Consequences? The Role of Ethical Mindsets in Moral Dynamics. Barcelona GSE Working Paper Series Working Paper Nr. 601.
Crosetto, P., Güth, W., Mittone, L., Ploner, M., 2012. Motives of Sanctioning: Equity and Emotions in a Public Good Experiment with Punishment. Jena Economic Research Papers, 2012-046.
Dana, J., Cain, D.M., Dawes, R.M., 2006. What you don't know won't hurt me: costly (but quiet) exit in dictator games. Organizational Behavior and Human Decision Processes 100, 193–201.
Dana, J., Weber, R., Kuang, J.X., 2007. Exploiting moral wiggle room: experiments demonstrating an illusory preference for fairness. Economic Theory 33, 67–80.
Festinger, L., 1957. A Theory of Cognitive Dissonance. Row Petersen, Evanston, IL.
Fischbacher, U., Heusi, F., 2008. Lies in Disguise. An Experimental Study on Cheating. TWI Research Paper Series.
Fischbacher, U., Utikal, V., 2011. Disadvantageous Lies. TWI Research Paper Series, p. 71.
Fischbacher, U., 2007. z-Tree: Zurich toolbox for ready-made economic experiments. Experimental Economics 10 (2), 171–178.
Gino, F., Ayal, S., Ariely, D., 2013. Self-serving altruism? The lure of unethical actions that benefit others. Journal of Economic Behavior & Organization 93, 285–292.
Gneezy, A., Imas, A., Brown, A., Nelson, L.D., Norton, M.I., 2011. Paying to be nice: consistency and costly prosocial behavior. Management Science, 1–9.
Gneezy, A., Gneezy, U., Riener, G., Nelson, L.D., 2012. Pay-what-you-want, identity, and self-signaling in markets. Proceedings of the National Academy of Sciences 109, 7236–7240.

[10] A comparison of the Philanthropy treatments with and without public ceremony shows that there is no difference in dictator giving. Public reputation concerns do not seem to play a role.

[11] See also Gino et al. (2013) for similar evidence. Their results indicate that subjects are more likely to view dishonesty as morally acceptable, when people's dishonesty would benefit others.

Greiner, B., 2004. An online recruitment system for economic experiments. In: Kremer, K., Macho, V. (Eds.), Forschung und wissenschaftliches Rechnen. Ges. fr Wiss. Datenverarbeitung, Gttingen, pp. 79–93.
Grossman, Z., 2010. Strategic Ignorance and the Robustness of Social Preferences. UC Santa Barbara Working Paper.
Gur, R.C., Sackeim, H.A., 1979. Self-deception: a concept in search of a phenomenon. Journal of Personality and Social Psychology 37, 147–169.
Houser, D., Vetter, S., Winter, J., 2012. Fairness and cheating. European Economic Review 56, 1645–1655.
Kataria, M., Regner, T., 2012. Honestly, why are you donating money to charity? An experimental study about self-awareness in status-seeking behavior. Jena Economic Research Papers, 2012–2032.
Konow, J., 2000. Fair shares: accountability and cognitive dissonance in allocation decisions. American Economic Review 90 (4), 1072–1091.
Larson, T., Capra, C.M., 2009. Exploiting moral wiggle room: Illusory preference for fairness? A comment. Judgment and Decision Making 4, 467–474.
Lazear, E., Malmendier, U., Weber, R., 2012. Sorting in experiments with application to social preferences. American Economic Journal: Applied Economics 4, 136–163.
Matthey, A., Regner, T., 2011. Do I really want to know? A cognitive dissonance-based explanation of other-regarding behavior. Games 2, 114–135.
Mazar, N., Zhong, C., 2010. Do green products make us better people? Psychological Science 21, 494–498.
Mazar, N., Amir, O., Ariely, D., 2008. The dishonesty of honest people: a theory of self-concept maintenance. Journal of Marketing Research XLV, 633–644.
Monin, B., Miller, D.T., 2001. Moral credentials and the expression of prejudice. Journal of Personality and Social Psychology 81, 33–43.
Nisan, M., Horenczyk, G., 1990. Moral balance: the effect of prior behaviour on decision in moral conflict. British journal of social psychology 29, 29–42.
Sachdeva, S., Iliev, R., Medin, D.L., 2009. Sinning saints and saintly sinners: the paradox of moral self-regulation. Psychological Science 20, 523–528.
Shalvi, S., Leiser, D., 2013. Moral firmness. Journal of Economic Behavior & Organization 93, 400–407 (this issue).
Shalvi, S., Handgraaf, M.J.J., De Dreu, C.K.W., 2010. Ethical manoeuvring: why people avoid both major and minor lies. British Journal of Management 20, 16–27.
Shalvi, S., Dana, J., Handgraaf, M.J.J., De Dreu, C.K.W., 2011. Justified ethicality: observing desired counterfactuals modifies ethical perceptions and behavior. Organizational Behavior and Human Decision Processes 20, 181–190.