

Do Individuals Take More Risk with Unethically Earned Money?*

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This version: April 29, 2022

Abstract

Is dishonestly earned money treated more as a windfall gain or as the result of costly effort? We found that in the context of risk taking, individuals treat dishonestly earned money more like a windfall gain from luck than as an effort-based gain. The effect is especially prevalent among risk averse liars. However, increasing the moral cost of lying *ex post* eliminates the difference between risk taking with dishonest money and with money earned from costly effort. This cannot result from a selection effect in our settings but it suggests that moral costs induce an entitlement effect.

Keywords: Risk Taking, Fungibility, Entitlement Effect, Moral Cost, Dishonesty, Experiment

JEL: C91, D01, D81, D91

*Acknowledgements: We are grateful to the participants of the 1st Lyon-Maastricht Behavioral Economics Workshop, TIBER Symposium 2021 and ASFEE 2021 for their helpful comments. We are also thankful to Q. Thevenet for his assistance in programming the experiment. This research has benefited from the financial support of IDEXLYON from Université de Lyon (INDEPTH-IDEX/SBP/2018/03) within the Programme Investissements d’Avenir (ANR-16-IDEX-0005) operated by the French National Research Agency. This research also benefited from the support of the LABEX CORTEX (ANR-11-LABX-0042) of the Université de Lyon, within the Programme Investissements d’Avenir (ANR-11-IDEX-007) operated by the French National Research Agency (ANR).

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1 Introduction

The reputation of the financial sector in the recent decade has been tarnished by the prevalence of banking scandals and frauds revealing a lack of ethical standards and excessive risk taking with client’s money (Guiso et al., 2008; Sapienza and Zingales, 2012; Kantšukov and Medvedskaja, 2013). According to a study by Egan et al. (2018), approximately 7% of financial advisors in the US between 2005 and 2015 have misconduct records, and this goes up to 15% in some large financial firms. While some studies showed that individuals tend to take more risk when making decisions on behalf of others (Andersson et al., 2014; Füllbrunn and Luhan, 2017; Vieider et al., 2016), there might be another phenomenon - people may take more risk with money that has been earned unethically. This could be the case if such money was treated as an unexpected windfall money. However, the recent behavioral economic literature on dishonesty has emphasized the importance of moral costs in ethical behavior (*e.g.*, Fischbacher and Föllmi-Heusi, 2013; Gneezy et al., 2018; Abeler et al., 2019). If such moral costs are important, then unethical earnings may be treated rather like hard-earned money. Therefore, the implications of earning money unethically *vs.* ethically on future risk taking are *a priori* unclear.

In this study, we investigated if individuals make different risky decisions when the bad outcome of such decisions reduce the money previously earned unethically or ethically through effort or luck. The principle of economic fungibility posits that any unit of money is substitutable. This implies that individuals’ consumption decisions should only be influenced by the total wealth, and not by its composition. This, however, has been refuted by studies in mental accounting (Thaler, 1985, 1999; Abeler and Marklein, 2017) which showed that the source of earnings influences how they are spent. This encompasses the notion of labels associated with the money (*e.g.*, a bonus, a grant, or a subsidy) and how it has been earned (through effort or luck). We extend this reflection by studying whether the unethical *vs.* ethical source of earnings can also lead to a violation of the principle of fungibility of money.

Inas et al. (2021) have explored the violation of the fungibility of unethical money in the context of charitable giving. We differ from them in that we investigated such a violation in the context of risk taking. Moreover, they studied a motivated violation through a mechanism of mental money laundering that is engaged by dishonest individuals to dissociate unethical money from its source. In contrast, by studying how much risk individuals are willing to take with dishonestly *vs.* honestly earned money, we explored a non-motivated violation based on mechanisms identified when studying violations of fungibility between money earned through luck or effort.

The observation that individuals tend to use money earned through costly effort differently from a windfall gain (*i.e.*, Hoffman et al., 1994; Cherry et al., 2002; List and Cherry, 2008; Hvide et al., 2019) has been explained by a sense of entitlement because effort provision imparts a feeling of ownership. In the context of risk taking, a sense of entitlement should induce risk aversion. In contrast, obtaining a windfall gain through luck imparts a weaker sense of enti-

tlement, which should induce higher risk taking. However, how would a person take risk with unethical money? The answer to that question is not straightforward for two reasons.

On the one hand, when money is earned dishonestly by deceiving or lying to someone, in principle it should not lead to any feeling of entitlement because this money objectively belongs to others. One may think of it as something easily earned, like a ‘house money’ (Thaler and Johnson, 1990).¹ This may imply that a dishonest individual perceives unethical money as a windfall gain that, thereby, induces risk taking. On the other hand, the individual may incur a moral cost to obtain unethical money, due to intrinsic lying aversion or reputational concerns associated with perceived cheating aversion (Dufwenberg and Dufwenberg, 2018; Gneezy et al., 2018; Abeler et al., 2019; Khalmetski and Sliwka, 2019). Such moral costs might act like an effort cost which, then, induces risk aversion.² In other words, dishonest individuals may justify a sense of entitlement to the unethical gain and thus, behave *as if* they were actually entitled to it. This reasoning is based on the psychological cost hypothesis of Thielmann and Hilbig (2019) who argued that although dishonest individuals are not *objectively* entitled to the unethical gain, they may justify *subjectively* that it is ‘theirs’ because they have incurred a moral cost to obtain it. If this is so, suffering a moral cost to obtain this money may reduce the willingness to put it at risk in future decisions.

Whether individuals treat dishonest money as a windfall gain or as an earned income when making risky decisions with this money would be difficult to identify by using natural data from the field. First, dishonest behavior is usually hidden. Second, even it was possible to measure the risky behavior of honest *vs.* dishonest individuals without noise, the treatment of honest *vs.* dishonest monetary currencies would be impossible to disentangle. Therefore, we designed an online experiment in which participants started by earning money and, then, made a risk-taking decision whose good outcome would increase the preliminary earnings, whereas bad outcome would reduce these earnings. This setting also allows us to have a perfect control on earnings and risk opportunities.

Our between-subjects design consists of three two-stage treatments that varied in how the participants earned money in the first stage. In the *Lying treatment*, participants played the truth-telling mini-game of Gibson et al. (2013) in which they could lie by misreporting an information to earn more money. In the *Effort treatment*, participants performed a real-effort task to earn money. In the *Windfall treatment*, participants earned money through luck in a binary lottery. In the three treatments, earnings could be either low or high, but their amounts were held similar across treatments. In the second stage of each treatment, participants performed a variant in the loss domain of the Bomb Risk Elicitation Task (BRET) introduced by Crosetto and Filippin (2013). In the event of a

¹We are talking here of dishonest acts that are typically associated with the exploitation of asymmetric information. We are not considering criminal activities that entail other types of costs than psychological costs.

²This effect might be even stronger when dishonest acts require a technology to be successful and reduce one’s risk of detection and sanction.

good outcome (*i.e.*, participants did not select the box hiding a bomb), their earnings would increase in the number of boxes collected, whereas in the event of a bad outcome (*i.e.*, they selected the box hiding a bomb), they would lose a fraction of the income earned in the first stage of the experiment.

We conjectured that, for given baseline risk preferences, if the moral cost of lying generates a sense of entitlement, as posited by Thielmann and Hilbig (2019), there should be no or little difference in risk taking in the BRET between individuals whose high earnings were realized through lying and those whose same earnings resulted from effort, because both groups would exhibit a sense of entitlement. Along this line, we also conjectured that the former should take less risk than the individuals whose same earnings were realized through luck, because the former would exhibit a sense of entitlement but not the latter.

Contrary to these conjectures, our results showed that, conditional on their baseline risk preferences (as self-reported in the SOEP questionnaire), dishonest individuals took more risk in the BRET than those who earned the same earnings through effort. Additionally, they revealed no significant difference in risk taking between individuals who earned money by lying or luck, while individuals took more risk with money earned by luck than through effort provision. These results imply that dishonest individuals treated unethical money more like a windfall gain than hard-earned money. This could either mean that the moral cost of lying does not generate a feeling of entitlement, in contrast with costly effort, or that liars were individuals who self-selected based on their low moral cost of lying. The second interpretation is plausible because the choice to lie in our experiment was observable *ex post* to the experimenter.

To disentangle between these two interpretations, we conducted a follow-up experiment in which we increased the moral cost of lying *ex post*. We did so by informing the participants about the injunctive norm regarding the appropriate behavior in the truth-telling mini-game of Gibson et al. (2013), as elicited in a separate study, after participants made their lying decision but before they performed the BRET. The results of the *Higher Moral Cost treatment* showed that dishonest individuals took significantly less risk in the BRET than those who participated in the original Lying treatment. This finding is in line with the psychological cost hypothesis that liars may justify their entitlement to the unethical gain, based on the moral cost they incurred. The feeling of entitlement to unethical gains may thus be sensitive to the level of the moral cost.

Exploring the heterogeneity of our effects, we found that the increased willingness to take risk with unethical money in the original Lying treatment was driven by individuals with risk averse baseline preferences. Risk averse liars were taking higher risk than those with similar baseline risk attitudes who were taking risk with other sources of earnings. This tendency disappeared when the moral cost of lying was increased in the new treatment. We interpret such higher risk taking with unethical gain as a house money effect: since this gain was obtained easily, individuals were willing to put it at stake as if it had no effort value. In contrast, when the moral cost of lying increased, a feeling of entitlement may have developed.

Overall, our findings highlight the importance of taking into account both the unethical source of earnings and the moral costs associated with unethical behavior on risk taking decisions. They suggest that increasing the moral cost of dishonesty, notably through reminders of the injunctive moral norms, leads individuals to have a more conservative use of money in the domain of risk. These findings may be relevant notably in the financial industry where fraud is not uncommon and where the decision-making environment already tends to encourage excessive risk taking.

The remainder of this paper is organized as follows. Section 2 briefly reviews the related literature. Sections 3 and 4 outline the design and the behavioral conjectures. Section 5 reports the results of our main experiment. Section 6 describes our follow-up experiment with increased moral cost of lying and its findings. Section 7 discusses these findings and concludes.

2 Related Literature

Our study is connected to three strands of literature studying, namely, the fungibility of money, the contingency of risk attitudes, and the spillover effects of dishonest behavior on future decisions.

First, the violation of fungibility of money has been corroborated by evidence from both field (*e.g.*, Beatty et al., 2014; Kooreman, 2000; Hastings and Shapiro, 2013, 2018) and laboratory experiments. In particular, Abeler and Marklein (2017) observed the spending behavior of restaurant customers by giving them a coupon, either earmarked for beverages or unlabeled (*i.e.*, that could be spent on both food and beverages). They found that customers receiving a coupon earmarked for beverages spent more on beverages than their counterparts who received an unlabeled coupon. Other violations of fungibility come from different feelings of ownership, as shown by studies on the endowment effect in economic games. Hoffman et al. (1994) found that letting individuals earn the right to be the proposer and dictator in the ultimatum and dictator games, respectively, led to a significant reduction in the generosity of transfers because individuals perceived to have earned the rightful entitlement of the endowment (see also Cherry, 2001; Cherry et al., 2002; List and Cherry, 2008; Oxoby and Spraggon, 2008). Having to earn one’s endowment creates a sense of entitlement compared to when it is a windfall money, which impacts future decision making with this endowment.

We contribute to this reflection on violations of fungibility by studying whether risk taking differs depending on whether the money at stake has been earned by chance, through effort, or dishonestly through lying. Few studies investigated how individuals perceive money earned from an unethical source and how its nature affects its usage. A psychology study by Tasimi and Gelman (2017) found that compared to money earned honestly, individuals find morally tainted money less desirable, are less likely to spend it on themselves, and prefer to donate it to a charity.

The closest study to ours is that of Imas et al. (2021) which explored the tendency of dishonest individuals to engage in motivated mental money laundering. The money earned in a Sender-Receiver game was wired through a lottery that would return the same amount with a probability of 83%, and double or lose with a probability of 8.3% each. In the laundered condition, the money wired through the lottery was replaced with physically different bills from a clean source, whereas in the unlaundered condition, there was no such physical exchange. After the lottery stage, senders participated in a donation game. Imas et al. (2021) found that dishonest senders whose bills were exchanged donated significantly less than those whose bills were not exchanged. In an additional experiment, they found that, when allowed to choose the amount to be wired, dishonest senders whose bills would be exchanged put significantly more money at stake than those whose bills would not be exchanged. They argued that dishonest senders exploited the opportunity to launder money, even at some risk of losing it, which violates the principle of fungibility.

Although individuals took risk with dishonestly earned money in both studies, we differ from Imas et al. (2021) in two major respects. First, we study risk taking, which is not related to the moral domain, whereas Imas et al. (2021) studied moral motivation through money laundering and charitable giving. Second, our risk task is very different from that used in Imas et al. (2021). Their lottery was designed to launder money (*i.e.*, it offered a high chance of receiving the same amount back in ‘clean’ bills). In contrast, our participants decided how much risk to take, knowing that the negative outcome of the lottery would reduce the money previously earned, while the positive outcome would add gains to the participants’ dishonestly earned money but not substitute for it. Our contribution to the literature on fungibility is investigating how the unethical nature of money may influence how individuals use it in the context of risk.

Second, our study relates to the literature on the contingency of risk attitudes. Previous studies showed that the willingness to take risk depends on prior outcomes. Some found evidence that risk taking increases after gains (*e.g.*, Ackert et al., 2006; Corgnet et al., 2015; Suhonen and Saastamoinen, 2017), which is consistent with the house money effect (Thaler and Johnson, 1990). Others found evidence that risk taking decreases after gains but increases after losses, which supports the disposition effect (Shefrin and Statman, 1985; Weber and Camerer, 1998). Imas (2016) showed that a prior loss reduces risk taking when it is realized, but increases risk taking when it is a paper loss. Other studies examined the effect of stakes (*e.g.*, Holt and Laury, 2002, 2005; Deck et al., 2008; Lefebvre et al., 2010; Fehr-Duda et al., 2010), emotions (*e.g.*, Nguyen and Noussair, 2014; Cohn et al., 2014; Guiso et al., 2018), and risk taking for others (*e.g.*, Andersson et al., 2014; Füllbrunn and Luhan, 2017; Vieider et al., 2016).

We add to this literature by investigating whether the unethical nature of previous gains that could be put at stake matters for the propensity to take risk. In general, individuals decide more conservatively with earned money than with ‘unearned’ money (Thaler and Johnson, 1990; Arkes et al., 1994). Hvide et al. (2019) found that individuals who had to earn their endowment from a real-effort task took less risk than those who simply received an endowment. Closer

to our research question, a psychology study by Chen et al. (2017) explored how the willingness to take risk is influenced by the ethical nature of money. They found that forced liars in a deceptive task were more likely to choose a risky option in a latter task. They argued that it is a feeling of guilt that caused them to take more risk as a distancing strategy. The cognitive dissonance arising from a misalignment of attitudes and actions of individuals with an honest principle who were forced to lie may have induced a disentanglement effect of the unethical gain. This is opposite to the psychological cost hypothesis of Thielmann and Hilbig (2019) mentioned earlier. Our study differs from Chen et al. (2017) in that we looked at the situation where individuals decided to lie rather than being forced to, and we apply standard procedures in experimental economics.

Lastly, our study relates to the investigations of the spillover effects of dishonest decisions on future behavior in an unrelated activity. The theory of self-concept maintenance (Mazar et al., 2008) postulates that individuals have an innate desire to perceive themselves in a positive light. One phenomenon that supports the theory is moral cleansing (Monin and Miller, 2001; Shalvi et al., 2015), whereby individuals who committed an immoral action are more likely to engage in moral behaviors in the future to restore a positive self-image. Gneezy et al. (2014) found that liars in a Sender-Receiver game were more likely to donate money to a charity. A related concept is moral balancing whereby individual keeps checks and balances of good and bad actions (*e.g.*, Mazar and Zhong, 2010; Ploner and Regner, 2013; Brañas-Garza et al., 2013; Rahwan et al., 2018). Although we also contribute to the understanding on how earning money dishonestly influences a future decision, we differ from these studies in that we focus on risk taking, which is unrelated to the moral domain. We are not exploring a behavioral spillover but how behavior influences the status of the money earned and how, in turn, this status influences future risk taking.

3 Experimental Design and Procedures

3.1 Design

The experiment consists of two parts following a preliminary questionnaire. In part 1, participants generated an endowment. The design of part 1 differs across three between-subjects treatments (Lying, Effort and Windfall) that varied how the endowment was earned. In part 2, common to all treatments, participants performed a risk task in which a fraction of the endowment earned previously could be put at stake. Instructions (available in Section A of the Appendix) were distributed at the beginning of each part.

3.1.1 Elicitation of Baseline Risk Preferences

At the beginning of each session, we collected two self-reported measures of risk attitudes taken from the German Socio-Economic Panel (SOEP) (Dohmen et al., 2011). Participants answered the following question on a 0-10 scale: "How do you see yourself: are you generally a person who is fully prepared to

take risk or do you try to avoid taking risks?". We collected this measure of risk in general and in the financial domain. We used them to control that any difference observed across treatments was not driven by differences in baseline risk attitudes or by different self-selection rules in terms of risk attitudes.

3.1.2 Part 1: Formation of Earnings

Participants generated a \$1 or \$2 endowment that could be put at stake in the risk task in part 2 (unknown from the participants when they performed part 1). How the endowment was earned depended on the treatment assigned.

Lying Treatment Participants played the truth-telling mini-game of Gibson et al. (2013). They received the scenario of a CEO who had to announce earnings per share for the previous quarter. They were told that, as a CEO, their compensation depended on the earnings they announce. They were also told that the market currently anticipated the announcement of 35 cents per share, but the true earnings was 31 cents per share. They were informed that they would be paid based on the CEO's compensation (their decision). Participants earned \$1 by choosing to announce 31 cents per share (telling the truth), or \$2 by announcing 35 cents per share (telling a lie).

This task allows us to identify the cheaters at the individual level (a lie is observable *ex post*) and luck does not play any role. Alternative cheating games with no identifiability (*e.g.*, Fischbacher and Föllmi-Heusi, 2013; Cohn et al., 2014; Abeler et al., 2019) would have the advantage of a lower reputation concern, but they could give rise to interpretation issues. Indeed, participants reporting a high payoff outcome could have got lucky and, thereby, did not earn the money through lying. Any observed effect in our setting could then have been an artifact of getting lucky in disguise of 'lying'.³

Effort Treatment In the Lying treatment, participants could earn \$1 or \$2, depending on their decision in the CEO task. Therefore, we similarly implemented two levels of earnings in the other treatments. In the Effort treatment, participants performed an Encoding task (*e.g.*, Erkal et al., 2011; Gangadharan et al., 2017). They received a table with letter-number pairs and were asked to encode as many words as possible within eight minutes by entering the number corresponding to each letter of each given word (see Figure D5 in Section D of the Appendix). They earned \$2 if they correctly encoded at least 39 words; otherwise, they earned \$1. We chose this threshold such as to have about 50% of participants with a high or a low endowment, like in the other treatments.

³Repeating the task, as in Cohn et al. (2014), to identify cheaters at the individual level was not an option because it could have created several levels of wealth (in case of paying all rounds) or allowed a self-serving interpretation of the payoff (in case of paying one randomly selected round) since even dishonest participants would have actually observed the high payoff outcome in some rounds.

Windfall Treatment In the Windfall treatment, participants did not have to perform any task. Instead, they were informed that they would receive either \$1 or \$2 with an equal chance.

3.1.3 Part 2: Risk Taking Task

In part 2, participants performed the Bomb Risk Elicitation Task (BRET) developed by Crosetto and Filippin (2013), adapted in the loss domain, whereby a fraction of the endowment generated in part 1 could be put at stake. The adapted BRET represents a set of 100 lotteries with the two extremes being the degenerate lotteries with no uncertainty, while the remaining 98 lotteries constitute mixed gambles.

Precisely, participants were presented a 10x10 grid, each cell representing a box. They had to decide how many boxes they were willing to collect (0-100 inclusive). For each box collected, they could earn \$0.03. However, a bomb was hidden behind one of the boxes. Each box was equally likely to contain the bomb. The position of the bomb was randomly determined by the program and would be revealed at the end of the session. The payoff depended on whether the bomb had been collected or not. If the bomb had not been collected, participants earned the payoff from collecting the boxes, in addition to the gain of part 1. If the bomb had been collected, they earned nothing from collecting the boxes *and* they lost \$0.5 from their endowment.⁴ Before making their decision, participants responded to some comprehension questions, then they played one practice round to familiarize with the interface. After the practice round, they chose the number of boxes they were willing to collect.

We departed from the standard BRET in two ways. First, following Gioia (2017), players provided the number of boxes they wished to collect. The program collected the boxes in numerical order from the top left corner. Participants could modify their choice as they wished before validating the decision (see Figures D1 and D2 in Section D of the Appendix). Compared to pushing a stop button or manual selection, this version minimizes boredom or impatience that could introduce noise in the decision. Second, while in the standard BRET collecting a bomb nullifies the earnings from the task, in our design it also destroys a fraction of the player’s initial earnings. This is similar to the variant used in Nielsen (2019) in which the endowment is lost if a bomb is collected.

3.2 Procedures

1,048 individuals, recruited in the United States through Amazon Mechanical Turk, participated in the experiment.⁵ 373 participated in the Lying treatment,

⁴Thus, the set of available lotteries was (\$0, 1), (\$0.03, 0.99; -\$0.5, 0.01), (\$0.06, 0.98; -\$0.5, 0.02), (\$0.09, 0.97; -\$0.5, 0.03), (\$0.12, 0.96; -\$0.5, 0.04), ... , (\$2.88, 0.04; -\$0.5, 0.96), (\$2.91, 0.03; -\$0.5, 0.97), (\$2.94, 0.02; -\$0.5, 0.98), (\$2.97, 0.01; -\$0.5, 0.99), (-\$0.5, 1).

⁵The number of observations is based on a pre-registered power calculation. Assuming a type-I error rate of 0.05, a power level of 0.8 and a small effect size (Cohen’s $d = 0.3$), the required number of observations to uncover the hypothesized effect between the Lying and Windfall treatments is 184 observations per treatment. No existing study gives a direct

372 in the Windfall treatment, and 303 in the Effort treatment. We excluded ten individuals who did not pass the attention checks and five individuals who collected 100 boxes in the BRET, revealing a misunderstanding of the task. Therefore, we are left with 1,033 observations (371 in the Lying, 364 in the Windfall and 298 in the Effort treatments). The summary statistics of the participants' individual characteristics are shown in Table B1 in Appendix. They do not differ across treatments, in particular for the baseline risk attitudes, except for age in the Effort and Windfall treatments. Participants in the Effort treatment ($\text{Mean}_{\text{Age}} = 42.47$, Standard Deviation (SD) = 12.87) were slightly older than those in the Windfall treatment ($\text{Mean}_{\text{Age}} = 40.58$, SD = 12.88; $p = 0.043$, Mann-Whitney U test).

At the end of the session, participants learned about the location of the bomb in the BRET and answered a short questionnaire and attention checks. They received a fixed payment of \$0.50, plus a variable payment depending on their earnings in part 1, and the outcome of the BRET in part 2. They earned on average \$2.38 (SD = 0.82). The average duration of the experiment was 10 minutes (SD = 5.88).

A total of 556 individuals earned \$2 in part 1 of the experiment: 194 in the Lying treatment, 182 in the Windfall treatment, and 180 in the Effort treatment. The proportions of individuals who earned \$2 in the Lying and Windfall treatments (52.3% *vs.* 50.0%, respectively) are not statistically different ($p = 0.534$, chi-square test), but they differ between the Lying and Effort treatments (52.3% *vs.* 60.4%, respectively; $p = 0.036$) and between the Windfall and Effort treatments ($p = 0.007$). Their characteristics are summarized in Table B2 in the Appendix; almost none are significantly different across subsamples.

4 Conjectures

In this section, we formulate two behavioral conjectures regarding individuals' risk taking in the BRET conditional on the type of money at stake, controlling for their baseline risk attitudes and the amount of their earnings.⁶ To answer our research questions, we focus on the behavior of the participants who earned a \$2 endowment in the different treatments because only those who received \$2 in the Lying treatment earned their endowment through lying, while those who received a \$1 endowment earned it honestly.

We first compare risk taking in the BRET in the Effort and Windfall treatments to establish a benchmark of the entitlement effect. As shown by the

insight on the lying rate in the CEO task with a MTurk sample. In Gibson et al. (2013), the average lying rate (excluding no lying incentive) among student samples was 68%. The pilot conducted yielded a similar lying rate at 63%. Given this, we conservatively assumed a lying rate of 60% and set the required number of observations per treatment at 307, resulting in a total number of observations of 921 (307x3). However, contrary to this initial power calculation, the empirical lying rate turned out to be only 50%. Given this lower lying rate, we collected about 65 additional observations for the Lying and Windfall treatments each, to uncover the hypothesized effect.

⁶The design and behavioral conjectures have been pre-registered at AsPredicted (#49535).

studies cited in Section 2, this effect posits that individuals are more protective of an endowment generated through effort rather than luck, because of a stronger sense of entitlement. In the context of our experiment, we anticipated that participants in the Effort treatment should take less risk than those in the Windfall treatment because the former group earned their endowment through effort provision, while the latter group earned it through luck.

The comparison of risk taking in the Lying and Effort treatments allows us to identify whether a moral cost and a cognitive cost both lead to a more conservative behavior in the BRET. In the Lying treatment, participants earned \$2 dishonestly in the CEO task, at a possible moral cost. Indeed, lying has been shown to entail moral costs (Gibson et al., 2013; Dufwenberg and Dufwenberg, 2018; Gneezy et al., 2018; Abeler et al., 2019; Khalmetski and Sliwka, 2019). In contrast, in the Effort treatment, participants earned \$2 ethically, in exchange of the effort provided in the encoding task. If dishonest individuals subjectively feel entitled to the unethical gain because they incurred a moral cost when lying (Thielmann and Hilbig, 2019), we should observe a similar risk taking behavior by those who earned money unethically in the CEO task and those who earned the same amount through effort provision in the encoding task. This should be the case if both groups exhibit a sense of entitlement.

We formulate our first conjecture as follows:

Conjecture 1 (Unethical vs. Effort money) *Controlling for their baseline attitudes towards risk, individuals whose previous earnings were earned unethically take similar risk as those who take risk with the money earned ethically from providing effort.*

In the Windfall treatment, participants earned \$2 by luck and without any effort cost. If a moral cost of lying engenders a sense of entitlement, then we anticipate that dishonest individuals should take less risk in the BRET than those whose endowment was a windfall gain from a lottery. We formulate our second conjecture as follows:

Conjecture 2 (Unethical vs. Windfall money) *Controlling for their baseline attitudes towards risk, individuals whose previous earnings were earned unethically take less risk with these earnings than those whose previous earnings were windfall money.*

5 Results of the Main Experiment

As we are interested in comparing the risk taking of individuals who earned money unethically to those who earned money through luck and effort, we focus on the participants who earned \$2 in part 1 of the experiment. The analysis of participants who earned \$1 is reported in Section C in the Appendix.

Before testing our conjectures formally, we started by examining the determinants of the probability of earning \$2 in each treatment, because the decisions

to lie and exert effort are both endogenous. Table B4 in the Appendix reports, for each treatment, a Probit regression in which the dependent variable is equal to one if the participant earned \$2, and zero otherwise. The independent variables include the main socio-demographics: the mean response to the two SOEP questions, normalized in a z-score, gender, the z-score of age, a dummy for the educational level (equal to one for above high school, and zero otherwise), and the mean weekly expenditures. As expected, no variable is significant in the Windfall treatment. The baseline risk attitudes, gender and expenditures did not affect the probability of belonging to the \$2 group in any treatment. Education impacts the likelihood only in the Effort treatment. The coefficient of age is negative and significant at the 1% level in the Lying and Effort treatments, which indicates the presence of self-selection that we need to take into account in the data analysis.

Regarding behavior in the BRET, on average, participants who earned \$2 collected 23.85 boxes in the BRET in the Effort treatment (SD=18.75), 27.33 boxes in the Lying treatment (SD=21.51), and 28.23 boxes in the Windfall treatment (SD=20.97). Two-sided Mann-Whitney rank-sum tests, with one observation per individual, indicate that the number of boxes collected in the Lying treatment is significantly different neither from the number collected in the Effort treatment ($p = 0.162$), nor from the number collected in the Windfall treatment ($p = 0.559$). The pairwise comparison of the Effort and Windfall treatments shows a significant difference ($p = 0.051$). Figure 1 displays the Cumulative Distribution Function of the number of boxes collected in the BRET, by treatment. Kolmogorov-Smirnov tests reveal that the distribution of decisions in the BRET differs significantly between the Lying and the Effort treatments ($p = 0.046$), but not between the Lying and the Windfall treatments ($p = 0.979$). The pairwise comparison of the Effort and the Windfall treatments also reveals a significant difference ($p = 0.033$).

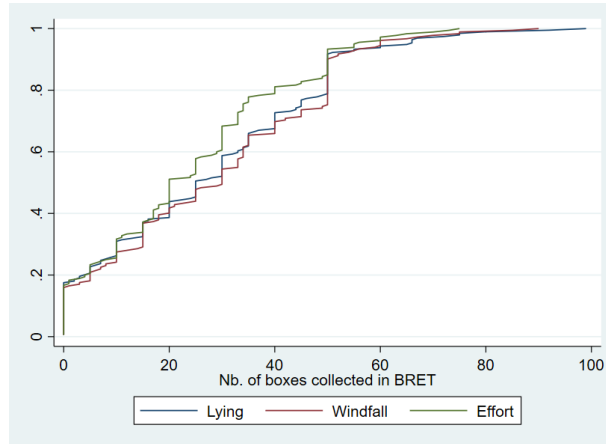


Figure 1: CDF of the Number of Boxes Collected in the BRET, by Treatment

To take into account the endogeneity of the inclusion of individuals in the \$2 group in two out of the three treatments, we estimated Poisson regressions with sample selection.⁷ In the selection equation, the independent variables include treatment dummies interacted with the baseline risk attitudes (the z-score of the mean response to the two SOEP questions), gender, the z-score of age, education (coded one if the participant’s education level is above high school, and zero otherwise), and the mean weekly expenditures. In the outcome equation, the dependent variable is the number of boxes collected in the BRET. In model (1), the independent variables include the treatment dummies, with the Effort treatment as a reference category. The control variables are the z-score of the baseline risk attitudes, a dummy for gender and the z-score of age.⁸

Model (2) replicates model (1), but further includes interaction terms between the treatment dummies and the z-score of the mean response to the two SOEP questions in the independent variables. This accounts for the fact that individuals with various baseline risk attitudes might react differently to the nature of the money at stake. Model (2) allows us to capture the marginal effects of the treatments at each given level of baseline risk attitude.

Table 1 reports the marginal effects from these two Poisson regressions with sample selection. The estimated correlation between the selection errors and the outcome errors (ρ), log pseudo-likelihood and the Akaike’s and Schwarz’s Bayesian Information Criteria (AIC and BIC) are reported below each model. The Wald tests of independent equations indicate that ρ is statistically significant ($p < 0.01$), confirming the need for two-stage regressions.

Table 1 shows that our experiment replicates the entitlement effect previously identified in the literature: participants who earned money through effort provision were more conservative in their risk taking than those who earned the same amount through luck. It also reveals that, contrary to Conjecture 1, the participants who earned a higher endowment by lying took more risk in the BRET than those who earned their endowment through effort provision. Model (1) indicates that individuals who earned money through lying or through luck collected 7 to 23 more boxes, respectively, than those who earned the same through effort. The difference between the Windfall and the Effort treatments is significant at the 1% level, and the difference between the Lying and the Effort treatments at the 5% level. The marginal effects of the Lying and the Windfall treatments are significantly different from each other (Wald test, $p < 0.001$).

Model (2), which accounts for the interaction effects of the treatments and the baseline risk attitudes, shows that individuals with average baseline risk attitudes who earned money dishonestly collected 6 more boxes than those in the

⁷This model handles endogenous sample selection like a Heckman selection model, but it is more appropriate for count data. Using regressions with sample selection instead of OLS is a deviation from the pre-registered data analysis plan.

⁸Exclusion of a significant selection variable from the outcome equation is not necessary, but often recommended in the literature whenever possible (see Heckman, 1978; Wilde, 2000; Miranda and Rabe-Hesketh, 2006). However, as age is an important determinant of risk taking behavior, we did not exclude this variable in the outcome equation, although it is significant in the selection equation. The Information Criteria of the models with age indicate a better fit for our data than models that exclude age from the outcome equation.

Table 1: Determinants of Risk Taking in the BRET in the \$2 Group

Dependent Variable:	(1)		(2)	
	Nb. of boxes	St.Err.	Nb. of boxes	St.Err.
	ME		ME	
Effort treatment	<i>Ref.</i>		<i>Ref.</i>	
Lying treatment	7.685**	(3.671)	6.194**	(2.426)
Windfall treatment	22.84***	(3.619)	6.961**	(2.716)
Mean SOEP	11.43***	(1.470)	11.93***	(1.240)
Male	3.466	(3.185)	2.930	(2.541)
Age	-9.616***	(1.612)	-6.013***	(1.731)
<i>N</i>	1033		1033	
<i>N</i> Selected	556		556	
ρ	-0.46		-0.33	
Treatment x SOEP	No		Yes	
Log pseudo-likelihood	-3212.97		-3194.28	
AIC	6477.94		6444.57	
BIC	6606.39		6582.89	

Notes: This table reports the average marginal effects (ME) from the outcome equation of Poisson regressions with sample selection into the \$2 group. Delta method standard errors (St. Err.) are in parentheses. ** $p < 0.05$, *** $p < 0.01$.

Effort treatment, and those who earned money through luck collected almost 7 more boxes, both being significantly different from the participants in the Effort treatment at the 5% level. In contrast with model (1), the marginal effects of the Lying and the Windfall treatments are no longer statistically different (Wald test, $p = 0.809$). Based on the values of AIC and BIC, model (2) fits the data better. This suggests that the interaction terms between the treatment dummies and the baseline risk attitudes play an important role. We will return to this point in the next section.

This analysis supports the following results that reject our conjectures.

Result 1 (Unethical *vs.* Effort money). Individuals who earned money dishonestly took more risk in the BRET than those who earned the same amount of money honestly through providing effort. Conjecture 1 is not supported.

Result 2 (Unethical *vs.* Windfall money). There is no significant difference in risk taking between individuals who earned money dishonestly and those who earned the same amount of money through luck. Conjecture 2 is not supported.

6 Follow-up Experiment

Our first two results suggest that liars treated their money more like a windfall gain from luck than like an effort-based earning. However, we cannot exclude

that this finding was driven by self-selection: individuals who lied in the CEO task, although the experimenters were *ex post* able to detect lying at the individual level, were perhaps individuals with a low sensitiveness to morality. If this is true, it might still be the case that a moral cost may generate a feeling of entitlement but the effect was simply not captured in our experiment due to the selection of low moral cost individuals. To explore this hypothesis, we ran a follow-up experiment with a new treatment that increased the *ex post* moral cost of lying. We recruited new participants in the United States through MTurk and collected 354 observations in the *Higher Moral Cost (Lying)* treatment.⁹

Design To increase the moral cost of lying in the new treatment while keeping comparability with the original Lying treatment, we informed participants, after they made their decision in the CEO task, about the social norms elicited in an independent study. The norm elicitation study was conducted prior to the Higher Moral Cost treatment with different participants. Fifty individuals located in the United States were recruited through MTurk to participate in this study. After reading the description of the CEO task, they were asked to rate the social appropriateness of the two possible decisions in this task (*i.e.*, telling the truth by announcing 31 and telling a lie by announcing 35), by selecting from a 4-point likert scale (*i.e.*, very socially appropriate, somewhat socially appropriate, somewhat socially inappropriate, and very socially inappropriate). They did not play the game themselves. As in Krupka and Weber (2013), they received a bonus if their response coincided with the modal answer given by all the other participants. One decision was randomly selected for payment.

We then showed the distributions of the ratings of social appropriateness to the participants in the Higher Moral Cost treatment to manipulate the *ex post* moral cost of lying. Precisely, the procedure was similar to that implemented in the Lying treatment, except that after completing the CEO task, participants received unexpected information about the social norms in this task. They were first informed of the social appropriateness ratings of the truth-telling option, followed by the social inappropriateness ratings of the lying option.¹⁰ The distributions of ratings were presented in a graphical format (see Figures D6 and D7 in Section D in the Appendix). These figures clearly conveyed that choosing the lying (honest, respectively) option in the CEO task was deemed socially inappropriate (appropriate, respectively) by the majority of people. After receiving information on social norms, participants proceeded to the risk task.

⁹The number of observations was based on the power calculation we pre-registered. Assuming a type-I error rate of 0.05, a power level of 0.8 and a small effect size (Cohen’s $d = 0.3$), the required number of observations to uncover the hypothesized difference between the Higher Moral Cost and the Lying treatments was 184 observations per treatment. However, based on our initial experiment, we conservatively assumed a lying rate of 50% and set the required number of observations for Higher Moral Cost treatment to be 368. We collected 369 observations but we excluded ten individuals who did not pass the attention checks and five individuals who collected 100 boxes, revealing misunderstanding of the instructions.

¹⁰There was a subtle trade-off here: the objective of the new treatment was to increase the moral cost of lying without raising an ethical issue. This is why we provided information about the two norms.

In sum, the new treatment intended to increase the *ex post* moral cost of lying, while keeping the same selection as in the Lying treatment. If a moral cost generates a feeling of entitlement to the dishonestly-earned money, this feeling should be stronger among liars who experienced a higher moral cost than among those who incurred a lower cost. Thus, we conjectured that liars in the Higher Moral Cost treatment should take less risk in the BRET than liars in the Lying treatment.

Conjecture 3 (Increasing the moral cost of lying and entitlement) *Controlling for their general attitudes towards risk, dishonest individuals who incurred a higher moral cost take less risk than those who incurred a lower moral cost. This should hold if the moral costs of lying induce a feeling of entitlement.*

Alternatively, increasing the moral cost of lying might induce a disentitlement effect, as seen in Chen et al. (2017). This is plausible if liars in the Higher Moral Cost treatment were in a state of high cognitive dissonance (*i.e.*, they felt guilty of what they did in the CEO task after observing the social norms), and thereby, decided to take even higher risk in the BRET as a way to disown the unethical gain or reduce its share in total earnings from the experiment. We thus formulate the following alternative conjecture:¹¹

Conjecture 3A (Increasing the moral cost of lying and disentitlement) *Controlling for their general attitudes towards risk, dishonest individuals who incurred a higher moral cost take more risk than those who incurred a lower moral cost. This should hold if the moral costs of lying induce a disentitlement effect due to cognitive dissonance.*

Unsurprisingly, the proportion of liars in the Higher Moral Cost treatment (54.2%) is not significantly different from the proportion of liars in the Lying treatment (52.3%) ($p = 0.600$, chi squared test). In the new treatment, liars collected on average 27.55 boxes in the BRET (SD= 20.61). The Cumulative Distribution Function of the collected boxes is displayed in Figure D8 in the Section D in the Appendix.¹² To test Conjecture 3 against Conjecture 3A, we reestimated the same Poisson models with sample selection as in Table 1, pooling the data from the main treatments and those from the Higher Moral Cost treatment. The results are reported in Table 2.

¹¹The design and conjectures related to the follow-up experiment were pre-registered separately at AsPredicted (#67936) after we collected the data of the main experiment but before we collected the data of the new treatment.

¹²Two-sided Mann-Whitney rank-sum tests indicate that the number of boxes collected in the Higher Moral Cost treatment is not significantly different from the number collected in the other treatments ($p = 0.962$ in a pairwise comparison with the Lying treatment; $p = 0.092$ with the Effort treatment; $p = 0.580$ with the Windfall treatment). Kolmogorov-Smirnov tests also reveal no significant differences in the distribution of decisions in the BRET between the Higher Moral Cost treatment and the Lying treatment ($p = 0.559$), the Effort treatment ($p = 0.311$), and the Windfall treatment ($p = 0.267$).

Table 2: Determinants of Risk Taking in the BRET in the \$2 Group (Original and Follow-up Experiments)

Dependent Variable:	(1)		(2)	
	Nb. of boxes ME	St.Err.	Nb. of boxes ME	St.Err.
Effort treatment	<i>Ref.</i>		<i>Ref.</i>	
Lying treatment	8.978***	(2.979)	5.683***	(1.848)
Windfall treatment	22.86***	(4.212)	6.776*	(3.615)
Higher MC treatment	0.641	(2.318)	-1.094	(2.524)
Mean SOEP	10.42***	(1.446)	11.41***	(0.934)
Male	1.745	(2.580)	0.826	(3.327)
Age	-7.152***	(1.106)	-4.639***	(1.008)
<i>N</i>	1387		1387	
<i>N</i> Selected	748		748	
ρ	-0.40		-0.30	
Treatment X SOEP	No		Yes	
Log pseudo-likelihood	-4331.15		-4303.65	
AIC	8728.29		8679.29	
BIC	8901.04		8867.74	

Notes: This table reports the marginal effects (ME) from the outcome equation of Poisson regressions with sample selection into the \$2 group. Delta method standard errors (St. Err.) are in parentheses. The sample includes the data from all the treatments, including the High Moral Cost treatment. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Two points are noteworthy in the regressions reported in Table 2. First, confirming the results from Table 1, individuals who earned money dishonestly in the Lying treatment or by being lucky in the Windfall treatment took significantly more risk in the BRET than those who earned the same amount through effort (they collected approximately 9 more boxes, according to model (1), and 6 more boxes, according to model (2), in the Lying treatment; the respective numbers are 23 and 7 in the Windfall treatment). Additionally, at average baseline risk attitudes, the initial significant difference between the marginal effects of the Lying and the Windfall treatments (Wald test; $p < 0.001$ in model (1)) disappears ($p = 0.762$ in model (2)), suggesting that dishonest and lucky individuals with average baseline risk attitudes took similar levels of risk in the BRET. Second, liars in the Higher Moral Cost treatment did not collect a significantly different number of boxes than participants in the Effort treatment. They collected significantly less boxes than liars in the original Lying treatment (Wald tests, $p = 0.002$ in model (1); $p = 0.006$ in model (2)), and than lucky players in the Windfall treatment ($p < 0.001$ in model (1); $p = 0.010$ in model (2)). This suggests that the manipulation of the moral cost induced a feeling of entitlement. This analysis supports the following result:

Result 3 (Increasing the Moral Cost of Lying). Dishonest individuals who were exposed to a higher moral cost took significantly less risk in the BRET

than liars whose moral costs were not manipulated. Conjecture 3 is supported against Conjecture 3A.

Finally, the model with interactions in Table 2 allows us to examine the heterogeneity of reactions to the nature of money, based on individuals' baseline risk attitudes. Using the estimates from model (2), Figure 2 plots the marginal effects of the Lying, Windfall and Higher Moral Cost treatments (the Effort treatment is the reference category) for given baseline risk attitudes.

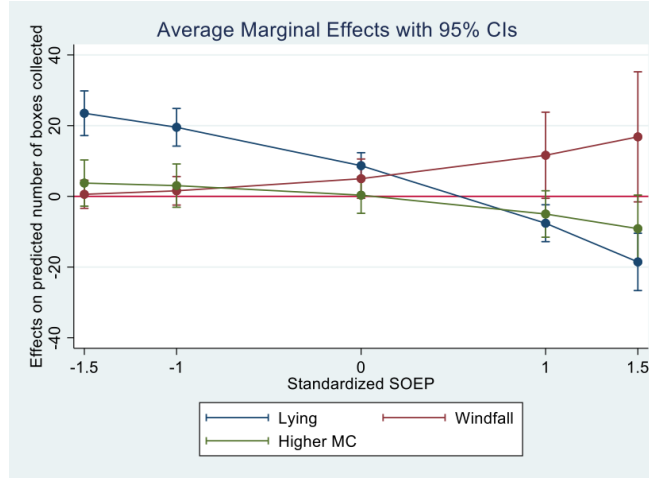


Figure 2: Average Marginal Effects of the Treatment Dummies on Risk Taking, Conditional on Baseline Risk Attitudes

Notes: This figure displays the marginal effects of each treatment on the number of boxes collected in the BRET (Y-axis), taken from Poisson regressions with sample selection (model (2) in Table 2). The horizontal line corresponds to the reference category (Effort treatment). The X-axis represents baseline risk attitudes, as measured by the z-score of the mean responses to the two SOEP questions (zero corresponds to the average risk attitude, that is, slightly risk averse players).

This figure delivers interesting information. Though the marginal effects of the Lying and Windfall treatments from Table 2 are positive and not significantly different from each other, they are in fact driven by different groups of individuals. In the Lying treatment, the treatment effect is largely driven by participants who were risk averse at their baseline, whereas in the Windfall treatment, it is driven by individuals who were risk loving at their baseline. Lastly, when the moral cost of lying was increased, risk taking with dishonestly earned money was reduced, especially for risk averse liars.

7 Discussion and Conclusion

In this study we investigated whether individuals make different risk decisions according to the source of the money they put at risk, and, specifically, whether they treat dishonest money differently than money earned honestly through either effort or luck. If the moral cost of lying induces a sense of entitlement in the same way as an effort cost (as suggested by Thielmann and Hilbig, 2019), risk taking should be relatively similar when the money put at risk was obtained dishonestly and when it was earned honestly through effort; in contrast, it should be treated more conservatively than when earned through luck.

Contrary to these conjectures, liars took significantly *more* risk with this money in a subsequent task than those who earned the same amount honestly through a cognitive effort. We found no difference in risk taking with the money earned from lying or from luck. This reveals another facet of the non-fungibility of money and suggests that dishonest individuals in our experiment treated unethical money more like a windfall gain than an effort-based one.

However, when increasing the *ex post* moral cost of lying, via social norms information on the (in)appropriateness of (mis-)reporting, we found that liars took significantly less risk in the BRET than the other liars. This suggests that a higher moral cost of lying can induce a feeling of entitlement to the dishonestly earned money, resulting in more conservative risk behavior. We also found that the increase in the willingness to take risk with unethical money earned at a lower moral cost came from risk averse individuals. This effect vanished when the moral cost of lying was increased.

Regarding the mechanisms driving our findings, laundering money is unlikely to be the motivation behind increased risk taking with money earned by lying in our study. In one of their experiments Imas et al. (2021) found that liars were more willing to expose larger sums of unethical money to risk when the money would be laundered than when it would not be laundered. The premise of mental money laundering in Imas et al. (2021) rests on the notion of a physical exchange of cash for the same amount from a different source. This feature is not present in our setting. In addition, their lottery task was designed to launder money, with a negligible risk of losing money in the lottery. In contrast, our task involved deciding how much risk to take, knowing that gains would be added to the previous unethical earnings and that part of the money earned previously might be lost (*i.e.*, it would never be exchanged for “clean” money). Pooling “dirty” and “clean” money could possibly be like laundering money, but in our context collecting more boxes in the BRET also meant increasing the risk of losing this money. Moreover, we found that when the moral cost of lying was increased, liars took less risk with this money, while we would expect the opposite if higher risk taking was motivated by the willingness to launder money by pooling the two types of money.

We can also rule out that guilt is the mechanism driving our findings. Indeed, if guilt was the motivation behind higher risk taking in the Lying treatment than in the Effort treatment (for example, in an effort to distancing oneself from dishonest money), we should have observed even higher risk taking when

we increased the moral cost of lying in our follow-up experiment. The data point to the opposite direction.

If the mechanism behind our findings is instead the presence of an entitlement effect induced by the moral cost of lying, why did we not observe it in our main experiment? One potential reason could be that lying in the CEO task does not entail any moral cost. We immediately rule out this possibility because not all players lied in the experiment of Gibson et al. (2013), which, on the contrary, revealed the heterogeneity of moral self-concepts, and because there is evidence that lying in the CEO task is perceived as socially inappropriate (Huber and Huber, 2020). We argue that the moral cost must in fact be high in this task because lying was observable by the experimenter. This might have created a selection effect whereby only individuals with a low moral cost did lie. Therefore, it is plausible that the liars did not suffer *enough* moral cost to induce a sense of entitlement. They may have perceived the unethical gain simply as ‘*house money*’ (Thaler and Johnson, 1990). In contrast, when we increased the moral cost of lying *ex post*, keeping the selection process constant, the willingness to take more risk with unethical money than with effort money disappeared. This supports the notion that moral costs can induce a feeling to entitlement to the dishonestly-earned money, but this feeling is sensitive to the level of these costs.

The study has also revealed the heterogeneity of the treatment effects depending on the individuals’ baseline risk attitudes. Two particular observations are striking. First, in the Lying treatment individuals who were risk averse at their baseline took more risk in the BRET than the other participants, while their counterparts in the other treatments remained consistent with their baseline preferences. A possible interpretation is that risk averse liars were particularly sensitive to the perception of unethical money as a house money that could be put at stake, as if it had little value, whereas the same individuals would be more conservative with other sources of earnings. Second, on the opposite side of the spectrum, risk lovers who won a lottery in the Windfall treatment took more risk in the BRET than risk lovers in the other treatments. This might result from a hot-hand effect induced by the gambling environment, whereas in the other treatments the money that could be put at stake had to be earned. These findings suggest that studies of the violations of the fungibility of money would benefit from a systematic attention to the individuals’ risk preferences.

Overall, our study provides evidence of another type of violation of the fungibility of money by showing that the mere nature of unethical gains matters for risk taking. Although such violation is not morally motivated in our settings, it shows that the treatment of unethical money is sensitive to the level of the moral cost of dishonesty. Earning unethical money at a higher moral cost led to a more conservative use of this money, as if it was hard-earned, whereas individuals –especially risk averse ones– treated unethical money at a low moral cost more like a windfall gain from luck. We need to remain cautious about the external validity of these findings in a more complex environment. Nevertheless, they could contribute to the reflection on risk taking in domains such as financial markets in which the exploitation of asymmetric information may be

tempting. While easy money encourages risk taking, making the inappropriateness of earning money unethically more salient could induce a more conservative use of money, and perhaps limit excessive gambling.

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Appendix A Instructions

A.1 *Lying treatment*

(To prevent bots, participants were required to correctly enter a CAPTCHA prior to receiving the consent form and the instructions.)

Participant information statement

1. What does the study involve?

This study involves several tasks and a short questionnaire. We strongly recommend you complete this study using a computer/laptop or a tablet/Ipad.

2. Who is carrying out the study?

The study is being conducted by Professor Marie Claire Villeval and Sorravich Kingsuwankul from the University of Lyon.

3. How much time does it take?

This study should take approximately 10 to 15 minutes to complete.

4. Can I withdraw from the study?

Participation is voluntary. If you do consent to participate, you can still withdraw from the study at any time without penalty and without having to give any reason. However, there will be no payment in case you withdraw. Withdrawing will not affect the relationship between you, the researchers and Mturk in any way. Once you have completed the study anonymously, your responses cannot be withdrawn.

5. Will anyone else know the results?

All aspects of the study, including results, will be confidential and anonymous. We do NOT ask for your name or any information that will make you identifiable. A report of the study may be submitted for publication, but all information will be used in an aggregated form, and you will never be identified.

6. Will this study benefit me?

By participating in this study, you will receive a flat payment of \$0.50, plus an additional payment. This additional payment depends on the decisions you make in the study.

7. Can I tell other people about the study?

The researchers request that for the purpose of maintaining study integrity, you do not share with anybody the nature of the questions asked of you.

8. What if I require further information about the study?

If you have any specific question regarding the study, please contact us via email at king-suwankul[at]gate.cnrs.fr.

If you agree to our terms, please select 'I agree' and then click 'Next' to continue.

[I agree / I do not agree]

(Next)

Overview

You are now participating in the study. It should take approximately 10 to 15 minutes to complete. We request you not to stop in between. After you finish the study, you will receive

a flat payment of \$0.50, **plus an additional bonus** depending on the decisions you make during the study within 48 hours. **The exact amount depends on your decisions, so please pay attention.**

Your job today is to perform two tasks and participate in a brief questionnaire.

Please click Next to continue

(Next)

Please respond to the questions

Before we proceed, please respond the questions:

Q.1 How do you see yourself: are you generally a person who is fully prepared to take risk or do you try to avoid taking risks?

Please give a value between 0 and 10, with 0 for "not at all willing to take risk" and 10 for "very willing to take risks":

(Likert scale 0-10)

Q.2 How would you rate your willingness to take risks concerning financial matters?

(Likert scale 0-10)

Please click Next to continue

(Next)

First task

The first task is called ‘CEO Task’

Imagine you are the Chief Executive Officer (CEO) of a publicly listed company and one of your tasks is to inform shareholders each quarter about the course of business and the earnings per share. There are two options: announcing 31 cents per share or 35 cents per share. **The higher the announced earnings, the higher will be your compensation as the CEO.** As the CEO, you know the actual earnings (31 cents per share), but shareholders do not. Shareholders anticipate the announcement of 35 cents as earnings per share, but you know that earnings of 31 cents per share would more accurately reflect the actual number.

The earnings you announce determine how much money you will be paid for this task.

- Announcing 31 cents per share when the actual earnings per share is 31 cents. In this case, you will earn \$1.
- Announcing 35 cents per share when the actual earnings per share is 31 cents. In this case, you will earn \$2.

Please click Next to continue

(Next)

In the situation described, how many cents of earnings per share will you announce?

- Announcing 31 cents per share when the actual earnings per share is 31 cents. In this case, you will earn \$1.
- Announcing 35 cents per share when the actual earnings per share is 31 cents. In this case, you will earn \$2.

After making your choice, please, press ‘Next’ to continue

(Next)

End of the first task

You completed the CEO task. You chose to announce *[choice is displayed here]* cents per share. Therefore, your earning for this task is *[earning associated with choice is displayed here]*.

Please press Next to continue

(Next)

Second task

The second task is called “Grid Task”.

You have earned *[\$earning of the first task is displayed here]* in the CEO Task. In this second task, \$0.50 of this earning is put at stake.

You will see a grid representing 100 boxes, as shown below. The boxes are numbered from 1-100. Starting from the top-left corner.

[Picture of Grid task is displayed here]

The value of each box is \$0.03. Your task is to choose how many boxes to collect. So, you will be asked to choose a number between 0 to 100. Boxes will be collected in numerical order.

99 of these boxes are empty, **but** the program has hidden a ‘bomb’ in one box. You do not know where the bomb lies. You only know that the bomb can be in any box with an equal chance. Moreover, even if you collect the bomb, you will not know it **until the end of the study**.

At the end of the study, the program will randomly determine the number of the box that contains the bomb. **Your earning for this task depends on whether you have collected the box that contains the bomb or not.**

Please click Next to continue

(Next)

There are 2 possible situations.

- If you have only collected empty boxes, you will earn **\$0.03 for each box collected**.
- If you have collected the box that contains the bomb, you will earn **nothing from collecting the boxes** and **\$0.5 will be deducted** from what you earned in the CEO task (earning of the task is displayed here).

When you choose a number of boxes you would like to collect, you have to write than number twice. Then, the program will display a grid with collected boxes marked. Once you are satisfied with your decision, you have to click ‘Confirm’ to submit your choice.

Note: If you do not wish to lose any of the earnings in the CEO task, you can choose to collect zero box.

Before the actual task, you will have to respond to some questions and perform a practice round. **This gives you the opportunity to understand the task and how your decision may affect your earnings.** The decision in the practice round does NOT count

towards your additional payment. After the practice round, the actual task will begin.

When you are ready, please click Next to proceed to the quiz.

(Next)

Please answer the following question. *[Question appears one by one]*

1. When will you know about the location of the bomb?
 - Immediately when you collect the box that contains a bomb
 - At the end of today's study
2. What happens if one of the boxes you collected contains the bomb?
 - Nothing happens
 - You lose all the earnings from the collected boxes
 - You lose all the earnings from the collected boxes and \$0.5 is deducted from your earning from the CEO task.
3. Jane decided to collect 25 boxes. What is the chance that Jane find a bomb?
 - 75 chances out of 100
 - 25 chances out of 100
 - 100 chances out of 100
4. John decided to collect 25 boxes. Therefore, the program collected boxes no.1 to 25 for him. At the end of the study, the program randomly determined the location of the bomb, among 100 boxes, and it is behind box no. 52. Did John collect the bomb?
 - Maybe
 - Yes
 - No

Please click Next to continue

(Next)

Practice round

You have completed the quiz about the Grid Task. The next page is a practice, so you can get to know the interface of the task. Your decision in this practice round is NOT counted for any payment.

When you are ready, please, click Next to begin.

(Next)

Practice round

Your decision in this practice round is **NOT** counted for any payment.

[Grid task displayed here]

Please enter the number of boxes that you like to collect

(Input box)

Please enter the same number again

(Input box)

Then, please click 'Confirm my decision' to continue.

(Confirm my decision)

Practice round

Your decision in this practice round is **NOT** counted for any payment.

You decided to collect [*participant's decision is displayed here*] box(es).

- If there is no bomb behind the selected box(es), you would earn [*correct earning is displayed here*] for this task.
- If there is a bomb behind the selected box(es), you would earn nothing from collecting the box(es) and \$0.50 would be deducted from your earning in the CEO task.

[*The program displays the grid with the first N boxes collected*]

Please, click Next to continue.

(Next)

End of the instructions for the Grid Task

This is the end of the instructions for the Grid Task.

On the next page, you will find the actual Grid Task. When you are ready, please press "Next" to begin.

(Next)

Grid task

(Grid task displayed here)

Please enter the number of boxes that you like to collect.

(Input box)

Please enter the same number again.

(Input box)

Then, please click 'Confirm my decision' to continue.

(Confirm my decision)

Grid task

You decided to collect [*participant's decision is displayed here*] box(es).

- If there is no bomb behind the selected box(es), you earn [*correct earning is displayed here*] for this task.
- If there is a bomb behind the selected box(es), you earn nothing from collecting the box(es) and \$0.50 is deducted from your earning in the CEO task.

[The program displays the grid with the first N boxes collected]

Please, click Next to continue.

(Next)

The end of the second task

You have completed the Grid task.

Please, press "Next" to continue.

(Next)

Feedback of the bomb location

You have completed all the tasks in this study!

The program will now randomly determine which box contains a bomb. Each box is equally likely to contain the bomb.

- If you collected the bomb, a red bomb will be shown.
- If you did **NOT** collect the bomb, a black bomb will be shown.

Then, you will answer a brief questionnaire. At the end, the program will summarize your compensation for today's study.

Please press Next to continue.

(Next)

Your decision in the Grid Task

You decided to collect [participant's decision is displayed here] box(es).

[The program displays the grid with the first N boxes collected]

Please, click 'Reveal bomb' to continue.

(Reveal bomb)

[If participant did not collect the bomb]

Your decision in the Grid Task

You decided to collect [participant's decision is displayed here] box(es). The bomb was behind box number [bomb location is displayed here]. You did not collect a bomb. Therefore, you earned [earning for Grid Task is displayed here] for this task.

[Grid is displayed with a black bomb in one of the boxes not collected]

Please, click Next to continue.

(Next)

[If participant collected the bomb]

Your decision in the Grid Task

You decided to collect [participant's decision is displayed here] box(es). The bomb was behind box number [bomb location is displayed here]. You collected a bomb. Therefore, \$0.50 is deducted from your earning in the CEO Task.

[Grid is displayed with a red bomb in one of the boxes collected]

Please, click Next to continue.

(Next)

Final questionnaire

Please provide the following information.

1. What year were you born? (e.g. 1980)
2. What is your gender?
 - Male
 - Female
3. What is your status?
 - Student
 - Unemployed
 - Employed or self-employed
 - Pensioner
 - Others: please indicate
4. What is the main source of personal finance?
 - Allowance and/or social benefits
 - Salary
 - Pension
 - No personal income
5. What is the size of your household?
 - I live alone
 - 2 persons
 - 3 persons
 - 4 persons
 - 5 persons
 - More than 5 persons
6. What is the highest education degree obtained?
 - Below high school
 - High school
 - Bachelor's or college degree
 - Master's/graduate degree and above
7. What is your approximate household annual pre-tax income?
 - Less than \$10,000
 - Between \$10,000 and \$20,000

- Between \$20,000 and \$30,000
 - Between \$30,000 and \$50,000
 - Between \$50,000 and \$70,000
 - Between \$70,000 and \$90,000
 - Between \$90,000 and \$110,000
 - Between \$110,000 and \$130,000
 - Between \$130,000 and \$150,000
 - More than \$150,000
 - I prefer not to say
8. How much money do you spend in a typical week? This should include your daily expenditure such as food, travel, mobile charges, purchases, EXCLUDING rent, mortgage, educational fee, work expenses.
- \$0 - \$29
 - \$30 - \$49
 - \$50 - \$79
 - \$80 - \$119
 - \$120 - \$174
 - \$175 - \$249
 - \$250 - \$350
 - More than \$350
9. Which device are you using to respond to this study?
- Computer/laptop
 - Ipad/tablet
 - Smartphone
10. How easy was it for you to understand the descriptions of the tasks in this study? Please give a value between 0 and 9, with 0 for “not confusing/easy to understand” and 9 for “confusing/hard to understand”:
(*Likert scale from 0 to 9*)
11. What will you get as additional payment today?
- Chocolate bar
 - Gift card
 - Money
12. In what currency will you be paid for this study?
- Swiss Franc
 - US dollar
 - Thai Baht

(*Next*)

The end of today’s study

Thank you! You have completed today’s study.

Here is the summary of your total compensation for participating in today’s study.

- Flat payment for participation: \$0.50
- Your earnings in the CEO task: (amount is displayed here)
- Your earnings in the Grid Task: (amount is displayed here)

Thus, a total of (*total amount is displayed here*) will be posted to your MTurk Account within 48 hours.

Please, press "Next" to continue.

(*Next*)

The end of the study

Thank you for taking time out of your busy life to participate to this study. If you have any questions concerning this study, you can contact us at kingsuwankul[at]gate.cnrs.fr. Your confirmation code to be entered on Mturk webpage is your Mturk worker ID. Please make the HIT on Mturk with this ID.

You can close this window now.

A.2 Windfall Treatment

(*We report the instructions only for part 1 since the other parts were similar to that in the previous treatment.*)

Information

You will be receiving an amount of money as an endowment. You are receiving **either \$1 or \$2 with an equal chance**. The program will determine the exact amount you will receive, which does not depend on your decisions.

When you press 'Next', the program will determine the exact amount of your endowment.

(*Next*)

The program has determined the amount for you.

Your endowment is [*amount of endowment is displayed here*].

Please, press 'Next' to continue.

A.3 Effort Treatment

(*We report the instructions only for part 1 since the other parts were similar to that in the previous treatment.*)

First task

The first task is an encoding task.

You will be presented with a number of words and your task will be to encode these words by substituting the letters of the alphabet with numbers using the following table:

[*Table with letter-number codes is displayed here*]

Example:

You are given the word **FLAT**. The letters in the table above show that F=6, L=3, A=8, and T=19. You will have to enter these numbers into boxes corresponding to the respective letters of the word.

Once you encode a word correctly, the program will prompt you with another word to encode. You will have **8 minutes** to encode as many words as you want. After 8 minutes, the task is ended automatically.

Your earnings for this task:

- If you correctly encode fewer than 39 words, you will earn \$1.
- If you correctly encode 39 words or more, you will earn \$2.

When you are ready, please press Next to start the task.

(Next)

Remaining time: *[Remaining time in seconds displayed here]*

[Table with letter-number codes is displayed here]

So far, you have encoded [Number of words completed displayed here] word(s) correctly.

[Table with words to encode is displayed here]

You will earn \$2 for this task if you encode at least **39 words**. Otherwise, you will earn \$1.

[Screen is auto-incremented when time limit is reached]

End of the first task

You completed the encoding task. You correctly encoded [No. of words done is displayed here] word(s). Thus, you earned \$[earning is displayed here] for this task.

A.4 Higher Moral Cost Treatment

(We only report the differences in the instructions with those used for the Lying treatment, that take place between the end of the CEO task and the BRET.)

Before we proceed, please read the following message carefully:

In another study, we asked participants, who are also MTurkers in the U.S. just like you, whether they believed that the participants' decisions to announce an earning of 31 and 35 cents per share when knowing that the actual earning was 31 cents are, according to the majority of the participants, very socially inappropriate, somewhat socially inappropriate, somewhat socially appropriate, very socially appropriate.

By socially inappropriate, we mean the behavior that most people would agree is the "incorrect" or "unethical" thing to do. By socially appropriate, we mean the behavior that most people would agree is the "correct" or "ethical" thing to do.

Please, press 'Next' to continue.

Please read the information

About announcing 31 cents per share when knowing that the actual earning per share was 31 cents

In the picture below, you can see the percentages of participants who think that announcing 31 cents per share when knowing that the actual earning per share was 31 cents is, according to the majority of the participants, very socially appropriate, somewhat socially appropriate, somewhat socially inappropriate, very socially inappropriate.

[Graph summarizing proportion of responses for the honest option displayed here]

When you finish reading, please click 'Next' to proceed.

Please read the information

About announcing 35 cents per share when knowing that the actual earning per share was 31 cents

In the picture below, you can see the percentages of participants who think that announcing 35 cents per share when knowing that the actual earning per share was 31 cents is, according to the majority of the participants, very socially appropriate, somewhat socially appropriate, somewhat socially inappropriate, very socially inappropriate.

[Graph summarizing proportion of responses for the lying option displayed here]

When you finish reading, please click 'Next' to proceed.

Appendix B Appendix Tables

Table B1: Summary Statistics (All participants)

	(1) Lying		(2) Windfall		(3) Effort		(4) Higher MC		(1-2)	(1-3)	(1-4)	(2-3)	(2-4)	(3-4)
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	p value					
Male (Dummy)	0.51	0.50	0.53	0.50	0.50	0.50	0.40	0.49	0.572	0.755	0.003***	0.398	0.001***	0.014**
Age (Years)	41.52	12.70	40.58	12.88	42.47	12.87	40.61	12.76	0.213	0.297	0.334	0.043**	0.845	0.055*
Weekly expenditures (1-8)	4.72	1.97	4.57	1.95	4.77	1.90	4.62	1.81	0.219	0.834	0.392	0.159	0.585	0.314
Above high school (%)	0.72	0.45	0.68	0.47	0.69	0.46	0.71	0.45	0.291	0.479	0.882	0.770	0.371	0.576
SOEP General (0 - 10)	4.48	2.55	4.55	2.70	4.37	2.46	4.75	2.61	0.697	0.683	0.133	0.442	0.301	0.066*
SOEP Finance (0 - 10)	4.11	2.64	4.16	2.64	3.97	2.48	4.42	2.71	0.786	0.633	0.125	0.466	0.210	0.046**
Understanding (0 - 9)	2.41	3.50	2.70	3.53	2.56	3.53	2.49	3.40	0.155	0.388	0.191	0.620	0.841	0.724
Proportion of \$2	0.52	0.50	0.50	0.50	0.60	0.49	0.54	0.50	0.534	0.036**	0.600	0.007***	0.256	0.113
Observations	371		364		298		354							

Notes: ‘Understanding’ is the mean rating given at the end of the session to the question: ‘How easy was it for you to understand the descriptions of the tasks in this study?’ (0 for “not confusing/easy to understand” and 9 for “confusing/hard to understand”). The p-values reported are from chi-square tests for binary variables and rank-sum tests for interval variables. MC for moral cost.

Table B2: Summary Statistics (\$2 group)

	(1) Lying		(2) Windfall		(3) Effort		(4) Higher MC		(1-2)	(1-3)	(1-4)	(2-3)	(2-4)	(3-4)
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	p value					
Male (Dummy)	0.53	0.50	0.54	0.50	0.49	0.50	0.41	0.49	0.800	0.416	0.014**	0.295	0.008***	0.109
Age (Years)	38.80	10.92	39.75	12.65	40.02	11.73	38.52	11.52	0.770	0.345	0.811	0.633	0.595	0.232
Weekly expenditures (1-8)	4.77	1.94	4.54	1.94	4.79	1.86	4.60	1.79	0.157	0.907	0.291	0.190	0.586	0.379
Above high school (%)	0.70	0.46	0.71	0.46	0.74	0.44	0.73	0.45	0.784	0.296	0.470	0.447	0.661	0.738
SOEP General (0 - 10)	4.47	2.55	4.60	2.72	4.36	2.28	4.80	2.67	0.668	0.773	0.188	0.480	0.448	0.093*
SOEP Finance (0 - 10)	4.10	2.58	4.18	2.64	4.06	2.33	4.47	2.79	0.816	0.935	0.220	0.882	0.351	0.208
Understanding (0 - 9)	2.34	3.52	2.78	3.56	2.04	3.24	2.54	3.42	0.113	0.713	0.158	0.042**	0.773	0.069*
Observations	194		182		180		192							

Notes: ‘Understanding’ is the mean rating given at the end of the session to the question: ‘How easy was it for you to understand the descriptions of the tasks in this study?’ (0 for “not confusing/easy to understand” and 9 for “confusing/hard to understand”). The p-values reported are from chi-square tests for binary variables and rank-sum tests for interval variables. MC for moral cost.

Table B3: Summary Statistics (\$1 group)

	(1) Lying		(2) Windfall		(3) Effort		(4) Higher MC		(1-2)	(1-3)	(1-4)	(2-3)	(2-4)	(3-4)
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	p value					
Male (Dummy)	0.49	0.50	0.52	0.50	0.52	0.50	0.40	0.49	0.564	0.669	0.095*	0.932	0.025**	0.055*
Age (Years)	44.51	13.83	41.41	13.08	46.22	13.65	43.09	13.71	0.025**	0.225	0.370	0.002***	0.268	0.050**
Weekly expenditures (1 - 8)	4.66	2.00	4.60	1.97	4.75	1.96	4.64	1.84	0.739	0.714	0.887	0.487	0.808	0.605
Above high school (%)	0.75	0.44	0.66	0.48	0.62	0.49	0.70	0.46	0.073*	0.020**	0.322	0.472	0.449	0.168
SOEP General (0 - 10)	4.49	2.56	4.51	2.68	4.37	2.71	4.69	2.53	0.881	0.816	0.443	0.729	0.537	0.365
SOEP Finance (0 - 10)	4.12	2.71	4.14	2.65	3.84	2.70	4.37	2.61	0.897	0.395	0.367	0.331	0.429	0.094*
Understanding (0 - 9)	2.48	3.50	2.61	3.51	3.34	3.82	2.43	3.37	0.674	0.042**	0.682	0.090*	0.976	0.087*
Observations	177		182		118		162							

Notes: ‘Understanding’ is the mean rating given at the end of the session to the question: ‘How easy was it for you to understand the descriptions of the tasks in this study?’ (0 for “not confusing/easy to understand” and 9 for “confusing/hard to understand”). The p-values reported are from chi-square tests for binary variables and rank-sum tests for interval variables. MC for moral cost.

Table B4: Determinants of the Probability of Earning \$2 in Part 1, by Treatment

Treatment	(1) Lying	(2) Windfall	(3) Effort	(4) Higher MC
Mean SOEP	-0.055 (0.071)	0.009 (0.065)	-0.002 (0.085)	0.004 (0.069)
Male	0.043 (0.136)	0.039 (0.135)	-0.202 (0.159)	-0.038 (0.144)
Age	-0.320*** (0.072)	-0.077 (0.067)	-0.328*** (0.077)	-0.227*** (0.069)
Above high school	-0.205 (0.153)	0.151 (0.143)	0.419** (0.166)	0.080 (0.153)
Weekly expenditures	0.001 (0.001)	<-0.001 (0.001)	<0.001 (0.001)	<-0.001 (0.001)
Constant	0.072 (0.171)	-0.108 (0.162)	0.073 (0.185)	0.066 (0.159)
<i>N</i>	371	364	298	354

Notes: The table reports the coefficients from a probit model. Standard errors are in parentheses. Mean of responses in the SOEP questionnaire and age are reported in z-scores. MC for moral cost. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Appendix C Analysis of the \$1 Group Behavior

In this section, we report an exploratory analysis of risk taking behavior in the \$1 group. How participants earned \$1 differed depending on the treatment assigned. In the Windfall treatment, participants received \$1 from the lottery with an equal chance. Therefore, they received \$1 by being unlucky. In the Effort treatment, participants who received only \$1 (which was the base pay irrespective of their performance) are those who fell short of the threshold in the Encoding task (39 words). In the Lying and the Higher Moral Cost treatments, participants who earned \$1 are those who purposefully chose an honest option in the CEO task. Table B3 summarizes the individual characteristics of these participants.

We performed similar regression analyses as done for the \$2 group. Table C1 reports the marginal effects from the Poisson regressions with sample selection, in which the dependent variable is the number of boxes collected in the BRET. The selection equation includes interaction terms between each treatment and the baseline risk attitudes (measured as the z-score of the mean response to the two SOEP questions), gender (coded one for male, zero for female), the z-score of age, education (coded one if above high school, zero otherwise), and mean weekly expenditures. In model (1) of the outcome equation reported in Table C1, the independent variables include the treatment dummies (with the Effort treatment as a reference category), the baseline risk attitudes, gender, and age. Model (2) replicates model (1), but further includes the interaction terms of treatment dummies and the baseline risk attitudes. The estimated correlation between the selection errors and the outcome errors (ρ), log pseudo-likelihood, and the Akaike's and Schwarz's Bayesian information criteria (AIC and BIC) are reported for each model.

Table C1: Determinants of Risk Taking in the BRET in the \$1 group

Dependent Variable:	(1)		(2)	
	Nb. of boxes	St.Err.	Nb. of boxes	St.Err.
	ME		ME	
Effort	<i>Ref.</i>		<i>Ref.</i>	
Lying	7.588*	(4.285)	8.410***	(1.434)
Windfall	28.71***	(5.206)	18.62***	(2.207)
Higher MC	14.87***	(4.922)	12.16***	(2.470)
Mean SOEP	5.532***	(1.079)	8.802***	(0.634)
Male	0.823	(3.595)	-2.647	(1.756)
Age	-5.345***	(1.762)	-1.069*	(0.647)
<i>N</i>	1387		1387	
<i>N</i> Selected	639		639	
ρ	-0.25		-0.19	
Treatment X SOEP	No		Yes	
Log pseudo-likelihood	-3820.03		-3802.81	
AIC	7706.07		7677.62	
BIC	7878.82		7866.07	

Notes: The table reports the marginal effects from Poisson regressions with sample selection. Delta method standard errors are in parentheses. Mean of responses in the SOEP questionnaire and age are reported in z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The Wald tests of independent equations indicate that ρ is statistically significant (both models, $p < 0.001$). Model (1) indicates that honest and unlucky individuals collected approximately 7 and 28 boxes more than the low performers, respectively. The difference between the marginal effects of the Lying and Windfall treatments is significant (Wald test, $p < 0.001$). Honest individuals in the Higher Moral Cost treatment collected approximately 15 more boxes than low performers, more than the honest individuals in the Lying treatment. The difference between the marginal effects of the Lying and Higher Moral Cost treatments is significant (Wald test, $p = 0.050$). This higher risk taking of honest players in the Higher Moral Cost treatment compared to their counterparts in the Lying treatment should result from the manipulation which made the honesty norm salient and reminded them that others approved of

their decision in the CEO task. While this manipulation had the opposite effect on dishonest players, this may have given these honest players the willingness to compensate for the forgone dishonest money in the CEO task by gambling a higher amount in the BRET. Model (2), which includes the interaction terms, yields similar results to those of model (1), with smaller differences across treatments.¹³ Our interpretation for the behavior of the \$1 group is that these individuals took risk in the BRET to compensate for having forgone some financial gain prior to the BRET. We discuss these findings below.

Gambling for resurrection in the Windfall treatment: We argue that participants who earned \$1 in the Windfall treatment compensated for having been ‘unlucky’ in the lottery in part 1. This interpretation builds on the fact that unlucky participants ($\text{Mean}_{\text{BRET}} = 31.97$, $\text{SD} = 18.94$) tended to collect more boxes than the lucky participants ($\text{Mean}_{\text{BRET}} = 28.23$, $\text{SD} = 20.97$). Though a Mann-Whitney U test does not confirm the significant difference ($p = 0.097$, M-W test), a Kolmogorov-Smirnov test indicates that the distributions are significantly different ($p = 0.002$). Table C2 reports the marginal effects from the Poisson regression for participants in the Windfall treatment, in which the dependent variable is the number of boxes collected in the BRET. The independent variables are the same as in the previous regression tables. The findings in Table C2 are in line with the gambling for resurrection, as unlucky individuals collected approximately 4 more boxes than lucky ones.

Table C2: Windfall Treatment: \$1 *vs.* \$2 group

Dependent Variable	(1)	
	Nb. of boxes collected	
	ME	St.Err.
\$2 group	-4.229**	(1.953)
Mean SOEP	5.824***	(1.004)
Male	4.217**	(2.002)
Age	-2.447**	(1.024)
Above high school	-1.088	(2.124)
Avg. weekly expenditures	0.003	(0.01)
<i>N</i>	364	
Log pseudo-likelihood	-3474.17	
AIC	6962.34	
BIC	6989.62	

Notes: The table reports the marginal effects from Poisson regression.

Delta method standard errors are in parentheses. ** $p < 0.05$, *** $p < 0.01$

Entitlement effect in the Effort task: In the Encoding task, participants earned \$1 because they did not reach the performance threshold. Table C3 reports the marginal effects from the Poisson regression for participants in the Effort treatment in which the dependent variable is the number of boxes collected in the BRET. Independent variables are similar to the ones used in the previous tables. The findings in Table C3 suggest that low performers did not take risk differently than high performers in this treatment. While we interpreted risk taking by the \$2 group in the Effort treatment in terms of entitlement effect (compared to players in the Windfall treatment), this finding suggests that even low performers considered their endowment as hard-earned money to be used conservatively (relatively to the other treatments).

Compensating for the forgone unethical gain: The difference in risk taking in the BRET of honest individuals in the Lying and the low performers in the Effort treatment might be explained by the difference in their status quo in part 1. In the CEO task, honest individuals

¹³The difference between the marginal effects of Lying and Windfall treatments is significant (Wald test, $p < 0.001$), while that between Lying and Higher Moral Cost treatment is not (Wald test, $p = 0.155$).

Table C3: Effort Treatment: \$1 *vs.* \$2 group

Dependent Variable	(1)	
	Nb. of boxes collected	
	ME	St.Err.
\$2 group	2.875	(2.248)
Mean SOEP	5.008***	(1.318)
Male	0.243	(2.278)
Age	-0.864	(1.199)
Above high school	-4.245*	(2.507)
Avg. weekly expenditure	0.015*	(0.009)
<i>N</i>	298	
Log pseudo-likelihood	-3072.18	
AIC	6158.36	
BIC	6184.24	

Notes: The table reports marginal effects from Poisson regressions.

Delta method standard errors are in parentheses. * $p < 0.10$, *** $p < 0.01$

were presented with the lying option to earn \$2, while low performers had to encode words to reach the threshold to earn \$2. To some extent, honest players *gave up* \$1, while lower performers did not give up anything. This could imply a stronger motive for honest individuals to compensate for the gain foregone in the CEO task by taking more risk in the BRET. Table C4 reports the marginal effects from Poisson regressions, comparing honest and dishonest individuals in the Lying and Higher Moral Cost treatments. There is no significant difference in the risk taking of honest and dishonest individuals in any of these treatments. The fact that honest individuals took as much risk as the dishonest group who earned more may imply that the former compensated for having forgone the financial gain of being dishonest.

Table C4: Lying and Higher Moral Cost treatments: \$1 *vs.* \$2 group

Dependent Variable	Lying		Higher MC	
	Nb. of boxes collected		Nb. of boxes collected	
	ME	St.Err.	ME	St.Err.
\$2 group	-1.199	(2.194)	0.751	(2.118)
Mean SOEP	2.681**	(1.071)	4.612***	(1.201)
Male	4.174**	(2.112)	-0.383	(2.241)
Age	-3.008**	(1.271)	-0.992	(1.161)
Above high school	-1.485	(2.485)	0.897	(2.300)
Avg. weekly expenditure	0.005	(0.009)	0.003	(0.009)
<i>N</i>	371		354	
Log pseudo-likelihood	-4055.89		-3803.75	
AIC	8125.78		7621.51	
BIC	8153.19		7648.60	

Notes: The table reports marginal effects from Poisson regressions. Delta method standard errors are in parentheses. Mean of responses in the SOEP questionnaire and age are reported in z-scores. ** $p < 0.05$, *** $p < 0.01$.

Appendix D Appendix Figures

Grid Task

Please enter the number of boxes you like to colour

Please enter the same number again

Then, please click 'Confirm my decision' to continue

Confirm my decision

Figure D1: Screenshot of the Grid task before participants made their decision

[illegible]

Figure D2: Screenshot of the Grid task after participants made their decision

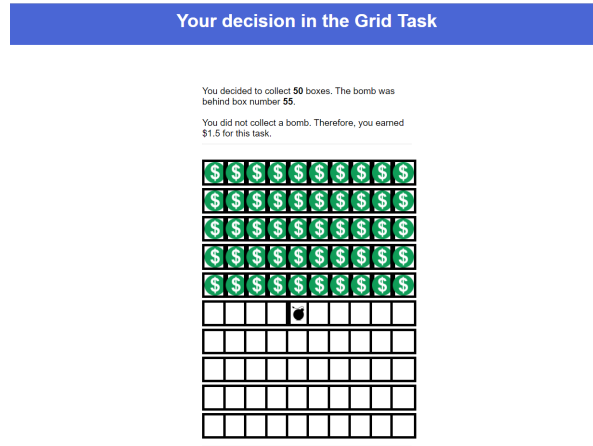


Figure D3: Screenshot of the feedback of the Grid task when the participant did not collect the bomb

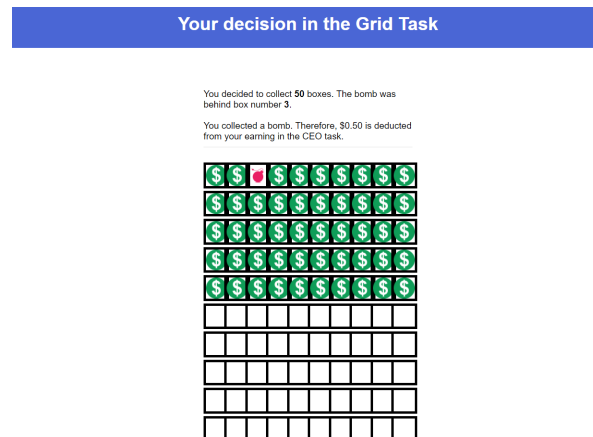


Figure D4: Screenshot of the feedback of the Grid task when the participant collected the bomb

Remaining time:421 seconds

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
8	12	14	10	9	6	24	22	7	5	11	3	18	1	21	16	23	2	13	19	25	4	26	17	20	15

So far, you have encoded 5 words correctly.

C	O	P	Y

NEXT

You will earn \$2 for this task if you encode at least 39 words. Otherwise, you will earn \$1.

Figure D5: Screenshot with an example of the Encoding task

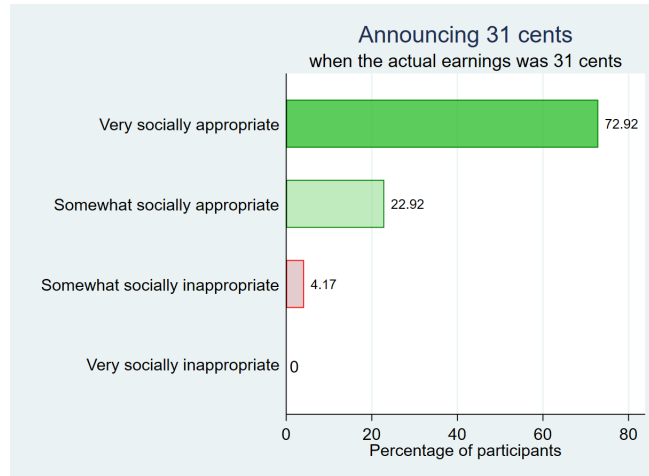


Figure D6: Higher Moral Cost Treatment: Information on the social norm regarding the honest option

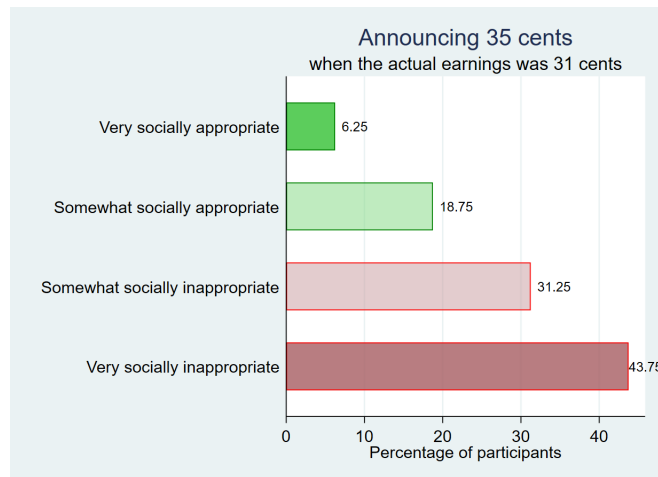


Figure D7: Higher Moral Cost Treatment: Information on the social norm regarding the dishonest option

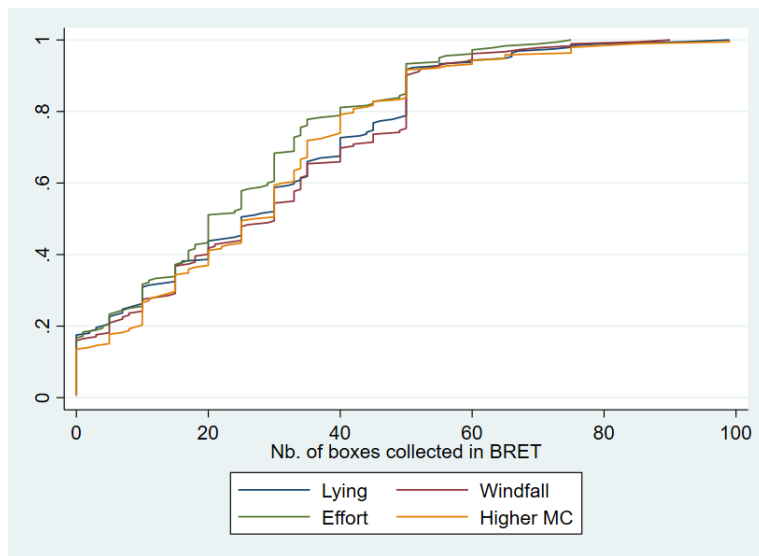


Figure D8: Cumulative Distribution Function of the number of boxes collected in the BRET, by treatment (including the Higher Moral Cost treatment)