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On the robustness of the association between Honesty-Humility and dishonest behavior for varying incentives

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ABSTRACT

Previous research consistently showed a negative link between Honesty-Humility (HH) and dishonest behavior. However, most prior research neglected the influence of situational factors and their potential interaction with HH. In two incentivized experiments (N = 322, N = 552), we thus tested whether the (subjective) utility of incentives moderates the HH-dishonesty link. Replicating prior evidence, HH showed a consistent negative link to dishonesty. However, the utility of incentives did not moderate this association, neither when manipulated through incentive size (BF_{01} = 5.7) nor when manipulated through gain versus loss framing (BF_{01} = 20.4). These results demonstrate the robustness of the HH-dishonesty link.

1. Theoretical background

Dishonest behaviors are highly prevalent in everyday life, affecting interactions in private, semi-public, and societal domains such as relationships, tax returns, or emission fakes. Crucially, there is consistent evidence for considerable individual differences in dishonesty: Whereas some individuals lie indiscriminately, others are basically always honest, and still others only lie to some extent or under certain circumstances (Fischbacher & Föllmi-Heusi, 2013; Hilbig & Thielmann, 2017).

From the perspective of basic personality models, these individual differences in dishonest behavior are best accounted for by Honesty-Humility (HH) from the HEXACO model (Ashton & Lee, 2007). HH subsumes characteristics related to sincerity, fairness, greed avoidance, and modesty. Correspondingly, HH has been negatively linked to various unethical outcomes including dishonest behavior (Zettler, Thielmann, Hilbig, & Moshagen, 2020). In a large-scale reanalysis, HH yielded a medium-sized to large effect (*odds ratio* = 0.53) on dishonest behavior (Heck, Thielmann, Moshagen, & Hilbig, 2018), implying that individuals low in HH indeed lie notably more than those high in HH.

Although the HH-dishonesty link has been consistently documented, research has rarely considered the many situational factors that may co-determine dishonesty and, thus, potentially moderate this association. From a theoretical perspective, one of the most crucial situational features is the (subjective) utility of incentives at stake, that is, what may be gained through lying. Economically speaking, individuals should lie once the corresponding benefits outweigh the potential costs of experiencing sanctions (Becker, 1968). Thus, all else being equal, higher subjective utility should increase dishonesty. According to seminal models of utility-based choice (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992), subjective utility is a monotonic function of monetary value; that is, larger monetary incentives will have more subjective utility (though not necessarily reflecting the same relative increase). Although recent meta-analyses reported only negligible effects of incentive size on dishonest behavior in between-subjects designs (Abeler, Nosenzo, & Raymond, 2019; Gerlach, Teodorescu, & Hertwig, 2019), incentive size indeed shows an effect in within-subjects designs: Whereas some individuals cheat more once incentives increase, others cheat less (Hilbig & Thielmann, 2017). This latter finding is in line with the idea that lying incurs *psychological* costs due to threatening individuals' moral self-image (Mazar, Amir, & Ariely, 2008; Thielmann & Hilbig, 2019), and these costs should increase with increasing subjective utility of incentives.

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Importantly, the subjective utility of incentives is not only affected by their size, but also by their nature. In particular, since "losses loom larger than gains" (Kahneman & Tversky, 1979, p. 279), the same objective monetary value will translate to higher subjective utility when framed as a to-be-avoided loss rather than as an equally large gain. Indeed, individuals lie more to avoid losses than to obtain gains (Schindler & Pfattheicher, 2017), supporting that dishonest behavior increases when the subjective utility of incentives increases through framing.

Strikingly, the HH-dishonesty link has so far only been shown for relatively small incentives framed as gains (Heck et al., 2018). In many real-life situations, however, the utilities at stake can be quite considerable, often involving high incentives and avoiding losses – in the extreme even losses of effortfully earned endowments (e.g., avoiding taxes on one's income). Thus, it is important to investigate whether the HH-dishonesty link is robust against increasing the subjective utility of incentives.

Importantly, different hypotheses on whether HH and incentives interact can be derived from theory. Mirroring the definition of HH (Ashton & Lee, 2007), it is plausible that those high in HH are truly and consistently honest individuals who will not lie, not even for incentives with very high utility. Individuals low in HH, by contrast, may generally be motivated by material gains irrespective of their size, meaning that they will lie by default as long as no costs or potential sanctions are involved. This would imply that the HH-dishonesty link is unaffected by the utility of incentives. Conversely, the HH-dishonesty link may decrease once incentives have higher utility. This may be because claiming to be high in HH is socially desirable (Hilbig, Moshagen, & Zettler, 2015), as is behaving honestly. Thus, once the utility of incentives is high enough to outweigh the desire to present oneself in a socially desirable way, individuals (falsely) claiming to be high in HH might start lying. In consequence, the association between HH and dishonesty would decrease or even vanish entirely. To test these competing hypotheses empirically, we conducted two experiments investigating whether HH interacts with the size (Experiment 1) or nature (Experiment 2) of the incentives at stake when predicting dishonest behavior.

2. Experiment 1

2.1. Methods

We report how we determined our sample size, all data exclusions, all manipulations, and all measures. The materials and data are available on the OSF (https://osf.io/k73dv/). No deception was used, experiments were not pre-registered.

2.1.1. Measures and procedure

To measure HH, we used the German version of the HEXACO-60 (Ashton & Lee, 2009; Moshagen, Hilbig, & Zettler, 2014) with a 5-point Likert-type scale (*1 = strongly disagree*, *5 = strongly agree*). Internal consistency of the HH subscale was satisfactory ($\alpha = 0.75$).

To assess dishonest behavior, we used the coin-toss task (Bucciol & Piovesan, 2011). Participants were instructed to take a coin, choose a target side (HEADS or TAILS), toss the coin exactly twice, and indicate whether or not they obtained the target side in both tosses (25% baseline probability). Whereas responding "no" resulted in a zero payoff, responding "yes" was worth 5€, 10€, or 20€, depending on the randomly assigned experimental condition. Importantly, participants knew that the experimenter could not observe the coin tosses – rendering dishonest responses completely anonymous – and that receiving the additional payment would only depend on their response rather than on the actual outcome of their tosses.

The experiment was conducted online via a German panel provider. Participants first provided informed consent and demographic information before completing the HEXACO-60. Then, they worked on the coin-toss task in one of the three incentive conditions. Following some unrelated tasks, participants were debriefed. After completing data collection, participants received their payment via the panel provider, including a flat fee (1.50€) and, if applicable, the payment for a "yes"-response in the coin-toss task.

2.1.2. Analytical strategy

Since the observed "yes"-responses cannot be uniquely attributed to either honest or dishonest behavior, the individual probability of a "yes"-response is modelled by the sum of the baseline probability (25%) and the probability of not winning but responding "yes" nonetheless, $(1 - 0.25) \cdot d_i$, where d is the probability of an individual i being dishonest independent of the outcome of the coin tosses. To test whether the probability d_i of being dishonest depends on HH and incentive size, we modelled d_i using a modified logistic regression with HH as continuous predictor and incentive size as discrete factor (Moshagen & Hilbig, 2017). Specifically, to test the monotonic effect of incentive size on the average level of dishonesty across conditions (i.e., $d_{5€} < d_{10€} < d_{20€}$), we computed Bayes factors quantifying the evidence for this monotonic trend versus a null effect, $d_{5€} = d_{10€} = d_{20€}$ (Heck et al., 2018). To test the main effect of HH on dishonesty, we compared two hypotheses on the corresponding odds ratio, namely $OR_{HH} < 1$ (replicating previous findings) versus $OR_{HH} = 1$ (implying no effect). Moreover, the interaction was tested by assessing whether the odds ratio for HH differed across conditions ($OR_{HH,5€} \neq OR_{HH,10€} \neq OR_{HH,20€}$) versus being the same ($OR_{HH,5€} = OR_{HH,10€} = OR_{HH,20€}$). In each case, we tested the full regression model with all predictors against a nested model without the relevant predictors. As prior distributions, we adapted weakly informative priors for ANOVA (Rouder, Morey, Speckman, & Province, 2012).

2.1.3. Sample

We opted for a sample size comparable to previous studies using cheating paradigms to investigate the HH-dishonesty link (median $N = 188$, average $N = 303$; Heck et al., 2018). The final sample comprised $N = 322$ participants (47% female, aged 18 to 65 years, $M = 40.29$, $SD = 13.23$), after excluding 20 participants who did not complete the survey or who participated twice, one participant with insufficient language skills, and 20 participants because they completed the HEXACO-60 in under 2 min indicating careless responding. The majority of participants were in employment (66%); only 12% were students.

2.2. Results and discussion

Across conditions, 43.8% of participants responded "yes" in the coin-toss task, implying 25.1% dishonest respondents and thus demonstrating that lying occurred. Replicating prior research, the proportion of "yes"-responses was virtually identical across incentive conditions (i.e., 44% vs. 44% vs. 43% in the 5€, 10€, and 20€ condition, respectively), as was the resulting estimated proportion of dishonest respondents ($\widehat{d}_{5€} = .252$, $SE = .064$; $\widehat{d}_{10€} = .255$, $SE = .063$; $\widehat{d}_{20€} = .244$, $SE = .065$).

We tested our hypotheses using the Bayes factor BF_{10} which quantifies the evidence in favor of an effect versus the null hypothesis. First, there was evidence for a negative versus a null effect of HH (z-standardized) on dishonesty, $OR_{HH} = 0.64$, $BF_{10} = 12.1$, replicating prior research. More importantly, HH did not interact with incentive size, as evidenced by $BF_{01} = 5.7$ in

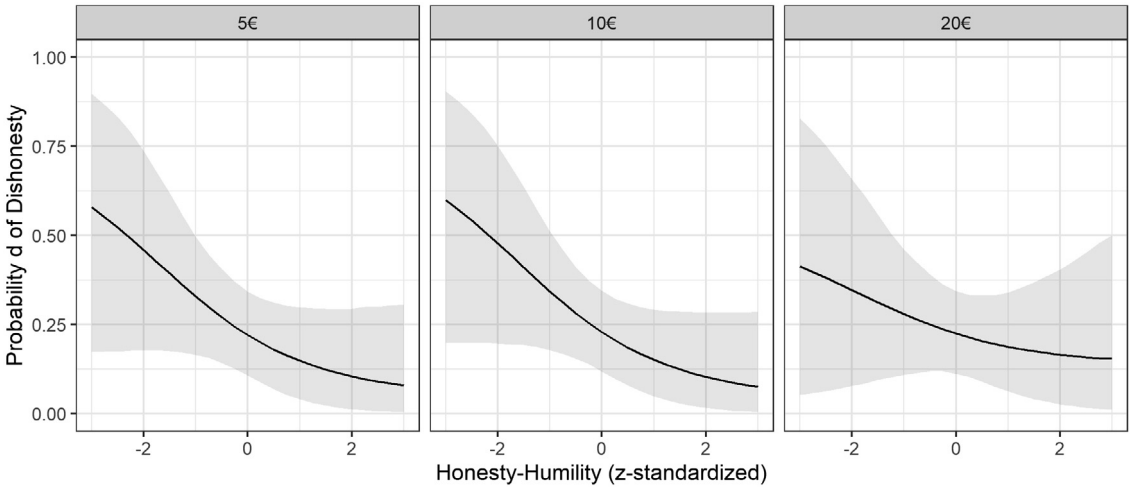

Fig. 1. Regression of the probability of dishonesty on Honesty-Humility (Experiment 1). Each panel refers to one of the three experimental conditions (i.e., incentive sizes). The solid lines show the posterior mean, the shaded area the 95% Bayesian credibility interval.

favor of the null hypothesis. As depicted in Fig. 1, the relation between HH and dishonesty was comparable across conditions, yielding $OR_{HH,5€}$ = 0.53, $OR_{HH,10€}$ = 0.55, and $OR_{HH,20€}$ = 0.78. Additionally, analyses provided evidence for a null and against a monotonically increasing effect of incentive size on dishonesty, BF_{01} = 5.1.[1] The results were robust when assuming a medium instead of a wide prior distribution under the alternative hypotheses (see OSF for details).

Overall, results from Experiment 1 showed that the effect of HH on dishonesty remained robust when doubling or even quadrupling the material benefit associated with lying, thus increasing its subjective utility. However, a manipulation of incentive size up to 20€ may have been too weak to significantly increase subjective utility and thus, for individuals (claiming to be) high in HH to start lying. Therefore, in Experiment 2, we manipulated the utility of incentives through framing. First, based on prospect theory (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992) and prior evidence (Schindler & Pfattheicher, 2017), we implemented a loss framing condition. In addition, we manipulated whether participants had to earn the endowment at stake through exerting cognitive effort. Previous research suggests that individuals are less likely to invest (Klein & Hilbig, 2019) or share (Engel, 2011) an endowment they previously earned rather than receiving it as windfall. Individuals should thus become even more willing to lie when lying prevents losing one's earnings rather than windfall money.

Overall, Experiment 2 sought to test whether the absence of an interaction between HH and incentives on dishonesty as observed in Experiment 1 might have resulted from the manipulation of subjective utility being too weak to make high HH individuals lie. As such, Experiment 2 again tested the competing hypotheses that the HH-dishonesty link might either remain robust, even against an arguably stronger manipulation of the utility of incentives, or eventually decrease (or vanish entirely).

[1] In additional exploratory analyses (see OSF), we tested whether any of the remaining HEXACO dimensions predicted dishonesty and found no evidence for main effects (all $BF_{10} \leq 0.73$) and evidence against any interaction with incentive size (all $BF_{01} \geq 4.8$). In a multiple regression including all HEXACO dimensions and incentive condition as predictors, HH showed a negative incremental effect (BF_{10} = 63.2) whereas there was no evidence for an incremental effect of any other HEXACO dimension (i.e., all $BF_{10} \leq 2.7$).

3. Experiment 2

3.1. Methods

3.1.1. Measures and procedure

HH was again measured using the German version of the HEXACO-60 (Ashton & Lee, 2009; Moshagen et al., 2014), yielding satisfactory internal consistency (α = 0.75).

Dishonest behavior was again assessed using the coin-toss task. This time, however, participants were asked to toss their coin three times and to report whether they obtained their target side in all three tosses (12.5% baseline probability) to increase statistical efficiency (Moshagen & Hilbig, 2017). Moreover, we now kept the incentive size for a "yes"-response stable at 5€, but manipulated the utility of incentives through framing. In the *gain frame condition*, participants completed the standard coin-toss task in which they could gain 5€ through a "yes"-response. In the *loss frame condition*, participants initially received 5€ as windfall money, which they could only keep when responding "yes". Finally, in the *earned endowment condition*, participants first had to earn 5€ in a cognitively effortful task, which they could, again, only keep when responding "yes".

The experiment was again conducted online via a German panel provider and did not involve any deception. Unlike Experiment 1, however, we separated the personality assessment from the coin-toss task in time. At the first measurement occasion, participants completed the HEXACO-60 together with other personality measures not pertinent to the current investigation. Six months later, we re-invited a random subsample to participate in the current experiment. After providing informed consent and demographic information, participants completed the coin-toss task in one of three randomly assigned conditions. For participants assigned to the earned endowment condition, this included a quiz prior to the coin-toss task, consisting of ten questions on verbal and mathematical skills. To obtain the 5€ endowment, participants had to answer at least five questions correctly in four minutes (this threshold was chosen based on prior use of this quiz, ensuring a sufficient feeling of "having earned" the endowment; Klein & Hilbig, 2019; Thielmann & Hilbig, 2019); otherwise, no further tasks followed. In the (subsequent) coin-toss task, participants were informed that they could either gain 5€ (gain frame) or keep the 5€ they previously received (loss frame) or earned (earned endowment). Participants were paid a flat fee (2.75€) and the

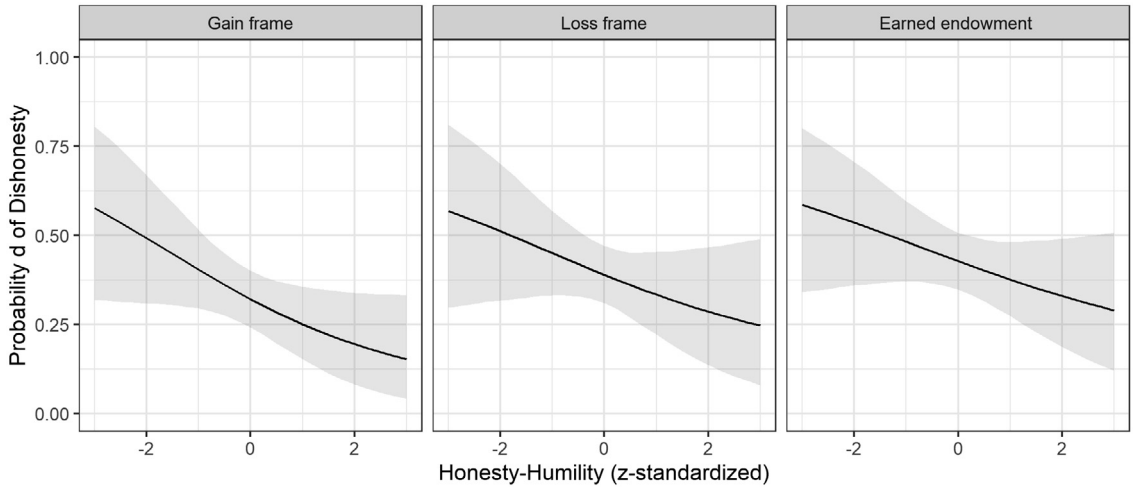

Fig. 2. Regression of the probability of dishonesty on Honesty-Humility (Experiment 2). Each panel refers to one of the three experimental (i.e., framing) conditions. The solid lines show the posterior mean, the shaded area the 95% Bayesian credibility interval.

potential payment from the coin-toss task by the panel provider after completing data collection.

3.1.2. Sample

We opted for a larger sample size than in Experiment 1 to obtain clearer evidence for or against the hypotheses. In total, N = 579 participants completed both measurement occasions (an additional n = 89 failed to obtain an endowment in the quiz and did thus not complete the coin-toss task)[2]. After excluding 27 participants because they completed the HEXACO-60 in under 2 min, the final sample comprised N = 552 participants (48% female, aged 18 to 66 years, M = 43.53, SD = 12.25). The majority of participants were in employment (70%); only 7% were students.

3.2. Results and discussion

Across conditions, 46.2% of participants responded "yes" in the coin-toss task, thus again indicating that dishonesty occurred (i.e., 38.5% dishonest respondents). In turn, the proportion of "yes"-responses and the estimated proportion of dishonest respondents increased across conditions (gain frame: 41%, $\hat{d} = .324$, SE = .041; loss frame: 47%, $\hat{d} = .397$, SE = .042; earned endowment: 51%, $\hat{d} = .435$, SE = .042).

Again, there was evidence for a negative main effect of HH on dishonesty, OR_{HH} = 0.76, BF_{10} = 11.8, but no interaction between HH and framing condition, BF_{01} = 20.4 (see Fig. 2). Regarding framing, the Bayes factor was ambiguous for an overall (monotonic) effect of experimental condition on dishonesty, BF_{10} = 1.4. However, when using Helmert-contrasts for specific comparisons between conditions, there was weak evidence for a higher probability of dishonesty in the two (pooled) loss frame conditions as compared to the gain frame condition, BF_{10} = 3.6, but ambiguous evidence for the comparison of the two loss frame conditions, BF_{10} = 0.66.[3] Again, the results were robust when assuming a medium instead of a wide prior distribution under the alternative hypotheses (see OSF).

4. General discussion

Research has consistently shown that high levels in HEXACO HH are associated with less dishonest behavior. However, studies exclusively investigated situations in which dishonest behavior resulted in (relatively small) gains, whereas real-life dishonesty may involve more substantial utilities which may also come as losses. Herein, we aimed at closing this gap by investigating the HH-dishonesty link when the subjective utility of incentives increases. Replicating previous findings, HH showed a consistent negative link with dishonest behavior. Importantly, this link was robust against manipulations of subjective utility via incentive size and framing of incentives as (earned) losses rather than gains. Given the diverse samples in both studies and the robustness across two different manipulations of subjective utility, these findings appear reliable. In turn, none of the remaining HEXACO dimensions showed consistent links with dishonesty across studies.

Given this robust link between HH and dishonest behavior even when lying becomes more tempting – and honesty costlier – findings observed in prior research cannot be attributed to those high in HH presenting themselves in a socially desirable way as long as the costs of doing so are relatively low. On the contrary, individuals high in HH seem to be truly honest, no matter the gains they must forego or losses they must face, further supporting that *not* every man has his price (Hilbig & Thielmann, 2017). As such, the findings also further substantiate the predictive validity of HH as a trait accounting for dishonest behavior.

Author Note

The first author contributed to data analysis and manuscript writing. The second author contributed to study design, data collection, data analysis, and manuscript writing. The third author contributed to study design and manuscript writing. The last author contributed to data analysis and manuscript writing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

[2] Twenty-nine individuals participated in both experiments. However, Experiment 2 was conducted more than two years after Experiment 1; thus, spill-over effects are highly unlikely.

[3] In further exploratory analyses considering the remaining HEXACO dimensions (see OSF), we also found evidence for main effects of Extraversion (OR = 1.38, BF_{10} = 11.9) and Openness to Experience (OR = 1.45, BF_{10} = 71.5), but evidence against any interaction with condition (all $BF_{01} \geq 4.5$). Again, in a multiple regression including all HEXACO dimensions and incentive condition as predictors of dishonesty, HH yielded a negative incremental effect (BF_{10} = 53.06). Surprisingly, Openness (OR = 1.35, BF_{10} = 15.7) also had an incremental effect above and beyond the remaining HEXACO dimensions.

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