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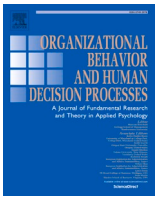

Doing good for (maybe) nothing: How reward uncertainty shapes observer responses to prosocial behavior

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ABSTRACT

When firms or individuals stand to benefit from doing good, observers often question their motivations and discount their good deeds. We propose that this attribution process is sensitive not only to the presence of extrinsic incentives, but also to their prior likelihoods. Across eleven studies, observers treat uncertain rewards (vs. equally valuable certain rewards) as weaker signals of extrinsic motivation. Consequently, observers judge actors who do good when facing uncertain incentives as more purely motivated, benevolent, and likable, and they prefer products from brands that incur profit uncertainty when launching CSR initiatives. Even actors who are handsomely rewarded for doing good are judged favorably if rewards were uncertain at the outset. These effects may stem from more general processes of counterfactual attribution: Actors who do good knowing they might not be rewarded for it may seem more like they would have been willing to act without any incentive at all.

1. Introduction

When people evaluate the actions of organizations and other individuals, they draw inferences and make judgments about underlying motives (e.g., Gilmore & Pine, 2007; Jones & Davis, 1965; Reeder, 2009; Ross, 1977; Vlachos et al., 2009). Nowhere is the importance of motive inference better illustrated than in the context of prosocial behavior[1], where people care deeply about 'motive purity' – the absence of extrinsic motivations – and display strong skepticism that ostensibly good deeds are not as selflessly motivated as they appear (Critcher & Dunning, 2011; Silver, Newman, & Small, 2021). Indeed, people often judge organizations that try to position themselves as socially responsible to be unduly focused on profits and brand image (Small & Cryder, 2016) and view individual do-gooders as braggarts, hypocrites, or self-promoters (Berman et al., 2015). Some scholars have even argued that people see extrinsic incentives and true moral goodness as "necessarily in conflict," noting that people will sometimes condemn prosocial actions that substantially advance the greater good if the actor stands to benefit from them as well (Bhattacharjee, Dana, & Baron, 2017; Newman & Cain, 2014).

When do for-profit brands seem to really care about the social issues attached to their cause-marketing campaigns and social responsibility initiatives? When is it acceptable for organizations or philanthropists to profit from their good deeds? To shed light on these questions, and to illuminate the relationship between actor incentives and observer attributions, we investigate a novel driver of motive inference: reward (un)certainty. Drawing on theories of counterfactual attribution (Kahneman & Miller, 1986; Lipe, 1991), we propose that people see uncertain rewards – which entail the possibility of not being rewarded at all – as weaker signals of extrinsic motivation than certain rewards of equal expected or perceived value. Consequently, good deeds in response to uncertain incentives seem more diagnostic of 'pure' (i.e., intrinsic) motives and virtuous character than good deeds motivated by incentives that were certain all along.

For example, we predict that an individual who volunteers at a charity event in exchange for a raffle ticket will seem more purely motivated and praiseworthy to observers than one who volunteers in exchange for a gift card of equal value. Analogously, an organization

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[1] We define prosocial behavior broadly as any firm or individual action which intends to benefit others and/or society. This definition distinguishes prosocial behavior from *altruism*, which is often defined in terms of direct costs to the actor. In this work, we primarily consider prosocial acts that benefit others, but which may also benefit the actor. (For recent discussions of related definitional issues, see Carlson & Zaki, 2018; Goodwin, 2017; Jensen, 2016).

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that goes green in spite of an uncertain profit forecast will seem more committed to sustainability than one that launches an identical initiative certain to return a smaller, sure profit. Why? We reason that when evaluating whether an actor has ulterior, extrinsic motives, observers may consider what the actor *would have done* if no rewards had been offered and answer this counterfactual question differently across actions with certain versus uncertain incentives. Compared to those who do good in exchange for sure compensation, actors who incur reward uncertainty signal a greater willingness to act even if no rewards were offered.

It is important to note that the proposed effect – that uncertain rewards serve as weaker signals of extrinsic motivation – is not in principle unique to prosocial behavior. However, we focus our investigation on good deeds specifically because motives matter more when doing good. That is, while attributions of extrinsic motivation may occur across domains, these inferences play a particularly central role in judgments of prosocial acts, where people care deeply that prosocial actors are motivated by an intrinsic desire to help rather than by an extrinsic incentives (e.g., Chernev & Blair, 2015; Lin-Healy & Small, 2013; Newman & Cain, 2014; Yoon, Gürhan-Canli, & Schwarz, 2006). From a practical perspective, understanding how observers attribute motives to good deeds helps to predict when doing good will garner praise and credit (vs. when it might backfire altogether). From a theoretical perspective, our work extends and clarifies an influential psychological account suggesting that extrinsic incentives are often seen as incompatible with pure motives and good character. Recent research has argued that the presence of extrinsic motivators like profits and reputation can lead people to see prosocial behavior as tainted (e.g., Lin-Healy & Small, 2013; Newman & Cain, 2014). However, while past work has primarily examined cases in which rewards were either already realized or certain, our experiments test the impact of *ex ante* reward uncertainty, finding that not all extrinsic rewards provoke the same level of observer cynicism. We predict and show that people find it more acceptable for organizations or individuals to benefit from doing good when extrinsic benefits seemed more uncertain at the outset.

More broadly, understanding how reward uncertainty impacts observer judgment is important because uncertain incentives are common to a variety of observable decisions. For instance, firms develop new products, launch new advertising campaigns, and hire unproven job candidates without knowing for sure whether such decisions will prove profitable. Similarly, individuals put money and time towards many endeavors with uncertain payoffs, from investing in the stock market to applying to graduate school. Yet while much is known about how actors evaluate uncertain gambles and incentives themselves (e.g., Barberis, 2013; Camerer, 1998; Kahneman & Tversky, 1979), surprisingly little is known about how people interpret and evaluate the decisions of *others* in response to certain versus uncertain rewards. Beyond how people value uncertain (vs. certain) rewards, we argue that acting in response to uncertain incentives conveys fundamentally different underlying motivations. Simply put, we predict and show that uncertain incentives are much weaker signals of extrinsic motivation.

1.1. Prosocial behavior and profits: A potentially perilous pair

People increasingly report a desire to patronize and a willingness to pay more for products from companies that they see as socially responsible and morally good (Laroche, Bergeron, & Barbaro-Forleo, 2001; Nielsen, 2015). For firms, prosocial initiatives (e.g., cause marketing campaigns, social responsibility initiatives, corporate philanthropy) can boost brand equity (Brown & Dacin, 1997), strengthen investor confidence (Sen, Bhattacharya, & Korschun, 2006), and improve perceived product quality (Chernev & Blair, 2015). Similarly, for prosocial individuals, doing good can increase perceived status (Flynn, 2003; Hardy & Van Vugt, 2006), boost perceived warmth (Fiske, Cuddy, & Glick, 2007), and prompt gratitude and reciprocity (Bartlett & DeSteno, 2006).

However, not all good deeds are equally lauded. While some earn 'charitable credit' (Berman & Silver, 2022; Small & Cryder, 2016), others are met with cynicism and sometimes even outrage. How observers react to prosocial behavior can depend on a variety of factors, including corporate transparency, brand-cause fit, industry norms, and social impact (for review, see Du, Bhattacharya, & Sen, 2010). We focus on one especially central dimension of evaluation: the extent to which prosocial actors seem intrinsically versus extrinsically motivated – how much they care about doing good for its own sake, versus for personal gain. While people are sometimes tolerant of mixed motives (Ellen, Webb, & Mohr, 2006; Forehand & Grier, 2003), in general, the presence of extrinsic rewards tends to make good deeds seem more inauthentic. In other words, the more prosocial behavior seems aimed at improving the actor's reputation or turning a profit, the less 'pure' it seems, and the less credit the actor receives. Recent studies have revealed a variety of cues observers use to infer motives. For example, firms seem more purely motivated and get more credit if they are the first to launch a prosocial initiative (vs. a later entrant; Silver, Kelly, & Small, 2021) or if they donate in-kind goods to philanthropic causes (vs. equivalent donations of money; Gershon & Cryder, 2018). Similarly, prosocial individuals seem less purely motivated and get less credit if they brag about their charitable behavior on social media (Berman et al., 2015) or are personally connected to the charity (Lin-Healy & Small, 2012).

Monetary profits are often thought to be especially tainting. For example, philanthropic initiatives launched by for-profit firms seem greedier than those launched by non-profits, and receive fewer donations as a result (Lee, Bolton, & Winterich, 2017). In extreme cases, prosocial actions associated with monetary profits can backfire altogether (Pallotta, 2008). Indeed, firms that donate a portion of sales' proceeds to charity and keep the rest are sometimes evaluated more negatively than firms that do not donate at all (Newman & Cain, 2014). Results like these have led to a popular view that observers may take extrinsic profits as a signal of impure motives (Bhattacharjee et al., 2017; Carlson & Zaki, 2018; McGraw & Tetlock, 2005). Here, we suggest that judgments of prosocial actions taken when extrinsic rewards are *uncertain* will be importantly different.

1.2. How uncertain rewards impact decision-making and decision evaluation

How do people typically react to reward uncertainty? Prior research on this topic has almost exclusively examined how people value uncertain rewards (e.g., raffle tickets, risky investments) relative to their certain equivalents. Such work typically finds that decision-makers are risk-averse in the domain of gains, preferring a certain reward to an uncertain reward of equal expected value (Benartzi & Thaler, 1995; Bernoulli, 1954; Tversky & Kahneman, 1981). But there is also mounting evidence that reward uncertainty can be valuable and motivating. Multibillion-dollar industries like stock picking, casino gambling, and sports betting thrive on people's appetite for uncertain gambles. Relatedly, consumers sometimes prefer uncertain marketing promotions (e.g., raffle prizes, entry into a sweepstakes) to smaller, sure promotions of equal expected value (Goldsmith & Amir, 2010; Mazar, Shampanier, & Ariely, 2016). And, firms frequently place risky bets on developing new products, entering new markets, or renovating brand image, in many cases trading off smaller, sure gains for a chance of a larger, uncertain reward.

Beyond how people value uncertain rewards themselves, though, we

argue that they make different inferences about *the actions of others* in response to uncertain incentives. Previous research on this topic is sparse. One exception is the general finding that evaluations of decision-making under reward uncertainty tend to be outcome-biased (Baron & Hershey, 1988). Observers typically evaluate gambles according to how they turn out: An individual who wins a bet is seen as more competent than one who loses, even if outcomes were determined by chance. Such findings extend to moral judgment, where an action's random consequences sometimes dictate whether that action seems ethical (Gino, Moore, & Bazerman, 2009; Lin-Healy & Small, 2013). However, whereas the outcome bias literature considers the impact of *ex post* outcomes on evaluations of decisions, the question of whether *ex ante* uncertainty can influence perceptions of actor motive and character has not been addressed.

2. The present research

We propose that organizations and individuals will appear more purely motivated when doing good in response to uncertain rewards, as compared to certain rewards of equal value. For example, consider once more the company that invests in environmental sustainability knowing that doing so entails profit uncertainty, or the individual who volunteers at a charity event in exchange for a raffle ticket. How might people attribute motives in such cases? Classic theories of attribution suggest that observers try to make sense of others' actions by ascribing them either (a) to internal character or (b) to external incentives or circumstances (Jones & Davis, 1965; Ross, 1977). One important way people do this is through counterfactual reasoning, forming simple hypotheses about possible external causes for observed behavior (e.g., *X motivated her to do Y*) and then testing these hypotheses by imagining what would have happened if relevant causes were absent (e.g., *would she have done Y without X?*; Einhorn & Hogarth, 1986; Kahneman & Miller 1986; Lipe, 1991). Past work has also shown that people evaluate prosocial behavior by comparing what they observe to an idealized conception of altruism, one which entails selflessness and willing sacrifice on the part of the actor (Carlson & Zaki, 2018; Lin-Healy & Small, 2013). Thus, to determine whether good deeds are intrinsically or extrinsically motivated, observers may engage in counterfactual reasoning, considering whether an actor *would have done good without reward* and therefore whether the actor has the right sort of self-sacrificing intentions.

Would the brand have gone green if there were no opportunity to profit from it whatsoever? Would the individual have volunteered at the charity event if no compensation were offered at all? We suggest that when rewards are uncertain *ex ante* (i.e., when the prior probability of being rewarded is reasonably low), it may be easier to imagine that the actor would have done good without reward, cuing the inference that motives are more pure, even when possible rewards are large. Conversely, if rewards for doing good are very likely or certain, it should be much harder to imagine the action without the incentive, and observers' general skepticism about prosocial actors may lead even relatively small rewards to seem like central, tainting motivators of observed prosocial behavior.

We believe these motive attributions and their downstream consequences are driven by counterfactual inferences about actors' willingness to behave prosocially without reward. As such, we make a number of additional predictions about specific conditions under which we would expect these hypothesized effects to persist or attenuate.

First, we predict that, at least in certain cases, revealing an uncertain profit outlook can lead to more favorable responses than not mentioning profits at all. While previous work has indicated that mentioning extrinsic rewards (certain or otherwise) may taint perceived motive purity (e.g., Bhattacharjee et al., 2017), other research has shown that large, for-profit firms already seem low in warmth and face significant motive skepticism over their prosocial initiatives at baseline (Aaker, Vohs, & Mogilner, 2010). Said differently, people may sometimes assume that for-profit firms do good primarily for financial gain. In such cases, investing in prosocial initiatives that entail profit uncertainty may provide reason to doubt this default assumption, increasing the firm's perceived willingness to do good without reward. Thus, for-profit brands may sometimes get more credit for being upfront about the possibility that they may or may not benefit from doing good, but are willing to act regardless, than for avoiding mention of profits altogether.

Second, we predict that we can attenuate the effect of reward uncertainty on motive inference by providing contextual information that changes the underlying counterfactual inference (Fein & Hilton, 1994; Lipe, 1991). For example, consider learning that an individual is a few hundred dollars short on rent and that he has decided to donate blood in exchange for a raffle ticket with a chance of winning $250. Here, the remote possibility of receiving a large reward would *not* seem to signal greater willingness to do good for nothing. In fact, the actor's need for a few hundred dollars may lead the raffle ticket (and its large possible payout) to seem particularly motivating and its certain equivalent (say, a $25 reward) to seem insignificant by comparison. Consequently, we expect that moderating the inference that the actor was willing to do good for nothing should attenuate, or even reverse, the effect of reward uncertainty on motive attribution.

Finally, we test and rule out two alternative accounts that make similar predictions. One alternative is that people might perceive uncertain rewards as less tainting simply because they *seem less valuable* than their certain equivalents (e.g., Kahneman & Tversky, 1979). If this were the case, then the proposed effects should not arise when uncertain and certain rewards are matched on perceived (rather than expected) value or when the expected value of the uncertain reward is substantially greater than that of its certain equivalent. A second alternative is that people simply assume that uncertain rewards will not be realized; in other words, that the actor *will actually* behave prosocially without reward (an anticipated outcome bias: Baron & Hershey, 1988; Lewis & Simmons, 2019). If this were the case, then the proposed effects should not arise if the actor does in fact receive the uncertain reward. By contrast, we predict that actors who do good when rewards are uncertain beforehand will seem purely motivated even if the uncertain rewards seem quite valuable and even if the actor is rewarded handsomely in the end.

2.1. Study overview

Eleven studies test the effect of reward uncertainty on motive inference across a variety of prosocial behaviors from firms and individuals, and examine its impact on a host of downstream judgments and choices: evaluations of likability and benevolence (Studies 1a, 1d, 2, 3, 5, and 6); predictions about future behavior (Studies 1a, 1d, 2, and 5); and real product choices (Study 1b). In our stimuli, we operationalize reward uncertainty both by measuring participants' perceptions of reward likelihood (Pilot Study B) and by manipulating precise dollar amounts and likelihoods, which cleanly control for the rewards' expected (Studies 1a, 1b, 1c, 2, 3, 4, 5, and 6) or perceived value (Study 1d).

Two initial pilot studies establish that observers see reward (un) certainty as an important input when evaluating actor motives (Pilot Study A) and that, even without specifying potential profits, *inferred* reward likelihoods correlate with perceptions of motive purity (Pilot Study B). Studies 1a-1d then experimentally test our central claim – that

a prosocial act seems more purely motivated and praiseworthy when it is associated with an uncertain reward versus a certain reward of equivalent (or even greater) value. Study 2 investigates how disclosing uncertain rewards compares to a common approach organizations take when announcing prosocial initiatives: Not disclosing possible rewards at all. Study 3 examines the effect when the large, unlikely reward is, in fact, received (ruling out an alternative explanation based on outcome bias). Study 4 explores how motive inferences vary across a broader range of reward likelihoods. Study 5 tests whether we can moderate the effect by changing the underlying counterfactual inference. Lastly, Study 6 explores the generality of the proposed attribution process outside the domain of prosocial behavior.

All pilots and studies except Study 1a were pre-registered. We report all measures collected. All sample sizes were determined in advance, and we exclude no participants or conditions. Additionally, all MTurk participants in our studies were US residents at least 18 years old who had completed at least 100 HITs with a rejection rate under 5%. To ensure data quality, Studies 1a, 1c, 1d, 2, 3, 4, and 5 included simple multiple-choice attention check questions, all of which had passing rates over 85% (see Appendix). We also collected basic demographic information in all studies but did not observe any consistent demographic effects.

All study stimuli, pre-registrations, data, and the Appendix are available at: https://osf.io/8ekw5/.

3. Pilot studies

In our main experiments, we explicitly specify reward likelihoods and amounts for a given prosocial act (e.g., doing X has a Y% chance of earning $Z) because doing so allows us to cleanly control for reward value and thus isolate the impact of reward uncertainty. However, prioritizing experimental control leaves open initial questions as to whether people (a) care about reward uncertainty in the first place and (b) intuit a relationship between reward uncertainty and motive inference when reward probabilities are inferred and measured rather than explicitly provided. To answer these questions and motivate our experiments, we conducted two pilot studies.

3.1. Pilot Study A

Pilot Study A tested whether people view profit (un)certainty as an important factor when evaluating a corporate social responsibility (CSR) initiative. Three hundred ninety-nine MTurk participants (M_{age} = 39.64, SD = 11.38, 49.12% female, 1.26% other/did not say) read a real excerpt from a recent McDonald's press release about a CSR initiative to invest in renewable energy (see OSF for stimuli). Participants were asked to rate how important nine different types of information would be in helping determine how much McDonald's "actually cares" about the environment (from 1 "Least important" to 7 "Most important"). These nine items were listed in random order and ranged from the effectiveness of the program for helping the environment to how the program compared to industry norms and standards (see Table 1). Our target profit (un)certainty item was: "the likelihood that McDonald's will benefit from the initiative (e.g., how likely McDonald's thinks it is that they will earn profits or positive word-of-mouth)".

Table 1
Pilot Study A: Participants' ratings of importance for nine different types of information when evaluating a CSR initiative. Symbols indicate significant differences from the target profit likelihood item (in bold), as determined by paired t-tests († $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$).

Information Types	Mean Importance (SD)
How the initiative helps the environment (e.g., the science behind it)	5.58 (1.53)***
The resources (e.g., time, money) McDonald's invested in the initiative	5.40 (1.38)**
The likelihood that McDonald's will benefit from the initiative (e.g., how likely McDonald's thinks it is that they will earn profits or positive word-of-mouth)	**5.13 (1.65)**
The exact amount that McDonald's might make from the initiative (e.g., McDonald's estimated monetary profits)	5.10 (1.67)
If there will be any local economic benefits where the projects in the initiative are completed	4.96 (1.50)†
How this initiative compares with other companies' climate change actions (e.g., industry norms and standards)	4.67 (1.48)***
The timeline for when the initiative will be completed (e.g., how long the project will take)	4.39 (1.56)***
Whether McDonald's has a non-profit partner helping with this initiative or is doing this on their own	4.24 (1.58)***
How McDonald's franchise employees (e.g., people who work in McDonald's restaurants) feel about the initiative	3.38 (1.70)***

Participants rated this target item significantly above the scale midpoint (M = 5.13, SD = 1.65, $t(398)$ = 13.63, $p < .001$, d = 0.68). Moreover, on average, participants viewed profit likelihood as the third most important type of information for judging motives, rating it as significantly more important than four other items, such as what other companies were doing for the environment and how employees felt about the initiative.[2] In fact, 152 participants (38.10%) rated profit likelihood as equally or more important than any other factor listed. Thus, it appears that observers consider reward (un)certainty an important input (among others) when evaluating CSR.

3.2. Pilot Study B

Pilot Study B explored whether people infer a positive relationship between reward uncertainty and motive purity without being explicitly informed of expected profit amounts or likelihoods. Three-hundred and two MTurk participants (M_{age} = 40.47, SD = 12.84, 44.37% female, 0.99% other/did not say) read a brief description about PlaCo, a plastics company, and their recent decision to start producing a new environmentally-friendly plastic bottle, including the expected environmental benefits (see OSF for stimuli). Then, participants answered two questions about PlaCo. Specifically, they judged the likelihood that PlaCo would profit from this new bottle ("how likely is it that PlaCo will make money from this initiative?": 1 "Not at all; PlaCo is certain to lose money", 5 "It is very uncertain; PlaCo is equally likely to lose or make money", 10 "Extremely; PlaCo is certain to make money"). They also reported what they thought about PlaCo's motives for undertaking this initiative ("What do you think about PlaCo's motives for investing in this initiative?": 1 "Extremely pure; PlaCo is definitely doing this because they truly care about the cause" to 10 "Extremely impure; PlaCo is definitely doing this for self-serving reasons (e.g., financial gain)").

As predicted, there was a positive correlation between these two questions (r = 0.28, $p < .001$). That is, participants who thought PlaCo was less likely to profit from this prosocial initiative also thought PlaCo was more purely motivated.

3.3. Discussion

Together, these initial results suggest that even without explicit information about reward amounts and likelihoods, people consider reward (un)certainty an important input for evaluating good deeds and see it as positively associated with motive purity. While these results help with external validity, as organizations seldom provide explicit reward amounts and likelihoods for their CSR initiatives (see press release data in Study 2), they do not allow us to make causal claims. Therefore, all subsequent studies cleanly test our proposed effects and mechanism by manipulating reward uncertainty directly, holding constant expected or perceived reward value across conditions.

[2] Our conclusions remain unchanged when we use a Holm-Bonferroni adjustment for multiple comparisons.

4. Studies 1A-D: Reward uncertainty impacts motive inference holding reward value constant

We predict that reward *uncertainty* – as distinct from reward value – leads prosocial actions to appear more purely motivated. To disentangle reward likelihood from reward value, Studies 1a-d sought to demonstrate our proposed effect while explicitly holding expected (1a-b) and perceived (1d) value constant, and even when the expected value of the uncertain reward far exceeds that of the certain reward (1c). These studies employed between- (Studies 1a, 1c, and 1d) and within-subjects (Study 1b) designs and generalized the effects of reward uncertainty across a variety of prosocial acts from organizations and individuals. They also tested downstream effects on likability, predictions about future behavior, and real product choices.

4.1. Study 1A

Study 1a tested our predictions in a between-subjects design that equated expected value across conditions. Participants judged a coffee shop's decision to switch to fair-trade beans after learning that profit increases from making the switch were either certain or uncertain.

4.1.1. Methods

One hundred fifty participants were recruited from MTurk (M_{age} = 34.94, SD = 11.50, 45.33% female). Our target sample size was 150 participants, or 75 per condition, as this would allow us to detect a small-to-medium effect size ($d > 0.30$) with 80% statistical power.

Participants learned about Buzzbird, a popular coffee shop chain, and its recent decision to switch to a fair-trade supplier of coffee beans with a more socially positive impact on coffee farmers. In the *certain reward* condition, participants learned that Buzzbird's fair-trade initiative was expected to result in $1 million profit with 100% certainty. In the *uncertain reward* condition, Buzzbird's fair-trade initiative was expected to result in $10 million profit with 10% probability and $0 profit with 90% probability (the same expected value as the *certain reward*). No information about realized profits was provided.

After reading about Buzzbird's fair-trade initiative, participants reported their agreement with three statements about their perceptions of the company's motives ("Buzzbird's motives for changing to a fair trade supplier are self-serving"; "Buzzbird has an ulterior motive for changing to a fair trade supplier"; and "Buzzbird is changing to a fair trade supplier mainly because it wants to make a profit."; from 1 "Strongly disagree" to 7 "Strongly agree"; α = 0.91). These items were reversed and averaged together to create a composite measure of *perceived motive purity* (Silver, Kelly, & Small, 2021). Participants also reported their overall impression of Buzzbird on three 7-point likability scales: Liking (1 "Dislike very much" to 7 "Like very much"); Favorability (1 "Highly unfavorable" to 7 "Highly favorable"); and Positivity (1 "Extremely negative" to 7 "Extremely positive"; adapted from Alpert & Kamins, 1995). We averaged these into a single *likability* measure (α = 0.94). Finally, participants predicted on a 7-point scale how likely Buzzbird would be to switch to fair-trade teas in the future if such a decision would definitely not yield any profits (from 1 "Extremely unlikely" to 7 "Extremely likely"). This last measure served as a prediction about the actor's motivation to do good in the future in the absence of any extrinsic benefit.

4.1.2. Results

Perceived motive purity. An independent *t*-test revealed that participants perceived Buzzbird as more purely motivated in the *uncertain reward* condition (M = 4.40, SD = 1.53) than in the *certain reward* condition (M = 3.12, SD = 1.31; $t(148) = 5.50$, $p < .001$, $d = 0.90$).

Likability. Participants liked Buzzbird more in the *uncertain reward* condition (M = 5.57, SD = 0.91) than in the *certain reward* condition (M = 5.19, SD = 1.34; $t(148) = 2.04$, $p = .043$, $d = 0.33$).

Predicted future behavior. Participants also thought Buzzbird would be more likely to launch an additional future prosocial initiative in the *uncertain reward* condition (M = 5.12, SD = 1.26) than in the *certain reward* condition (M = 4.67, SD = 1.46; $t(148) = 2.02$, $p = .045$, d = 0.33).

Mediation. We also tested whether motive purity mediated the effects of reward uncertainty on likability and predicted future behavior. For all studies, mediation was implemented using a bootstrapping procedure with 10,000 samples (*PROCESS* macro; Hayes, 2017). The first model included *reward* condition (*uncertain* = 1; *certain* = 0) as the independent variable, motive purity as the mediator, and likability as the dependent variable. The second model instead used predicted future behavior as the dependent variable. Motive purity mediated the relationship between reward uncertainty and both downstream judgments (*likability*: Indirect effect = 0.44, SE = 0.12, 95% CI = [0.23, 0.70]; *predicted future behavior*: Indirect effect = 0.47, SE = 0.13, 95% CI = [0.24, 0.77]).

4.2. Study 1B

Study 1b sought to replicate the motive purity effect in a within-subjects design, which renders reward value across conditions transparently equivalent. Participants learned about two chocolate brands which had recently switched to fair-trade cocoa, made motive purity inferences, and made incentive-compatible product choices.

4.2.1. Methods

One hundred twenty-eight participants (M_{age} = 23.48, SD = 8.41, 76.56% female, 0.78% other/did not say) were recruited as part of an hour-long lab session in a business school's behavioral lab. Sample size was determined by the number of participants who signed up for the session.

Participants read about two chocolate brands (Brand A and Brand B), both of which had recently decided to make a permanent change to using fair-trade cocoa beans in their chocolate products. Brief descriptions of this decision, including an image of a chocolate truffle from each brand, were listed side by side. These descriptions included each brand's expected profits from the fair-trade initiative: One brand expected the switch to fair-trade chocolate to increase profits by $100,000 for sure (*certain reward* condition), whereas the other expected a 25% chance of increasing profits by $400,000, and a 75% chance of not increasing profits at all (*uncertain reward* condition). The order of these conditions, company names, and truffle images were counterbalanced across participants. Note that viewing the two reward outlooks side-by-side should make their equivalent values transparent to participants.

Next, participants completed the same three *perceived motive purity* items from Study 1a, answering separately for Brand A and B (αs > 0.75). Participants also learned that they would take home a chocolate truffle at the end of the session and selected which brand's truffle they would prefer, thus providing real product choices. Upon leaving the lab, participants picked up their truffle of choice from a research assistant.

4.2.2. Results

Perceived motive purity. A paired *t*-test revealed that participants perceived the brand facing uncertain rewards (M = 4.35, SD = 1.23) as more purely motivated than the brand facing certain rewards (M = 3.09, SD = 1.10; $t(127) = 31.77$, $p < .001$, $d_{rm} = 0.81$; see Fig. 1).

Product choice. A significant majority of participants (64.06%) chose the chocolate truffle from the brand whose fair-trade initiative was associated with uncertain rewards ($z = 3.18$, $p = .002$; see Fig. 1).

Furthermore, a binary logistic regression revealed that participant-level difference scores in motive purity ratings for the two brands (i.e., the discrepancy in perceived motives between them; M = 1.26, SD = 1.56) strongly predicted participants' likelihood of choosing a truffle from the brand facing uncertain rewards ($b = 0.75$, SE = 0.18, *Wald* χ^2 (df = 1) = 17.41, $p < .001$).

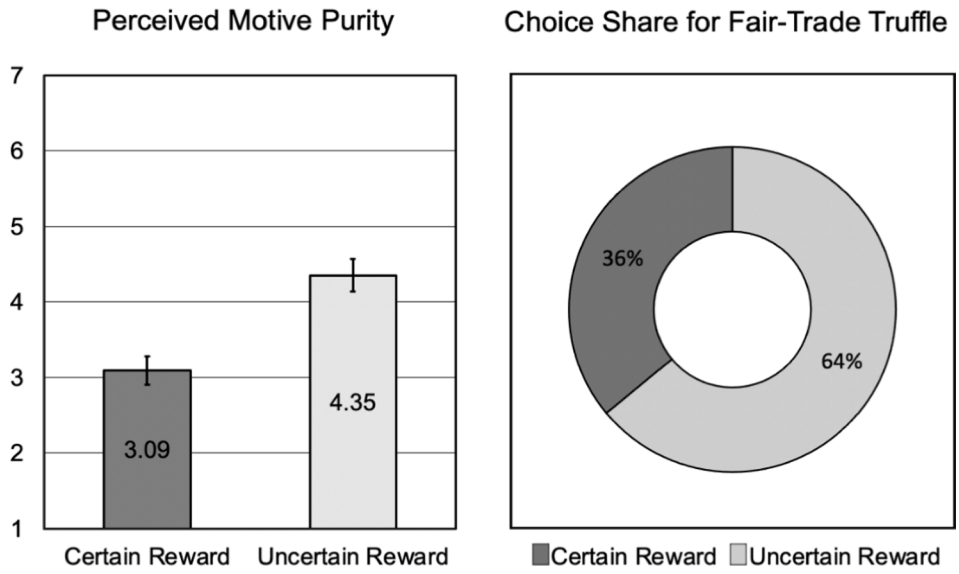

Fig. 1. Study 1b: A company launching a fair-trade chocolate initiative seems more purely motivated (left) and earns a larger choice share (right) in response to uncertain (vs. certain) profit forecasts, even when reward values are transparently equivalent. Error bars represent 95% confidence intervals.

4.3. Study 1C

We hypothesize that reward uncertainty (as distinct from reward value) leads observers to make more positive inferences about prosocial behavior. In Study 1c, we took further steps to ensure that our effect cannot be accounted for by a reward value alternative (i.e., that the effect is driven by the uncertain reward being viewed as less valuable, and therefore less tainting). Specifically, Study 1c improved on the designs in Studies 1a and 1b in two important ways. First, the stimuli were written to make clear that costs were already taken into account in the relevant profit forecasts, such that in neither condition would the company *lose* money from launching its CSR initiative. This change eliminated a possible ambiguity in our prior stimuli that could have led the uncertain profit forecast to seem less valuable overall. Second, we "stacked the deck" against our effect, such that the uncertain reward was *five times more valuable* than its certain equivalent.

4.3.1. Methods

Two hundred participants were recruited from MTurk (M_{age} = 41.35, SD = 11.60, 42.00% female). Our target sample size was 200 participants, or 100 per condition, as this would detect a small-to-medium effect size ($d > 0.30$) with 85% statistical power.

Participants learned about the same CSR initiative as in our pilot study (PlaCo's recyclable bottle initiative) and were randomly assigned to one of two *reward* conditions. In the *certain reward* condition, participants read that the firm's research team forecasted that the initiative would make $100,000 in profits, while in the *uncertain reward* condition, participants read that the initiative had a 10% chance of making $5 million in profits and a "90% chance of making no profits at all (i.e., revenues will approximately equal costs)." To explicitly eliminate any inference that the *uncertain reward* condition might result in net losses for the firm (perhaps from an un-recouped cost), all participants also read that all costs were already taken into account in the profit forecasts, such that "regardless of the outcome, this initiative should not yield any net losses for the company."[3] Note that the uncertain reward was five times greater in expectation, and thus a conservative test of our account.

After reading this scenario, participants rated *perceived motive purity* as previously (three items, α = 0.91).

4.3.2. Results

Perceived motive purity. An independent *t*-test revealed that participants perceived PlaCo as more purely motivated in the *uncertain reward* condition (M = 4.44, SD = 1.41) than in the *certain reward* condition (M = 3.35, SD = 1.41; $t(198) = 5.47$, $p < .001$, $d = 0.77$).

4.4. Study 1D

To further disentangle the effect of reward uncertainty from reward value, Study 1d used a two-stage design to match reward conditions on each participant's *perceived* (rather than expected) value. It also generalized the effects of reward uncertainty to the domain of individual prosocial behavior. Participants made judgments of a blood donor who received either a gift card or a raffle ticket as an incentive for donating.

4.4.1. Methods

We first recruited 1,713 MTurk participants (M_{age} = 35.12, SD = 11.05, 44.60% female, 0.64% other/did not say) for an initial study to capture individual-level valuations of the reward stimulus we planned to use in the *uncertain reward* condition of our main study. We asked all participants to imagine they had received a raffle ticket with a 10% chance of winning a $250 gift card and a 90% chance of winning nothing and to report the minimum certain gift card amount that they would accept to trade in the raffle ticket.

Approximately ten days later, we posted a second study on MTurk and restricted recruitment to participants (N = 1,247) who had completed our initial study and met our pre-registered recruitment criteria.[4] Two hundred forty-eight participants (M_{age} = 32.59, SD = 11.07, 52.02% female, 2.82% other/did not say) completed this main study. Like Study 1c, our target sample size was 200 participants, or 100 per condition.

Participants read about a blood drive that was offering donors either

[3] To increase the realism of the no reward case, we explained that the $0 outcome meant revenues approximately equaled costs. By reading that no outcome would lead to net losses, participants should infer that, if anything, the no reward case might lead to negligible positive profits.

[4] We did not recruit participants who had reported a willingness-to-accept of $0 or over $250, and we used only the first response for participants who had multiple observations in our initial study (which was possible because this study was run as an additional question added to several unrelated studies launched at approximately the same time).

a gift card (*certain reward* condition) or a raffle ticket with a 10% chance of winning a $250 gift card and a 90% chance of nothing (*uncertain reward* condition). For each participant randomly assigned to the *certain reward* condition, rather than reading about a $25 gift card (i.e., the equivalent *expected* value), the amount of the gift card in the vignette was set according to the reward value that participant had reported in the initial study. Thus, the two *reward* conditions were matched on *perceived* – rather than expected – value. Next, participants evaluated the blood donor on three dimensions: perceived motive purity (3 items; $\alpha = 0.93$), likability (3 items; $\alpha = 0.93$), and predicted future behavior.

4.4.2. Results

Perceived motive purity. Participants saw the blood donor as more purely motivated in the *uncertain reward* condition ($M = 4.41$, SD = 1.58) than in the *certain reward* condition ($M = 3.59$, SD = 1.24; $t(246) = 4.59$, $p < .001$, $d = 0.58$).

Likability. Participants in the *uncertain* ($M = 5.15$, SD = 1.03) and *certain* ($M = 5.13$, SD = 0.98) *reward* conditions had similarly positive evaluations of the blood donor ($t(246) = 0.14$, $p = .89$; $d = 0.02$). Participants in both conditions viewed the actor as quite likable on average ($ps < 0.001$, $ds > 1.00$ vs. the midpoint of the scale).

Predicted future behavior. Participants in the *uncertain reward* condition rated the blood donor as more likely to donate blood again ($M = 4.72$, SD = 1.35) relative to the *certain reward* condition ($M = 3.90$, SD = 1.19; $t(246) = 5.08$, $p < .001$, $d = 0.64$).

Mediation. As previously, motive purity mediated the effect of reward uncertainty on predicted future behavior (Indirect effect = 0.32, SE = 0.10, 95% CI = [0.16, 0.53]). We found that perceived motive purity mediated the relationship between reward uncertainty and likability only at the 90% significance level (Indirect effect = 0.08, SE = 0.05, 90% CI = [0.002, 0.16]; the 95% CI included zero). Given that we did not find a main effect of condition on likability, weaker mediation results are not especially surprising here.

4.5. Discussion

Studies 1a-d demonstrated that actors who do good in exchange for uncertain rewards (vs. certain rewards) seem more purely motivated and that this effect persists when controlling for reward value in a variety of ways. Study 1a held expected value constant in a between-subjects design. Study 1b held expected value constant in a within-subjects design, rendering reward values directly comparable (Frederick & Fischhoff, 1998; Hsee, 1996). Study 1c found the effect robust to a case where the uncertain reward's expected value was five times greater that of the certain reward. Study 1d matched the uncertain and certain rewards on *perceived* rather than expected value.

To cast further doubt on reward value as an alternative explanation for our effects, we ran a post-test in which participants provided their valuations for the profit forecasts used in our studies. For example, with respect to the rewards used in Study 1a, participants imagined that they were managers at a company and reported the maximum amount they would be willing to invest on behalf of their company in an initiative that either "has a 100% chance of increasing the company's profits by $1 million" or "has a 10% chance of increasing the company's profits by $10 million, and a 90% chance of NOT increasing profits whatsoever" (matching the language used to convey certain or uncertain rewards, respectively). We did not find significant differences between rewards of the same expected value (see Appendix for full analyses). We also explicitly asked participants at the end of Study 5 about their valuations of the rewards used as stimuli and found similar null effects. While these null results may seem surprising, they are readily accounted for by the probability weighting function from Prospect Theory, which predicts that low-probability, high-payout rewards (like raffle tickets) are frequently *overvalued* (Kahneman & Tversky, 1979). Combined with the evidence from Studies 1c and 1d, these results help to further rule out the possibility that our effect is an artifact of differences in perceived value across reward stimuli in our studies.

Finally, Studies 1a-d demonstrate the robustness of the uncertainty effect across a variety of prosocial actions from firms and individuals facing a range of possible reward magnitudes and probabilities. They also show downstream consequences for a number of relevant outcomes: How much participants liked the prosocial actor (Studies 1a and 1d), if participants thought the actor would behave prosocially in the future (Studies 1a and 1d), and whether participants would choose the actor's socially responsible product (Study 1b).[5] In an additional study reported in the Appendix (Study A1, N = 199), we also find effects of reward uncertainty on another consequential behavior: The positivity of written brand reviews.

5. Study 2: Disclosing reward uncertainty can lead to more positive evaluations than not disclosing rewards at all

Thus far, we have compared cases in which some possible reward for doing good is made explicit. Study 2 examines a more realistic and practical comparison: That between specifying an uncertain reward outlook and not mentioning rewards at all. Prior research has noted potential reputational risks of mixing profits and purpose (e.g., Bhattacharjee et al., 2017), and so we expected that in practice, large for-profits firms may avoid the topic of profits altogether when advertising their prosocial initiatives. To investigate, we asked a hypothesis-blind research assistant to collect and code all 2018 prosocial initiative press releases from companies on the Forbes 2018 Top Twenty list (see Appendix for a list of all companies and links to press releases). Of these 197 press releases, *none* mentioned actual or expected profits whatsoever. Thus, it appears that large for-profit firms shy away from disclosing potential financial incentives for doing good.

However, given that such firms face substantial motive scrutiny at baseline (e.g., Aaker, et al., 2010; Bhattacharjee et al., 2017), we predicted that disclosing profit uncertainty and demonstrating a willingness to act anyway might sometimes improve brand image relative to the status-quo strategy of not mentioning profits at all.

5.1. Methods

Four hundred forty-nine participants were recruited from MTurk ($M_{age} = 37.14$, SD = 12.32, 47.43% female, 0.67% other/did not say). The target sample size was 450 participants, or 150 per condition, as this would detect a small effect size between two conditions ($d > 0.25$) with 80% statistical power.

Participants read one of three versions of a scenario about Jefferson Mutual, a large bank launching a prosocial initiative to invest in low-income urban areas. In the *certain reward* condition, the initiative had a 100% chance of increasing the bank's profits by $5 million. In the *uncertain reward* condition, the initiative had a 10% chance of increasing profits by $50 million and a 90% chance of "yielding no profits whatsoever." In a third *baseline* condition, potential profits were not specified. Participants then rated the bank on *perceived motive purity* (3 items, $\alpha = 0.87$) and predicted likelihood of future prosocial behavior (launching an international urban revitalization program). Participants also rated their agreement with four additional statements meant to capture ascriptions of trait-level benevolence, a facet of moral character reflecting broader concern for the well-being of society at large (Blome

[5] Surprisingly, in Study 1c, we did not find a significant effect of reward uncertainty on likability. Post hoc, we believe this is because of the specific context. Blood donations are physically costly, and relatively few individuals donate blood (<10% of those eligible do so; American Red Cross, 2018), so participants may have forgiven the actor's additional profit motives in the *certain reward* condition when it came to evaluating his overall likability. By contrast, we did find that reward uncertainty impacted likability in the context of a fair-trade coffee shop (Study 1a).

& Paulraj, 2013; Levine & Schweitzer, 2014): "Jefferson Mutual is socially responsible"; "Jefferson Mutual makes decisions according to what is morally right"; "Jefferson Mutual is concerned about its impact on society"; and "Jefferson Mutual is highly concerned about societal issues". These items were averaged together to create a measure of *perceived benevolence* ($\alpha = 0.94$).

5.2. Results

Perceived motive purity. A one-way ANOVA revealed a significant effect of condition ($F(2, 446) = 13.61$, $p < .001$; see Fig. 2). Planned contrasts revealed that, again, the bank was judged as more purely motivated in the *uncertain reward* condition ($M = 3.50$, SD = 1.45) than in the *certain reward* condition ($M = 2.68$, SD = 1.20; $t(299) = 5.32$, $p < .001$, $d = 0.62$). Interestingly, the *uncertain reward* condition was also perceived as more purely motivated than the *baseline* condition ($M = 2.96$, SD = 1.48; $t(297) = 3.20$, $p < .001$, $d = 0.37$). The bank was judged as marginally more purely motivated in the *baseline* condition relative to the *certain reward* condition ($t(296) = 1.76$, $p = .079$, $d = 0.21$).

Perceived benevolence. A one-way ANOVA did not find a significant effect of condition on perceived benevolence ($F(2, 446) = 1.03$, $p = .35$). Still, consistent with our predictions, the bank in the *uncertain reward* condition ($M = 4.32$, SD = 1.51) was perceived as directionally more benevolent than the bank in the *certain reward* condition ($M = 4.09$, SD = 1.39; $t(299) = 1.34$, $p = .182$, $d = 0.16$). Perceived benevolence was also directionally higher in the *baseline* condition ($M = 4.28$, SD = 1.44) than in the *certain reward* condition ($t(296) = 1.14$, $p = .26$, $d = 0.13$). The bank's perceived benevolence did not differ between the *uncertain reward* and *baseline* conditions ($t(297) = 0.22$, $p = .83$, $d = 0.03$).

Predicted future behavior. A one-way ANOVA revealed a significant effect of condition ($F(2, 446) = 5.95$, $p = .003$). The bank was seen as significantly more likely to behave prosocially in the future in the *uncertain reward* condition ($M = 3.33$, SD = 1.81) than in either the *certain reward* condition ($M = 2.71$, SD = 1.68; $t(299) = 3.06$, $p = .002$, $d = 0.36$) or the *baseline* condition ($M = 2.77$, SD = 1.65; $t(297) = 2.80$, $p = .006$, $d = 0.32$). The *certain reward* and *baseline* conditions did not differ significantly ($t(296) = 0.30$, $p = .77$, $d = 0.04$).

Mediation. We first examined the comparison between the *uncertain reward* (1) and *certain reward* (0) conditions and again found that perceived motive purity mediated the relationship between reward uncertainty and a) perceived benevolence (Indirect effect = 0.53, SE = 0.11, 95% CI = [0.33, 0.76]), and b) predicted future behavior (Indirect effect = 0.47, SE = 0.10, 95% CI = [0.28, 0.69]). We found similar results when exploring the mediating role of perceived motive purity on the effect of the *uncertain reward* condition (1) versus the *baseline* condition (0) with respect to both a) perceived benevolence (Indirect effect = 0.32, SE = 0.10, 95% CI = [0.12, 0.53]) and b) predicted future behavior (Indirect effect = 0.29, SE = 0.10, 95% CI = [0.11, 0.49]).

5.3. Discussion

Participants in Study 2 again judged a firm more positively when its prosocial initiative was associated with an uncertain profit outlook relative to a certain profit outlook of equal value. Moreover, disclosing reward uncertainty led a prosocial firm to seem more purely motivated, more likely to do good in the future, and no less benevolent than not disclosing potential profits at all. These latter results are striking given that the status quo, at least among large for-profit firms, is not to mention profits when announcing prosocial initiatives. Importantly, we expect these effects to be strongest for organizations that are seen as predominantly profit- and image-focused at baseline (i.e., large for-profit firms). Organizations that typically face less motive skepticism (e.g., local small businesses, non-profits) may benefit less from emphasizing uncertain rewards (because profit motives may be a less naturally salient concern). Still, these findings suggest that, contrary to conventional wisdom, there appear to be cases in which mentioning possible but uncertain profits from doing good, and demonstrating a willingness to do good anyway, does not harm – and may sometimes help – a brand's reputation relative to not mentioning profits at all.

6. Study 3: Prior reward uncertainty impacts motive inference even when prosocial behavior leads to substantial profit

Results thus far are consistent with our theory that doing good when rewards are uncertain signals greater willingness to do good for nothing, which leads to more positive motive inferences and downstream evaluations. However, an alternative possibility is that observers make assumptions about whether uncertain rewards *will actually* materialize and judge prosocial actors accordingly. That is, perhaps observers simply assume that uncertain rewards (like a raffle ticket or an uncertain profit forecast) will not materialize and evaluate the prosocial actor's behavior as if there will be no rewards at all.

To tease apart these alternatives, Study 3 presented participants with reward outcome information. Our theory predicts that taking action when rewards are uncertain *ex ante* signals purer motives, even if the actor turns out to profit handsomely *ex post*. By contrast, any alternative based on anticipated or realized outcomes (e.g., Baron & Hershey, 1988) should predict that actors who actually benefit from doing good in the end will be judged much more negatively.

6.1. Methods

Six hundred five participants were recruited from MTurk ($M_{age} = 37.71$, SD = 12.12, 48.93% female, 0.83% other/did not say). Our target sample size was 600 participants, or 200 per condition, as this would allow us to detect a small effect size between two conditions ($d > 0.20$) with 80% statistical power.

All participants read about the same CSR initiative as in our pilot study and Study 1c (PlaCo's recyclable bottle initiative). Participants were randomly assigned to one of three *reward* conditions which manipulated both reward uncertainty beforehand and whether rewards materialized in the end. In the *certain reward* condition, participants read that PlaCo's recyclable bottle initiative was expected to (and actually did) boost profits by $100,000 with 100% certainty. In the two *uncertain reward* conditions, participants read that the recyclable bottle initiative had a 10% chance of boosting profits by $1 million and a 90% chance of not increasing profits at all. However, these two conditions varied on actual reward outcomes. In the *realized uncertain reward* condition, participants read that PlaCo's recyclable bottle boosted profits by $1 million (i.e., the uncertain profits were realized). In the *unrealized uncertain reward* condition, participants learned that PlaCo earned no profit whatsoever (i.e., the uncertain profits were not realized). Next, participants evaluated PlaCo using the same perceived motive purity (3 items; $\alpha = 0.88$) and perceived benevolence (4 items, $\alpha = 0.91$) items as in previous studies.

6.2. Results

Perceived motive purity. A one-way ANOVA revealed a significant effect of condition on perceived motive purity ($F(2, 602) = 52.38$, $p < .001$). Planned contrasts revealed that PlaCo was evaluated as more purely motivated in the *unrealized uncertain reward* condition ($M = 4.41$, SD = 1.53) than in the *certain reward* condition ($M = 3.04$, SD = 1.25, $t(405) = 9.86$, $p < .001$, $d = 0.98$). Importantly, PlaCo was also seen as more purely motivated in the *realized uncertain reward condition* ($M = 4.14$, SD = 1.48) than in the *certain reward* condition ($t(398) = 8.04$, $p < .001$, $d = 0.80$). In line with previous literature (Lin-Healy & Small, 2013), there was a marginally significant difference between the two *uncertain reward* conditions ($t(401) = 1.78$, $p = .076$, $d = 0.18$).

Perceived benevolence. A one-way ANOVA revealed a significant effect of condition ($F(2, 602) = 8.93$, $p < .001$); PlaCo was viewed as more benevolent in the *unrealized uncertain reward* condition ($M = 5.33$, SD =

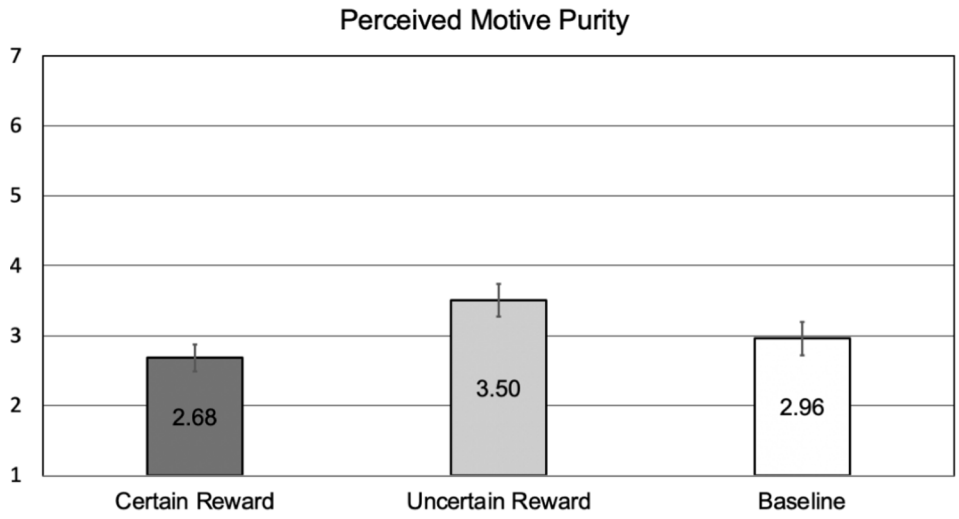

Fig. 2. Study 2: Disclosing reward uncertainty can lead to more positive motive attributions than not disclosing possible rewards. Error bars represent 95% confidence intervals.

1.09) than in the *certain reward* condition ($M = 4.89$, SD = 1.18; $t(398) = 3.18$, $p = .002$, $d = 0.39$). Importantly, the *realized uncertain reward* condition ($M = 5.24$, SD = 1.04) was also viewed as more benevolent than the *certain reward* condition ($t(405) = 3.88$, $p < .001$, $d = 0.31$). There was no statistically significant difference between the two *uncertain reward* conditions ($t(401) = 0.79$, $p = .43$, $d = 0.08$).

Mediation. In two separate mediation models, perceived motive purity mediated the effect of reward uncertainty on perceived benevolence (*certain reward* (0) vs. *realized uncertain reward* (1): Indirect effect = 0.45, SE = 0.07, 95% CI = [0.32, 0.60]; *certain reward* (0) vs. *unrealized uncertain reward* (1): Indirect effect = 0.50, SE = 0.08, 95% CI = [0.36, 0.66]).

6.3. Discussion

Study 3 found that the effect of reward uncertainty on motive inference persisted even when observers knew that the prosocial actor received the uncertain reward – thus profiting substantially from doing good – in the end. That is, whether the brand ultimately benefitted from going green or not did not strongly impact observer responses, provided they were willing to risk earning no reward in the first place. These findings substantiate our claim that our effects are driven by evaluations of the actor's willingness to do good for nothing in return, rather than by assumptions about likely outcomes. They also further rule out reward value as a potential driver of our results: In the *realized uncertain reward* condition, the firm earned a reward ten times greater in value than the firm in the *certain reward* condition, yet still seemed more purely motivated.

Although previous literature has noted that profits often taint perceptions of prosocial behavior, the results of Study 3 suggest a theoretically and practically important boundary: People may see it as more acceptable for prosocial actors to benefit from their behavior when such benefits were sufficiently uncertain at the outset. To investigate just how uncertain benefits must be to impact motive inference, Study 4 varied the likelihood of possible rewards across a range of probabilities.

7. Study 4: Motives seem purer as rewards become less likely

We posit that uncertain rewards facilitate different counterfactual inferences relative to their certain equivalents. That is, when rewards are uncertain *ex ante*, it may be easier for observers to imagine the actor doing good for nothing, leading to stronger inferences of motive purity. A natural question concerns how this attribution process varies across a broader range of reward probabilities. Is there a threshold level of uncertainty needed to spur our effects? How do uncertain rewards compare to no rewards at all? We conducted Study 4 to shed light on these questions. We expected a monotonic relationship between reward likelihood and motive inference, such that unlikelier rewards would lead to stronger perceptions of motive purity, but we did not have any predictions about the exact shape of this relationship.

7.1. Methods

Nine hundred ninety-eight participants were recruited from MTurk ($M_{age} = 41.20$, SD = 13.29, 50.40% female, 1.00% other/did not say). Our target sample size was 1000 participants, or 200 per condition (as in Study 3).

Participants read about MagnaBar, a start-up company offering a high-end monthly chocolate subscription. In the scenario, MagnaBar issued a press release about its recent decision to begin sourcing all of its cocoa products from farming villages in Ghana, stating that the switch would allow its brand to offer "the world's most ethical chocolate truffles." Participants were randomly assigned to one of five *reward* conditions, which varied what MagnaBar's press release stated were the expected profits for this supply source change. As in previous studies, there was a *certain reward* condition, in which MagnaBar expected their initiative to have a "100% chance of $150,000 in net profits." There were also three *uncertain reward* conditions across which the likelihood of reaping a profit from this prosocial initiative varied: 25%, 50%, or 75%. These *uncertain reward* conditions also explicitly stated corresponding probabilities of earning no net profit at all (75%, 50%, and 25%, respectively). For all *uncertain reward* conditions, the expected value of the initiative was $150,000 (i.e., the profit expected in the *certain reward* condition). For example, the *25% reward* condition stated that MagnaBar's initiative had a "25% chance of yielding $600,000 in net profits and a 75% chance of yielding $0 (nothing) in net profits". The fifth condition was a *no reward* condition, in which participants read that MagnaBar was certain to make no net profits whatsoever from the initiative. Thus, this study featured a spectrum from 0% to 100% chance of receiving an extrinsic reward for the prosocial initiative (or, conversely, a 100% to 0% chance of receiving no extrinsic reward at all). Note that the *no reward* condition also necessarily varied in terms of expected value. After reading about MagnaBar, participants rated the firm's motive purity in undertaking this change (3 items; $\alpha = 0.92$).

7.2. Results

A one-way ANOVA revealed a significant effect of *reward* condition

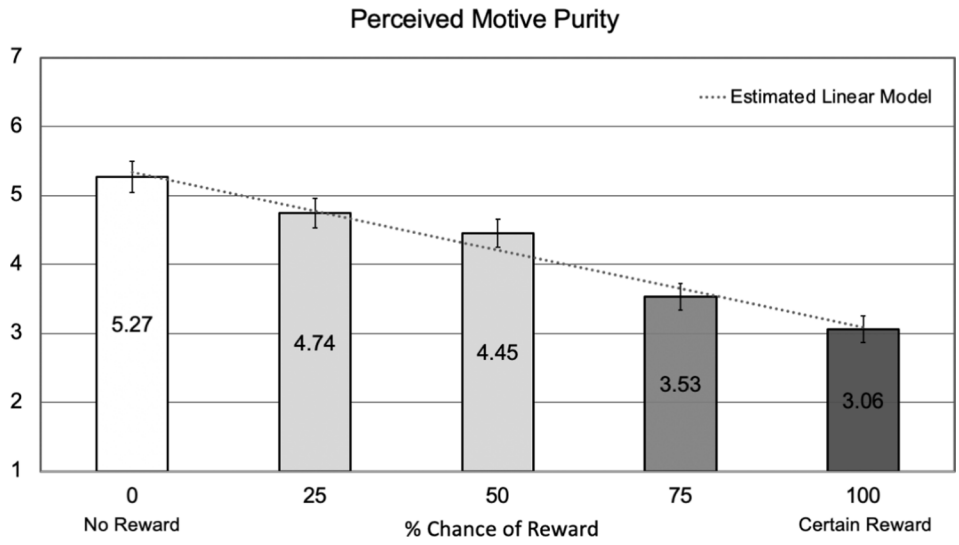

Fig. 3. Study 4: Motives seem more pure as reward probability decreases, holding expected reward value constant. Bars of different shades differ significantly at the $\alpha = 0.05$ level. Error bars are 95% confidence intervals.

on perceived motive purity ($F(4, 993) = 73.13$, $p < .001$; see Fig. 3). The anticipated monotonic trend was confirmed via a linear regression model, which regressed motive purity on reward probability (i.e., from 0, for the *no reward* condition, to 100, for the *certain reward* condition). As the likelihood of profiting from doing good increased, the brand was perceived as less purely motivated ($b = -0.022$, SE = 0.001, $t(996) = 16.87$, $p < .001$). This linear relationship also held when we only examined rewards of equivalent expected value (i.e., excluding the *no reward* condition; $b = -0.024$, SE = 0.002, $t(795) = 12.88$, $p < .001$).

To further investigate if there is a threshold level of uncertainty needed to spur our effects, we conducted independent *t*-tests between all conditions. Interestingly, these revealed that all of the *uncertain reward* conditions – i.e., the *25%*, *50%*, and *75% reward* conditions – were viewed as more purely motivated than the *certain reward* condition ($ts > 3.35$, $ps < 0.001$, $ds > 0.30$)[6]. Moreover, all of the *uncertain reward* conditions were significantly different from each other ($ts > 6.30$, $ps < 0.001$, $ds > 0.60$) except for the comparison between the *25% reward* and the *50% reward* conditions, which was marginal ($t(395) = 1.91$, $p = .056$, $d = 0.19$). Unsurprisingly, the *no reward* condition was perceived as more purely motivated than all *uncertain reward* conditions, as well as the *certain reward* condition ($ts > 3.30$, $ps < 0.001$, $ds > 0.30$).

7.3. Discussion

Study 4 replicated our previous results and offered a number of additional insights. First, as expected, we found that observers attributed purer motives as reward probability decreased (holding expected reward value constant). Second, we found that a good deed with no possibility of reward whatsoever (the *no reward* condition, in which the expected reward value was $0 rather than $1 million) was seen as the most purely motivated. Thus, it is not the case that acting for an uncertain incentive is viewed identically to acting for no incentive, but rather that it more closely resembles the no incentive case. Third, this study provides evidence that even a relatively small chance of receiving no rewards (i.e., a 50% or 75% chance of profiting) can have a significant impact on perceptions of motive purity, suggesting that our effect is not restricted to especially low reward probabilities. Given that many firm actions entail at least somewhat uncertain profit outlooks, this last result suggests real-world relevance for our effects across profit outlooks firms may actually face.

Taken together, the results of this study support our account: The less likely the actor is to be rewarded, the easier it is to imagine that they would act without any incentive, and the less extrinsically-motivated their actions appear. Importantly, given that we report only one test of how motive inferences change across a continuum of reward likelihoods, we do not intend to make general claims about the shape of this relationship (i.e., whether it is specifically linear or follows another functional form), or about specific threshold levels of probability, as we suspect these will vary by context. We report a conceptual replication of this study yielding similar results in the Appendix (Study A2, N = 1,419).

We also wondered if the possibility of receiving nothing was a necessary condition. Specifically, our account predicts that incurring the possibility of no reward conveys purer motives. However, if the effect is instead driven by positive inferences about risk-taking more generally (e.g., Wallach & Wing, 1968), then any uncertainty in the possible reward amount could yield more positive evaluations. Study A3 (N = 369) found, consistent with our theory, that merely taking a chance over multiple possible positive outcomes did not send the same signal as acting despite a chance of no reward. Specifically, participants judged a company launching a prosocial initiative with rewards of varying positive amounts (i.e., a high likelihood of a small profit and a low likelihood of a large profit) similarly compared to one facing certain rewards ($p = .76$), but saw it as less purely motivated than a company facing the possibility of receiving nothing ($p < .001$; see Appendix for full methods and results).

We hypothesize that the effect of reward uncertainty on motive inferences occurs because when rewards are uncertain beforehand, people can more easily imagine the actor behaving prosocially for no reward at all. Study 5 examines a situation in which, based on this reasoning, we would predict the effect of uncertain rewards on motives inference to be moderated: When the actor has a salient need for the uncertain reward's larger possible payout.

8. Study 5: Contextual information about the actor's financial need moderates the effect

We theorize that doing good when rewards are uncertain (vs. certain) signals a greater willingness to do good for nothing, and that this, in turn, leads observers to see motives as less tainted. However, if it becomes apparent that an actor wants or needs a larger reward – one attainable by taking a low-probability, high-payoff gamble – then doing

[6] Our conclusions remain unchanged when we use a Holm-Bonferroni adjustment for multiple comparisons.

good for a large but uncertain reward does not signal the same counterfactual willingness to self-sacrifice. Such an actor might instead seem especially focused on and motivated by the large reward, despite its remote possibility, and this contextual information should make it harder to imagine the actor doing good for nothing. As a result, their good behavior should appear to be driven by the possibility of extrinsic financial gain, rather than by purer, selfless motives. In Study 5, we examined such a case. We predicted that making salient that a prosocial actor needs a larger payout should largely eliminate any inference that they would be willing to do good for nothing, moderating the effects of reward uncertainty on motive attribution and downstream evaluation.

8.1. Methods

One thousand seven participants were recruited from Mturk (M_{age} = 38.21, 42.50% female, 0.80% other/did not say). Our target sample size was 1000 participants, or 250 per condition, as we anticipated needing at least twice as many participants per condition as in previous studies to detect a moderate attenuation of our effect (Simonsohn 2014).

Participants read about a student who volunteered at a charity event for local homeless shelters and were randomly assigned to condition in a 2(*reward: certain* or *uncertain*) × 2(*need: salient or unstated*) between-subjects design. Similar to previous studies, participants in the *certain reward* condition read that the student would receive a small, sure reward for volunteering – a $20 Visa gift card. Participants in the *uncertain reward* condition read that the student received a raffle ticket with a 5% chance of winning a $400 Visa gift card.

We also manipulated the salience of the student's need for a larger sum of money. In the *salient need* condition, participants read that the student was $400 short on rent this month. In the *unstated need* condition, which resembled our previous studies, this detail was omitted. Thus, this manipulation represents an experimental causal chain design (Spencer, Zanna, & Fong, 2005), as we expect it to directly alter the proposed mediator – perceived motive purity – in the effect of reward uncertainty on perceived benevolence and predicted future behavior. That is, by making it apparent that the student needs the large, uncertain reward they might receive in the raffle, participants should infer that the student seems especially motivated by this high potential payoff, making it harder to imagine her doing good for nothing.

Participants answered the same perceived motive purity measure as in previous studies, with the addition of one new item ("The student's reasons for volunteering at the charity event are insincere"; α = 0.86), and predicted the student's likelihood of behaving prosocially in the future without compensation (here, volunteering for a different charity). They also responded to four perceived benevolence items (α = 0.92): "How generous are they?"; "How kind are they?"; "How altruistic are they?"; and "How caring are they?". We chose to measure perceived benevolence differently for individuals and firms (e.g., how "caring" an individual is versus how much a firm "cares about its impact on society") but conceptually, these items capture a similar underlying ascription of concern for others and the greater good.

Finally, to further rule out that the effect of reward uncertainty is driven by differing *perceived* values of certain versus uncertain rewards, all participants also reported their valuations for both possible rewards in this study in two questions ("How valuable is a $20 Visa gift card?" and "How valuable is a raffle ticket with a 1 in 20 chance of winning a $400 Visa gift card?", both from 1 "Not very valuable" to 7 "Extremely valuable").

8.2. Results

Reward valuations. A paired *t*-test revealed that valuations for the rewards did not differ ($M_{gift\ card}$ = 4.39, SD = 1.49 vs. $M_{raffle\ ticket}$ = 4.46, SD = 1.70; $t(1006) = 1.11$, $p = .27$, $d = 0.04$).

Perceived motive purity. A two-way ANOVA with *reward* condition, *need* condition, and their interaction as factors revealed no main effect of reward type ($F(1, 1003) = 1.37$, $p = .242$, $d = 0.01$). There was a significant main effect of stated need ($F(1, 1003) = 164.76$, $p < .001$, d = 0.80), such that participants in the *salient need* condition viewed the student as less purely motivated ($M = 2.88$, SD = 1.29) than participants in the *unstated need* condition ($M = 3.92$, SD = 1.32).

As predicted, we detected a significant interaction between reward type and stated need ($F(1, 1003) = 28.15$, $p < .001$; see Fig. 4). Planned contrasts revealed that within the *unstated need* condition, we replicated previous findings: Participants in the *uncertain reward* condition perceived the student as more purely motivated ($M = 4.20$, SD = 1.39) than participants in the *certain reward* condition ($M = 3.68$, SD = 1.20; $t(499) = 4.54$, $p < .001$, $d = 0.40$). This effect actually reversed in the *salient need* condition ($M_{uncertain\ reward}$ = 2.72, SD = 1.33 vs. $M_{certain\ reward}$ = 3.07, SD = 1.32; $t(504) = -2.95$, $p = .003$, $d = -0.26$).

Additionally, as an especially conservative test, we examined the effect of reward uncertainty on perceived motive purity among participants (N = 420) who viewed the raffle ticket as *more* valuable than the gift card, and thus as a larger, potentially more tainting reward. The predicted effects were robust within this sub-sample (interaction $F(1, 416) = 10.71$, $p = .001$; see Appendix for full results), thus providing further evidence that the effects of reward uncertainty persist above and beyond perceptions of reward value.

Perceived benevolence. A two-way ANOVA detected no main effect of *reward* condition ($F(1, 1003) = 1.63$, $p = .202$, $d = 0.12$). There was a significant main effect of *need* condition ($F(1, 1003) = 54.65$, $p < .001$, d = 0.39), such that participants in the *salient need* condition viewed the student as less benevolent ($M = 4.12$, SD = 1.08) than participants in the *unstated need* condition ($M = 4.63$, SD = 1.08).

There was also a significant interaction between reward certainty and stated need ($F(1, 1003) = 9.82$, $p = .002$). Within the *unstated need* condition, participants viewed the volunteer who received the raffle ticket ($M = 4.70$, SD = 1.12) and the volunteer who received the $20 gift card ($M = 4.58$, SD = 1.04; $t(499) = 1.31$, $p = .192$, $d = 0.11$) as similarly benevolent, although this effect was in the predicted direction. But in the *salient need* condition, participants viewed the volunteer who received the raffle ticket as *less* benevolent ($M = 3.99$, SD = 1.05) than the volunteer who received the gift card ($M = 4.29$, SD = 1.10; $t(504) = -3.13$, $p = .002$; $d = -0.28$).

Predicted future behavior. A two-way ANOVA revealed no main effect of *reward* condition ($F(1, 1003) = 0.06$, $p = .80$, $d = 0.04$), but a significant main effect of stated need ($F(1, 1003) = 137.53$, $p < .001$; d = 0.73). Participants in the *salient need* condition predicted that the student was less likely to volunteer for a charity in the future for no compensation ($M = 2.79$, SD = 1.37) than participants in the *unstated need* condition ($M = 3.80$, SD = 1.38).

This effect was qualified by a significant interaction ($F(1, 1003)$ = 9.41, $p = .002$). Replicating previous studies, within the *unstated need* condition, participants in the *uncertain reward* condition predicted that the student was more likely to volunteer in the future ($M = 3.96$, SD = 1.47) than participants in the *certain reward* condition ($M = 3.67$, SD = 1.26; $t(499) = 1.99$, $p = .047$, $d = 0.21$). However, this effect reversed in the *salient need* condition ($M_{uncertain\ reward}$ = 2.68, SD = 1.31 vs. $M_{certain\ reward}$ = 2.92, SD = 1.43; $t(504) = -2.34$, $p = .020$, $d = -0.18$).

Mediation. To examine how motive purity inferences affected downstream judgments, we ran two moderated mediation models. In the first model, we coded *reward* condition as the independent variable (0 = *certain*, 1 = *uncertain*), perceived motive purity as the mediator, *need* condition as the moderating variable on the relationship between X and M (1 = *unstated*, −1 = *salient*), and perceived benevolence as the dependent variable. We found a significant index of moderation (Index = 0.35, SE = 0.07, 95% CI = [0.22, 0.50]), such that, as in previous studies, perceived motive purity mediated the positive effect of reward uncertainty on perceived benevolence in the *unstated need* condition (Indirect effect = 0.22, SE = 0.05, 95% CI = [0.12, 0.32]). Perceived motive purity also mediated the effect of reward uncertainty on perceived benevolence in the *salient need* condition, but the effect was

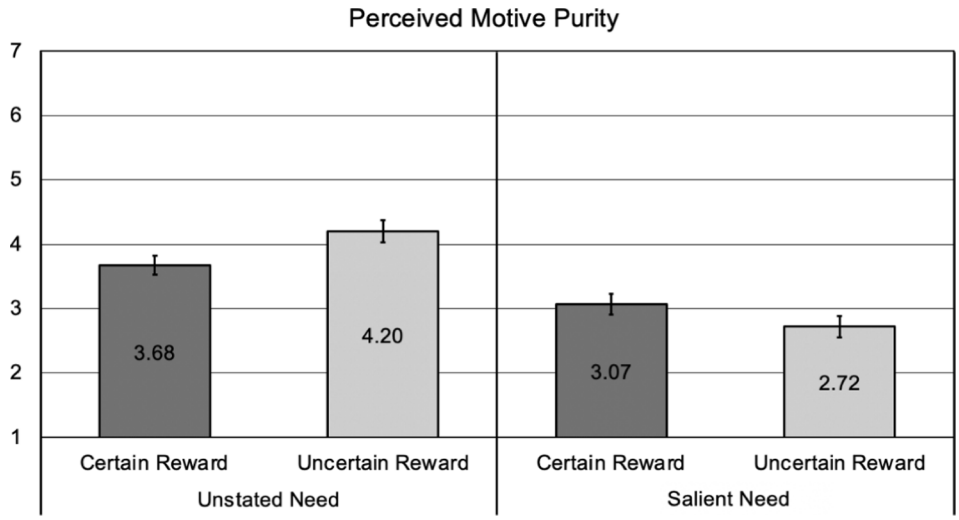

Fig. 4. Study 5: An individual seems more purely motivated when they face uncertain (vs. certain) rewards for volunteering (the *unstated need* condition). However, if it becomes apparent that the individual needs a large reward, doing good in exchange for a low-probability, high-payoff incentive becomes a much stronger signal of extrinsic motivation, moderating our prior effects (the *salient need* condition). Error bars are 95% confidence intervals.

negative (Indirect effect = -0.14, SE = 0.05, 95% CI = [-0.23, −0.05]).

The second model was identical to the first except that predicted future behavior served as the dependent variable. We found very similar effects in this model; perceived motive purity mediated the positive effect of reward uncertainty on predicted future in the *unstated need* condition (Indirect effect = 0.32, SE = 0.07, 95% CI = [0.18, 0.47]) and the negative effect in the *salient need* condition (Indirect effect = -0.21, SE = 0.07, 95% CI = [-0.34, −0.07]). These effects were significantly different (Index = 0.53, SE = 0.10, 95% CI = [0.33, 0.73]).

8.3. Discussion

Study 5 found that making salient a clear need for the large, unlikely reward moderated the effects of reward uncertainty on motive inference and downstream judgment. As in previous studies, an individual who volunteered in exchange for a raffle ticket was generally viewed more favorably than one who volunteered in exchange for a smaller, sure reward. However, when it was made salient that the actor needed a large reward, this effect actually reversed.

Although we predicted an attenuation, the full reversal of our effect might have occurred because equating the uncertain reward amount to the amount the individual was short on rent may have provided a particularly strong explanation for their behavior. That is, beyond simply making it harder to imagine the actor doing good for nothing, telling participants that the individual explicitly needed $400 for rent – and volunteered for a chance of winning $400 – could have led participants to infer that the individual *only* volunteered for the possible financial gain, and not at all because volunteering is a good thing to do. By contrast, although receiving $20 is typically tainting, it may seem like a less plausible extrinsic motivation for someone who urgently needs twenty times that amount. Importantly, this full reversal does not qualify our interpretation of the results or contradict our theory. The fact that our effects were moderated by contextual information designed to shift the underlying counterfactual inference supports our account. Doing good when rewards are uncertain typically signals a greater willingness to do good for nothing, but no such inference should be made if the actor has a salient need for the large, unlikely reward.

9. Study 6: Effects of reward uncertainty beyond prosocial behavior

Thus far, our studies have focused on observer reactions to good deeds specifically because perceived motives matter a great deal for downstream judgments in this domain (e.g., Silver, Newman, & Small 2021). However, the attribution process we investigate – that uncertain rewards send weaker signals of extrinsic motivation – is not in principle unique to good deeds. In theory, the effects of reward uncertainty on motive inference should extend to other contexts, although their downstream consequences may be less pronounced. In Study 6, we compared the effects of reward uncertainty across firm decisions more and less closely associated with the greater good. To do this, we manipulated whether an identical corporate decision was framed as either a social responsibility initiative or a product quality initiative.

9.1. Methods

Six hundred five participants were recruited from Mturk (M_{age} = 40.41, 51.07% female, 0.66% other/did not say). Our target sample size was 600 participants, or 150 per condition (as in Study 2).

As in Study 4, Participants read about MagnaBar and its recent decision to begin sourcing all of its cocoa products from farming villages in Ghana. In all versions of the scenario, MagnaBar issued a press release about its decision, which stated both the company's reason for the switch to Ghanaian cocoa providers and specified its expectations about associated profits. These two factors varied across conditions, such that participants were randomly assigned to condition in a 2(*context: social responsibility* or *product quality*) × 2(*reward: certain* or *uncertain*) between-subjects design. That is, MagnaBar stated that the change would allow its brand to offer "the world's most ethical chocolate truffles" (*social responsibility* condition) or "the world's best tasting chocolate truffles" (*product quality* condition). As in previous studies, we also manipulated the company's profit forecast from the change (*certain reward* condition: 100% chance of $200,000; *uncertain reward* condition: 20% chance of $1,000,000, 80% chance of $0).

After reading the scenario, participants reported their agreement with three statements: "MagnaBar really cares about offering the world's [most ethical / best tasting] chocolate"; "MagnaBar has an ulterior

motive for offering the words [most ethical / best tasting] chocolate"; and "MagnaBar is switching to Ghanaian cocoa mainly to make a profit" (α = 0.74). The last two items were reverse-coded, and all three were averaged together to create a measure of *perceived motive purity*. They also rated MagnaBar's likability using the same items as in previous studies (3 items; α = 0.96).

9.2. Results

Perceived motive purity. A two-way ANOVA with *reward* condition, *context* condition, and their interaction as factors revealed a main effect of reward type ($F(1, 601) = 123.96$, $p < .001$, $d = 0.89$), such that MagnaBar was perceived as more purely motivated when they faced uncertain rewards ($M = 4.69$, SD = 1.36) versus certain rewards ($M = 3.57$, SD = 1.16). There was also a main effect of context ($F(1, 601) = 16.49$, $p < .001$, $d = 0.30$), such that participants viewed the company as more purely motivated when they changed suppliers for social responsibility reasons ($M = 4.33$, SD = 1.45) versus product quality reasons ($M = 3.92$, SD = 1.28). The interaction was not significant ($F(1, 601) = 1.01$, $p = .31$; see Fig. 5). Planned contrasts revealed that the effect of reward certainty on motive inferences held both within the *social responsibility* condition ($M_{uncertain\ reward} = 4.95$, SD = 1.39 vs. $M_{certain\ reward} = 3.72$, SD = 1.24; $t(302) = 8.16$, $p < .001$, $d = 0.93$), and, importantly, within the *product quality* condition ($M_{uncertain\ reward} = 4.44$, SD = 1.28 vs. $M_{certain\ reward} = 3.41$, SD = 1.05; $t(299) = 7.59$, $p < .001$. $d = 0.88$).

Likability. A two-way ANOVA detected a main effect of *reward* condition ($F(1, 601) = 9.13$, $p = .003$, $d = 0.24$), such that the company facing uncertain rewards was more likable ($M = 5.19$, SD = 1.32) than the company facing certain rewards ($M = 4.88$, SD = 1.24). There was also a main effect of *context* condition ($F(1, 601) = 19.90$, $p < .001$, $d = 0.35$), such that participants in the *social responsibility* condition liked the company more ($M = 5.26$, SD = 1.24) than participants in the *product quality* condition ($M = 4.63$, SD = 1.08).

We also found a marginally significant interaction ($F(1, 601) = 3.48$, $p = .063$; see Fig. 5). Uncertain (vs. certain) rewards engendered greater likability within the CSR context ($M_{uncertain\ reward} = 5.52$, SD = 1.21 vs. $M_{certain\ reward} = 5.02$, SD = 1.22; $t(302) = 3.60$, $p < .001$, $d = 0.41$); however, this effect on likability disappeared when the company changed its supplier for product quality reasons ($M_{uncertain\ reward} = 4.87$,

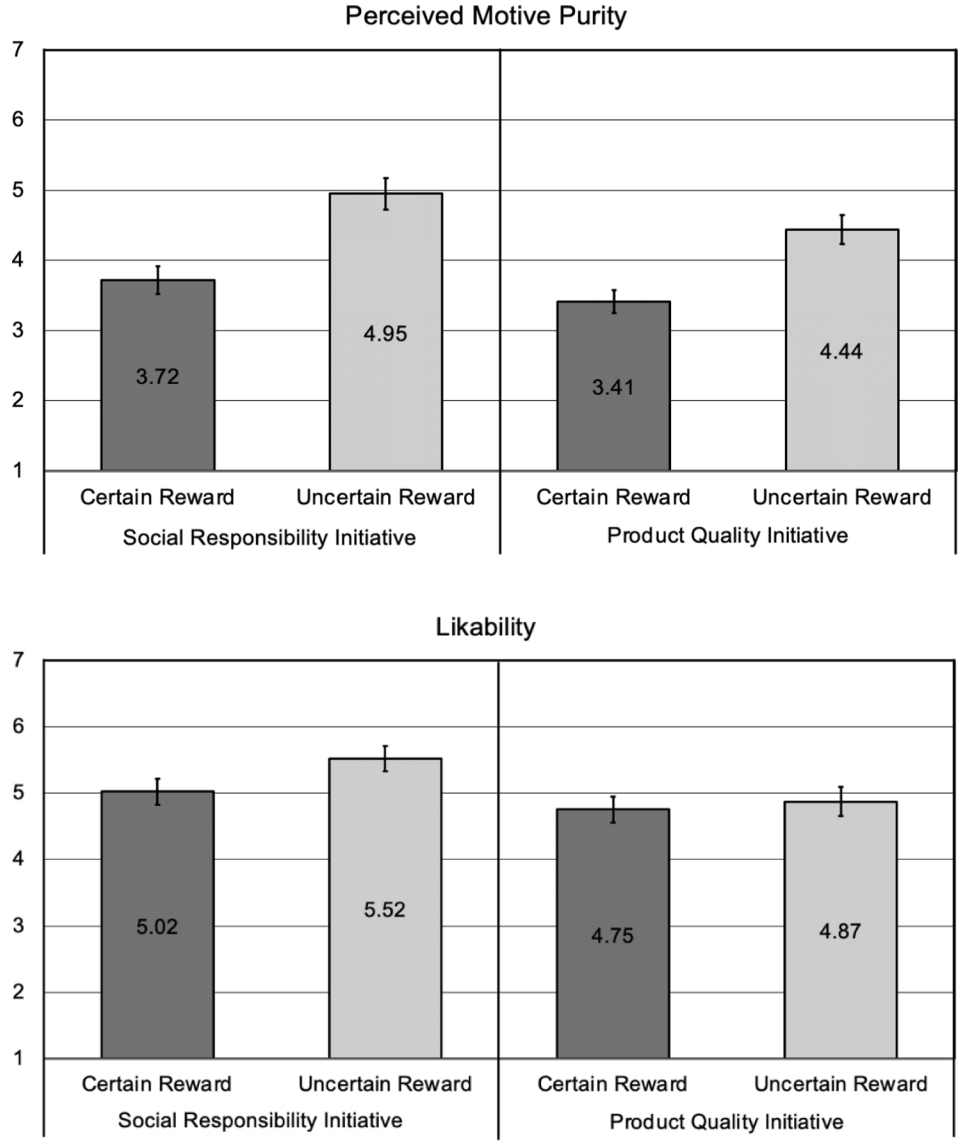

Fig. 5. Study 6: A chocolate company is seen as more purely motivated in their decision to switch cocoa suppliers when facing uncertain (vs. certain) profits, regardless of whether this decision was for social responsibility or product quality reasons (top). However, this reward uncertainty effect extends to likability more strongly within social responsibility context (bottom). Error bars represent 95% confidence intervals.

SD = 1.36 vs. $M_{certain\ reward}$ = 4.75, SD = 1.25; $t(299) = 0.79$, $p = .43$, $d = 0.09$).

9.3. Discussion

Study 6 again found that, when it comes to prosocial actions, reward uncertainty signals greater motive purity. Here, this effect on perceptions of intrinsic motivation also extended to judgments of the same company decision when it was made for a reason besides social responsibility per se (i.e., to create a higher quality product). However, we also found that the likelihood of profiting had different downstream consequences for likability between contexts. While a willingness to act despite uncertain incentives increased the company's likability when the act was explicitly intended to contribute to the greater good, it had little to no effect on likability when working to improve product quality.

Taken together, these results suggest that broadly, observers use the likelihood of rewards to infer how much actors truly care about the implications of their actions, but that this process of motive inference may have stronger consequences within explicitly prosocial domains, where motives matter more. In short, this study outlines a practical reason to care about reward uncertainty in the context of good deeds particularly. Moreover, these results suggest a level of generality that merits future investigation, as this study tests just one additional context among many. We discuss other contexts in which motives matter in the General Discussion.

10. General discussion

Across two pilot studies and nine experiments, we find broad support for the prediction that observers attribute purer motives and respond more positively to prosocial actions associated with uncertain rewards than to those associated with certain rewards of equal value. This inference persists across myriad contexts, holding for reward values from tens to millions of dollars and across a host of reward probabilities, in separate and joint evaluations, and even when uncertain rewards are much more valuable and have already been realized. In fact, we find that observers respond no more negatively to the possibility that an actor may (or may not) benefit from doing good relative to no mention of potential benefits at all (Study 2). Importantly, we show that this attribution process impacts several consequential judgments and decisions, including evaluations of likability and benevolence, predictions about future behavior, and even real product choices.

We propose that this effect arises because when an actor is willing to take action despite a chance they will not benefit from doing so (even if possible rewards are large), it is easier for observers to imagine them acting without any incentives at all. We suggest that this counterfactual inference, in turn, leads observers to treat uncertain (vs. certain) incentives as weaker signals of extrinsic motivation. According to this theory, making it harder to imagine that the actor would act for no reward should moderate the effect. Indeed, we find that both higher reward probabilities (Study 4) and contextual information indicating an actor's need for the uncertain but large payout (Study 5) attenuate the effect (or even reverse it entirely). By contrast, we find little or no evidence that our effects are instead driven by perceptions of reward value: Our results persist when we carefully match the uncertain and certain rewards on perceived value (Study 1d), when we convey that profit outcomes include all possible costs (Study 1c), when substantial rewards are actually received (Study 3), and even among participants who explicitly indicate that they see uncertain rewards as more valuable overall (Study 5). Finally, we find that this attribution process generalizes beyond explicitly prosocial settings (Study 6), although its importance for downstream judgment appears to depend on how much observers care that actors have pure motives in a given context.

10.1. Theoretical contributions

These results offer a number of theoretical insights. First, this work deepens our understanding of how people react to prosocial behavior from firms and other individuals and clarifies previous theories on the relationship between extrinsic rewards and motive attribution. Prior work has often suggested that people see extrinsic rewards and pure motives as generally in conflict, noting that observers often look for reasons to reconstrue good deeds in terms of extrinsic motivation (Critcher & Dunning, 2011; Miller & Ratner, 1998) and view material profits with moral suspicion (e.g., Bhattacharjee et al., 2017). By exploring how observers evaluate prosocial actions with uncertain incentive structures, our studies reveal a more nuanced psychology. Indeed, we find that observers take prior uncertainty into account when evaluating prosocial actions: Even good deeds that turn out to be highly profitable are judged more favorably if profits were sufficiently uncertain at the outset. In sum, our work contributes to an important literature identifying cases where profits and positive evaluations can coexist (e.g., Ellen et al., 2006; Forehand & Grier, 2003; Sen et al., 2006).

Second, beyond the domain of prosocial behavior specifically, this work extends our understanding of the impact of reward uncertainty on social inference-making. Specifically, theories of counterfactual attribution have argued that people infer causality in part by identifying a potential cause X and then asking themselves whether a given outcome Y would have occurred had X been absent; the easier it is to imagine Y happening without X, the less likely people are to say that X caused Y (e.g., Kahneman & Miller, 1986; Lipe, 1991). Such reasoning is typically invoked to explain people's intuitions in basic cases of causal reasoning (e.g., Was a car accident caused by the driver speeding or a malfunctioning stoplight? Was a broken glass in a theater the result of a soprano hitting a high note or a busboy dropping a tray?). Building on this work, we suggest that processes of counterfactual reasoning may also explain fundamental differences in how people interpret actions taken in response to certain versus uncertain incentives. We theorize that when an action is taken in response to an uncertain (vs. certain) incentive, it is easier to imagine the action taking place without the incentive, which in turn leads people to see uncertain incentives as playing a weaker causal role in observed behavior. Thus, in addition to contributing to an ongoing discussion about the role of incentives in evaluations of prosocial behavior specifically, our findings support a more general framework for understanding the impact of reward uncertainty on social inference-making, one which builds on seminal theories of counterfactual attribution.

More broadly, many of life's choices – from deciding what to order at a restaurant, to picking how to invest one's savings, to choosing which career to pursue – can be modeled as decisions involving risk and uncertainty (e.g., Platt & Huettel, 2008; Prelec & Loewenstein, 1991). But whereas prior research has extensively examined how people select between uncertain gambles, value uncertain prizes, and respond to uncertain incentives themselves, few well-controlled studies have explored whether observers make systematically different inferences about the actions of others in response to uncertain (vs. certain) rewards. To our knowledge, we are the first to demonstrate that reward (un)certainty—as distinct from reward value—may serve as a cue to motive attribution, a central dimension of social evaluation and an important input to a variety of judgments and decisions (Reeder, 2009).

10.2. Practical implications

Our findings also offer a number of practical insights for organizations. First, our work suggests that, all else equal, organizations should consider pursuing prosocial initiatives that entail greater *ex ante* reward uncertainty. Unfortunately, the exact financial calculations that constrain when and how organizations invest in prosocial initiatives – that is, how much they stand to make and whether possible profits are a necessary condition for doing good – are not public knowledge.

However, it seems that taking even a small chance of not profiting (as in the *75% reward* condition from Study 4) may help to paint organizations in a more positive light, especially if profits would seem more certain otherwise.

Second, to the extent that organizations are willing to incur profit uncertainty in pursuit of the greater good, they might consider disclosing such uncertainty when talking about their prosocial endeavors. As evidenced by our review of recent CSR press releases (see Study 2), for-profit brands uniformly avoid discussing profits when announcing prosocial initiatives. However, our findings suggest that, at least in some cases, this may be a mistake. Firms that are willing to take risks on prosocial initiatives may be viewed *more* positively on some dimensions for revealing a positive but uncertain profit outlook than for avoiding the topic of profits altogether, particularly in cases where consumers assume strong profit motives at baseline. In this way, disclosing reward uncertainty and demonstrating a willingness to act anyway may be a strategy worth considering for for-profit firms hoping to signal more genuine motivations in supporting social causes. Still, future work will be needed to explore how such disclosures should be communicated in applied contexts: Brands that seem like they are trying to "score points" with consumers by bragging about reward uncertainty may risk seeming disingenuous or inauthentic.

Third, although we suspect that investing in prosocial initiatives like going green or switching to fair-trade will often entail some level of profit uncertainty, it should be noted that our effects do not necessarily require firms to take any specific level of actual profit risk. Rather, organizations may be able to take advantage of our findings by shifting observer *perceptions* of reward uncertainty. In our Pilot Study B, for example, we found that even when explicit profit forecasts were not specified, participants who inferred greater profit uncertainty also attributed purer motives when evaluating a CSR initiative. Thus, whatever their true motives or profit expectations, it appears that firms can capitalize on our effects by talking about their prosocial initiatives in ways that implicitly suggest reward uncertainty. We discuss potential implicit signals of reward uncertainty as an important future direction below.

Finally, as suggested by our studies with individual actors, organizations selecting and designing incentives for encouraging individual prosocial behavior (e.g., among employees, consumers, or volunteers) might consider incorporating reward uncertainty. In the marketplace, both certain and uncertain incentives are commonly used to encourage individuals to volunteer for or donate to prosocial causes. Our data suggest that relative to certain incentives (like gift cards, swag, etc.) uncertain incentives (like raffle tickets, sweepstakes, etc.) weaken motive skepticism, with implications for the self- and social-signaling aspects of doing good. More broadly, a better understanding of the relationship between incentives and attributions can help companies and individuals alike select and position their actions to communicate intrinsic motivation and maximize reputational benefits, a win–win for prosocial actors and their beneficiaries.

10.3. Limitations and future directions

To our knowledge, our experiments are among the first to integrate reward uncertainty into the study of motive inference and social judgment, and as such, they open a number of avenues for future research. Most of our studies have emphasized internal validity and causal inference, controlling the expected or perceived value of rewards by presenting participants with explicit information about reward magnitudes and probabilities. However, in the real world, such information is not always explicitly available. Thus, important questions for future work concern whether people spontaneously think about reward (un) certainty and what explicit or implicit cues might lead them to take it into account. Although specific numeric probabilities may not come fully to mind, observers might consider reward uncertainty in a more generalized, "gist-like" fashion in naturalistic contexts (e.g., thinking that it seems likely or unlikely that a given actor will make money from doing good).

When might observers consider reward uncertainty? In some cases, information about reward uncertainty may be provided explicitly. Indeed, we have suggested that companies might consider disclosing profit uncertainty in the context of their CSR when publicizing their prosocial initiatives. If enough do so, profit uncertainty may eventually become a natural consideration when judging corporate prosocial initiatives. Another possibility is that explicit notions of reward uncertainty around an actor's good deeds might percolate via word-of-mouth or press coverage. For instance, in the case of CSR, media outlets might speculate that a firm seems willing to put profits on the line for a good cause regardless of their true motives or profit expectations, as some outlets actually did when Nike hired social justice activist Colin Kaepernick as a spokesperson in 2018 (Cobb, 2018).

But even without explicit discussion of an actor's uncertain incentives, there are likely to be other implicit cues that indirectly suggest the presence of reward uncertainty and render it salient when evaluating good behavior. For example, perhaps being the first to launch a prosocial initiative (e.g., Silver, Kelly, & Small, 2021) or engaging in more rare or unusual forms of good behavior (Kraft-Todd & Rand, 2019) might earn more credit with observers in part because pioneering and originality are associated with risk-taking and uncertain rewards. Another interesting possibility here concerns whether intentionally pursuing *controversy* when taking a stand for social good can signal motive purity and improve brand image (relative to uncontroversial prosocial efforts). Recently, a number of brands have launched social responsibility programs which are explicitly polarizing, such as Nike's partnership with Kaepernick (Papenfuss, 2019), Ben & Jerry's public denunciation of racial injustice (Holman & Buckley, 2020), and Delta Airlines' decision to cut ties with the NRA (Fausset & Hsu, 2018). Embracing controversy in pursuit of the greater good may signal genuine cause commitment in part by communicating a willingness to act even though market response and associated profits seem uncertain. In fact, controversial prosocial initiatives may even seem to entail a chance of *losing* money (thus resembling a mixed gamble). Because a willingness to incur possible losses may yield even stronger counterfactual inferences, such cases may exhibit even larger effects on motive purity. We hope that future research will examine how observers draw on contextual cues to infer reward uncertainty, both as a possible mechanism for other motive inference effects in the literature and as a means for actors to harness our findings to signal genuine cause commitment.

A second interesting extension would be to examine whether the attribution process investigated here might impact people's decisions about whether to engage in prosocial behavior themselves (i.e., volunteer, donate, protest, etc.). Much is known about how people respond to certain versus uncertain incentives in contexts such as marketing promotions (Mazar et al., 2016) or health behavior adherence (Loewenstein, Asch, & Volpp, 2013). While recent work has shown that people sometimes prefer uncertainty when it comes to their actual prosocial behavior (e.g., a coin flip to decide whether to volunteer: Lin & Reich, 2018), to our knowledge, little research has examined the relative efficacy of certain versus uncertain incentives in encouraging people to do good. Unlike these previously studied contexts, decisions about whether to do good are especially sensitive to concerns about self- and social-signaling. In particular, previous research has found that offering extrinsic rewards (like a gift card in exchange for volunteering) may boost extrinsic motivation, but may also *undermine* intrinsic motivation (Ariely, Bracha, & Meier, 2009; Gneezy, Meier, & Rey-Biel, 2011; Lin, Zlatev, & Miller, 2017; Zlatev & Miller, 2016). Our studies suggest that uncertain rewards (like a raffle ticket in exchange for volunteering) seem less tainting even when they seem no less valuable, such that uncertain incentives may motivate prosocial participation without sending a negative self-signal. Future research should test whether uncertain incentives outperform certain incentives in motivating prosocial behavior specifically. As a further extension, future research might also

investigate whether do-gooders who show up in exchange for uncertain (vs. certain) incentives really do care more about the cause, which would shed light on whether the motive inferences we find in this research are warranted.

Finally, as noted, our proposed attribution process– that observers treat uncertain incentives as weaker signals of extrinsic motivation – appears to generalize beyond explicitly prosocial domains. Specifically, Study 6 finds that uncertain incentives send weaker signals of extrinsic motivation for an action having little to do with morality or self-sacrifice (i.e., a company switching suppliers to offer a higher-quality product). However, in line with the idea that observers put a premium on pure motives in the domain of prosocial behavior specifically, Study 6 also finds that the effect of reward uncertainty on downstream judgment is stronger in a social responsibility (vs. a product quality) context. A clear future direction, then, would be to extend these results into other contexts where signaling intrinsic motivation is important. In particular, examining judgments of individual human actors, whose decisions entail a wider range of intrinsic and extrinsic motivators across domains, may offer a broader lens on our theory.

Consider some examples. A job candidate who is willing to accept a compensation package that includes stock options may be judged to care more deeply about the company's mission. A politician who champions a policy with uncertain consequences for her poll numbers may appear more driven by genuine ideological commitment. A movie director who prefers high-risk, high-reward projects may seem less concerned with fame and fortune. Our theory suggests that any actor willing to incur reward uncertainty in pursuit of a goal should be seen as more intrinsically motivated. Future work can explore such effects, and document their consequences, across a variety of situations.

11. Conclusion

In an ideal world, prosocial behavior would be positively reinforced and thus propagated. Socially responsible firms would succeed, reinforcing norms of benevolence in the marketplace. Individuals who volunteer or donate to charity would be rewarded with social affirmation and inspire others to follow their lead. Previous research has uncovered a paradox in incentives to do good: Actors that stand to benefit from their prosocial behavior often face increased scrutiny, sometimes leading their good deeds to backfire altogether. The present experiments clarify conditions under which negative reactions to incentivized prosocial behavior arise and establish that potential profits and perceptions of genuine purpose can coexist when rewards are uncertain at the outset. These results deepen our understanding of the incentives actors face when deciding whether or not to take action for prosocial causes and inspire some optimism for firms and individuals hoping both to do good and to do well.

Author's Note

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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.

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