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# More Affected = More Neglected: Amplification of Bias in Advice to the Unidentified and Many

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Sunita Sah<sup>1</sup> and George Loewenstein<sup>2</sup>

## Abstract

Professionals often give advice to many anonymous people. For example, financial analysts give public recommendations to trade stock, and medical experts formulate clinical guidelines that affect many patients. Normatively, awareness of the advice-recipient's identity should not influence the quality of advice, and when advice affects a larger number of people, if anything, *greater* care should be taken to ensure its accuracy. Yet, contrary to this logic and consistent with research on the identifiable victim effect, results from two experimental studies demonstrate that advisors confronting a financial conflict of interest give more biased advice to multiple than single recipients and to unidentified than identified single recipients. Increased intensity of feelings toward single identified recipients appears to drive this process; advisors experience more empathy and appear to have greater awareness and motivation to reduce bias in their advice when the recipient is single and identified.

## Keywords

advice, decision making, ethics, conflicts of interest, identifiability

Individuals regularly rely on advice from experts such as attorneys, accountants, and physicians. When they have no incentive for doing otherwise, most advisors undoubtedly give the best advice they can, though the effort that goes into preparing the advice may vary depending on factors such as concern for their reputation and connection to the advice recipient. However, experts are often influenced by conflicts of interest (COIs) when they have a personal, often material, interest in giving biased advice. For example, real-estate agents may recommend accepting a lower sale price on their client's house, where they take only a percentage of the profit as commission, than they would on their own house, where they reap all the profit (Levitt & Dubner, 2005), and physicians who make a profit by providing imaging services are more likely to order imaging than non-self-referring physicians in the same specialty (Kouri, Parsons, & Alpert, 2002). In these situations, the advisor's concern, or lack of concern, for the recipient can have a significant impact on the quality of advice.

We examine how an advisor's behavior toward an advice recipient changes when the advisor knows who the recipient is and when there are multiple, as opposed to individual, advice recipients. From a utilitarian perspective, one could argue that the identifiability of an advice recipient should not influence the quality of advice, and that, if anything, one should devote *extra* attention and care to advice given to larger numbers of recipients since the advice will affect the welfare of a greater number of people. Yet the studies in this article contradict this utilitarian prescription: Conflicted advisors give more biased

advice to multiple recipients and to unidentified individual recipients.

## Identifiability and Multiple Victims

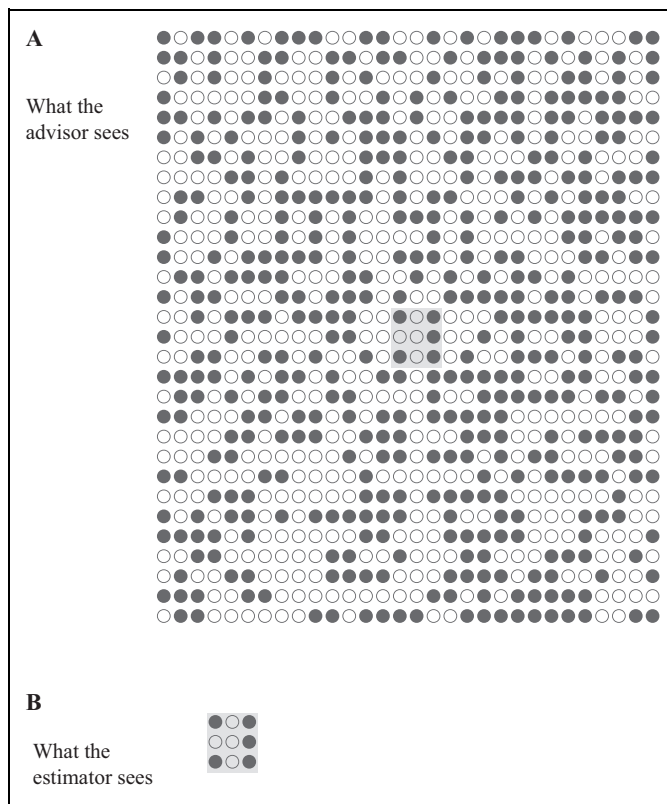
Building on the seminal insights of Thomas Schelling (1968), a substantial body of research has explored what we know as the "identifiable victim effect"—the observation that people are more sympathetic and generous toward identifiable than statistical, victims (Friedrich et al., 1999; Kogut & Ritov, 2005a, 2005b). This finding extends beyond identifiable victims and helping behavior to "identifiable others" more generally. For example, people have greater anger toward, and are more willing to punish, identified than unidentified wrongdoers (Small & Loewenstein, 2005). Furthermore, a single identified victim elicits more sympathy and help than groups of identified or unidentified victims (Kogut & Ritov, 2005a, 2005b), and fewer victims elude more blame and punishment toward the

<sup>1</sup> Department of Management and Organizations, Fuqua School of Business, Duke University, Durham, NC, USA

<sup>2</sup> Department of Social and Decision Sciences, Carnegie Mellon University, Pittsburgh, PA, USA

## Corresponding Author:

Sunita Sah, The Fuqua School of Business, Duke University, 100 Fuqua Drive, Box 90120, Durham, NC 27708, USA  
Email: sunita.sah@duke.edu



**Figure 1.** (A) What the advisor sees: Full  $30 \times 30$  grid of dots; (B) What the estimator sees:  $3 \times 3$  portion of dots. The correct number of filled dots in the large grid is 455.

perpetrator than larger numbers of victims (Nordgren & Morris McDonnell, 2010).

We propose and test in two studies that advisors facing a COI will give less biased advice to an identified than to an unidentified other. Furthermore, we propose and test in the second study that advisors will give more biased advice to larger numbers of recipients (identified or not) than to a single identified recipient. We also examine the extent to which increased intensity of feelings drives the bias.

## Experiment 1

Participants acting as advisors gave advice to other participants—“estimators.” We manipulated the incentive for advisors to give accurate or biased advice (i.e., the presence or absence of a COI) and the identifiability of the advice recipient. We predicted that advisors subject to a COI would give biased advice but would give less biased advice to identified advice recipients.

## Method

In all, 171 community members from Pittsburgh (45% male; 88% between 18 and 55 years; 79% Caucasian) were randomly assigned in the lab to one of four online advisor conditions in a  $2$  (Conflict vs. No Conflict)  $\times$   $2$  (Identified vs.

Unidentified) between-participant design. Advisors in the identified conditions entered their first name and age before viewing their estimator’s name (one of five gender-neutral names) and age (same age the advisor entered plus 3 years). Throughout the identified condition instructions, the estimator’s name (e.g., Sam) was used each time the estimator was referenced, and information was given in the present tense. In the unidentified conditions, the estimator was simply referred to as “the estimator,” and information was given in the future tense indicating that the recipient was not as yet determined. In past research, increasing the amount of identifying information, and making the victim determined, increases the identified victim effect (Bohnet & Frey, 1999a, 1999b; Kogut & Ritov, 2005a).

Advisors viewed a  $30 \times 30$  grid of dots; some of which were filled and some of which were clear (Figure 1A), and gave advice to the estimator on the number of filled dots (0–900). Advisors knew that estimators would view only a  $3 \times 3$  subset of the grid (Figure 1B) but would be rewarded with a \$5 Amazon voucher if they accurately estimated (within 10 dots) the correct number (455) of filled dots in the larger grid. The estimators’  $3 \times 3$  view reflected an approximately proportional amount with five of the nine dots filled.

Advisors were rewarded in one of two ways. In the no-conflict conditions, advisors received the same reward as their estimator; a \$5 Amazon voucher if the estimator was accurate (within 10 dots). Advisor and estimator objectives were therefore aligned. In the conflict conditions, advisors’ interests conflicted with the estimators’: Advisors were rewarded if the estimator overestimated the number of filled dots; advisors received either a \$5 Amazon voucher if the estimator gave an answer above the correct number or a \$10 Amazon voucher if the estimator gave an answer that exceeded the correct number by 100. Advisors knew that the estimator would have no information on the advisors’ compensation and that estimators were aware that advisors had seen the full grid.<sup>1</sup>

After giving advice, advisors were asked to indicate, on a 5-point Likert-type scale, the degree to which they agreed that “I exaggerated my recommendation,” “I attempted to give an accurate recommendation,” “I wanted to help the estimator,” “I attempted to maximize my own payoff,” “I gave honest advice,” “I prioritized the estimator’s best interests,” and “I prioritized my best interests.” Advisors then completed filler estimation tasks where they were led to believe that the practice would increase their estimation skills. The final question presented the  $30 \times 30$  grid once again and asked for the advisor’s best estimate of the filled dots, now that they “had more practice” and were offered an extra \$2 reward on their Amazon voucher for accuracy. We emphasized that this estimate would not be given to the estimator. The preceding filler task was intended to increase the accuracy of the advisor’s best estimate in two ways: first, to reduce any anchoring or consistency effects from their original advice and second, to reduce conscious false reporting of the best estimates that advisors may otherwise felt was

**Table 1.** Mean Dependent Variables From Experiments 1 and 2

	Experiment 1				Experiment 2			
	No Conflict		Conflict		Multiple Recipients			
	Unidentified	Identified	Unidentified	Identified	Unidentified	Identified	Unidentified	Identified
Advice	481 (88)	473 (88)	573 (122)	523 (118)	573 (158.4)	496 (126)	588 (135)	592 (137)
Best estimate	454 (96)	477 (86)	516 (100)	472 (83)	492 (76)	451 (86)	501 (57)	516 (73)
Self-perceived good advice	.02 (.75)	.22 (.54)	.08 (.81)	-.29 (.90)	.06 (.87)	-.31 (.99)	.15 (.82)	.13 (.68)
Empathy					-.22 (.80)	.46 (.87)	-.18 (.92)	-.08 (.92)

Note: SDs are given in parentheses. The correct number of filled dots is 455. Self-perceived good advice and Empathy are standardized.

necessary to avoid admitting that they consciously inflated their advice to increase their own payoff.

## Results

A 2 (COI: yes vs. no)  $\times$  2 (Identifiability: yes vs. no) analysis of variance (ANOVA)<sup>2</sup> revealed a significant main effect for conflict: Advisors with a COI gave more biased (inflated) advice ( $M = 546$ ,  $SD = 122$ ) than advisors with no COI ( $M = 477$ ,  $SD = 90$ ),  $F(1, 166) = 16.22$ ,  $p < .001$ . The interaction between conflict and identifiability was not significant,  $F(1, 166) = 1.41$ ,  $p = .23$ , and the main effect for identifiability was marginal,  $F(1, 166) = 3.23$ ,  $p = .07$ . More importantly, consistent with our hypotheses, planned comparisons revealed that advisors in the unidentified conflict condition gave the most inflated advice compared to all other conditions,  $F(1, 166) = 16.22$ ,  $p < .001$ , and when specifically compared to the identified conflict condition,  $F(1, 166) = 4.53$ ,  $p = .03$ , while there was no significant difference between the no-conflict conditions,  $F(1, 166) = .18$ ,  $p = .67$ .<sup>3</sup> Thus, conflicted advisors significantly reined in their bias when their recipients were identified, as opposed to unidentified, but did not completely eliminate their bias (see Table 1 for conditions means).

Analysis of advisors' best estimates (as opposed to recommendations) revealed a roughly similar pattern. There was a significant interaction between Conflict and Identifiability,  $F(1, 166) = 5.73$ ,  $p = .02$ , with a significant main effect for conflict,  $F(1, 166) = 4.16$ ,  $p = .04$ , and no significant effect for identifiability,  $F(1, 166) = .57$ ,  $p = .45$ . Planned comparisons revealed that advisors in the unidentified conflict condition gave more inflated (and inaccurate) best estimates than other advisors,  $F(1, 166) = 8.86$ ,  $p = .003$ , as well as when compared specifically to advisors in the identified conflict condition,  $F(1, 166) = 5.06$ ,  $p = .03$ . In fact, conflicted advisors with identified recipients gave best estimates statistically indistinguishable from nonconflicted advisors,  $F(1, 166) = .58$ ,  $p = .45$ , indicating that conflicted advisors with identified recipients could undo the bias in their personal estimates, but conflicted advisors with unidentified recipients could not. This suggests that the underlying psychological processes to bias may be partly unconscious in the unidentified condition; to the

extent that advisors were deliberately misleading estimators, they should have been able to undo the bias in their personal estimates when incentivized to be accurate. Other explanations are that advisors in the unidentified conflict condition were anchored by their own deliberate lies or wanted to appear ethical and consistent. The filler task was designed to reduce the impact of these alternative mechanisms by reducing anchoring on prior advice and providing advisors with a reason (extra practice on estimation tasks) to give an improved estimate.

The advisors' answers to the statements that followed the provision of advice were standardized, reverse coded where appropriate, and subjected to a factor analysis, which revealed two factors. The main factor consisted of five questions concerning how accurate and honest the advice was and how much they helped the estimator. The responses were averaged to give a multi-item composite measure labeled "self-perceived good advice" (Cronbach's  $\alpha = .84$ ) which displayed a significant interaction between Conflict and Identifiability,  $F(1, 166) = 5.67$ ,  $p = .02$ . Conflicted advisors with *identified* recipients thought they gave the worst advice compared to all other advisors,  $F(1, 166) = 8.73$ ,  $p = .004$ , and compared specifically to conflicted advisors with unidentified recipients (who actually gave the worst advice),  $F(1, 166) = 4.87$ ,  $p = .03$ . In fact, the conflicted advisors with unidentified recipients thought they gave as good advice as non-conflicted advisors,  $F(1, 166) = 1.39$ ,  $p = .24$ . Although, admittedly an *ex post* explanation for these results, we could conjecture that those giving advice they knew to be biased to identified recipients may have felt greater guilt than those who gave such advice to unidentified recipients. Alternatively, perhaps there is decreased processing of, and hence awareness of, the quality of advice when the recipient is unidentified. In combination with the impact of identifiability on advisors' best estimates, these results suggest that the bias to give inflated advice to the unidentified may be, at least partly, unconscious, and advisors are more aware of, or possibly more guilty about and ready to admit, their biased advice when recipients are identified rather than unidentified.

## Discussion

In the presence of a COI, advisors gave significantly more biased advice to unidentified than identified recipients. These

results are consistent with prior research showing that identifiability leads to greater sympathy or empathy toward (potential) victims. We investigate the effect of emotion as a mediator toward giving unbiased advice in the next experiment.

## Experiment 2

Experiment 2 investigates the hypothesis that people are more likely to give biased advice to multiple and unidentified people compared with a single known individual. People tend to donate more to a single identified victim than to groups of identified or unidentified victims: Kogut and Ritov (2005a, 2005b) investigated the contributions to a single victim versus a group of eight victims and found that identification of the single victim increased contributions, whereas identification of group members had little effect on willingness to contribute. Furthermore, the contribution to the group tended to be *less* than the contribution to a single individual. The authors propose that both singularity and identification lead to a decreased psychological distance which, in turn, results in increased intensity of emotion. Increased psychological distance can result in more abstract processing (Trope & Liberman, 2010) which may make it more difficult to take another's perspective (Hsee & Weber, 1997).

Similarly, Nordgren and Morris McDonnell (2010) demonstrate that people are less punitive toward crimes that hurt larger numbers of people. Increased emotion toward identifiable victims may again account for this effect. Participants who were told there were 3 victims, as opposed to 30 victims, were better able to describe a typical victim, thus making that victim more identifiable. This suggests that people may form more vivid mental representations of a victim if there are fewer victims. The authors also demonstrate an effective way to decrease the bias. Although Kogut and Ritov (2005a, 2005b) found that providing pictures identifying *all* group members did not increase contributions, Nordgren and Morris McDonnell found that, when there was a large number of victims, including a picture of just one of the victims increased the recommended punishment to the same level recommended with fewer victims. One picture, as opposed to several, may better enable participants to form a vivid mental representation of a victim, thus eliciting a stronger emotional reaction.

An alternative, or potentially complementary, account that implicates emotion as driving greater contributions to single victims is that people may prefer to save a larger proportion of the reference group, rather than saving lives that represent a "drop in the bucket" (Baron, 1997; Jenni & Loewenstein, 1997; Ritov & Baron, 1990). The single identified victim serves as his or her own reference group, making the proportion to be saved 100%. Also, one's marginal contribution decreases as the reference group increases in size which may make people less inclined to help (Baron, 1997). In our current study design, the proportion of the reference group affected is the same in the single and the group conditions; 100% of the group is affected by the advice given. Furthermore, in the multiple recipient conditions, the advisor has the potential to do more good to more

people, which, from a utilitarian perspective, gives even more reason to decrease bias in advice. However, just as advisors found it easier to give biased advice to unidentified rather than identified recipients (in Experiment 1), they may find it easier to give biased advice to a group (whether identified or not) than to an identified individual, despite the fact that the proportion of the reference group is the same and the advisor can potentially help or harm more people. By this reasoning, the least biased advice will be given to the single identified individual, and, when the number of recipients increase, advice will, *per-versely*, become more biased. We also predict that the intensity of feelings toward the estimator drives the reduction in bias and that these emotions are greater if the recipient is both single and identified.

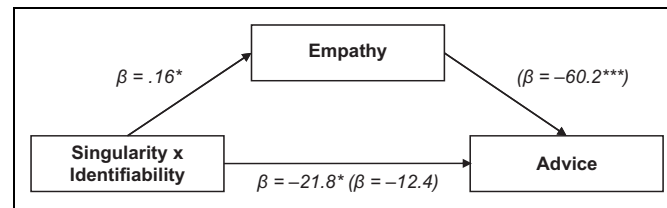
## Method

We randomly assigned 160 students (47% male; 95% between 18 and 25 years; 46% Caucasian and 35% Asian) to 2 (Identified vs. Unidentified)  $\times$  2 (Single Estimator vs. Five Estimators) between-participant conditions. The methodology mainly replicated Experiment 1 but varied the number of recipients per advisor. Unlike Experiment 1, all advisors were conflicted (paid more if the estimator overestimated). In the multiple recipient conditions, estimators were presented as five different estimators rewarded for accuracy independently of each other, and the advisor's payment was determined from one estimator's response drawn at random. In the identified multiple recipient condition, five gender-neutral names were displayed along with ages for the estimators within 3 years of the advisor's age. This time we asked advisors for their first name in all conditions to eliminate any potential confound that anonymity could bring in the unidentified conditions.

After giving advice, advisors answered six of the original questions in the previous experiment. We also added four questions to examine the intensity of feelings toward recipients: "I felt empathy towards the estimators," "I would feel bad if the estimators received nothing," "I felt responsible for the estimators' payoff," and "I cared about the estimators' outcomes." Furthermore, we included two test questions to examine whether mediators other than the intensity of feelings toward estimators might be driving the effect of reducing bias: "I believe the estimators will follow the advice I gave" and "The estimators will be angry if they find out I gave bad advice."

## Results

A 2 (Identifiability: yes vs. no)  $\times$  2 (Singularity: yes vs. no) ANOVA<sup>4</sup> revealed more biased advice given to multiple recipients ( $M = 590$ ,  $SD = 135$ ) than single recipients ( $M = 536$ ,  $SD = 148$ ),  $F(1, 155) = 6.56$ ,  $p = .01$ . The interaction between Singularity and Identifiability was significant,  $F(1, 155) = 3.98$ ,  $p = .048$ . Consistent with our hypothesis (that the advisor's bias is decreased when the advice recipient is identified and single),<sup>5</sup> planned comparisons showed that single identified recipients received the least biased advice compared to all other



**Figure 2.** Empathy as a mediator of the effect of Singularity and Identifiability on advice. Empathy mediates the effect of the interaction of Singularity and Identifiability on advice. Unstandardized regression coefficients are shown. Coefficients in parentheses control for the other predictor variable. Variables for singularity and identifiability were also included in the model. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p \leq .001$ .

conditions,  $F(1, 155) = 13.59, p < .001$  and also when specifically compared to single unidentified recipients,  $F(155) = 7.53, p = .007$ , while there was no difference between the multiple recipient conditions,  $F(155) = .04, p = .85$  (see Table 1 for conditions means).

Similar effects were found for the advisor's best estimate: Advisors gave a more inflated best estimate when in the multiple ( $M = 508, SD = 65$ ) rather than single recipient ( $M = 472, SD = 83$ ) conditions,  $F(1, 155) = 9.85, p = .002$ . The interaction between Singularity and Identifiability was significant,  $F(1, 155) = 5.72, p = .02$ , and advisors with single identified recipients gave a more accurate best estimate than all other advisors,  $F(1, 155) = 15.50, p < .001$ , and when compared to advisors with single unidentified recipients,  $F(1, 155) = 6.92, p = .009$ , while there was no difference between the multiple recipient conditions,  $F(1, 155) = .70, p = .41$ .

Factor analysis of the standardized responses to the 10 statements of interest (reverse coded where appropriate) revealed two factors. The six questions similar to those in the previous study gave one factor, which we similarly labeled "self-perceived good advice" (Cronbach's  $\alpha = .93$ ) and the four questions regarding feelings toward the estimator resulted in another factor (Cronbach's  $\alpha = .93$ ) which we named "empathy."

Self-perceived good advice was higher for advisors with multiple ( $M = .14, SD = 0.75$ ) than single recipients ( $M = -.12, SD = 0.94$ ),  $F(1, 155) = 3.82, p = .05$ . The interaction was not significant,  $F(1, 155) = 1.78, p = .18$ , nor was the effect of identifiability,  $F(1, 155) = 2.02, p = .16$ . Planned comparisons showed that advisors with single identified recipients felt they gave the worst advice compared to all other advisors,  $F(1, 155) = 7.67, p = .006$ , and compared to advisors with single unidentified recipients,  $F(1, 155) = 4.15, p = .04$ . There was no difference in self-perceived good advice between the multiple recipient conditions,  $F(1, 155) < .01, p = .95$  nor between advisors with multiple recipients and single unidentified recipients,  $F(1, 155) = .03, p = .86$ . As in Experiment 1, and in line with advisors' best estimates, it appears that advisors with single identified recipients were more aware of the quality of their advice or felt guiltier about it and were more ready to admit their advice was biased compared to advisors with multiple or single unidentified recipients.

The second factor, empathy, revealed a significant interaction between Singularity and Identifiability,  $F(1, 155) = 5.36, p = .02$ . Planned comparisons showed a significantly

higher measure for advisors with single identified recipients than all other advisors,  $F(1, 155) = 17.40, p < .001$ , and also when compared specifically to advisors with single unidentified recipients,  $F(1, 155) = 14.90, p < .001$ . There was no difference in empathy between advisors with multiple recipients,  $F(1, 155) = .16, p = .69$ , nor between advisors with multiple recipients and with unidentified, single recipients,  $F(1, 155) = .42, p = .52$ .

To test whether empathy serves as a mediator of the effect of the interaction between Singularity and Identifiability on advice, we conducted both Muller, Judd, and Yzerbyt (2005) tests<sup>6</sup> and bootstrap analyses (Preacher & Hayes, 2004; Preacher, Rucker, & Hayes, 2007) for mediated moderation. Our first two regressions replicated our previous ANOVA findings. Regressing advice on singularity and identifiability and the product of Singularity and Identifiability revealed that the interaction was significantly associated with decreased bias in advice ( $\beta = -21.8, SE = 11.0, p = .048$ ). Second, regressing empathy on the same variables revealed the interaction term was significantly and positively associated with empathy ( $\beta = .16, SE = 0.07, p = .02$ ). Finally, including empathy in our first model revealed it to be a positive predictor of decreased bias in advice ( $\beta = -60.2, SE = 12.0, p < .001$ ), while the interaction term (Singularity and Identifiability) became nonsignificant,  $\beta = -12.4, SE = 10.4, p = .23$ ; see Figure 2.<sup>7</sup> With 5,000 bootstrap samples,<sup>8</sup> we find that the 95% bias-corrected confidence interval (CI) for the size of the indirect effect excluded zero ( $-20.5, -1.5$ ), suggesting a significant indirect effect of empathy. These findings suggest that empathy mediates the effect of the interaction of Singularity and Identifiability on advice.

We conducted both mediated moderation tests to examine whether the final two questions could serve as alternative mediators.<sup>9</sup> The 95% bias-corrected CI included zero for the indirect effects for both "I believe the estimators will follow the advice I gave" ( $-2.2, 5.0$ ) and "The estimators will be angry if they find out I gave bad advice" ( $-5.2, 2.6$ ). Furthermore, the interaction of Singularity and Identifiability did not predict either of these mediators ( $p > .70$ ), and when we included both the interaction and the mediator in a regression model (controlling for singularity and identifiability) predicting advice, neither of the mediators significantly predicted advice ( $p > .08$ ) nor reduced the effect of the interaction term on predicting advice ( $p$  value remained  $< .05$ ).<sup>10</sup> Because single-item measures are less reliable than multiple-item measures, to conduct

a fairer comparison between the alternative mediators, we performed mediated moderation tests individually on responses to each of the four questions that created our primary mediator. Analysis of these four items followed a similar pattern as our combined empathy variable; the 95% bias-corrected CI excluded zero for all four individual items and the mediated moderation regression models indicated full mediation for three of the four items. Therefore, analysis of the individual items provide additional support for the mediating role of empathetic emotion compared with the lack of such a role played by the other two constructs we examined.

## Discussion

Advisors gave more biased advice to multiple and single unidentified recipients than single identified recipients. Giving more biased advice to multiple recipients overrides any identifiability effect in a manner consistent with Kogut and Ritov's work on contributions to victims (2005a, 2005b, 2007). Identifying each member of the group did not lead advisors to decrease the bias in their advice. This study also demonstrates that empathetic emotion mediates the impact of the experimental manipulations of singularity and identifiability on bias in advice.

## General Discussion

These studies join earlier research in showing the important role of identifiability and emotion in social judgment and decision making. Prior research has shown that identifiability and singularity affect aid to victims and punishment of perpetrators. The current study shows analogous effects with respect to advice giving in the presence of a COI. These findings are important, given the prevalence, in the real world, of advice giving to multiple and unidentified individuals. For example, medical policy guidelines that shape the care received by many patients could be more biased than advice given in individual doctor-patient interactions. Likewise, managers may find it easier to fire many effectively anonymous employees than to fire one known worker on their team, and financial analysts may give more biased advice to many anonymous clients than directly to an individual. Indeed, Redelmeier and Tverksy (1990) found that physicians would spend more time in clinical assessment and order additional tests when it was for a specific patient than a group of patients.

In addition to demonstrating the ramifications of identifiability and singularity for advice giving, the current studies are consistent with a modern perspective on the positive role of emotion in decision making (Damasio, 1996; Preston & De Waal, 2002). Increased intensity of empathetic feelings toward single identified recipients may have motivated advisors to curb their bias and pay more attention to their actions.

Our results also provide some clues concerning how aware advisors are of their bias or, at least, how much they want to admit to it. Only in the single identified condition did advisors, first, report that they gave biased advice and, second, undo

their bias when giving personal estimates. One possible explanation is that, consistent with prior research on self-serving bias, the underlying psychological processes leading to biased advice may be partly unconscious (Babcock, Loewenstein, & Issacharoff, 1997; Dana & Loewenstein, 2003). Furthermore, perhaps the lack of empathetic emotion toward recipients who were not single and identified decreased attention or care to the quality of advice that was given. Alternatively, it is possible that advisors with single identified recipients were more willing to acknowledge the bias (to themselves and to others), perhaps because they felt guiltier about it. Or, perhaps, advisors in the unidentified or multiple recipient conditions deliberately misreported their best estimates and purposely reported giving good advice in order to appear ethical and consistent. Whatever the reason, only advisors with single identified recipients demonstrated both awareness of the bias in their advice and a motivation to undo it.

It is unlikely that advisors consciously and deliberately aim to give worse guidance to multiple or unidentified advice recipients. Therefore, it is important to find ways of bringing people's behavior in line with their conscious intentions. Although neither of the studies in this article attempt to do so, prior research suggests ways to reduce the bias. Due to the between-subject nature of most real-world situations, advisors would not be aware of their violation of rationality in giving more biased advice to unidentified and multiple recipients. Comparative judgments may provide a strategy for decreasing the bias given to multiple advice recipients (Kogut & Ritov, 2005b), though it is also possible that the deliberative thought associated with comparative judgments could prime an analytic mind-set which could decrease emotion and lead to less concern for the single identified victim rather than increasing care and sympathy to the group (Small, Loewenstein, & Slovic, 2007). A possible way to overcome this is to ask advisors what they would do for a single identified individual before asking them to provide similar recommendations for unidentified or multiple recipients. Nordgren and Morris McDonnell (2010) found that increasing the identifiability of one victim decreased biased judgment in large-scope conditions. Focusing on a single identified individual before a comparative judgment with unidentified or multiple recipients may produce anchoring or consistency effects between the different situations and a desire to be comparable and, at least, not offer worse advice to multiple recipients.

A related but stronger approach might involve perspective taking. People tend to extend the sympathy they feel toward a loved one or friend to other victims suffering the same misfortune (Small & Simonsohn, 2008) and are also more likely to be sympathetic to people who are part of their own family or social group (Choi & Bowles, 2007; Kogut & Ritov, 2007). Indeed, doctors are occasionally probed to think what they would do if a patient was someone from their own family. Thus, it seems particularly important to create processes that result in a vivid and positive representation of a single identified, in-group recipient. This will help to reduce the self-other gap and ideally encourage advisors to imagine that they

are, or could be, the recipient of advice (Cialdini, Brown, Lewis, Luce, & Neuberg, 1997). Perspective taking has also proved effective for inducing empathy for out-group individuals (Batson et al., 1997). Decreased psychological distance and increased intensity of emotion are important to increase not only awareness of succumbing to a COI but also motivation to avoid giving biased advice.

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### Notes

- To minimize deception and determine advisor payoffs, in this study and the next, the advice was presented to other participants—the “estimators.” Study procedure and results on estimators are available in the supplementary online material.
- Race was significantly correlated to advice ( $r = .22, p < .01$ ) and a significant predictor of advice ( $F = 5.55, p = .02$ ), so was entered as a covariate in all models (using a dummy variable for Caucasian). Removing the covariate did not change the significance or direction of any results (the interaction of Conflict and Identifiability gives  $p = .20$  without the covariate).
- Because our main hypothesis is indicative of an ordinal, rather than a disordinal (crossover), interaction, the appropriate analysis is a set of planned comparisons driven by theory (Bobko, 1986; Strube & Bobko, 1989; Winer, Brown, & Michels, 1991, p. 342).
- As in Experiment 1, race was significantly correlated with advice ( $r = .18, p < .05$ ) and a significant predictor of advice ( $F = 6.45, p = .01$ ) and was entered as a covariate in all models. Removing the covariate did not change the significance or direction of any of the results, aside from the interaction of Identifiability and Singularity with advice which gives  $p = .07$  when the covariate is removed.
- Since our main prediction is that one cell will differ from the other three, the correct analyses are planned comparisons driven by theory (Strube & Bobko, 1989).
- With mediated moderation, the usual “causal steps approach” for mediation can be used but with the independent variable (IV) as an interaction term while controlling for the two main effects (Baron & Kenny, 1986; Muller, Judd, & Yzerbyt, 2005). We used effect coding (1, -1) for singularity and identifiability to center the means of the IV and moderator empathy was also centered at the mean.
- The interaction of the Mediator and Moderator can also be included in the third model to test whether the path from the mediator to the dependent variable is moderated (Muller et al., 2005). Adding this interaction to our models did not significantly change the results, and the interaction was non-significant either when Singularity was the IV and Identifiability the Moderator ( $\beta = 13.78, SE = 11.74, p = .24$ ) and when Identifiability was the IV and Singularity the Mod ( $\beta = 7.15, SE = 11.76, p = .54$ ). This indicates that the path from the mediator (empathy) to advice was not moderated.
- Preacher and Hayes (2008) SPSS macro for assessing indirect effects: The model included the interaction (Singularity  $\times$  Identifiability) and empathy, controlling for singularity and identifiability.
- The question regarding how angry the estimator would be was significant for identifiability ( $F(1, 155) = 3.97, p = .05$ ): Advisors with identified recipients were more likely to agree with the statement than those with unidentified recipients.
- More detailed mediated moderation results for these two questions and each of the four individual items constituting empathy are displayed in the online supplementary material.

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## Bios

**Sunita Sah**, MD, PhD, is a postdoctoral associate at Duke University. Her research focuses on business ethics, institutional corruption, and advice-in particular how professionals who give advice alter their behavior as a result of conflicts of interest and disclosure policies.

**George Loewenstein**, PhD, is the Herbert Simon professor of economics and psychology at Carnegie Mellon University. A founder of the field of behavioral economics, and he has done research on decision making over time, emotions, bargaining, and a variety of other topics.