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FlashReport

“The ball don't lie”: How inequity aversion can undermine performance[☆]Graeme Haynes^a, Thomas Gilovich^{b,*}^a University of Western Ontario, Ontario, Canada^b Cornell University, Ithaca, NY, United States

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ABSTRACT

Previous research has found that people are often averse to inequity, even when it works to their own advantage. The present research extends previous demonstrations of inequity aversion by examining how it plays out in a real-world context in which self-interest motivations and competitive pressures are substantial. National Basketball Association games were examined and instances of obviously incorrect foul calls were identified. Players were found to make a substantially lower percentage of the foul shots they were awarded as a result of incorrect calls, indicating that they were troubled by the inequity. This drop-off in performance was only observed when the shooter's team was ahead, highlighting the trade-off between the two conflicting motives of self-interest (the desire to win) and inequity aversion.

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Human beings have a strong and pervasive desire for fairness. Anyone who has been around children and heard the plaintive cry “that's not fair” knows that the desire is especially strong when the imbalance is to the individual's own disadvantage. But there is some evidence that people are motivated to achieve fairness even when any imbalance would put them in a position of advantage. In one classic study, participants who were led to believe that they were being overpaid worked more conscientiously in an apparent effort to lessen the disparity between their contribution and their reward (Adams, 1965). In experimental games, furthermore, people typically fail to act in the purely self-interested fashion predicted by the rational actor model of economics, a result taken to reflect, in part, a concern with fairness (Camerer, 2003; Fehr & Schmidt, 1999; Rabin, 1993). Fairness concerns may be most salient in the unselfish allocations so often observed in the dictator game (Bolton, Katok, & Zwick, 1998).

In all existing studies, however, there are other motives at play that might give rise to the unselfish actions that are observed. Furthermore, in these studies the desire for fairness does not compete with other, countervailing considerations that are especially powerful. The existing evidence for inequity aversion is therefore not entirely convincing. True, when individuals act out of a concern for fairness in experimental games they do so at economic cost to themselves. But participants in such games typically can only win money; they know they have no chance of losing any money they had beforehand. This is likely to lead them to treat their earnings or potential earnings as

“house money” and therefore hold it less dear (Thaler & Johnson, 1990). They are likely to be much more willing to sacrifice bonus money to ensure fairness than they would to sacrifice “their own” money (Epley, Mak, & Idson, 2006).

In the research reported here, we sought to subject people's concern with fairness to empirical test in a real-world context in which there are strong individual incentives and powerful social pressures to act in a purely self-interested fashion. To do so, we examined the shooting accuracy of National Basketball Association players when they had been awarded free-throw shots they didn't deserve: that is, when a referee made a notable mistake by calling a foul when in reality no foul was committed. We predicted that players would at some level be troubled by their undeserved gain and would therefore be significantly less likely to make foul shots that are attempted as a result of such calls. We also examined whether any decrement in performance after such mistaken calls varied as a function of the score of the game at the time. Did players show evidence of inequity aversion at all times, or was it a “luxury” that was indulged only when the shooter's team was ahead in the game (and victory seemed more likely)?

Method

One hundred two National Basketball Association (NBA) games were taped during the 2007–2008 regular season and playoffs. The tapes were viewed by one of the authors and instances of obviously incorrect calls were noted. The determination of what constituted an obviously bad call was based on what was captured on the videotape (including slow-motion replays) and from any remarks to that effect made by the television analysts. To ensure that the identification of incorrect calls was not biased by the coder's knowledge of (and interest in) the hypothesis, the determination of whether a given call

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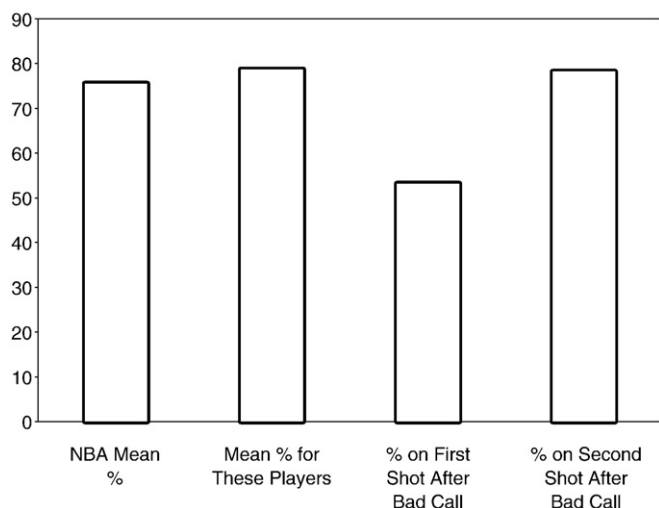


Fig. 1. NBA players' free-throw success rates following bad calls compared to the overall NBA success rate (first and second free throws) and the overall success rate for these particular players during the season in question.

was obviously incorrect was always made before the player went to the free-throw line and thus before it was known whether or not he made his first shot. This yielded 77 instances of obviously incorrect calls.

To further ensure the reliability of this coding, these same 102 games were examined for instances of "questionable" calls—instances in which one of the referees called a foul on a player and it was unclear whether it was a foul or not, but it could not be said that the call was obviously incorrect. Sixty-two of these questionable calls were identified. They were copied onto a stimulus tape, randomly intermixed with the obviously incorrect calls. The stimulus tape was then presented to 4 coders (the original and 3 new coders who were unaware of the hypothesis), all extremely knowledgeable about the game of basketball, and they were asked to indicate which calls were obviously incorrect and which were merely questionable. Although the "questionable" calls were selected precisely because they were ambiguous, the reliability of the coders' judgments was reasonably high (Spearman-Brown index = .68).

Results

As shown in Fig. 1, NBA players do not shoot well in the immediate aftermath of being awarded free throws on the basis of obviously bad calls. Players made only 53.2% of the first shots taken after the 77 calls initially deemed obviously incorrect, a value notably lower than both the 2007–2008 free-throw average for the NBA as a whole and the 2007–2008 free-throw percentage for these particular players. Of course, players might generally shoot a lower percentage on their first free throws than their second (because they are more tired, or marginally less practiced or less comfortable) and to account for that possibility, we obtained the relevant statistics for the 2007–2008 NBA season from *ESPN The Magazine*.¹ NBA players are indeed less accurate on their first free throws (73.6%) than their second (77.8%), but the 53.2% accuracy for shots taken after an obviously incorrect call is nonetheless substantially lower than the overall hit rate on first free throws as well.

To examine the statistical significance of this effect, we conducted a logistic regression, predicting whether or not a player's first free throw was hit or missed on the basis of: (a) that player's free-throw percentage for the 2007–2008 season, (b) whether or not the free-throw attempt was taken after either a legitimate or an obviously

incorrect call (there were 185 instances in which one of our sample of players went to the free-throw line in these games after legitimate calls). Not surprisingly, there was a significant effect of the players' overall free-throw percentage, with generally better shooters more likely to make their free-throws in these games, $\beta = .13$, $t(258) = 1.98$, $p < .05$. More important, there was also a significant effect of type of call, $\beta = .26$, $t(258) = 4.30$, $p < .001$. These players shot significantly worse on their first free-throw attempts after an obviously bad call. The interaction between type of call and the player's overall free-throw percentage was not significant, $t < 1$.

The dip in free-throw accuracy after obviously incorrect calls was unaffected by whether the player who benefited from the bad call was playing at home (50%) or on the road (55.8%). However, it was influenced by whether the player's team was ahead or behind at the time the free-throw was attempted. When their teams were ahead (by an average of 6.2 points in this sample), players made only 34.4% of their first free throws after an incorrect call; but when their teams were tied or behind (by an average of 6.7 points), they made 66.7%. To incorporate this difference in our overall analysis, we repeated the logistic regression reported above, adding as a predictor whether the player's team was ahead or behind at the time the shot was taken. This analysis yielded significant main effects of type of call (legitimate or incorrect), $\beta = .28$, $t(254) = 4.59$, $p < .001$, team score (leading or trailing), $\beta = .13$, $t(254) = 2.02$, $p < .05$, and a marginally significant effect of the player's overall free-throw percentage, $\beta = .12$, $t(254) = 1.82$, $p < .10$. It also yielded a significant interaction between type of call and team score, $b = -.20$, $t(254) = -3.07$, $p < .01$. Players shot significantly worse on the first free-throw taken after a bad call, but only when their team was ahead at the time. It thus appears that when a player's team is losing, the conflict between self-interest and inequity aversion often resolves in favor of self-interest. But when a player's team is ahead, the influence of inequity aversion on performance can be seen.

How did these players do on their second free-throws? No differently than usual. Overall, they made 78.2% of their second free throws, a figure nearly indistinguishable from the NBA 2007–2008 hit rate for second free throws (77.8%) or the average 2007–2008 free-throw shooting percentage of these particular players (78.7%). The same logistic regressions reported above, this time predicting the outcome of player's second free-throw attempts, yielded no evidence of an effect of type of call, only a main effect of the player's overall free-throw percentage. Thus, the downturn in performance associated with being awarded unwarranted free throws is temporary. It is a very pronounced effect on the first free throw and disappears entirely on the second.

Reliability analysis

The same overall pattern of results was obtained when we examined, not the calls identified as obviously incorrect by the original coder, but the calls consensually seen as obviously incorrect by all four judges. Twenty-seven of the calls were deemed obviously incorrect by all four judges. When these players went to the line and shot their first free throw, they made 51.9%, nearly indistinguishable from the 53.2% reported above. Fifty-six calls were deemed obviously incorrect by at least three of the four judges, and player's shooting percentage on the first free throw after these calls was 51.8%. Thus, across several different metrics of what constitutes an obviously incorrect call, the same result is obtained. Players shoot atypically poorly in the immediate aftermath of being awarded free throws they do not deserve—if their team is leading at the time.

Discussion

In competitive sports, professional sports in particular, the goal is to win. As legendary coach Vince Lombardi once said, "Winning isn't

¹ We thank Gary Belsky and Charles Curtis for providing us with these data.

everything; it's the only thing." Anything that diminishes the team's chances of winning is likely to earn the player a seat on the bench or a place on the waiver wire. A concern for fairness that results in actions that might injure a team's chances for success must therefore be particularly strong or deep-seated.

Deep-seated it apparently is, because we found that NBA players with a lot at stake during regular-season and playoff games have a hard time dealing with a situation in which they have received an unfair advantage. Although NBA players shoot over 70% on the first of two free-throw attempts, they shot just over 50% when the free-throws were awarded as a result of an obviously incorrect call. Evidence that players were trading off self-interest and their concern with equity was reflected in the fact that this drop-off in shooting performance was limited to those situations in which the shooter's team was ahead. Although players in these circumstances may have been less concerned with the cost of their inequity aversion, given how frequently leads change in the NBA, their temporary dip in performance put their teams at risk. It also injured their individual statistics, something in which they take great pride and has an influence on their salaries.

It is striking how narrowly focused in time this effect is. It appears quite strongly on the first free-throw and disappears entirely by the second. This might be result of players who felt that things weren't fair and therefore missed their first free throw—and then also felt that the debt had been paid by their miss.² Since teams score on roughly half of their possessions, the expected number of points scored on any possession is approximately 1.0 and so making one out of two free throws is unlikely to be seen as an unfair outcome of even an undeserved trip to the free-throw.

We have no way of knowing whether this marked decline in shooting performance when the shooter's team is ahead is a result of an effort, at whatever conscious or nonconscious level, to restore fairness or whether it stems from thoughts about fairness (and the violation of fairness) serving as a distraction at a critical moment. It is not clear that the two mechanisms can ever be entirely distinguished and, either way, the result we have documented stands as a clear testimonial to the power of people's concern with fairness. After all, benefitting from an obviously incorrect call can only serve as a potent distraction if it taps into a deep-seated concern with fairness in some form or another. If the proximate cause of the distraction is the thought that the person unfairly charged with the foul will be angry,

that is a thought that only stands out and has resonance because of the violation of fairness. If the proximate cause of the distraction is the thought that the referees might compensate for their mistake with a "make-up call" later in the game, that, again, is a thought that only has resonance because of the violation of fairness.

Those familiar with tennis are likely to note a parallel in that sport. Players often experience a twinge of guilt when they unintentionally hit the top of the net with a shot, and the ball drops weakly on the other side, out of the reach of the opposing player. It is common for the player who benefited from such a "net cord" shot to utter an apology. We have found in another analysis that the concern with fairness has an effect here too, with players who benefit from such shots being significantly less likely to win the next point (Haynes & Gilovich, 2010). That is, in a sample of 35 instances of these net cord shots in major tennis tournaments such as Wimbledon, the French Open, and the US Open, the person benefiting from the lucky bounce won the next point only 29% of the time, significantly less than the 50% success rate expected by chance.

In the game of basketball, it is important to note that there are all sorts of potential distractions for the player attempting a free-throw, including comments by opposing players, antics by opposing fans, and thoughts about the shot's impact on the outcome of the game. The fact that the human interest in fairness results in a decrement in performance that stands out amidst all these other sources of distraction shows just how far, and how strongly, the concern with fairness reaches into human conduct.

References

- Adams, J. S. (1965). In L. Berkowitz (Ed.), *Inequity in social exchange. Advances in experimental social psychology*, Vol. 2. (pp. 267–299) New York: Academic Press.
- Bolton, G. E., Katok, E., & Zwick, R. (1998). Dictator game giving: rules of fairness versus acts of kindness. *International Journal of Game Theory*, 27, 269–299.
- Camerer, C. (2003). *Behavioral game theory*. Princeton, NJ: Princeton University Press.
- Epley, N., Mak, D., & Idson, L. (2006). Bonus or Rebate?: the impact of income framing on spending and saving. *Journal of Behavioral Decision Making*, 19, 213–227.
- Fehr, E., & Schmidt, K. M. (1999). A theory of fairness, competition and cooperation. *Quarterly Journal of Economics*, 114, 817–868.
- Haynes, G., & Gilovich, T. (2010). The point after: Inequity aversion and tennis performance after net cord points. *Unpublished manuscript*.
- Rabin, M. (1993). Incorporating fairness into game theory and economics. *American Economic Review*, 83, 1281–1302.
- Thaler, R. H., & Johnson, E. (1990). Gambling with the house money and trying to break even: the effects of prior outcomes in risky choice. *Management Science*, 36, 643–660.

² Players who made their first free-throw were not less likely to make the second (78% hit rate) than those who missed their first (79%). One might predict that they would because these players have yet to "express" their concern with inequity. But note that players who made their first free-throws are likely to be less concerned with inequity in the first place.