From Loss Aversion to Loss Acceptance:

How Casino Contexts Can Undermine Loss Aversion

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Abstract

Although most research participants are loss averse and therefore unwilling to accept gambles that offer a 50% chance to win or lose the same amount, many people accept such gambles in casinos. To partially reconcile these empirical realities, we start with the notion that people are not loss averse for small amounts. Then, we suggest that gambling contexts may make otherwise large-seeming amounts seem small, thereby decreasing loss aversion and increasing people's willingness to gamble. In five studies, we show four ways by which casino contexts may increase gambling, and decrease loss aversion, by making wager amounts seem small.

This research informs an empirical paradox. On the one hand, much research shows that most people are unwilling to accept gambles that offer an equal chance to win or lose the same amount (e.g., a 50% chance to win or lose $20), presumably because they are loss averse: People expect losing $x to be more painful than they expect gaining $x to be pleasurable (Kahneman and Tversky 1979). On the other hand, millions of people gamble in casinos, accepting odds that are even less favorable than those that most research participants find unacceptable. Indeed, in the United States alone, gross casino gaming revenues exceeded $34 billion in 2007, and this industry is growing steadily (American Gaming Association 2008).

How can one reconcile the popularity of casino gambling with loss aversion? There are a number of possibilities. First, there may be self-selection: There are individual differences in loss aversion (Tom, Fox, Trepel, and Poldrack 2007) and people who choose to gamble in casinos may not be loss averse. Second, casinos may encourage even loss averse individuals to gamble by creating a context that signals that gambling is normative (i.e., everybody is gambling so I should too; cf. Cialdini, Reno, and Kallgren 1990). Third, casino contexts may, by increasing the salience of big winners, dramatically increase the subjective probability of a win; the ill-calibrated feeling that one is likely to win may encourage gambling even when the expected pain of a loss is greater than the expected pleasure of a win. Finally, people may gamble at casinos because casino gambling is more fun than the often hypothetical gambling opportunities offered by researchers who study loss aversion (Conlisk 1993).

Although these (and many other) possibilities may all help to explain why people gamble at casinos, in this paper we offer an additional possibility. Whereas all of these explanations presume that loss aversion is stable, we propose that loss aversion is malleable. More specifically, we show that ubiquitous features of real-world gambling contexts may significantly reduce loss aversion, thereby increasing people's willingness to accept gambles they would usually avoid.

How Casino Contexts Can Undermine Loss Aversion

Together, two streams of research suggest how gambling contexts might undermine loss aversion. First, research shows that people are not loss averse for very small amounts of money (Harinck, Van Dijk, Van Beest, and Mersmann 2007). Harinck et al. found that although people's gambling preferences were

consistent with loss aversion for large amounts – they were willing to risk only €23.04 for a 50% chance to win €50.00 – their preferences were inconsistent with loss aversion for small amounts – they were willing to risk €0.12 for a 50% chance to win €0.10. They also found that people expect small gains to be more pleasant than they expect small losses to be unpleasant. The researchers attribute these effects to the fact that people find it easier to cope with (explain away) small than large losses (cf. Kermer, Driver-Linn, Wilson, and Gilbert 2006), and they propose that considerable experience with small losses teaches them to anticipate that small losses will not be that painful. Because people do not actively explain away small gains, people's expectations of the pleasure endured by small gains are unchanged by experience, and small losses "therefore will be outweighed by the positive feelings associated with small anticipated positive outcomes" (Harinck et al. 2007, p. 1100).

Although Harinck et al.'s (2007) investigation focused on demonstrating that people are not loss averse for very small *objective* loss magnitudes, people may expect to cope easily with any loss that *seems* small. Moreover, a second stream of research suggests that the evaluation of loss magnitudes may not correlate perfectly with objective loss magnitudes, in part because attribute evaluations are often heavily dependent on context (Bettman, Luce, and Payne 1998; Hsee 2000; Huber, Payne, and Puto 1982; Simonson 1989; Simonson and Tversky 1992; Slovic, Finucane, Peters, and McGregor 2002). Just as people's evaluation of an ice cream portion may depend heavily on the size of the cup it is in (Hsee 2000), a loss of $25 may seem big or small depending on what other loss magnitudes the decision maker compares it to. The prospect of a $25 loss may seem big when compared to the prospect of losing $5 but small when compared to the prospect of losing $100. If loss aversion decreases as the subjective magnitude of the loss decreases, then loss aversion will decrease, and the willingness to gamble will increase, when gambling contexts make loss magnitudes seem small.

In the studies described below, we manipulated the gambling context so as to make losses seem either big or small, and we assessed participants' willingness to accept a gamble offering an equal chance to win or lose a fixed amount of money. Holding constant the objective potential loss magnitudes, we expected

participants' willingness to gamble to increase when the gambling context made potential loss magnitudes seem small.

<div align="center">Study 1</div>

We believe that casino contexts may decrease loss aversion, and increase gambling, by making potential loss magnitudes seem small. There are many ways in which casinos may accomplish this. One way is by exposing people to potential wager amounts that are larger than an amount that they considering wagering. For example, simply witnessing other gamblers play for high stakes may make typically unacceptable wager amounts seem small.

Methods

To test this hypothesis, we conducted a web survey in which we assessed undergraduate participants' (N = 208; 115 women) willingness to accept two gambles. One offered a 50% chance to win or lose $25 and the other offered a 50% chance to win or lose $5. Both gambles were to be decided by a coin flip, and the gambles were presented on separate pages. We manipulated the order of the gambles. Participants were randomly assigned to consider the $25 gamble before the $5 gamble or the $5 gamble before the $25 gamble. Because $5 should seem smaller after considering $25 and $25 should seem larger after considering $5, we predicted that participants would be more likely to accept both gambles when the $25 gamble was presented first.

Results

As predicted, participants were more likely to play the $5 gamble, $\chi^2(1) = 4.03$, $p < .05$, and the $25 gamble, $\chi^2(1) = 8.32$, $p < .005$, when the $25 gamble was presented first than when the $5 gamble was presented first (see Figure 1). Thus, even though the objective amount of the gambles was fixed, people were more (less) likely to accept a gamble when the context made the prospective loss seem small (large). In addition, participants in both conditions were more likely to accept the $5 gamble than the $25 gamble,

$\chi^2(1) > 9.04$, $p < .005$, which is consistent both with our hypothesis and with the results of Harinck et al. (2007).[1]

<div align="center">Study 2</div>

In Study 1, participants were asked to actively consider whether to accept a gamble that provided the context for another gamble. Study 2 had two objectives. First, we used a more subtle manipulation to demonstrate that merely exposing participants to a context that alters the subjective magnitude of the prospective loss can achieve the same results. Second, we set out to demonstrate that decreasing the subjective magnitude of the loss decreases the expected pain of the loss, and that this expectation mediates the effect of context on willingness to gamble.

Methods

In a web survey, undergraduate participants (N = 158; 88 women) were presented with two gambles on the same page. Participants were instructed to skip the first gamble and to indicate their willingness to play the second gamble. The exact instructions were: "In this survey, it is important that you follow the instructions. To test whether you are following the instructions, we are asking you to SKIP the first question, and answer the remaining questions. So, please do NOT answer the first question." The second gamble was the same for all participants, and it offered a 50% chance to win or lose $10. We manipulated the size of the first gamble, which offered either a 50% chance to win or lose $1 or a 50% chance to win or lose $50. We expected $10 to seem smaller after exposure to the $50 gamble than to the $1 gamble, and we therefore expected participants to be more likely to accept the $10 gamble after exposure to the $50 gamble than to the $1 gamble.

After participants indicated their willingness to play the $10 gamble, we asked them to rate on a 7-point scale (1 = not at all; 7 = extremely) "How painful would it be for you to lose the $10 coin flip?" and "How pleasurable would it be for you to win the $10 coin flip?" The order of these two questions was

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[1] There were main effects of participant gender in Studies 2 and 5 – men were more likely to gamble than were women – but not in the remaining studies. Importantly, participant gender did not interact with the context manipulation in any of the studies, and nor did controlling for gender affect any of the results reported herein. Thus, we do not discuss this variable further.

randomized. We expected the anticipated pain of the $10 loss to be lower after exposure to the $50 gamble than after exposure to the $1 gamble.

Results

Sixty-two percent (98 of 158) of the participants in this study failed to follow the instructions and answered the first gambling question. This percentage was high but, sadly, it is not unusual for participants to ignore instructions of this type (Oppenheimer, Meyvis, and Davidenko 2007; Simmons and Nelson 2006). Fortunately, as detailed below, the results did not differ depending on whether or not participants followed the instructions.

As predicted, participants were more willing to accept the $10 gamble after exposure to the $50 gamble (28.9%) than after exposure to the $1 gamble (9.8%), $\chi^2(1) = 9.44$, $p < .005$. Importantly, this effect did not depend on whether participants followed the instructions to skip the first question (interaction $p = .496$ in logistic regression), and the difference between conditions was significant even among those who did skip the first question (27.6% vs. 6.5%), $\chi^2(1) = 4.82$, $p < .05$. Thus, mere exposure to the $50 gamble made participants more willing to accept the $10 gamble than did exposure to the $1 gamble.

Also consistent with our predictions, participants exposed to the $1 gamble ($M = 5.00$, $SD = 1.67$) expected the pain of the $10 loss to be greater than did participants exposed to the $50 gamble ($M = 4.03$, $SD = 1.68$), $t(156) = 3.65$, $p < .001$. Again, this effect was significant even among those who skipped the first question, $t(58) = 3.27$, $p < .005$. There was a trend for participants to expect greater pleasure from a $10 win after exposure to the $1 gamble ($M = 5.22$, $SD = 1.09$) than after exposure to the $50 gamble ($M = 4.84$, $SD = 1.52$), but this difference was not quite significant, $t(156) = 1.80$, $p = .074$, and it was not close to significant among those who skipped the first question, $t(58) = .47$, $p = .640$.[2] Finally, in support for our contention that context affects the willingness to gamble by altering the prospective pain of a loss,

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[2] In both conditions, people did not rate the expected pain of a loss to be more severe than the expected pleasure of a win. This may seem inconsistent with loss aversion, which predicts that the pain of losing $x will be greater than the pleasure of gaining $x. However, it is inappropriate to compare rating scales of pain to rating scales of pleasure to infer loss aversion (or the lack thereof), because people may treat these scale labels very differently. For example, people may consider "extreme pain" to be more severe or rarer than "extreme pleasure," and they may consequently endorse higher values on the "pleasure" scale than on the "pain" scale (see McGraw, Larsen, Kahneman, and Schkade 2008).

a Sobel test confirmed that the effect of context on the willingness to gamble was mediated by the expected pain of the loss, $z = 2.49$, $p = .01$.

The results of Study 2 supported and extended the results of Study 1. When exposed to a gamble of greater magnitude, people expected the pain of a loss to be less severe, and they were more willing to gamble. Thus, it seems that one way in which casino contexts may increase gambling is by merely presenting participants with relatively large wager possibilities.

Study 3

Most demonstrations of loss aversion, including most of the studies reported in this paper, require people to indicate whether or not they would accept a gamble for a fixed wager amount (e.g., Do you want to play a gamble that offers a 50% chance to win or lose $10?), but casino gambling allows people to generate their own wager amount. People who are considering how much they would be willing to wager are likely to consider only those wager values that are at least as large as the wager minimum, because values smaller than the minimum are not possible wager amounts. As a result, asking people to generate a wager amount may make the minimum amount seem small and people might be more likely to wager *something*. In Study 3, we examined whether people are more likely to accept a $5 gamble when they are asked to generate a wager amount than when the wager amount is fixed.

Methods

In a web survey, we randomly assigned 62 undergraduate participants (34 women) to one of two conditions. In the Choice condition, participants were asked to, "Imagine that you are faced with the prospect of betting $5 on the flip of a coin. If you win, you win $5 and if you lose, you lose $5. Would you like to participate in this coin flip?" They answered the question by clicking either "yes" or "no." In the Wager condition, participants were instead asked to:

Imagine that you are faced with the prospect of betting on the flip of a coin. If you win, you win as much as you bet (e.g., if you bet $5, you win $5). If you lose, you lose as much as you bet (e.g., if you bet $5, you lose $5). Suppose you can bet as much as you like. How much would you like to bet on the coin flip? If you do not want to play, please enter $0 in the space below.

They answered the question by indicating a dollar value. Because we expected generating a wager amount to lead participants to naturally think about values higher than $5, we expected those who were asked to generate a wager to be more likely to play a $5 gamble than those who were not.

Results

We compared the percentage of people in the Choice condition who were willing to play the $5 gamble to the percentage of people in the Wager condition who were willing to play the gamble for $5 *or more*. This assumes that participants in the Wager condition who indicated a desire to play for more than $5 would also be willing to play for exactly $5. In a separate study with the same participant population (N = 58; 30 women), we tested this assumption by asking people to generate a wager for a gamble offering a 50% chance to win or lose $x before deciding whether to play a gamble offering a 50% chance to win or lose $5. Twenty-three of the 24 participants (95.8%) who indicated a wager amount of at least $5 chose to play the $5 gamble. Thus, it seems safe to assume that those who indicated a wager amount of at least $5 would be willing to play a $5 gamble.

As predicted, participants in the Wager condition were more likely to play the $5 gamble (51.7%) than were those in the Choice condition (18.2%), $\chi^2(1) = 7.75$, $p = .005$.

Study 4

Thus far, we have shown two ways in which casinos might decrease the subjective magnitude of potential losses and thereby decrease loss aversion and increase gambling. People will be more likely to gamble at casinos because casinos (1) frequently expose them to large wager amounts and (2) require them to actively generate wager amounts. In Study 4, we explore a third way. Almost all casino table games (e.g., roulette, blackjack) post a sign that states a minimum wager amount. Even when people are not actively generating wager amounts, simply designating a wager amount as the minimum may cause them to think of amounts that are larger than the minimum. As a result, $X may seem smaller when it is the minimum than when it is not, and people may be more likely to gamble for that amount.

Method

As part of a larger questionnaire session, undergraduate participants (N = 175; gender information was not collected) were randomly assigned to one of two conditions. In the Control condition, participants indicated whether they would be willing to play a coin flip that offered them an even chance to win or lose $5. In the Minimum Amount condition, participants indicated whether they would be willing to play a coin flip that offered them an even chance to win or lose whatever they wagered, and they were told that the minimum wager was $5. Participants in both conditions circled "yes" or "no" to indicate whether they were willing to play the coin flip.

Because designating a wager amount as the minimum may make it seem small, we predicted that participants in the Minimum Amount condition would be more likely to play the coin flip.

Results

As predicted, participants in the Minimum Amount condition were significantly more likely to play the coin flip (35.2%) than were participants in the Control condition (21.4%), $\chi^2(1) = 4.04$, $p < .05$. This suggests that casinos may increase gambling not only by requiring people to specify a wager amount, but also by making salient that a particular amount is the minimum.

Study 5

While declaring a minimum value may encourage people to gamble for the minimum, casino table games also post a sign that states the maximum value. Attending to the typically high maximum value may make typically moderate amounts seem small, and therefore decrease the expected pain associated with losing those amounts, and increase the willingness to gamble for those amounts. We tested this hypothesis in Study 5.

Method

As part of a larger questionnaire session, undergraduate participants (N = 79; 41 women) were asked to, "Imagine that you can bet an amount between $1 and $25 [$100] on the flip of a coin. If you win, you win the amount you bet. If you lose, you lose the amount you bet. Would you be willing to bet $20 on the coin flip?" Participants were randomly assigned either to a condition in which $25 was the maximum value or to a condition in which $100 was the maximum value. We expected $20 to seem smaller when

the maximum bet was $100 than when it was $25, and we therefore expected participants to be more

likely to accept the $20 gamble when the maximum bet was $100 than when it was $25.

As in Study 2, after participants indicated their willingness to play the gamble, we asked them to rate

on a 7-point scale (1 = not at all; 7 = extremely) "How painful would it be for you to lose the $20 coin

flip?" and "How pleasurable would it be for you to win the $20 coin flip?" The "pain of the loss" question

was always asked first. We expected the anticipated pain of the $20 loss to be lower when the maximum

bet was $100 than when it was $25.

Results

As predicted, participants were nearly four times more willing to accept the $20 gamble when the

maximum bet was $100 (38.5%) than when it was $25 (10.0%), $\chi^2(1) = 8.76$, $p < .005$. Also consistent

with our predictions, participants who were told that the maximum bet was $25 ($M = 5.90$, $SD = 1.22$)

expected the pain of the $20 loss to be greater than did participants who were told that the maximum bet

was $100 ($M = 4.97$, $SD = 1.39$), $t(77) = 3.16$, $p < .005$. Participants expected a $20 win to give them the

same pleasure regardless of whether the maximum bet was $25 ($M = 5.90$, $SD = 1.33$) or $100 ($M = 6.13$,

$SD = 1.05$), $t(77) = 0.84$, $p = .40$. Finally, a Sobel test confirmed that the effect of the maximum bet

manipulation on the willingness to gamble was partially mediated by the expected pain of the loss, $z =$

1.93, $p = .053$. This suggests that exposure to the large maximum bet reduced the expected pain of the

loss, and that reduction increased participants' willingness to accept the $20 gamble.

General Discussion

Five studies demonstrated four ways in which casino contexts may undermine loss aversion, and

increase gambling, by making potential loss magnitudes seem small. These include (1) exposing people to

large gambles, (2) asking people to generate wager amounts, (3) designating some amount as the

minimum, and (4) designating a large amount as the maximum wager amount. Each of the five studies

showed that any one of these manipulations can increase people's willingness to gamble for relatively

small amounts. On this basis we would expect casinos, which almost constantly employ *all* of these

manipulations, to encourage many typically loss averse people to gamble at least some amount of money.
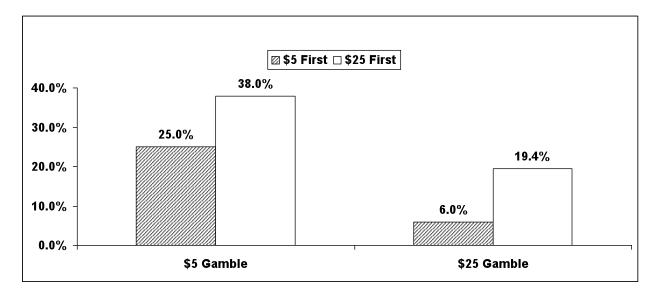
Moreover, because people are more likely to gamble following wins (Thaler and Johnson 1991) *and* losses (Andrade and Iyer, forthcoming), a successful enticement to gamble for a subjectively small amount may cause people to gamble much more subsequently.

Beyond (partially) explaining why loss averse gamblers might gamble at casinos, this research may potentially explain other effects. Contrary to considerable data showing that people are risk-seeking when choosing between two potential losses, Kahneman and Tversky (1979) discovered that most people are willing to accept a sure loss of $5 in order to avoid accepting a .001 chance at a loss of $5,000. To explain these results, Kahneman and Tversky proposed that people overweight small probabilities, making people more willing to take the small loss. Our research suggests an additional explanation for the effect: In the context of a potential $5,000 gain or loss, a loss of $5 may seem very small, and people may consequently expect the $5 loss to be relatively painless.

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Study 1: Percent Accepting the $5 and $25 Gambles