

## [Why do people overbid in auctions?](#)

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The art of auctioning is an ancient one. The concept of competitively bidding for goods has lasted from Roman times, when spoils of war were divvied up around a planted spear, to the 21st century, when the spoils of the loft are sold through eBay. But despite society's familiarity with the concept, people who take part in auctions still behave in a strange way - they tend to overbid, offering more money than what they actually think an object is worth.

Some economists have suggested that people overbid because they are averse to risk. They would rather make spend more money to be sure of a win than to risk making a steal by gambling with a low bid. Others have suggested that it's the element of competition that drives people to overbid - the joy of winning is what they're after. Now, [Mauricio Delgado](#) and colleagues from Rutgers University have provided new evidence to show that neither theory is right.

With a combination of brain-scanning and psychological games, they have found that economists who suggested a social competition angle were moving along the right lines. But it's not the joy of winning that's important - it's the fear of losing. People cough up too much because of simple social competition.

Delgado's team (which included [Elizabeth Phelps](#), whose work I have blogged [about before](#)) used a brain-scanning technique called functional resonance magnetic imaging (fMRI) to study the brains of 17 volunteers as they played two games - a two-player auction or a single-player lottery.

The auction was a "first-price sealed-bid" game, where players had one chance to put forward a bid for an object of a given value. They would be rewarded accordingly if they successfully outbid a flesh-and-blood rival whom they had previously met. In the lottery, there was no such competition. The volunteers were told both the value of the item and how much they would put forward - all they had to do was to say yes or no. If their suggested bid was higher than a randomly generated figure, they won.

In such games, players tend to overbid and Delgado's recruits were no exception. In about two-thirds of the trials, they offered more money that economic theory would recommend. That's nothing new, but the real interest arose when Delgado compared the scans of the volunteers' brains during rounds where they lost with rounds where they won.

One and only one part of the brain - the [striatum](#) - reacted very differently under these circumstances. When players won (regardless of which game they were playing) brain activity in their striatum increased. Losing, on the other hand, evoked different reactions depending on the game - the striatum didn't react when a player lost the lottery game, but activity in this area fell when they were defeated in the auction. In fact, the volunteers with

the greatest penchant for overbidding showed the deepest falls in striatal activity when they lost.

This is not the first time that the activity of the striatum has been linked to winning and losing during psychological games, and other studies have revealed that the area plays a role in decision-making and feelings of reward. But in this case, Delgado points out that the players never actually lost any money (or points for that matter) - they only ever lost the auctions themselves. To him, that it's the fear of losing that motivates overbidding rather than the joy of winning; after all, wins triggered similar responses in the striatum in both auctions and lotteries.

Many studies would have stopped there, but Delgado's team were all too aware of the [limitations](#) of fMRI scans. In a move that should be encouraged, they didn't draw firm conclusions from their scans but used them as a jumping point for designing more experiments. They played another auction game with another group of volunteers but this time, they wanted to see if they could actually make people overbid even more by bringing the possibility of loss to the forefront of their thoughts.

To do that, they split their recruits into three groups, each of whom played 30 rounds of the auction game. The first "control" group followed the same rules in the earlier experiment. The second "loss-framed" group was given \$15 at the start of each round and told that it would be forfeited if they lost. And the third "win-framed" group was told that if they won, they would receive an extra \$15. In both of these last scenarios, only the winners get the extra cash so their situations are actually the same. But giving the money before the game emphasises the risk of losing it, while using it as a reward after-the-fact puts the onus on winning it.

Delgado found that people overbid in all three groups, but those in the win-framed group offered more than the controls, and those in the loss-framed group bid even higher still. All in all, the hypothetical auctioneers made the most money out of the loss-framed individuals. The results suggest that the "joy of winning" explanation is wrong. And while they do not directly contradict the idea that risk aversion leads to overbidding, they do show that it cannot be the only answer; after all, the win-framed and loss-framed experiments entailed exactly the same risks, but they made volunteers bid differently.

It seems that Delgado's hypothesis was correct - by making people feel as if they stood to lose something, they had found a way of manipulating them into overbidding further than they normally would.

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