

Evolution explains when and why we gamble

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The model calculates how taking risks affects evolutionary success - but it won't tell you how to win at roulette

Sales of lottery tickets and insurance policies reveal our ambivalent attitude towards risk—in some situations we love to gamble, whereas in others we prefer to avoid it. New research by scientists at the University of Bristol has found an evolutionary explanation for this puzzling pattern of behaviour.

Dave Mallpress, a PhD student in Bristol's School of Biological Sciences, who led the study, said: "The fact that our risk preferences are inconsistent seems irrational but, in fact, this may have been a sensible way to behave in the changing, [unpredictable environments](#) our ancestors lived in."

The study, published in the journal *Psychological Review*, used a computer model to calculate how taking risks would affect the [evolutionary success](#) of an animal living in a world where conditions fluctuate over time. It turned out that in some situations the best thing to do was to take a gamble, whereas in others it was better to play it safe.

The researchers argue that humans may treat risk in a similar way when making financial decisions.

"When our wealth is increasing quickly we can protect our interests best by not taking risks, whereas when we are in serious financial difficulty, taking risks is essential if we ever want a chance to break free from spiralling debt," explained Mr Mallpress. "However, when earnings or debts are more modest, taking risks can give us the opportunity for wealth, and avoiding [risks](#) with insurance can keep us from serious problems."

This strategy, known as the fourfold pattern of risk preferences, is a characteristic feature of human decision-making and has widely been viewed as demonstrating the irrationality of behaviour. The new model provides a possible explanation and the effects stem from knowing that current conditions (net income) often predict conditions in the near future.

Unfortunately the model won't tell you how to win at roulette, because in that type of game the past or present tells you nothing about the future—every spin is independent of the last.

More information: "Risk attitudes in a changing environment: An evolutionary model of the fourfold pattern of risk preferences."

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Provided by University of Bristol

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