

# YALE Bulletin

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## Study: Monkeys ape humans' economic traits

**Scientists have learned that capuchin monkeys who are given "money" to trade for rewards make the same, sometimes faulty, economic decisions as humans do.**

The basic economic theory that people work harder to avoid losing money than they do to make money is shared by monkeys, suggesting this trait has a long evolutionary history, according to a Yale study under review by the *Journal of Political Economy*.

This phenomenon, known as "loss aversion," refers to the tendency for people to strongly prefer avoiding losses to acquiring gains. "A large body of studies suggest that losses are more than twice as psychologically powerful as gains," says author M. Keith Chen, assistant professor at the School of Management. He conducted studies with Venkat Lakshminaryanan, a research assistant in the Department of Psychology, and Laurie Santos, assistant psychology professor and director of the Capuchin Cognition Laboratory at Yale.

In the study, tufted capuchin monkeys were given small disks to trade for rewards -- apples, grapes or gelatin cubes. The researchers say capuchins are well-suited subjects for study since they are relatively large-brained primates, skilled problem-solvers, and a close evolutionary cousin to humans.

In one experiment, the monkeys were given a budget of disks and had to decide how much to spend on apples, and how much to spend on the gelatin cubes, even as the prices of these goods and the size of their budgets fluctuated. In this study, capuchins performed much like humans do -- reacting rationally to these fluctuations.

In a second experiment, capuchins had to choose between spending a token on one visible piece of food, which half of the time gave them a return of two pieces of food, or spending the token on two visible pieces of food, which half of the time gave them a return of only one piece of food. Economic theory predicts that consumers should not care which of these outcomes occurs since they are essentially both 50-50 shots at receiving two pieces of food. The capuchins, however, vastly preferred the first gamble, which is essentially a half chance at a bonus, rather than the second gamble, which is essentially a half chance at a loss.

"The goal of this work," says Santos, "is to learn whether other animals share some of our basic economic decision processes or whether human economic behavior is unique to our own species."

"The economic view," Chen adds, "says people are aware, rational and in control of their major decisions. Social psychology cuts in the opposite direction, maintaining that people are often unaware of the forces that dictate their behavior. We wanted to understand the interactions of these two things. What we've shown is that capuchin monkeys look remarkably like us; making rational decisions in many of the same settings that humans get right, but also making many of the same mistakes we make."

Their work provides an evolutionary spin on the current debate about why Americans do not save enough for retirement or put enough of their savings into the stock market, say the researchers.

"Although the stock market offers a better rate of return than investing in safer financial products, such as bonds, people tend to experience stock market fluctuations through the biased lens of loss aversion, a lens that appears to be shared with other primates," Santos says.

Chen adds, "We are fighting tendencies that may be biologically hard-wired."

*-- By Jacqueline Weaver*

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