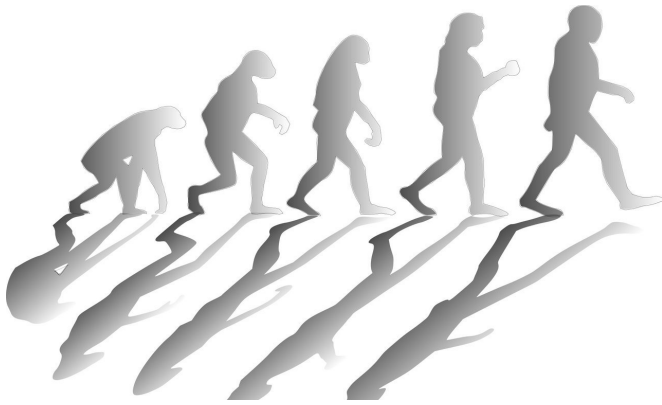


# New research on 'endowment effect' points to evolutionary roots of cognitive biases

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New research may explain why we sometimes overvalue items we've acquired—to an irrational degree—irrespective of their market or sentimental value. This phenomenon is called the endowment effect, and researchers have long puzzled over why it occurs, and why the size of the effect can vary so much across items when it does. It's important to understand, however, because the endowment effect can lead us to make unpredictable economic decisions, and it has far-reaching implications throughout law, markets and business.

New Vanderbilt research suggests that evolution may play an important role, however—namely, that the items we overvalue most tend to have features that aided our ability to survive and thrive in environments our ancestors encountered long ago (for example, something that might help us attract a mate, which today might be a luxury car). In the new study, an [evolutionary approach](#) predicted more than 50 percent of the variation in the size of the [endowment effect](#) in humans. This is the first study to successfully predict variations in the size of the effect across a large and novel set of items.

Collaborating on the work are Owen Jones, the Glenn M. Weaver, M.D. and Mary Ellen Weaver Chair in Law, Brain, and Behavior, professor of biological sciences, and director of the MacArthur Foundation Research Network on Law and Neuroscience, Christopher Jaeger, acting assistant professor of lawyering at New York University and a recent Vanderbilt J.D./Ph.D. graduate, Sarah Brosnan, Distinguished University Professor of Psychology, Philosophy and Neuroscience at Georgia State University, Daniel Levin, professor of psychology and [human development](#) at Vanderbilt University. The research, "Predicting variation in endowment effect magnitudes," appears in *Evolution and Human Behavior*.

## A psychological relic of the distant past

"When you look at human history, modern concepts like money, contracts and even legal systems for enforcing bargains have only existed for a fraction of our existence as social primates," said Jones. "Across evolutionary timescales, exchanging items was very risky because you had no assurances that potential trades would work, and no recourse if they didn't. That's no longer the case, of course, but our brains haven't had time to catch up. There's a mismatch between what they evolved to do and our environment today."

That mismatch, Jones said, may explain why we sometimes overvalue what we already have relative to what we might trade it for, even if we could trade it for something a little better. In prior research with our evolutionary cousins, chimpanzees and orangutans, Jones and Brosnan have shown that the endowment effect is especially pronounced when food, or tools to access food, are involved.

"The fact that several different ape species showed the same pattern of responses strongly suggested that human endowment effects should also vary in predictable ways across contexts, but no one had tested that question," said Brosnan. "Our research

takes that next step, exploring whether humans also show a greater tendency to overvalue things that are related to survival and reproduction."

### The experiment

The researchers developed a list of 24 items, both real and imaginary, covering a wide range of desirability and usefulness. For each item, the researchers created an "evolutionary salience score" that reflected the degree to which the item would directly help its owner survive and thrive. They did this by asking a panel of study participants to rate each object across a variety of metrics, including health benefit, attractiveness benefit, social status benefit, ability to meet basic human needs, value and tangibility.

The highest-rated items included a pill that allowed a person to maintain a perfect weight and a luxury car. The lowest-rated items included an annual membership in a video streaming service and a mummy costume.

Once the first panel had assigned the evolutionary salience scores, the researchers turned to a different panel to run a standard test for the presence and size of endowment effects.

Half the participants were asked to name the maximum price they would be willing to pay for each item, while the other half were asked to name the minimum price they would be willing to sell the item for. Although standard economic theory predicts that the average "buy" and "sell" prices should be the same, sharp differences emerged.

### The results

The average "buy" price was about \$54, and the average "sell" price was about \$124—a clear overall indication of the endowment effect in action. But at the individual level, the endowment effect was much larger for some items than others. Those with the largest endowment effect ratios related to health and status (such as the weight maintenance pill and the luxury car). By contrast, the items with the smallest effect sizes had little to no effect on surviving and thriving (such as the streaming service or mummy costume.)

In this experiment, an item's combined evolutionary salience score predicted 52 percent of the variance between the maximum "buy" price and the minimum "sell" price across items. Compellingly, the seven items with the largest endowment effects were in the top nine in evolutionary salience scores, too.

"Reviewing the endowment effect literature, you notice pretty quickly that the size of the effect varies from one item to another," explained Jaeger. "But there hasn't really been a systematic effort to explain why. Our findings suggest that this variance is not random. Rather, it may reflect the evolutionary origins of the effect."

"We would have been thrilled if evolutionary salience had predicted even just 20 percent of the variation in endowment effect sizes," added Jones. "The fact that it predicted more than half is quite promising. And it suggests there's real value in using evolutionary perspectives to help explore the origins and patterns of [endowment](#) effects specifically, as well as of various other cognitive biases more generally."

**More information:** Christopher Brett Jaeger et al. Predicting variation in endowment effect magnitudes, *Evolution and Human Behavior* (2020). [DOI: 10.1016/j.evolhumbehav.2020.04.002](https://doi.org/10.1016/j.evolhumbehav.2020.04.002)

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