

Why do people 'play the longshot' and buy insurance? It's in our genes

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Why do some people like to take risks by playing "longshot" payoffs while, on the other hand, taking the opposite tack by buying insurance to reduce risks? A team of economists and molecular geneticists from the Hebrew University of Jerusalem and two Asian universities say the answer can be found in our genetic makeup.

The team set out to tackle the long-standing question in economic theory as to why people tend to be risk-preferring when facing longshot risks involving significant gains, such as betting on race horses, and on the other hand are risk averse when facing significant losses -- buying home or car [insurance](#), for instance.

Many economists have struggled with this paradox, says Richard Ebstein, the Sylvia Scheinfeld Professor of Human Genetics at the Hebrew University of Jerusalem, who has probed this subject along with economists Prof. Soo Hong Chew of the National University of Singapore (NUS) and Dr. Songfa Zhong of NUS and the Hong Kong University of Science and Technology.

Ebstein notes the psychological explanation suggested by former Hebrew University psychology Professors Daniel Kahneman (a Nobel Prize laureate) and Amos Tversky, as embodied in their widely accepted prospect theory, to explain why people play the lottery and at the same time purchase insurance. Although prospect theory offers a psychological explanation for this facet of economic behavior, the underlying neurobiological and neurogenetic mechanisms have remained

obscure until now, said Ebstein.

In an article just published online on [PLoS ONE](#), Ebstein and his colleagues combined the tools of experimental economics and [molecular genetics](#) to examine the role of a well-characterized gene, [monoamine oxidase A \(MAOA\)](#), in predicting whether subjects are more likely to buy the lottery or insurance (or both) under well-controlled laboratory conditions.

In the experiment, 350 Han Chinese subjects were recruited in Beijing and participated in two simple choice tasks, representing proclivities to purchase lottery tickets and insurance, using real monetary incentives.

For example, the subjects were given options to keep a very small cash return upfront, with no risk, or of gambling bigger amounts that they were given upfront but with a minimal chance of actually winning and keeping the money in a lottery drawing. In the second task, concerning insurance, subjects were asked whether or not they would insure a certain but insignificant loss or would take out insurance on a larger amount with a real but low risk of actual loss.

They found that subjects with a high-activity variation of the MAOA gene are characterized by a preference for the longshot lottery and also less insurance purchasing than subjects with the low-activity genetic version. This is the first result to link attitude towards longshot risks to a specific gene. It complements other, recent findings on the neurobiological basis of economic risk taking.

As the world financial system slowly emerges from the near economic meltdown, it is worth considering, says Ebstein, that inborn biases, coded by common genetic variants, may be a major factor in fueling people's actions regarding longshot options --- with concomitant effects on financial markets.

Provided by Hebrew University of Jerusalem

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