Irrationality in Health Care

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KEY POINTS . . .

It is difficult to explain peoples' behaviors or make predictions about their behavior.

How probabilities are framed can make big differences in how people make decisions.

If people can't predict their future preferences, what does that say about our ability to measure their preferences?

This is the second of two articles in this issue on the topic of human behavior in making medical decisions. In his article, Dr. Hough discusses the work of Daniel Kahneman, a behavioral psychologist, and how Kahneman's observations and concepts may be used in behavioral economics to help explain rationality and irrationality in health care decision making.

In 2002, Daniel Kahneman and Vernon Smith shared the Nobel Memorial Prize in Economic Sciences. It's important to point out that Kahneman, emeritus professor of psychology and public affairs at Princeton's Woodrow Wilson School, is not a behavioral economist–his areas of expertise are behavioral psychology. He received the Nobel Prize for integrating insights from psychological research into economic science, especially those concerning human judgment and decision-making under uncertainty; and his work offers insights from cognitive psychology regarding behavior under uncertainty.

Kahneman's focus stands in contrast to neoclassical (or "mainstream") economics as exemplified by the work of Milton Friedman of the University of Chicago, the patron saint of mainstream economics, who received the 1976 Nobel Memorial Prize in Economic Sciences.

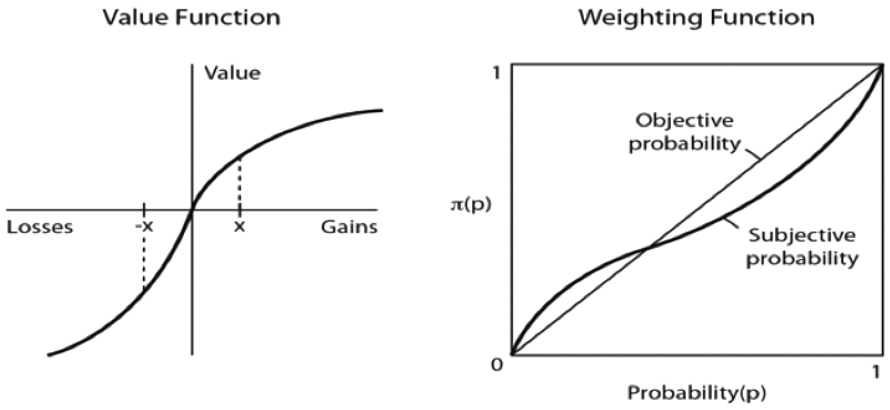
Mainstream economics posits that all participants are rational; they know their preferences; and they have full information. It also holds that their preferences are path-independent (it doesn't make any difference how you make the decision; the decision ends up in the right place) and that deviations from rational choices are random. By contrast, Kahneman suggests that participants are not always rational, that they establish their preferences through experience, and that asymmetric information abounds. Kahneman also submits that participants' preferences are path-dependent.
The good part is that deviations from rational choice can be systematic, which means they can be predicted.

A caveat to this is that we are dealing with people. Given that reality, one can reflect on what the famous physicist Murry Gell-Mann once said: "Think how hard physics would be if particles could think."

> "deviations from rational choice can be systematic, which means they can be predicted"

Our particles *can* think. That's why it's so hard to explain people's behavior or make predictions, yet predict their behavior we must. To help us predict, we make use of several robust concepts from behavioral

Figure 1: The Simple Analytics of Behavioral Economics



economics: loss aversion; framing; the power of the default/ opt-in vs. opt-out; and hyperbolic discounting.

Loss Aversion: People Really Hate to Lose

First, people like to win — but they also really hate to lose. In fact, they hate to lose about twice as much as they like to win. Once more, people do not take probabilities as given. People will overweight small probabilities and underweight large probabilities, and that's a major problem for expected utility theory from neoclassical economics. (Figure 1)

Framing Matters

How probabilities are framed can make big differences in how people make decisions about their health care. For example, in a study published in the N*ew England Journal of Medicine* in 1982, 238 middle-aged men with chronic illness, 424 radiologists and 491 Stanford MBA students were told to imagine that they were just diagnosed with lung cancer. They were given statistics about survival and mortality in two different presentations, and then asked to choose between surgery or radiation therapy.
One group received a presentation using a "survival frame" to decide whether they would prefer surgery to radiation, while a second group received a presentation with identical probabilities, but using a "mortality" frame. Eighteen percent of those receiving the survival frame elected to have radiation therapy, while 44 percent of those receiving the mortality presentation chose radiation therapy. So, how the statistics were framed significantly influenced decision making.

Defaults Have Power

The power of defaults has been demonstrated in several studies. One such study, conducted in Europe, had to do with decision making on being an organ donor. In those countries where residents were considered to be organ donors unless they opted out, participation was nearly 100 percent; whereas less than 25 percent of residents in those countries that required them to actively register (opt-in) to be organ donors did so. Neo-classical economics would say this result reflects transactions costs — to opt out, you would take day off work, stand in line, and pay an administrative fee. However, transactions costs were actually very low. The findings of this study suggest that if you want to increase the number of organ donors, convert from an "opt-in" to an "opt-out" policy.

People Prefer the Present

Then there is hyperbolic discounting. Many people prefer the present over the future. Many people really prefer the present over the future, and that's ok. But what if once you get to that future, you regret the decisions you made in that present? Which is what happens with hyperbolic discounting.

If people can't predict their future preferences, what does that say about our ability to measure their preferences? Kahneman puts it this way: "If people do not know what is going to make them better off or give them pleasure, then the idea that you can trust people to do what will give them pleasure becomes questionable." ■

Additional information:
The preceding article is based on an address given at the ISPOR 21st International Meeting, 2016, Washington, DC, Second Plenary Session.

To view this presentation, go to: http://www.ispor.org/Event/GetReleasedPresentation/653

Suggested Reading

Gilovich, T., Griffin, D., & Kahneman, D. (Eds.). (2002). Heuristics and biases: The psychology of intuitive judgment. New York: Cambridge University Press.

Kahneman, D., & Tversky, A. (Eds.). (2000). Choices, values and frames. New York: Cambridge University Press and the Russell Sage Foundation.

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