



BEHAVIORAL ECONOMICS

The standard economic model of human behavior includes three unrealistic traits—unbounded rationality, unbounded willpower, and unbounded selfishness—all of which behavioral economics modifies.

Behavioral economics has also been applied to intertemporal choice. Intertemporal choice behavior is largely inconsistent, as exemplified by George Ainslie's hyperbolic discounting (1975) which is one of the prominently studied observations, further developed by David Laibson, Ted O'Donoghue, and Matthew Rabin. Hyperbolic discounting describes the tendency to discount outcomes in near future more than for outcomes in the far future. This pattern of discounting is dynamically inconsistent (or time-inconsistent), and therefore inconsistent with basic models of rational choice, since the rate of discount between time t and $t+1$ will be low at time $t-1$, when t is the near future, but high at time t when t is the present and time $t+1$ the near future.

Behavioral economics and finance theories developed almost exclusively from experimental observations and survey responses, although in more recent times real world data have taken a more prominent position. Functional magnetic resonance imaging (fMRI) allows determination of which brain areas are active during economic decision making. Experiments simulating markets such as stock trading and auctions can isolate the effect of a particular bias upon behavior. Such experiments can help narrow the range of plausible explanations. Good experiments are incentive-compatible, normally involving binding transactions and real money.

Three themes predominate in behavioral finance and economics:

- **Heuristics:** People often make decisions based on approximate rules of thumb, not strict logic. See also cognitive biases and bounded rationality.
- **Framing:** The collection of anecdotes and stereotypes that make up the mental emotional filters individuals rely on to understand and respond to events.
- **Market inefficiencies:** These include mis-pricings, non-rational decision making, and return anomalies. Richard Thaler, in particular, has described specific market anomalies from a behavioral perspective.

Models in behavioral economics typically address a particular market anomaly and modify standard neo-classical models by describing decision makers as using heuristics and subject to framing effects. In general, economics continues to sit within the neoclassical framework, though the standard assumption of rational behavior is often challenged.

Heuristics

- Prospect theory
- Loss aversion
- Disappointment
- Status quo bias
- Gambler's fallacy
- Self-serving bias
- Money illusion

Framing

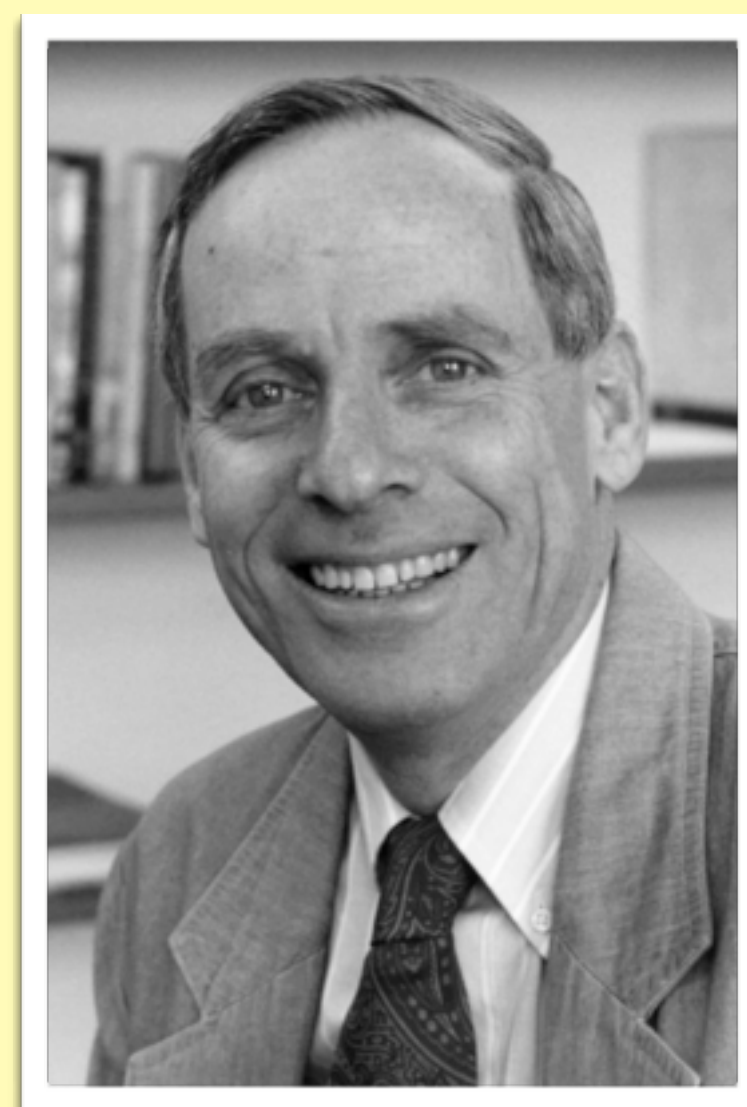
- Cognitive framing
- Mental accounting

Anomalies (economic behavior)

- Disposition effect
- Endowment effect
- Inequity aversion
- Reciprocity
- Intertemporal consumption
- Present-biased preferences
- Momentum investing
- Greed and fear
- Herd behavior
- Sunk-cost fallacy

Anomalies (market prices and returns)

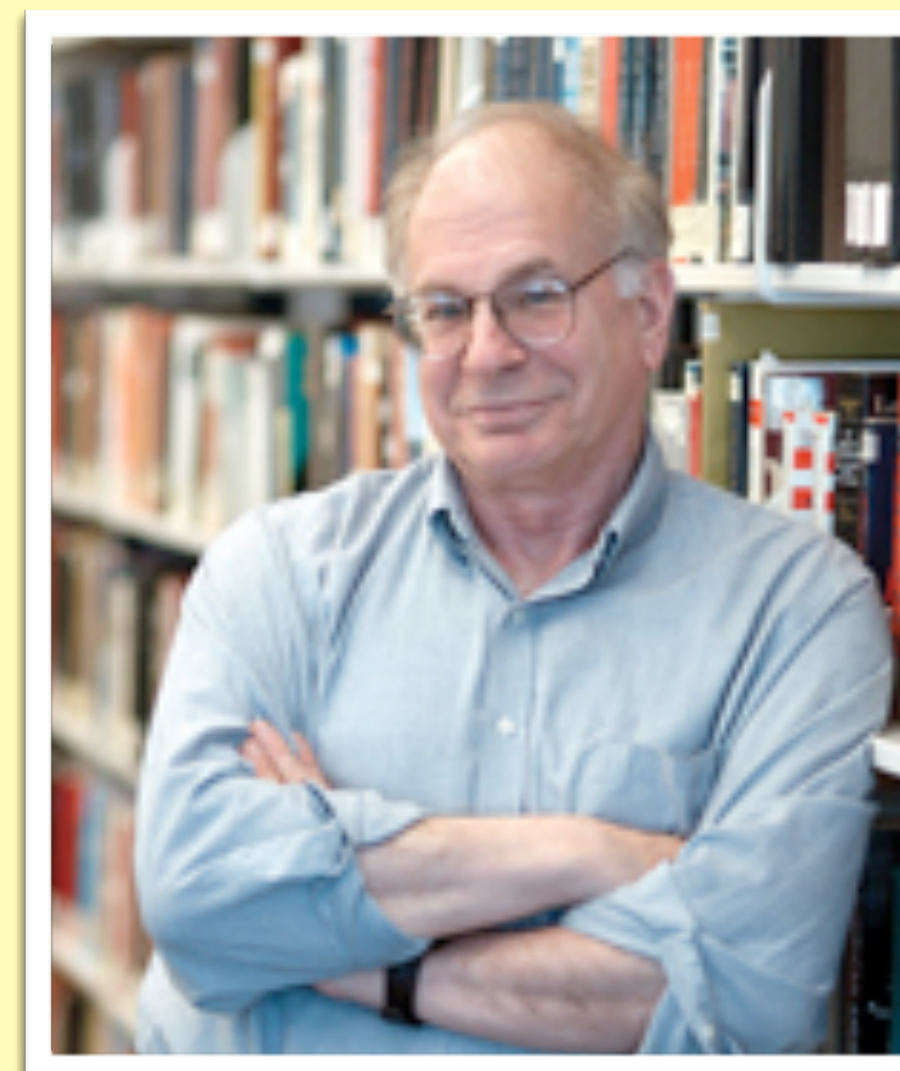
- Equity premium puzzle
- Efficiency wage hypothesis
- Price stickiness
- Limits to arbitrage
- Dividend puzzle
- Fat tails
- Calendar effect



Amos Tversky (1937-1996)

was a cognitive and mathematical psychologist, a pioneer of cognitive science, a longtime collaborator of Daniel Kahneman, and a key figure in the discovery of systematic human cognitive bias and handling of risk. Much of his early work concerned the foundations of measurement. He was co-author of a three-volume treatise, *Foundations of Measurement* (recently reprinted). His early work with Kahneman focused on the

psychology of prediction and probability judgment. Amos Tversky and Daniel Kahneman worked together to develop prospect theory, which aims to explain irrational human economic choices and is considered one of the seminal works of behavioral economics. Six years after Tversky's death, Kahneman received the 2002 Nobel Prize in Economics for the work he did in collaboration with Amos Tversky



Daniel Kahneman (1934-)

is an Israeli-American psychologist and Nobel laureate. He is notable for his work on the psychology of judgment and decision-making, behavioral economics and hedonic psychology. With Amos Tversky and others, Kahneman established a cognitive basis for common human errors using heuristics and biases (Kahneman & Tversky, 1973; Kahneman, Slovic & Tversky, 1982; Tversky & Kahneman, 1974), and developed prospect theory (Kahneman & Tversky, 1979). He was awarded the 2002 Nobel Memorial Prize in Economics

for his work in prospect theory.

Kahneman and Tversky both became heavily involved in the development of this new approach to economic theory, and their involvement in this movement had the effect of reducing the intensity and exclusivity of their earlier period of joint collaboration. Although they would continue to publish together until the end of Tversky's life, their years of near-exclusive collaboration were coming to an end.



Richard Thaler (1945-)

is an American economist and the Ralph and Dorothy Keller Distinguished Service Professor of Behavioral Science and Economics at the University of Chicago Booth School of Business. He is perhaps best known as a theorist in behavioral finance, and for his collaboration with Daniel Kahneman and others in further defining that field. Thaler has written a number of books intended for a lay reader on the subject

of behavioral finance, including *Quasi-rational Economics* and *The Winner's Curse*, the latter of which contains many of his Anomalies columns revised and adapted for a popular audience. His recurrent theme is that market-based approaches are incomplete: he is quoted as saying "conventional economics assumes that people are highly-rational - super-rational - and unemotional. They can calculate like a computer and have no self-control problems"

Although Adam Smith's thinking has shaped the popular conception of humans as *homo economicus*—a species that makes rational economic decisions—the great economist's lesser-known work, *The Theory of Moral Sentiments*, acknowledges that flawed human psychology affects economic decisions. Yet for a century and a half, few researchers took up this insight.



At a time of financial dynamism and then upheaval in the United States, a handful of economists, including Irving Fisher and Vilfredo Pareto, begin to write about the human factor in economic decision-making.

Maverick psychologist Herbert Simon suggests the concept of "bounded rationality," wherein humans are not perfect processors of information, as classical economics had assumed. Dismissed by many of his peers at the time, Simon later wins a Nobel Prize in economics in 1978.

