NATIONAL SOCIO-ENVIRONMENTAL SYNTHESIS CENTER



This not-in-my-backyard (NIMBY)-style sign opposing wind turbines show how psychology and irrationality combine with self-interest to influence our choices. Photo Credit: Adobe Stock.

Explainer – Classical versus Behavioral Economics: Environmental Applications

By Heidi Scott, SESYNC | August 15, 2023

Overview:

This explainer article pairs with a lesson on behavioral economics, which can be found here: Lesson – Behavioral Economics and Timescale Mismatches. *It will be helpful to read through this explainer article first, before completing the lesson, as it builds foundational understanding of the topic.*

The Fundamentals:

How does human psychology affect our choices of whether to act in pro-environmental ways?

Behavioral economics (BE) is a field that illuminates why people do what they do—which is often not rational in the sense of **neoclassical economics**. The latter assumes actors with ample information will make rational choices that optimize benefits for themselves (self-interests). Behavioral economists have pioneered efforts to influence what people do, including using psychology, irrationality, and subtle forms of influence to "nudge" the public to select more sustainable behaviors. These behaviors encompass every level of environmental impact, from personal decisions—choice of lightbulbs, diet, recycling, thermostats, and modes of transportation—to public support for policy

that funds green infrastructure, climate action, and wildlife preserves. Unlike neoclassical economics, BE invokes powerful counter-examples to show how humans are not bound by reason and can work against their own self-interest, especially in the long term.

Indeed, behavioral economists have shown several areas of human irrationality: we are overconfident of our own abilities; hold a disproportionate aversion to loss as compared to gain; and perceive short-term outcomes as more important than long-term ones (Witynski).

By applying BE to environmental policy, we may gain powerful tools that can seed and sustain widespread pro-environmental behavior. Some of these tools, like changing default settings to more sustainable choices, require little-to-no effort from the public and do not traverse fraught political or ideological lines that might discourage any behavior perceived as environmental. This SESYNC explainer lays out the basics of integrating BE into sustainability research and policy.

Examples of Behavioral Economics-Driven Research Questions:

- Can peer pressure or "social referencing" complement traditional environmental policy tools?
- Can policymakers inspire "bottom-up" or grassroots action to protect a vulnerable resource?
- Can BE help create more effective risk communication about low-probability, high-risk events?
- Can "commitment devices" such as bottle-deposit schemes amplify policy effectiveness as compared to voluntary actions like recycling?
- How do various policies, such as access to national parks based on fees vs. lotteries vs. permits, compare in their effectiveness to inspire environmental choices and foster equality?
- How effective is monetary compensation vs. other incentive types in resolving siting issues for environmental disamenities like landfills, water-treatment facilities, factories, and roads?
- Can preferences for "fairness" affect conservation policies like water use and park access and work to reduce not-in-my-backyard (NIMBY) activism among the environmentally privileged?
- How can psychology inform the framing of information in a way that entices consumers to make sustainable choices, for example, carbon-footprint labeling on consumer products?
- How can framing assist in correcting the human bias to prioritize short-term over long-term benefits and costs?
- Can "green-first" defaults like paperless statements or thermostat settings be an effective means of influencing consumer choices?

(These questions were adapted from OECD's *Behavioral Economics and Environmental Policy Design*, 2012.)

Why Can't Neoclassical Economics Alone Explain Human Choices?

Many environmental policymakers have been frustrated by traditional economic theory's inability to predict human behavior in socio-environmental (S-E) contexts. Neoclassical economics theorizes that humans will act with "rational self-interest" to gain benefits for themselves, often at the cost of others. According to this theory, if we have ample, high-quality information to help us make rational choices, we will act predictably with perfect self-control and with our long-term interests in mind. If this were the case, challenges like regulating our diet and exercise and planning financially for retirement would cease to be challenges; they would be natural consequences of rational self-interest. We would never lose a mortgage payment to a slot machine in Las Vegas.

But, the situation is more complicated, more social, and more psychological. We are a species that is

influenced by impulses, emotions, circumstances, and social environments, and we perceive short-term interests more clearly than long-term investments. This behavioral pattern often holds even when reason clearly prefers a long-term goal supported by a series of disciplined, if not pleasurable, steps to attainment. *Fortunately, we can use our biases, emotions, and social contexts to make pro-environmental choices more enticing if policymakers employ BE in designing their strategies*.

The research questions above begin the work of integrating BE into policy and messaging design. BE can help us improve the effectiveness of environmental messaging, consensus building, and problem and solution framing. It also helps us balance rational self-interest with the parallel human ability to contribute to the greater good by following altruistic and communal principles.

The application of BE to environmental policy includes exciting possibilities, such as:

- Empowering grassroots stakeholders to lead the way in protecting a vulnerable resource and to even find new partners in their activism, such as hunters and birders working together to preserve a migratory pathway from suburban development
- Amplifying the voice of marginalized peoples in helping privileged communities see their responsibility to contribute to environmental solutions and to share burdens
- Reducing environmental impacts from common activities by changing the default to a pro-environmental action (e.g., lower thermostat setting, paperless statements), rather than requiring people to opt in
- Resolving disputes between environmental managers and the public by emphasizing long-term solutions over short-term norms and priorities
- Using social psychology to change people's perception of what's considered "normal" behavior and to inspire the public to mimic environmental trendsetters and early adopters of low-impact solutions.

What Is an Example of BE Applied to Research on S-E Systems?

The use of BE as an explicit tool to hone environmental policy theory is still in its early stages. The field is highly interdisciplinary, involving economics, psychology, political science, and discourse analysis, as well as traditional subfields within environmental science and policy. But researchers are gaining interest in formalizing best practices to integrate BE into S-E policy to resolve policy failures and inefficiencies.

One example is a study by Wilson et al. (2016), which uses BE to assess timescale mismatches in the governance of ecosystems. The researchers established a new typology of six domains of mismatches of increasing complexity among managers, the public, and the ecosystem:

- **Domain 1:** Mismatches between the manager's objectives, actions, and learning
- **Domain 2:** Mismatches between managers acting in the long term on behalf of future generations, against individuals working in the short term guided by self-interest
- **Domain 3:** Mismatches between the manager's domain and ecosystem dynamics
- **Domain 4:** Temporal mismatches among individual actors in the social system: the rates of learning and the rates of taking action
- **Domain 5:** Mismatches between individuals' actions and the timescales of the ecosystem, either acting too quickly in the short term or too slowly in the long term
- **Domain 6:** Mismatches between different elements within the ecosystem, which respond to human actions at different rates; for example, predator-prey populations (Wilson et al. 2016, p.45).

For more depth, see this related SESYNC lesson on Behavioral Economics and Timescale Mismatches in S-E Systems, which uses the Wilson et al. study as the basis for a lesson applied to a S-E case study.

References

- Organisation for Economic Co-operation and Development (OECD). (2012). *Behavioral Economics and Environmental Policy Design*. OECD. https://www.sesync.org/sites/default/files/2026-11/Behavioural_Economics_Environmental_Policy_Design.pdf
- SESYNC. (2023, April 6). *Critical Discourse Analysis Resources*. https://www.sesync.org/resources/critical-discourse-analysis-resources
- SESYNC. (2023, September 29). *Environmental Economics Resources*. https://www.sesync.org/resources/environmental-economics-resources
- Wilson, R.S., Hardisty, D.J., Epanchin-Niell, R.S. et al. (2016). A typology of time-scale mismatches and behavioral interventions to diagnose and solve conservation problems. *Conservation Biology, 30*(1), 42-49. https://doi.org/10.1111/cobi.12632
- Witynski, M. (n.d.). Behavioral Economics, Explained. *University of Chicago News*. https://news.uchicago.edu/explainer/what-is-behavioral-economics

Related SESYNC Content:

- Boyd, J. (2022, March 2). *Explainer – Valuation of Natural Resources and Ecosystem Services: Economic Methods*. SESYNC. https://www.sesync.org/resources/explainer-valuation-natural-resources-and-ecosystem-services-economic-methods
- Boyd, J. (2022, March 1). *Lesson – Economic Valuation of Natural Resources and Ecosystem Services*. SESYNC. https://www.sesync.org/resources/economic-valuation-natural-resources-and-ecosystem-services
- Palmer, M.A. (2023, July 26). *Lesson – Climate Change and Choices: Change Behavior, Mitigate, or Adapt?* SESYNC. https://www.sesync.org/resources/climate-change-and-choices-change-behavior-mitigate-or-adapt
- Palmer, M.A. (2023, July 25). *Lesson – What Influences Pro-Environmental Behavior? Learning from Psychological Research*. SESYNC. https://www.sesync.org/resources/what-influences-pro-environmental-behavior-learning-psychological-research
- Scott, H. (2023, September 5). *Lesson – Behavioral Economics and Timescale Mismatches Applications*. SESYNC. https://www.sesync.org/resources/classical-versus-behavioral-economics-environmental-applications
- SESYNC. (2023, April 6). *Critical Discourse Analysis Resources*. https://www.sesync.org/resources/critical-discourse-analysis-resources
- SESYNC. (2023, September 29). *Environmental Economics Resources*. https://www.sesync.org/resources/environmental-economics-resources

This work was supported by the National Socio-Environmental Synthesis Center (SESYNC) under funding received from the National Science Foundation DBI-1639145.