

Abstract #: 322

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Abstract Text:

The emerging field of neuroeconomics, which utilizes brain imaging to study financial decision-making, has seldom been applied to environmental issues. However, its capacity to explain the neural mechanisms that underlie different decision-making strategies during intertemporal choice, trade-offs between moral and economic values, and the allocation of scarce resources can offer important insights into environmental decision-making. This talk will cover the results of a suite of studies, including neuroimaging using fMRI (functional magnetic resonance imaging), which closely examine individual differences in how consumers respond to the Energy Star label when they purchase energy-efficient appliances. We will also discuss both the strengths and limitations of applying neuroeconomic approaches to environmental decision-making in other contexts, including an fMRI study of valuation of natural resources. In a nationwide stated choice study which examined the appliance purchasing decisions of 1,550 households, we found that individual differences in numeracy (mathematical ability) and pro-environmental attitudes caused significantly differentiated departures from economically rational benchmarks of what individuals should be willing to pay for energy efficiency. In turn, the impact of the Energy Star on this gap between actual and economically rational behavior was different for those with high or low levels of numeracy and environmental concern. The ongoing neuroimaging study examines incentive-compatible light bulb purchases and temporal discounting behavior. This has allowed us to see neural processing strategies unique to more numerate individuals, and how the presence of the Energy Star label alters those strategies in both more numerate individuals, and the broader population.