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What Can Cognitive Science Say or Learn about Economic Crises?

***Magda Osman (m.osman@qmul.ac.uk)**
Experimental Biology and Psychology Centre, Queen Mary University London, London, E14NS, UK

***Björn Meder (meder@mpib-berlin.mpg.de)**
Gerd Gigerenzer (gigerenzer@mpib-berlin.mpg.de)
Center for Adaptive Behavior and Cognition, Max Planck Institute for Human Development, 14195 Berlin, Germany

Nick Chater (nick.chater@wbs.ac.uk)
Daniel Read (daniel.read@wbs.ac.uk)
Warwick Business School, University of Warwick, Coventry, CV4 7AL, UK

Hansjörg Neth (hneth@uni-goettingen.de)
Department of Psychology, University of Göttingen, Gosslerstr. 14, 37073 Göttingen, Germany

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The issue

Economic crises bring to the fore deep issues for the economic profession: why are such crises often not foreseen, and what does this entail for economic theory? In this symposium we also adopt a self-critical analysis, by asking the following: what can the cognitive science community say or learn about cognition and behavior in the context of economic crises? After all, cognitive science shares one of its principle objectives with economics: to investigate and model the principles that underlie and govern human behavior.

Challenges

The current financial crisis presents us with a real-world example of decision making under uncertainty. Cognitive science offers a variety of theories and models, from probabilistic models of cognition (Chater & Oaksford, 2008) to heuristic approaches (Gigerenzer & Gaissmaier, 2011), each designed to describe decision making under uncertainty. Empirically, the extant methods used to examine this question in both economics and psychology involve simple choice tasks (e.g., lotteries and games with well-defined probabilities and outcomes). *But, are the models sufficient to accurately represent uncertainty, and are the tools adequate for the job of capturing decision making under uncertainty?*

Uncertainty can permeate all aspects of a decision problem, from constructing the action space, to inferring probabilities of outcomes and the behavior of other agents in the situation. For instance, politicians need to decide whether to bail out fragile banks and countries under time pressure, with incomplete information about the problem space, and the necessity to manage conflicting goals (e.g., also considering the needs of their won electorate). Turning situations of this kind into lottery type tasks may in fact be a way of translating the unmanageable (uncertainty) into something manageable (risk), but at the same time the evidence may be giving answers to the wrong kind of questions.

Additionally, there is an issue of scalability. Neoclassical economics assumes that macro-level behavior can be deduced from modeling agents as rational, utility-maximizing individuals. While this oversimplification is often recognized by economists, scaling up to the aggregate level is a necessity when having to inform policy decision. The crucial challenge in revising the microfoundations of economic behavior is how we can build more realistic models, which nevertheless can be scaled up to the aggregate level.

Goals of the Symposium

The symposium is themed around the target questions: *What can our community say or learn about cognition and behavior in economic crises?*

For instance, could rational or heuristic models help predicting or preventing crises? Or could the psychology of crowds help to explain economic crises? By bringing together researchers with different research perspectives and methodologies, the key objective is to discuss the challenges that real-world problems such as economic crises present us with, and ways in which cognitive science could possibly inform economic theory and policy making. The symposium will consist of a general introduction (Osman, Meder), four talks (Chater, Gigerenzer, Neth, Read) and a discussion (Meder, Osman) involving all participants.

Nick Chater

Chater's work has explored the fundamental principles of cognition, in particular in contexts in which the cognitive system is faced with uncertain inferences (e.g., learning, decision making, reasoning, perception). Recently, his work also concerns applications to policy making.

Vlaev, I., Kusev, P., Chater, N., Stewart, N., & Aldrovandi, S. (2010). Domain effects and financial risk attitudes. *Risk Analysis*, *30*, 1374–1386.

Chater, N., & Oaksford, M. (2008). *The probabilistic mind: Prospects for Bayesian cognitive science*. Oxford: OUP.

Gerd Gigerenzer

Gigerenzer's core research approach has been to understand decision making from the perspective of bounded rationality. This includes heuristic decision making and the development of effective tools for risk communication, with the goal of helping people to make better decisions in an uncertain world.

Gigerenzer, G., & Gaissmaier, W. (2011). Heuristic decision making. *Annual Review of Psychology*, *62*, 451–482.

Gigerenzer, G., & Selten, R. (Eds.). (2001). *Bounded rationality: The adaptive toolbox*. Cambridge, MA: MIT Press.

Björn Meder

Much of Meder's work has been concerned with the connections between causal induction and decision making. His recent research focuses on information search, economic psychology, and alternative frameworks of rationality.

Meder, B., Hagmayer, Y., & Waldmann, M. R. (2008). Inferring interventional predictions from observational learning data. *Psychonomic Bulletin & Review*, *15*, 75–80.

Meder, B., Nelson, J. D. (2012). Information search with situation-specific reward functions. *Judgment and Decision Making*, *7*, 119-148.

Hansjörg Neth

Do people allocate their resources (time, information processing effort) adaptively when facing tasks that vary in their demands and complexity? Neth's empirical work has examined task switching behavior and simple satisficing strategies in cognitive foraging tasks, consumer choice, and financial decision making.

Neth, H., Khemlani, S. S., & Gray, W. D. (2008). Feedback design for the control of a dynamic multitasking system: Dissociating outcome feedback from control feedback. *Human Factors*, *50*, 643–651.

Payne, S. J., Duggan, G. B., & Neth, H. (2007). Discretionary task interleaving: Heuristics for time allocation in cognitive foraging. *Journal of Experimental Psychology: General*, *136*, 370–388.

Magda Osman

Osman's work explores dynamic decision making and shows that people are sensitive to underlying differences in the stability of the environment when tasked with controlling uncertainty in micro-world dynamic environments.

Osman, M. (2010). Controlling uncertainty: A review of human behavior in complex dynamic environments. *Psychological Bulletin*, *136*, 65–86.

Osman, M., & Speekenbrink, M. (2011). Information sampling and strategy development in complex dynamic control environments. *Cognitive Systems Research*, *12*, 355–364.

Daniel Read

Within the domain of judgment and decision making, Read has studied a variety of behaviors including seeking (how consumers choose to diversify consumption), intertemporal choice (how people trade off current and future consumption), and decision making under risk.

Read, D. (2007). Time and the marketplace. *Marketing Theory, 7*, 59–74.

Read, D. (2007). Utility theory from Jeremy Bentham to Daniel Kahneman. *Thinking and Reasoning, 13,* 45–61.