

On the Applications of Neuroeconomics¹

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Welcome to Claremont Graduate University, to the conference on “Neuroeconomics of Impaired Decision Making,” and to the formal launch of the laboratory of the Center for Neuroeconomics Studies.

Your field is exciting and important. In theoretical terms, neuroeconomics helps us understand an old conundrum—are people completely rational, or are they satisficers limited by their cognitive powers and the world’s complexities? Neuroeconomics is suggesting that such a binary take on decisionmakers is incomplete. Behavioral heterogeneity lurks, indeed barely lurks—a discomfort to one of economics’ most cherished ideas, that we’re all the same except for our information and our settings.

One recent paper finds that people making decisions seem to fall into one of three categories.³ Which one are you?

The first group is called “near rationalist.” Sounds good, no? This group does only about 2 percent worse than optimal decisions, even in a complicated dynamic stochastic decision problem and after only a half hour’s practice. About a third of the subjects are classified as “near rationalist.”

What about the rest? Somewhat over a third are what Houser, Keane, and McCabe call “fatalists.” Fatalists attach too much significance to the luck of the draw. They lose about 12 percent compared to optimal choices.

The third category contains a bit under a third of the subjects. This category sounds familiar to me as a participant in many dynamic stochastic situations. These subjects are not near rationalists and not fatalists. Houser, Keane, and McCabe call them “confused.” The confused tend to become overconfident and then to forget about the investment value of some choices. Sound familiar? This group loses an average of 19 percent.

¹ Introductory Remarks to the Conference “Neuroeconomics of Impaired Decision Making,” Claremont Graduate University, April 21, 2006.

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³ Houser, Daniel, Michael Keane, and Kevin McCabe, “Behavior in a Dynamic Decision Problem: An Analysis of Experimental Evidence Using a Bayesian Type Classification Algorithm,” *Econometrica*, 72(3), 2004, pp. 781-822. <http://www.neuroeconomics.net/pdf/materials/440.pdf>

Heterogeneity may matter for understanding behavior. It may also matter for improving it, and here is where I hope neuroeconomics will make large contributions over the next decade. Already we have seen neuroeconomics add to our understanding of acquiring rewards and avoiding losses, learning, choices under uncertainty, delay of gratification, strategic behavior, and emotions. Neuroeconomic approaches have been applied to areas as diverse as proving guilt beyond a reasonable doubt and analyzing communications services demand.

Some of the most promising work is in the study of addiction. The findings contravene much earlier thinking. Addiction is a mistake, in the sense of being a divergence between what people want and what they do. Cues are crucial. Addiction sensitizes people to certain cues, which trigger mistakes. So, responses to efforts to reduce drug use, such as higher prices or particular treatments, depend hugely on cues and the addict's current state of mind (what addiction researchers are calling hot vs. cold decision making). Similar insights may apply to behavior that is similar to addition, such as people who shop too much or eat too much or, dare I say it, study too much. These ideas may also apply in a more positive vein. What cues and framing techniques might help us be more creative, kinder, or more open to people and ideas? Neuroeconomics and positive psychology may usefully interact.

Even more broadly, neuroeconomics may provide a foundation for new approaches to welfare economics and public finance. Neuroeconomics may improve our understanding of public policies, including how to take heterogeneity into account. For example, we may develop a better understanding of how policies can provide or suppress cues, or of how policies can alter the way an issue is framed.

Thus, neuroeconomics crosses the boundaries not just of biology and economics, but also psychology, political science, sociology, management, religion, and—who knows when we are talking about cues and framing—even the arts and humanities.

For this reason it is especially appropriate to have the Center of Neuroeconomics Studies at Claremont Graduate University. This is a university that champions “transdisciplinarity.” For example, all our doctoral students take a second-year research course called the t-course, for transdisciplinary, where together students from 21 doctoral fields consider together how their research tools and approaches might help unlock theoretical and practical problems. CGU is an intimate environment, where conviviality and collaboration have perhaps surprisingly in academia become part of the culture.

Paul, do you think you could do a study of the oxytocin levels of the professoriate here?

This is an environment where someone like Paul Zak, well trained and published in various areas of macroeconomics, institutional economics, and international finance, can wander into neuroeconomics, collaborate with professors around the Claremont

consortium, and create a Center for Neuroeconomics Studies. I don't know if this decision making by Paul and his colleagues should be called near rationalist or not. Perhaps we have to consider a new category of decision making, one where sheer curiosity and love of knowledge are combined in a convivial setting.

And it is to this convivial setting that I welcome you this morning. I hope together you can chart new research directions that will help us understand human heterogeneity and deal better with our problems of individual and social choice.