

**PHD THESIS SUMMARY:
Kahneman and Tversky
and the making of behavioral economics.**

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The twofold aim of this thesis is to understand Daniel Kahneman's and Amos Tversky's research, and to understand how this research has altered economics in fundamental ways. I frame my historical analysis in terms of Peter Galison's disunity concept. Galison uses the notion of the disunity of science to capture the idea that sciences and scientific practices may be separate and different, but at the same time be communicating and mutually influencing each other.

I start by discussing the work of the mathematical psychologists and behavioral decision researchers at the University of Michigan in the 1950s and 1960s. I argue that the key to understanding mathematical psychology and behavioral decision research is to see that, although largely separated and focused on different questions, both presumed the same two-sided understanding of psychology. In order to measure, one needed a sound theory of the measurement instrument, which was the human decision maker.

This double understanding of psychology as using a measurement instrument to investigate that same measurement instrument became problematic when it turned out that the measurement instrument did not behave as it should. That was the problem Tversky struggled with. Tversky had to choose between declaring the experimental results invalid and saying that the received theory of the measurement instrument was incorrect.

Kahneman came to the rescue by suggesting that the human decision maker systematically and predictably deviates from how it should behave. Thus, the experimental results could be accepted, while at the same time the axioms of the measurement theory could be maintained. It did, however, give psychology the new task of investigating how and when human decision makers deviate from how

they should behave. That new task was the basis of Kahneman and Tversky's collaborative research of the 1970s.

Tversky was educated at and received his PhD in the early 1960s from the University of Michigan under the supervision of Clyde Coombs and Ward Edwards. Tversky's research embodied the synthesis of mathematical psychology and behavioral decision research. Towards the late 1960s, however, Tversky increasingly struggled with the tension between Leonard Savage's a priori axioms of decision theory and the behavioral deviations he observed in his experiments. Kahneman, for his part, came from a very different background. Strongly influenced by his experience as a psychologist in the Israeli army, Kahneman's different research interests focused on humans' cognitive mistakes. Kahneman showed that despite the fact that we think we do cognitively quite well in the course of our daily lives; in fact, we constantly make systematic cognitive mistakes.

In 1969 Kahneman and Tversky started their long and fruitful collaboration. I discuss Kahneman and Tversky's research of the 1970s and show how in 1979 their research culminated in prospect theory, a theory which describes actual human decision behavior as a systematic deviation from the normative rules. Kahneman and Tversky considered prospect theory applicable to both economists' and psychologists' use of expected utility theory. The paper was published in *Econometrica* and argued that cognitive psychology and economics were unified in one field of behavioral science.

Subsequently, I investigate how economists responded to Kahneman and Tversky's understanding of experimental violations of expected utility theory and their descriptive alternative, prospect theory. I argue that there were two main responses, each with their own history. Experimental economists such as Vernon Smith corroborated and accepted the experimental results, but rejected all preference theories as a solution, including expected utility theory *and* prospect theory. In addition, experimental economists inferred that the experimental deviations further emphasized the importance of the market as the mechanism that over time drives the economy to a rational equilibrium.

Financial economists, such as Richard Thaler, also accepted the experimental results, but instead they took it as proof of the observed irrationalities in financial markets. In addition, financial economists hailed Kahneman and Tversky and prospect theory as being the most important, if not the only claimant to a solution to the problem. The use

of prospect theory in financial economics led to the new field of behavioral finance. The reason for prospect theory's swift success was that it offered financial economists an elegant way out of their problems. The normative-descriptive distinction ensured that traditional neoclassical models could be maintained as the normative theory, while at the same time it offered a descriptive alternative that was only slightly different from previously-used theories and hence easy to learn by economists.

In the late 1980s and early 1990s, Thaler also started applying the behavioral finance approach to problems outside the field of financial economics. The new field grew quickly and in 1994 it was officially termed *behavioral economics*. Once the traditional economic theories were saved in the normative realm and new theories could be developed under the rubric of descriptive theory, a surge of exploration ensued. Gradually the labels of normative and descriptive were replaced by full rationality and bounded rationality, which in turn allowed the behavioral economists to develop their own view of economic policy advice under the label of paternalism. These developments contributed to the gradual emergence of behavioral economics as a stable and clearly defined mainstream economic program. As a result, it also brought to the fore how behavioral economists saw their program as being different from other economic programs and disciplines. Behavioral economists began to distinguish their program, in particular from psychology and experimental economics.

The history discussed in this thesis shows how economists have actively used psychology to redefine economics. The flow of theories, methods, and experimental results from psychology to economics was not a neutral process that left these theories, methods and experimental results unaffected. Instead, they lost some of their psychological connotations and gained new economic connotations. What is particularly illustrative in this regard are the two cases of experimental and behavioral economics, which both added different new economic connotations to the theories, methods, and experimental results drawn from psychology to redefine economics in their own ways. Thus, as I argue in this final chapter, this thesis not only shows that the theories, methods, and experimental results that travelled from psychology to economic have not been stable entities, but it also shows that the definition of economics has not been constant. Therefore, the history of

economics and psychology can only be understood by recognizing economics and psychology as disunified cultures.

Floris Heukelom obtained his PhD from the Amsterdam School of Economics in May 2009, under the supervision of John B. Davis (Amsterdam School of Economics) and Harro Maas (Amsterdam School of Economics). The author is currently assistant professor of economics at Radboud University Nijmegen, The Netherlands.

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