



## Department of Economics – Neuroeconomics Seminar

**May 27, 2021 - 17:00 - 18:00**

Ariel Zylberberg  
*University of Rochester*

### **The construction of preferences during deliberation leading to a decision**

An intriguing aspect of the decision-making process is its stochastic nature. Even for nominally identical decisions, people do not always choose the same option, and response times can vary by several hundred milliseconds. For some perceptual decisions, the link between stochastic choice and time is mediated by a sequential sampling process. Multiple samples of noisy evidence are integrated over time before making a choice. Similar explanations have been given for decisions based on internal preferences (e.g., which food snack to buy). The extrapolation from perceptual to value-based decisions, however, implies that each alternative has a fixed desirability (a 'true' value), and that, at any moment in time, the decision maker can only access a noisy rendering of this value. Unlike perceptual decisions, for value-based decisions the noise has no clear psychological or neural basis. I will talk about an alternative mechanism to resolve preferential choices that relies on memory-based deliberation. The theory posits that the alternatives are compared along different dimensions (e.g., tastiness, caloric-content, etc.). The comparison is serial: only one dimension can be evaluated at a time. The dimensions of comparison may be influenced by the juxtaposition of the items under consideration as well as other sources (e.g., the relevance of a dimension to resolve past choices). The comparisons provide evidence for and against the alternatives. Individual samples are not noisy, but can provide more or less compelling evidence for and against an alternative. The decision terminates when the accumulated evidence for one of the alternatives exceeds a threshold. The implications of the theory were explored in two experiments. In one, people had to make decisions between pairs of food snacks. The preference for the different options revealed by people's choices changed rapidly, during the course of an experimental session. The changes were more pronounced for decisions that were made quickly or with high confidence. This is compatible with the idea that deliberation can change the way a decision maker thinks about an option. In a second experiment, we tested and confirmed the assumption of seriality in the evaluation of the different attributes of a stimulus. Our results support models in which preferences are not simply retrieved, but are also constructed during deliberation, possibly by sequentially comparing alternatives along different dimensions.