

## **Archetypes and Polytypes in Decisions under Uncertainty**

### **Abstract**

We generate and analyze data from experiments that provide a positive account of choice under uncertainty in a choice environment that allows for a general characterization of the patterns of individual behavior. Subjects see on a computer screen a geometrical representation of a portfolio choice problem involving two or three risky assets. Subjects choose portfolios through a simple point-and-click design. This intuitive and user-friendly interface allows for the quick and efficient elicitation of many decisions per subject under a wide range of choice scenarios.

Previous data (Choi, et al. 2007) show that although there is considerably heterogeneity in choice behavior, subjects' behavior is consistent in the sense that choices "maximize" a consistent set of preferences. Thus, one approach is to posit the preference ordering implied by substantive rationality and go no further in attempting to rationalize the data. The second striking fact is that subjects use identifiable common heuristics ("rules of thumb") to make their decisions. This leads us to investigate an alternative approach, one that emphasizes procedural rationality, that is, how individuals come to make decisions that are consistent with an underlying preference ordering.

Whether we treat individuals as substantively or procedurally rational has immensely important consequences. If individuals are procedurally rational, then we can no longer use revealed preference techniques to recover their true underlying preferences directly from observed choices. Instead, we need theory that provides a unified account of both procedural and substantive rationality so that we can infer preferences indirectly. If the revealed preference ordering is not the true, underlying preference ordering, then positive predictions and welfare conclusions based on the "revealed" preferences will be misleading.